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Ed. 00

OfficeServ 7400

Service Manual

SAMSUNG ELECTRONICS

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INTRODUCTION

Purpose

This manual introduces the overview and the specification of the OfficeServ 7400 system; and the troubleshooting of the troubles that can occur while using the system and the programming methods for the system maintenance.

Audience

This manual is intended for the service engineers who perform the troubleshooting of the OfficeServ 7400 System.

Document Content and Organization

This manual is composed of seven chapters and the abbreviations, which can be summarized as follows:

CHAPTER 1. Introduction to System describes:

The main functions, the configuration, and the specifications of OfficeServ 7400 System.

CHAPTER 2. Inside the Circuit describes:

The configurations and the features by each module in OfficeServ 7400 System.

CHAPTER 3. Troubleshooting describes:

The troubles and their troubleshootings that can occur while using OfficeServ 7400 System.

CHAPTER 4. Maintenance Programming describes:

The smart media, the Complex Programmable Logic Devices(CPLD), and the offline programming method for maintaining the OfficeServ 7400 System.

CHAPTER 5. Parts Layout provides:

The parts layout of OfficeServ 7400 System.
Index provides main searching keywords to be found.

CHAPTER 6. Parts Lists provides:

The overall part lists of the OfficeServ 7400 System.

CHAPTER 7. System Parts Diagram provides:

The apparatus drawing and part list of each apparatus in OfficeServ 7400 System.

ABBREVIATION

The abbreviations and the explanations to the abbreviations frequently used in this manual.

Conventions

The following types of paragraphs contain special information that must be carefully read and thoroughly understood. Such information may or may not be enclosed in a rectangular box, separating it from the main text, but is always preceded by an icon and/or a bold title.

WARNING

Provides information or instructions that the reader should follow in order to avoid personal injury or fatality.

CAUTION

Provides information or instructions that the reader should follow in order to avoid a service failure or damage to the system.

CHECKPOINT

Provides the operator with checkpoints for stable system operation.

NOTE

Indicates additional information as a reference.

Console Screen Output

- The lined box with '`Courier New`' font will be used to distinguish between the main content and console output screen text.
- '**`Bold Courier New`**' font will indicate the value entered by the operator on the console screen.

Reference

OfficeServ 7400 System Manual

The OfficeServ 7400, and the system information necessary for understanding the system such as the configuration, the specification, and the functions of the hardware.

OfficeServ 7400 Installation Guide

The conditions necessary for the installation of the system, the installing methods of the system, and the checking and operating methods of the system.

OfficeServ 7400 Call Server Programming Guide

The methods of using the Man Machine Communication(MMC) that changes the system setup by using the phone.

OfficeServ 7400 Data Server User Guide

The introduction to Data Server, which is the OfficeServ 7400 application software, and its installation procedure and the usages.

Revision History

EDITION	DATE OF ISSUE	REMARKS
00	12. 2005.	First Edition

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SAFETY CONCERNS

For product safety and correct operation, the following information must be given to the operator/user and shall be read before the installation and operation.

Symbols

Caution

Indication of a general caution

Restriction

Indication for prohibiting an action for a product

Instruction

Indication for commanding a specifically required action

WARNING

After Troubleshooting the Products

Be careful so that the metal alien substances are not inserted into the products after repairing the products. If the alien materials are removed, it can be the cause of fire, or of the damage to the parts.

Before Troubleshooting

Be sure to disconnect the connected cable when performing the troubleshooting. Failure to do so can be the cause of fire or electric shock.

CAUTION

Caution when Assembling

Be careful so that there should be no gaps between the housing and the base in the fully-assembled status by connecting the various connectors and the screws after repairing. The gaps can be the cause of the product's abnormal operation.

Caution in the Storing the Boards

Be sure not to place the boards on the place where there are metals or the conductive substances. Placing the boards on the place where there are the metals or the conductive substances can be the cause of the damage to the boards.

Use of the Standardized Parts when Reparing

Use the rated standard parts when reparing the products. Failure to do so can be the cause of the abnormal operation of the products.

Caution when Using the Smart Media Card

Use only the smart media card that is provided when purchasing the system.
If there a damage occurs in the system because of using the other products, its blame is not to be shifted to Samsung Electronics Co. Ltd. and also the after-sales services are not provided.

Caution when Connecting the PC and the Target Board

Be sure to connect the PC and the target board only when the power is off.
If connected when the power is supplied, the parallel port of the PC of the target board can be damaged.

Caution when Handling the Electric Parts

Put on the wrist band for preventing the static electricity so that the parts are not damaged by the static electricity.

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CHAPTER 1. Introduction to System

This chapter describes the main functions, the configuration, and the specification of the OfficeServ 7400 System.

1.1 Main Functions

OfficeServ 7400 is the communication product that is the most suitable for middle and small sized offices using the line of less than 500 subscribers. The OfficeSErv 7400 provides the integrated functions of the voice, the data, and the internet.
OfficeServ 7400 provides the data transmission/reception function using the data network as well as the voice call functions. The users can use conveniently the various telephone functions and the applications in the various platforms(Digital Phone, IP Phone, Mobile Phone, and Server, etc).

The main functions of the OfficeServ 7400 System are as follows:

Integrated Communication Environment

OfficeServ 7400 provides the data transmission service using the modules of Local Area Network(LAN) and Wide Area Network(WAN) as well as the voice call functions.
The users can perform the convenient communication by using the integrated platform of the wired and the wireless(Phone, PC, Serve, Wireless Phone, Peripherals) functions.

Next Generation Platform

OfficeServ 7400 provides the pure IP solution that combines the functions of the mail server, the Session Initiation Protocol(SIP) server, Voice over IP Unified Messaging Service(VoIP UMS) via the feature server based on IP.
The feature server based on IP, which is a Linux platform, can add constantly the feature server modules that are to be provided afterwards.

IP Phone Functions of High Voice Quality

OfficeServ 7400 separates the data packet and the voice packet into the priority and the grouping to secure the Quality of Service as follows:.

- Layer 2 QoS: Priority Processing(802.1p), VLAN(802.1q)
- Layer 3 QoS: CBQ(Class Based Queuing), RTP(Real-time Transmission Protocol) Priority Queuing, On-Demand Bandwidth Control for WAN

WAN/LAN Function

OfficeServ 7400 has the interface module with WAN and LAN mounted so that the data can be transmitted/received in the external internet or the internal intranet with no additional data device.(10/100 BASE-T or 1000 BASE-TX/SX/LX interface used)

Wireless LAN Service

OfficeServ 7400 provides the wireless LAN solution for the combined services of the wired and the wireless in the office zone. It supports the handoff and the QoS by using the Combo AP(Access Point) that performs the service with the separation of the data and the voice. In addition, OfficeServ 7400 uses the wireless LAN base station to use the wired and wireless voice/data communication with no additional LAN construction. In addition, it provides the business environment where the staff can perform their efficient and prompt businesses anytime anywhere by using the portable terminal of the refined design.

Text-To Speech (TTS) Response Functions

OfficeServ 7400 provides the TTS response functions that converges the character messages(e-mail) into the voice message to be heard via the phone.

Mail Server and Instant Messaging

OfficeServ 7400 provides the e-mail server and the instant message transmission/reception function that combines the voice message and the e-mail to converge or to retransmit them for the users' convenience.

Various Application Solutions

OfficeServ 7400 provides the various application solutions such as OfficeServ News, OfficeServ EasySet, Internet Call Center, Integrated Management of the Communication System, Voice Mail Solution of the Built-in Board type, the integrated fax server, Closely-Combined Digital Record System, etc.


NOTE

Integration(Close Combination) and the Application Solution

- Integration(Close Combination, integration) means the operation in one integrated function by the mutual interface between the OfficeServ 7400 System and the external solution server.
- Refer to the user manuals of each application solution for the detailed methods of each solution.

Installation Convenience and Extensibility

OfficeServ 7400 can install conveniently the basic cabinet and the extended cabinet in the mode of mounting them inside the 19-inch rack, and several boards can be installed in the universal slot.

Integration of Various Terminals and Additional Devices

OfficeServ 7400 provides the efficient and various services by connecting the various terminals and the additional devices.

Convenient Maintenance

The system functions can be conveniently used by using the functions as follows:

- PC(PCMMC) for programs
  The PC for programming is the PC used in the maintenance of the.The various information of the system can be retrieved, changed, and controlled by using the menus in the PC for programming.
- Web Management Program
  The Web Management Program is the one used in the maintenance of the OfficeServ 7400 System. The various information of the system can be retrieved, changed, and controlled by using the web menus.

1.2 System Configuration

This section introduces the configurations of the front and the rear view of OfficeServ 7400 cabinet and the slot configuration information.

1.2.1 Front View

OfficeServ 7400 is composed of three cabinets(basic/Extended) mounted on the rack 19 inch wide and the function server that operates outside.
MP40, the main control block, is installed on the basic cabinet to control generally the OfficeServ 7400, and performs the functions of the switching, call processing, the subscriber management. LP40, the main control block, is installed on the basic/extended cabinet to control the various line boards, and transceives the information to MP40.
Besides, the various line boards, the power, and the fans are also the components of the OfficeServ 7400.

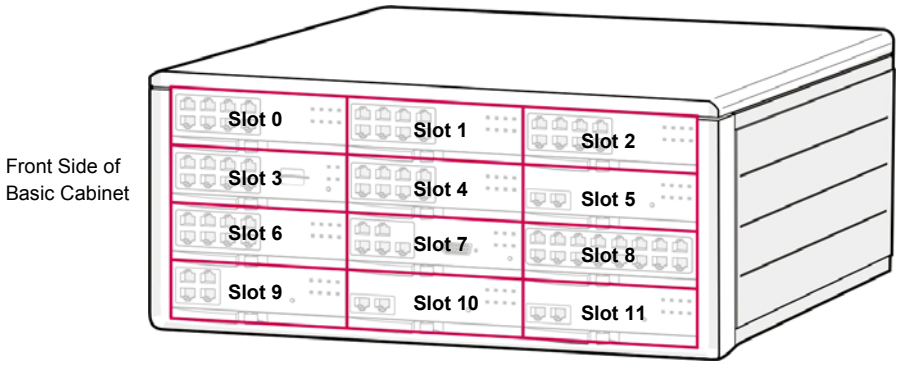

Figure 1.1 Front Side of the OfficeServ 7400 Cabinet

There are 12 slots each in the basic cabinet and the extended cabinet where the boards can be mounted.
Each slot mounts the following boards according to the configuration types of OfficeServ 7400.

Table 1.1 Boards Mountable on Slots

Cabinet	Slots	Mountable Boards
Basic Cabinets (OfficeServ Access)	Slot 0	Exclusively Used for LP40
	Slot 3	Exclusively Used for MP40
	Slot 1, 2 Slot 4~11	Board excluding MP40, LP40
Extended Cabinet (OfficeServ Expansion)	Slot 0	Exclusively Used for LP40
	Slot 1~11	Boards excluding MP40 LP40

NOTE

Blank Board Functions

Blank Board is the dummy board that performs the screen of sheltering the infiltration of the alien materials into the system when the board is not mounted on the universal slot.

1.2.2 Rear Side

The rear side configuration of OfficeServ 7400 is shown below:

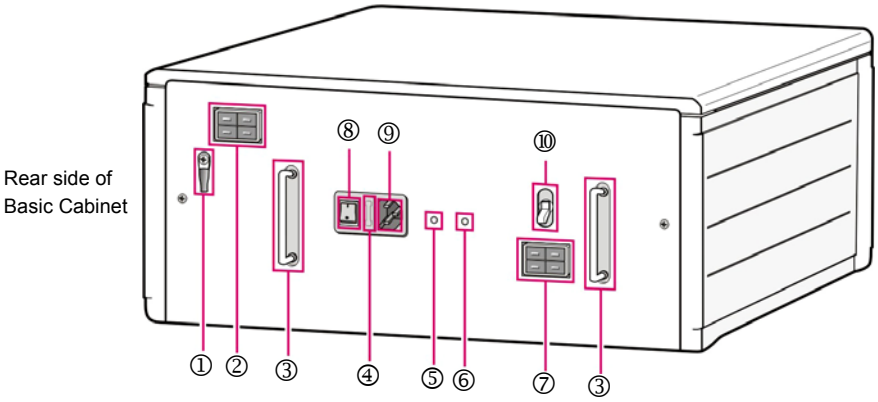

Figure 1.2 Rear Side of the OfficeServ 7400

Table 1.2 Rear Side configuration of the OfficeServ 7400

Rear Side Configuration of Cabinet	Functions
① Ground Lug	Lug for grounding the system Communication
② External Rectifier Socket	External DC Power Supply Socket for Power over Ethernet(PoE)
③ Holders for mounting/demounting the Power modules	Holders Used when the Power modules are mounted or demounted.
④ Fuse Holder	Fuse for Protecting the AC input Power.
⑤ AC LED	Turns on when the AC Power in applied.
⑥ DC LED	Turns on when the DC Power is normally supplied.
⑦ Battery Connection Socket	Socket Connecting the external battery.
⑧ Power Switch	Turns on or off the Power of OfficeServ 7400.
⑨ Power Input/Output Connecter	Connecter for Connecting the Power Cable.
⑩ Battery Switch	Turnned on when the battery Power is supplied to the OfficeServ 7400 or Charged OfficeServ 7400.

1.3 System Specifications

This section describes the capacity, the various signal specifications, the power specifications, the ring and the signal tones, the switchable boards and terminals, and the apparatus specifications.

1.3.1 System Capacity

OfficeServ 7400 System can operate up to 1344 lines, and the line rate of the internal and the trunk can be adjusted according to the operator's demand. The following table shows the arrangement of the maximum line capacity that can be accommodated in OfficeServ 7400.

Table 1.3 Capacity of the OfficeServ 7400 System

System Configuration	Maximum Accommodation Lines
Basic Cabinet	- E1 Used: 600 - 8TRK Used: 80 - Internal Line Used: 160 - Maximum Used: 320(Voice) - LAN Switch Used: 176 - Internal Power of the Physical Layer Interface Module(PLIM) Used: 32 - Very high-Data rate digital Subscriber Line(VDSL) Used: 20 - WLAN Terminal or IP Phone Phone terminal: 640 - SVMi-20E: One board Per 12(20) System - Dual Tone Multi Frequency(DTMF): Two boards Per 12 System - RCM(R2 CID Module): Up to Two Per R2(8) or CID(14) System(Only the trunk Line supported) - RCM2: R2(8) or CID(Caller Identification)(14) Up to two Per System R2(4)/CID(6)(Bot hof trunk Line and the internal Line simultaneously supported) - CRM(Common Resource Module): DTMF(20)/R2(16)/CID(16) Up to two Per system
Basic Cabinet + Extended Cabinet 1	- When E1 Used: 930 - When 8TRK Used: 168 - When the internal Line Used: 336 - When maximum Used: 672(Voice) - When LAN switch Used: 352 - When the internal Power of PLIM Used: 64 - When VDSL Used: 40 - WLAN terminal or IP Phone: 992 - DTMF: Four Per 12 System - RCM: Up to four Per R2(8) or CID(14) System(Only the trunk Line is supported) - RCM2: Up to four Per R2(8) or CID(14) system R2(4)/CID(6)(Both of th trunk Line and the internal Line simultaneously supported) - CRM: Up to four Per DTMF(20)/R2(16)/CID(16) System

Table 1.3 Capacity of the OfficeServ 7400 System (Continued)

System Configuration	Maximum Accommodation Lines
Basic Cabinet + Extended Cabinet 1 + Extended Cabinet 2	- When E1 Used: 1260 - When 8TRK Used: 256 - When the internal Line Used: 512 - When maximum Used: 1024(Voice) - When LAN switch Used: 528 - When the internal Power of PLIM Used: 96 - When VDSL terminal Used: 60 - WLAN terminal or IP Phone: 1344 - DTMF: Six Per 12 System - RCM: Up to six Per R2(8) or CID(14) System (Only the trunk Line is supported) - RCM2: Up to Six Per R2(8) or CID(14) system R2(4)/CID(6)(Both of the trunk Line and the internal Line simultaneously supported) - CRM: Up to six Per DTMF(20)/R2(16)/CID(16) system

Trunk Line Capacity

The maximum capacity of the trunk lines that can be accommodated according to the configuration of OfficeServ 7400.

Table 1.4 Trunk Line Capacity

System Configuration	Analog	Digital		
	LOOP TRK	T1 TRK	E1 TRK	PRI TRK
Basic Cabinet	80	480	600	T1: 480 E1: 600
Basic Cabinet + Extended Cabinet 1	168	744	930	T1: 744 E1: 930
Basic Cabinet + Extended Cabinet 1+ Extended Cabinet 2	256	1008	1260	T1: 1008 E1: 1260

Internal Line Capacity

The maximum capacity that can accommodate the general phones and the digital phones according to the configuration of OfficeServ 7400.

Table 1.5 Internal Line Capacity

System Configuration	General Phones	Digital Phones
Basic Cabinet	160	160(DS-5012L: 73)
Basic Cabinet + Extended Cabinet 1	336	336(DS-5012L: 146)
Basic Cabinet + Extended Cabinet 1 + Extended Cabinet 2	512	512(DS-5012L: 219)

Channel Numbers

The channel number of OfficeServ 7400 by each slot and the channel number of CID Receiver and DTMF Receiver are as follows:

Table 1.6 Channel Capacity by Slots

Classification	Slots	Channel Number
Basic Cabinet	Slot 1, 2, 4, 5, 6, 7, 8, 9, 10, 11	64
Extended Cabinet	Slot 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	32
CID Receiver	Based on Basic Cabinet	32
DTMF Receiver	Based on Basic Cabinet	48

1.3.2 Electrical Specifications

The signal processing protocol is the one that provides the signal method for the connection of the trunk line/internal line and the status information.

Signaling Method of the Loop Start Trunk Line

The loop start signal processing controls the statuses of the on-hook and the off-hook by the electric flow. The loop is the closed loop trunk circuit or the standard 2500- typed set loop.

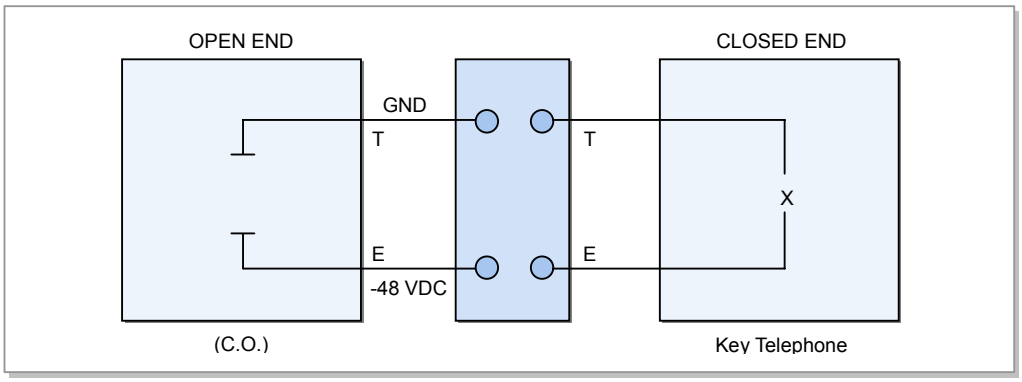

Figure 1.3 Signaling Method of the Trunk Line Start

Signaling Method of the T1 Trunk Line

The electric characteristics of the T1 trunk line follows the standards of ITU G.703 and G.704.

Table 1.7 Electric Characteristics of the T1 Trunk Line

Items		Specifications
Transmission Speed		1544 kbit/s ±50 Ppm
Code		AMI(Alternate Mark Inversion) or B8ZS(Bipolar 8-Zero Substitution)
Pulse Type		Regular square wave: Valid signals are displayed in accordance with the mask(G.703) irrespective of Codes.
Transmission Media		A twisted Pair
Load Resistance		100 Ω
Display(Pulse) Nominal Peak Voltage		3.00 V
Signal Level	Electric Power at 772 kHz	±12~±19 dBm
	Electric Power at 1544 kHz	25 dB or more at the electric Power of 772 kHz or Less

Signaling Method of the E1 Trunk Line

The electric characteristics of the E1 Trunk line follows the standards of the ITU G.703 and G.704

Table 1.8 Electric Characteristics of the E1 Trunk Line

Items	Specifications
Transmission Speed	2048 kbit/s ±50 Ppm
Code	HDB3(High Density Bipolar of order 3)
Pulse Type	Regular Square Wave: Valid signals are displayed in accordance with the mask(G.703) irrespective of Codes.
Nominal Value and Pulse	244 ns
Jitter in the I/O Ports	Refer to G.823
Transmission Media	A twisted Pair
Load Resistance	120 Ω
Display(Pulse) Nominal Peak Voltage	3.00 V
Blank(Non-Pulse) Peak Voltage	0 ±0.300 V

Signaling Method of the Integrated Service Digital Network (ISDN) Interface Transmission

The electric characteristics of the ISDN(PRI) interface follows the standards of the ITU(International Telecommunication Union) I.431 and the ETS(Educational Testing Service) 300 011.

Table 1.9 Electric Characteristics of the Primary Rate Interface (PRI) Trunk Line

Items	Specifications
Transmission Speed	2048 kbits/s ±50 Ppm
Code	HDB3(High Density Bipolar of Order 3)
Pulse Type	Regular Square Wave: Valid signals are displayed in accordance with mask(I.403) irrespective of Codes.
Nominal Value and Pulse	244 ns
Transmission Media	A twisted Pair
Load Resistance	120 Ω
Display(Pulse) Nominal Peak Value	3.00 V
Blank(Non-Pulse) Peak Voltage	0 ±0.300 V

The electric characteristics of the Digital Line Interface are as follows:

Table 1.10 Electric Characteristics of the Data Link Interface (DLI) Line

Items	Specifications
Transmission Speed	384 kbits/s
Code	AMI
Pulse Type	Typical AMI Waveform

Electric Characteristics of the Gigabit WAN Interface Module (GWIM) Interface

The electric characteristics in case of using the V.35 Interface are as follows:

Table 1.11 Electric characteristics of the GWIM Interface (V.35 Interface)

Items	Specifications
Maximum Transmission Speed	10 Mbit/s
Transmission Code	V.35 Driver
Number of the Transmission Lines	18 EA
Characteristics Resistance	100 Ω
Display(Pulse) Nominal Peak Voltage	±2 V
Input Differential Threshold	±80 mV

The electric characteristics in case of using the RS-232C(V.28) Interface are as follows:

Table 1.12 Electric Characteristics of the GWIM Interface (RS-232C Interface)

Items	Specifications
Maximum Transmission Speed	230 kbits/s
Transmission	V.28 Driver
Number of Transmission Lines	14 EA
Display(Pulse) Nominal Peak Voltage	±15 V
Input Threshold	+1.2 -1.7 V

The electric characteristics in case of using the High-Speed Serial Interface(HSSI) Interface are as follows:

Table 1.13 Electric Characteristics of the GWIM Interface (HSSI Interface)

Items	Specifications
Maximum Transmission Speed	50 Mbit/s
Transmission Code	HSSI Driver
Number of Transmission Lines	50 EA
Characteristics Resistance	110 Ω
Display(Pulse) Nominal Peak Voltage	±1 V
Input Threshold	±0.15 V

Signaling Method of LAN

10 BASE-T follows the standards of the Institute of Electrical and Electronic Engineers(IEEE) 802.3, and its electric characteristics are as follows:

Table 1.14 Electric Characteristics of the LAN Interface (10 BASE-T)

Items	Specifications
Transmission Speed	10 Mpbs
Transmission Code	Manchester Coding(Coding method that when the transmission data are 0 the Convergsion from the high into the Low in the Center of the bit is made and that when the transmission data are 1 the inversion from the Low Level into the high Level at the Center of the bit is made)
Access Control Method	CSMA/CD(Carrier Sense Multiple Access/Collision Detect)
Transmission Media	UTP(Unshielded Twisted Pair) CAT3 CAT4 CAT5 STP(Shielded Twisted Pair)
Number of UTP Pair	2 Pairs
Characteristics Resistance	100 Ω
Cable Thickness	Radius 0.51 mm(24 AWG) Outer Radius 5 mm

100 BASE-TX follows the standards of the IEEE 802.3u, and its electric characteristics are as follows:

Table 1.15 Electric Characteristics of the LAN Interface (100 BASE-TX)

Items	Specifications
Transmission Speed	100 Mbps
Transmission Code	4B/5B + MLT-3(4 bit/5 bit Converges the four bit-data into five-bit one at the Physical Layer to be Coded and the Multi Level Transmission-3(MLT-3) Codes the transmission data into three Levels of High Middle and Low.
Access Control Method	CSMA/CD
Transmission Media	UTP CAT5 STP
Number of UTP Pair	Two Pairs
Characteristics Resistance	100 Ω
Cable Thickness	Radius 0.51 mm(24 AWG) Outer Radius 6 mm

UTP Cable Type

UTP cables are classified into Straight-through UTP cable and Crossover UTP cable. Straight-through UTP cable is used for connecting the Switch module(LIM, PLIM) and the boards(MP40, MGI, 4DSL) corresponding to terminals. Crossover UTP cable is used only for connecting Switch module(LIM, PLIM) and Switch module(LIM, PLIM).

Auto MDI/MDIX

The allocation of the pins in the RJ-45 connecter connected to UTP cable makes the mutually different arrangement according to the TX and RX signal or according to the switch module and the terminals. Therefore, for connecting the switch module and the terminals, the Straight-through UTP cable is basically used, and for connecting the switching module and the switching module, the Crossover UTP cable is used. But, the Auto-MDI/MDIX function is implemented inside the switch module in order to remove the complexity of the cable connection like this, and by the implication the normal operation can be performed regardless of the pin layout of the UTP cable. Among the boards corresponding to the switch module of the OfficeServ 7400 System, LIM and PLIM have no Auto-MDI/MDIX function, and GPLIM, GSIM, and GWIM provide the Auto-MDI/MDIX function.

1000 BASE-SX/LX follows the standards of the IEEE802.3z, and its electric characteristics are as follows:

Table 1.16 Electric Characteristics of the LAN Interface (1000 BASE-FX)

Items	Specifications
Transmission Speed	1000 Mps
Transmission Code	Encoding the 8B/10B data The eight-bit(8B) data entered from the sublayer of the MAC on the Upper Layer are handle in one nibble. Each nibble is Converged into the Code of 10 bit(10B) at the Physical Layer to be transported. The transmission speed after the Conversion into 8B/10B is 1250 Mbps.
Access Control Method	CSMA/CD
Transmission Media	SX: Multi-Moded Optic Fiber(MMF) LX: Multi-Moded Optic Fiber/Single-Moded Optic Fiber(SMF)
Number of Optical Fiber	2 Pairs
Maximum Transmission Distance	SX: Up to 550 m LX: Up to 5 km
Cable Thickness	Radius 0.51 mm(24 AWG) Outer Radius 6 mm


NOTE

Gigabit Interface Module

Among the boards that provides the gigabit interface at the OfficeServ 7400 System, there are GPLIM, GSIM, and GWIM. These boards supports all 1000 BASE-TX/SX/LX by using the Small Form-factor Pluggable(SFP) Connector.Therefore, The Gigabit Interface Module suitable for the configuration that is to be used should be mounted, and their connection should be made by the cable of the same kind.

1000 BASE-TX SFP Module-UTP Cable

1000 BASE-SX SFP Module-MMF Optic Cable

1000 BASE-LX SFP Module-SMF Optic Cable

Signaling Method of Dial Pulse Internal Line

- Rate: 10 PPS(Pulse Per Second)
- M/B Rate(Make/Break Ratio): 33%: 66%(Adjustable by software)
- Minimum time between digits: 20 msec(Adjustable by software)

Signaling Method of the Internal Line in the DTMF Push Button Dialing

DTMF signaling processing follows the ITU standards, which is for the signal processing of the transmission at the trunk line side of the digital phone and for the signal processing of the transmission/reception telephone at the trunk line.

Signal Method of the Very high bit rate Digital Subscriber Line (VDSL)

The electric characteristics of the VDSL for using the long-distance Ethernet are as follows:

Table 1.17 Electric Characteristics of the VDSL Interface

Items	Specifications
Transmission Speed	1 M~16 Mbps
Modulation Code	Quadrature Amplitude Modulation(QAM)
Error Detection	Reed Solomon Encoding Method
Transmission Distance	1.0 km
Transmission Media	A twisted Pair
Characteristics Resistance	Splitter built-in
Used Frequency	138 kHz~12 MHz
Link Speed	Down Link: 30 Mbps(300 m) Up Link: 10 Mbps(300 m)

Transmission Characteristics

- Attenuation volume
  - Attenuation volume between subscribers: Less than 6 dB
  - Attenuation volume between a subscriber and local trunk: Less than 0.5 dB
- Line characteristic Resistance: 600 Ω
- Valuation Noise: Less than -65 dBm
- Crosstalk attenuation volume: Less than -68 dBm
- Frequency bandwidth: 300 to 3400 Hz
- Insulation resistance: More than 1 MΩ

Line Conditions

- Installation distance
  - Regular phone: Up to 1 km(when American Wire Gauge(AWG) #24 cable is used)
  - Digital phone: Up to 400 m 400 m(when AWG #24 cable is used)
  - Door Phone: Up to 400 m(when AWG #24 cable is used)
  - Button Expansion Box(AOM): Up to 400 m(when AWG #24 cable is used)
  - Between 4WLI and to Combo AP: Up to 600 m(when AWG #24 cable is used)
- Leakage resistance between lines: More than 20 kΩ
- Leakage resistance between earths: More than 20 kΩ

1.3.3 Power Specifications

OfficeServ 7400 operates by it AC input power and the battery power, and to the system cabinet the backup power of -54 V, -5 V, +5 V, +3.3 V, +12 V, and -56 V are provided.

Table 1.18 I/O Voltage of the Power Supply Unit (PSU)

Power Supply Device		Specifications
Power-Supplying Board(PSU)	Input Power	AC 110 V, 220 V(Free Voltage)
	Input Power	- DC -54 V, 6.6 A - DC +5 V, 16 A - DC -5.3 V, 2 A - DC +3.3 V, 30 A - DC +12 V, 1 A - DC -56 V, 0.4 A(For Backup)
External Rectifier (Model Name: OfficeServ 7150)	Input Power	AC 110 V, 220 V(Free Voltage)
	Output Power	DC -54 V, 10 A

1.3.4 External Rectifier

External rectifier is the external power for supplying the power to the IP phone or to the WBS24 connected when the boards of the PLIM and the GPLIM in the OfficeServ 7400 System. The capacity of the internal power is not enough. Therefore, the additional power is connected in order to supply the power of -54V to the external devices as shown below:

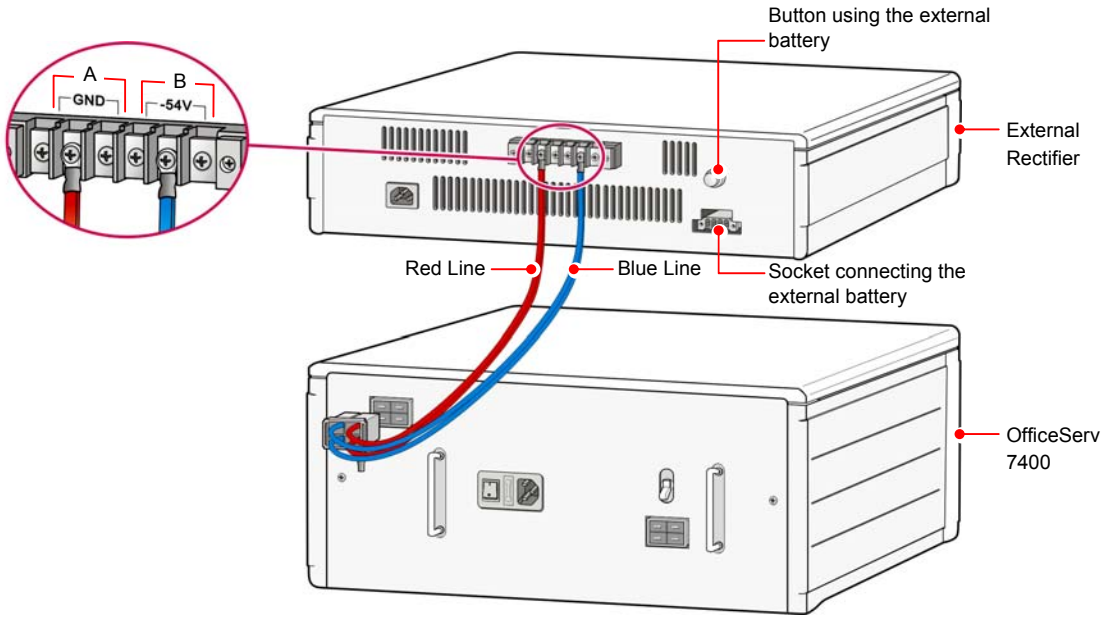

Figure 1.4 External Rectifier

NOTE

Installation of the External Rectifier

Refer to 'OfficeServ 7400 Installation Manual' for the installation of the external rectifier.

1.3.5 Rings and Signal Tones

Ring Cycle

OfficeServ 7400 provides the trunk line ring, the internal line ring, the door ring, and the alarm ring. The ON/OFF cycles by the ring types are shown in the table below:

Table 1.19 Cycles of the System Rings

Rings	ON/OFF Cycles
Trunk Line Ring	1000/3000 ms
Internal Line Ring	400/200/400/3000 ms
Door Ring	400/200/400/200/400/2000 ms
Alarm Ring	400/200/400/200/400/200/400/1000 ms

NOTE

Cycle of the Ring ON/OFF

The ON/OFF cycles can be adjusted by changing the database values of the system.

Signal Tone

The ring output voltage and the frequency of the OfficeServ 7400 are as follows:

- Output Voltage: 75 V
- Frequency: 20 Hz

OfficeServ 7400 provides several signal tones. Each signal tone directs the progressing status of the function operation to the users, and performs the feedback role. ON/OFF cycle by tone types currently set are as follows:

Table 1.20 Cycles of the System Signal Tone

Signal Tones	ON/OFF Cycles
Origination	1000/250 ms
Busy	500/500 ms
DND	250/250 ms
Ring Back	1000/2000 ms
Call Park	Continuous
Check/Caution/Forced Override	50/50 ms
Call Back/Hold	500/3500 ms
Connection	1000/2000 ms
Error/Unobtainable Tone	250/250 ms
Message Park Tone of Regular Phones	Continuous

1.3.6 Available Terminals

The OfficeServ 7200 can be connected to the terminals below:

Table 1.21 OfficeServ 7400 Compatible Terminals

Type	Terminal
DS-5000 Series Digital Phone	DS-5014D, DS-5021D, DS-5038D, DS-5012L
ITP-5000 Series IP Phone	ITP-5014D, ITP-5021D, ITP-5012L
Wireless LAN(WLAN)	WIP-5000M(mobile Phone), WBS24(Access Point device)
DSS	DS-64B
Digital Phone	DS-4000 series, DS-24SE, DS-24D, DS-2024E, DS-2024E, DS-2021E, DS-3020S
AOM	DS-5064BAOM, DS-4014AOM, DS-4064AOM, DS-24SE AOM, DS-2024EAOM, DS-3020SAOM - Up to 16 AOMs Can inter-work with the 16DLI of the OfficeServ 7200 system. Up to 8 AOMs with both of the 8DLI and 8HYB.
Others	KDB-S, KDB-D, DPIM, door Phone


NOTE

Compatible Terminals

All compatible terminals of the iDCS 500 Premium system can be used for the OfficeServ 7400. For compatible terminals, contact the system operator because a compatible terminal is subject to change according to system settings.

1.3.7 Device Specifications

The OfficeServ 7400 is configured with one basic cabinet and two extension cabinets with the specification below:

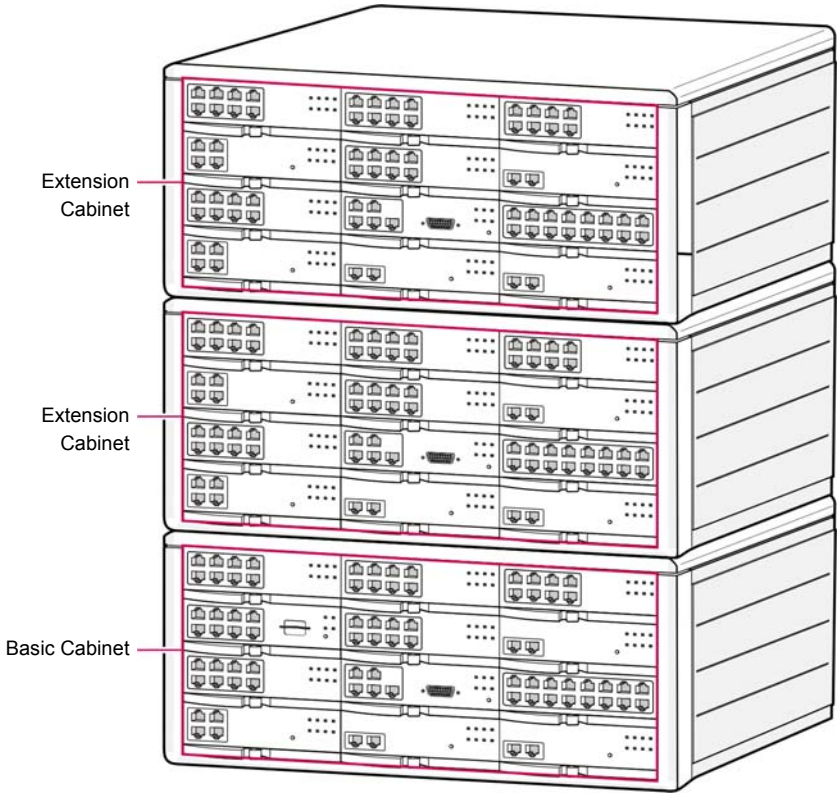

Figure 1.5 Configuration of the OfficeServ 7400 Cabinet

- When the system is configured with one cabinet(Basic Cabinet)

  440(W) × 223.8(H) × 410(D) mm
- When the system is configured with two cabinets(Basic Cabinet + Extension Cabinet)

  440(W) × 447.6(H) × 410(D) mm
- When the system is configured with three cabinets(Basic Cabinet + Extension Cabinet + Extension Cabinet)

  440(W) × 671.4(H) × 410(D) mm

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CHAPTER 2. Inside the Circuit

This chapter describes the circuit configuration by blocks and the main functions of OfficeServ 7400 System.

2.1 System Structure

This section describes the physical structure and the communication structures between the cabinets, of OfficeServ 7400.

2.1.1 Block Diagram

The structures of OfficeServ 7400 System are shown below:

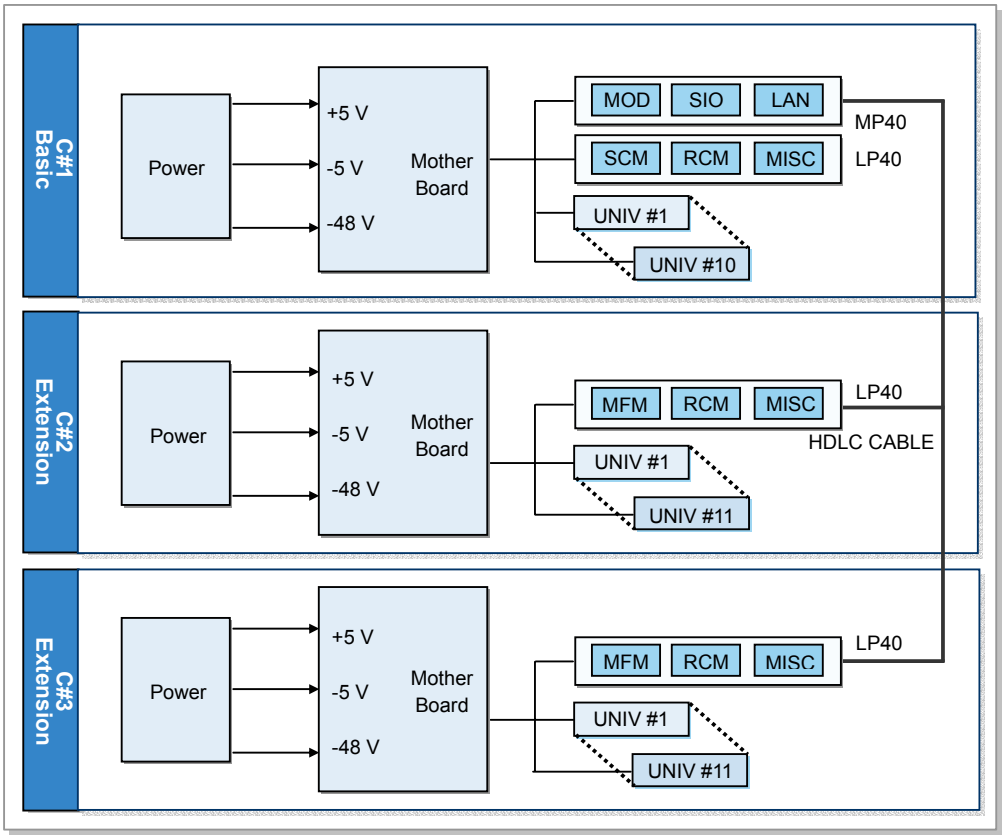

Figure 2.1 Structure of the OfficeServ 7400 System

When OfficeServ 7400 System and OfficeServ 7200 System are mingled to be configured, the physical structure using the MP40 card are shown below:

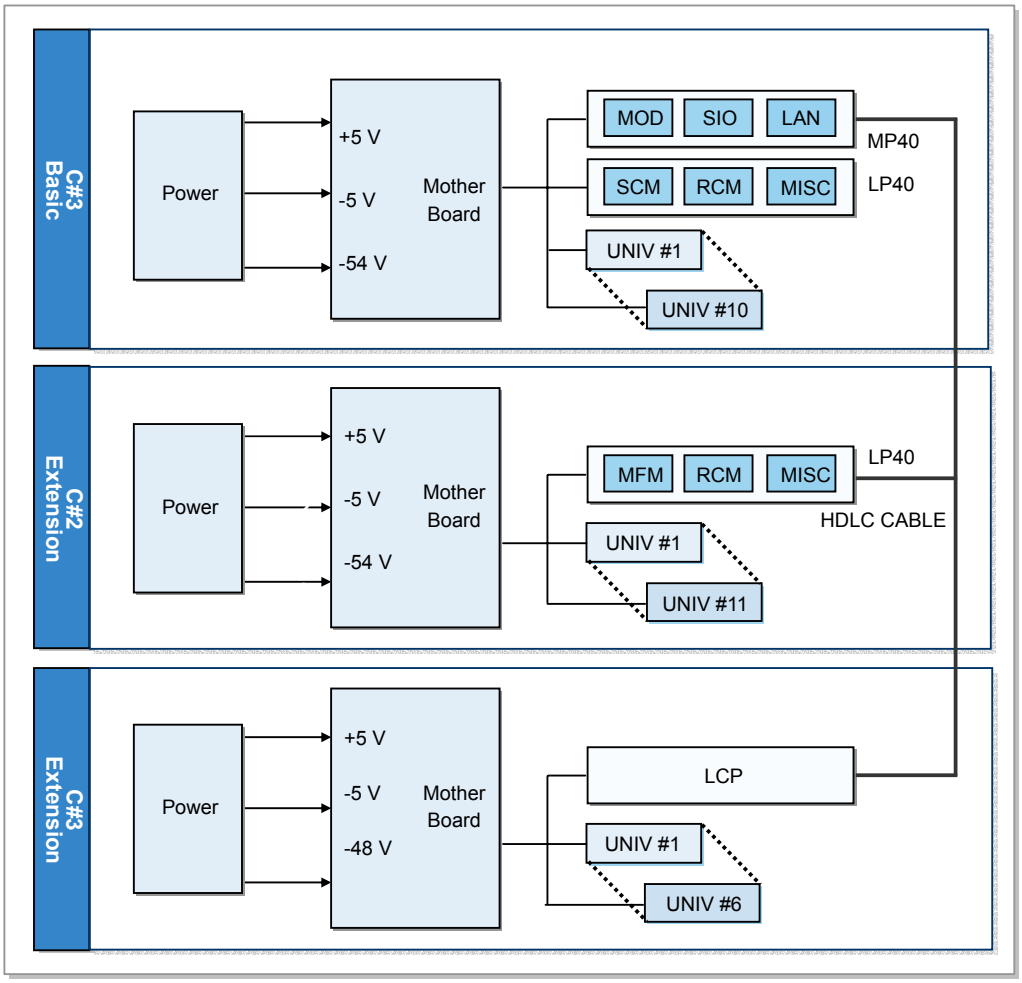

Figure 2.2 System Structure in the interwork between OfficeServ 7400 and OfficeServ 7200

2.1.2 Characteristics of the Communication System between Modules

The communication system mounted on the OfficeServ 7400 System has the characteristics as follows:

Application of the Smart Media Card

- The CPU of the MP40 board and the smart card media card are connected to each other by the 8-bit parallel bus mode.
- OfficeServ 7400 uses the standard smart media interface so that the easy upgrade into the one of the larger capacity can be made afterwards.
- The smart media card of the OfficeServ 7400 uses the power of 3.3 V.
- The smart card media card can be mounted on the front side panel of the MP 40 board.

Caution in the Use of the Smart Media Card

Only the smart media card that is provided when the system is purchased should be used. If there a damage to the system occurs by the use of other product, Samsung Electronics Co. Ltd. is not responsible for the damage, and also the after-sales service is not provided.

CPU Interface

- CPU and Static Random Access Memory(SRAM) of the MP40 card are connected by the 64-bit bus.
- SCC1 of the MP40 card CPU is allocated to the LP 40 of the system basic rack, SCC3/4 is allocated for the connection of the LP40 of the extension rack or for the connection of the extension rack of the OfficeServ 7200 Local Control Panel(LCP) and for the connection of the user's highway channel.
- FCC1 is used for the communication of the LAN.
- SMC 1 is used as the debugging port for the system engineer to check the system status. When the daughter board used for the modem is mounted, SMC2 is used for the communication with the daughter board.

Ethernet Connection

Ethernet connection is basically provided.

Use of the Serial Input and Output (SIO) port

One debugging port is provided for the system engineer to check the system status.

Communication Protocol of the High Level Data Control (HDLC)

- The frame structure of the HDLC communication protocol is as follows:
  - Opening Flag
  - Address Field
  - Control Field
  - Information Field
  - Frame Check Code(CRC-CCITT) Field
  - Closing Flag
- The signals related to the HDLC communication are converged in the RS-422 mode for the stable operation.

Module Mode Application

Each cabinet operate mutually separately, and the operation of one cabinet does not affect that of the other cabinet. Therefore,the other cabinet can provide the normal service even though one cabinet does not operate.

2.2 Mother Board

Mother board receives the power of -54 V, +5 V, -5 V, +3.3 V, and +12 V from the power supply module to allocate them to each slot, and peforms the path role of connecting the various bus signals of MP40 and LP40 and the clock signal and the voice signal of the PCM conversion.

Power Distribution

Each slot of OfficeServ 7400 receives the various powers from the power supply module mounted on the cabinet, and carries them to each slot.

Slot Mounting

The board mounted on each slot receives the mother board, the power and the various signals via the 30-pin connecters, and exchanges data with other boards.

2.3 Power Supply Module

The power supply module performs the power supply to the cabinet of OfficeServ 7400. The module operates by the AC input power or the battery power, and supplies the power of -54 V, +5 V, -5 V, +3.3 V, +12 V to the cabinet.
When the system operates by the reception of the AC power, the current of 0.4 A is supplied for the battery charging if there is no current remained due to the discharging of all batteries.

2.4 Control Board

As the control boards of the OfficeServ 7400 System System, there are the MP 40 board that controls the overall operation and the LP40, the vice control board that controls the basic cabinet and the extension cabinet. Each board should be mounted in accordance with the control board slot.

The types used in OfficeServ 7400 System are as follows:

- MP40 Main Control Board
- LP40 Vice Control Board

2.4.1 MP40 Board

MP40 board performs the control of the OfficeServ 7400 System's overall operation. MP40 board is mounted only on the private slot of MP40 in the basic cabinet.

2.4.1.1 Block Diagram

The block diagram of MP40 board is shown below:

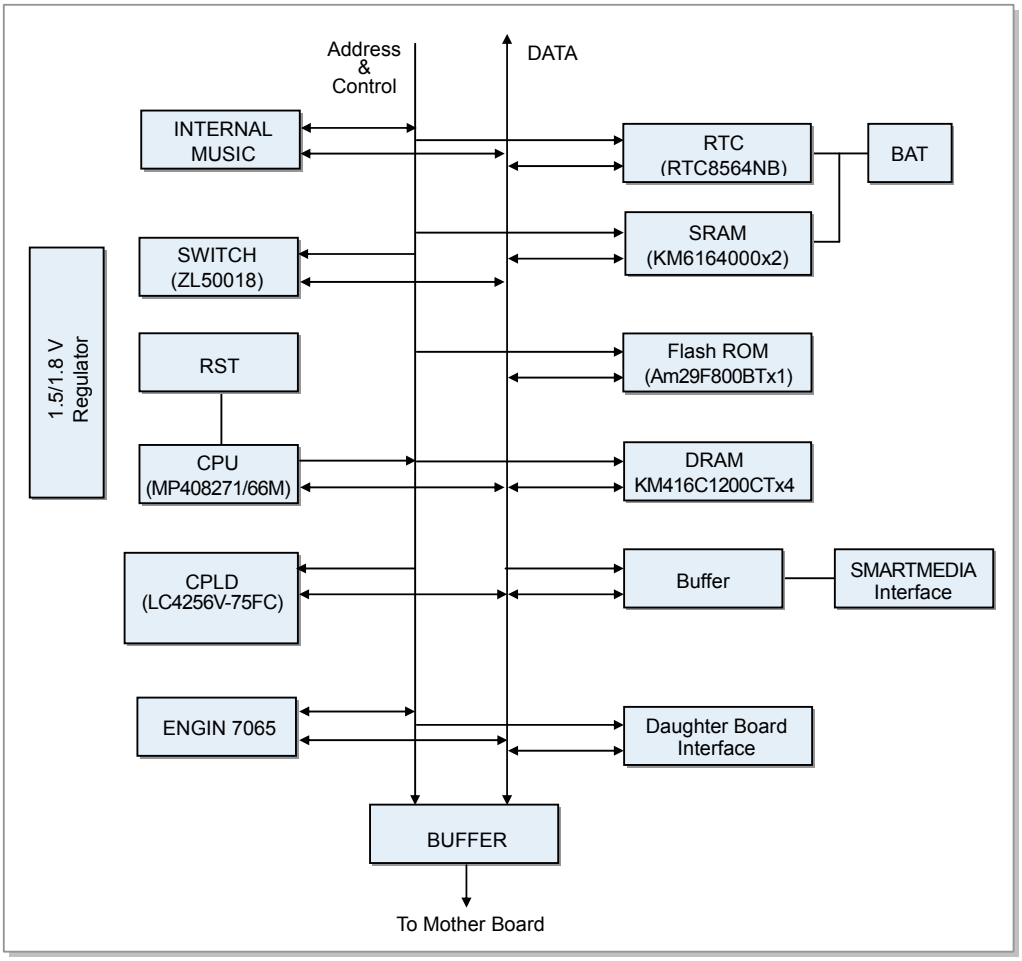

Figure 2.3 Block Diagram of the MP40 Board

2.4.1.2 Main Functions

The main function of the MP40 board are as follows:

CPU (MPC8271VRMIBA)

One MPC8271 of the freescale(of Motorola) is used. MPC8271 is ad data bus, which operates in the 64-bit mode.

The main specification of the MPC8271.

- Dual-issue integer(G2_LE) core
- Data cache of the 16 Kbytes and the instruction cache of 16 Kbytes
- Memory Management Unit(MMU) supported
- 64-bit Dynamic Bus Controller(DBC)
- 32-bit Address Lines
- Fast Ethernet Controller(FEC)
- PCI bridge provided
- RTC Interface supported
- System Integration Unit(SIU) Functions built-in
- Eight external interrupts and eight internal interrupts
- SIO operation of the high performance can be performed by the built-in communication processor
- 8 Baud Rate Generator(BRG)
- Three SCCs where HDLC communication can be made are supported
- Two SMCs where the asynchronous communication can be made are supported
- One SPI where the serial communication can be made is supported
- I2C Interface supported
- DEBUG Interface supported

SCC

- SCC1, SCC3, SCC4: Operates via the HDLC communication port for exchanging the messages with LP40.
- SMC1: A debugging port for the system engineer.
- SMC2: Used for the interface with modem.

System Clock

MP40 card used 66 MHx as the main clock oscillator.

Boot ROM (Flash ROM)

For Boot ROM, the flash ROM of 1 Mbytes(512 Kbytes × 2 EA) is used. Boot ROM has the program for the initial operation of system(system operation program), and performs the downloading the main program from the flash ROM, which is the Smart Media Card into the SDRAM.

SDRAM

128 Mbytes(Extension into 256 Mbytes can be made) are basically to the 256 SDRAM, and is composed of four 32Mbytes elements. SDRAM has the main program resident to operate, and saves the data necessary for processing the system. In addition, SDRAM is designed to operate in No Wait for the maximum performance of the system.

SRAM

2 Mbytes are provided to SRAM, and is composed of two 1Mbytes element. SRAM can perform the memory backup, and saves the various DB information. The various DB information necessary for the system operation are to be saved at SRAM, but they should be always saved also at the smart media. By doing so, the DB information can be safely saved even when the system is critically damaged from the outside.

NAND_Flash ROM

NAND_FROM is composed of 512 Kbytes, and is used as the subsidiary memory device of OS-7400 system. It saves various DB information.

Smart Media

Smart media is the NAND flash memory card that has saved the main program(OS) for operating MP40 at itself. In addition, is is used as the auxiliary memory of OS-7400 System. The currently used smart media is 32 Mbytes, and 8-bit parallel bus connection mode is used for the connection to the system, which can be used without the change of hardware even though the capacity increases(But the change of the software is needed.) Smart media should operate always with itself mounted on the system, and should be saved in the vinyl packed when the card is delivered.

Engine (SAMSUNG ASIC: STL7065C)

The engine of MP40 uses one of Samsung ASIC. If the extension rack connected to MP40 is LCP, the engine provides the function by which the individual compensation for the voice signal connected by the subscriber card is made.

Time Switch (ZL50018)

For Time Switch, ZL50018 of Zalink Co. The Time Switch performs the switching of overall OS-7400 system. The capacity for the subscriber channels can be extended to maximum 2048 × 2048. The voice signal of 8 Mbps stream is provided from LP40, and the voice signal of 2Mbps is provided to LCP.
Digital Phase Locked Loop(DPLL) for the synchronization of the digital subscribers is included into the chip inside. 8 kHz Reference clock is determined by software. If the 8 kHz Reference clock source is not designated from the outside, the clock generated inside is used.

WATCH DOG

WATCH DOG is the function of recovering automatically the system when there an abnormality occurs in the system.
If system abnormally operates for about five seconds, the system is designed to re-operates.

Complex Programmable Logic Device (CPLD)

CPLD uses the one of Lattice Co. CPLD is configured with the interface logic at the MP40 board, and configures the logic so that programming is made in order to change the logic. If there a cause for the change of logic or for the upgrade occurs, the logic can be changed via JTAG bus at the outside PC.

Real Time Clock (RTC)

For RTC, the RTC8564NB of SEIKO Co. is used, and the backup is supported by SUPER CAP.

Internal Music

One channel is provided for the internal music of the system. For CODEC, only that of A-LAW CODEC is used. In case of the U Law-using country, the software value is automatically changed at 50018 Main Switch to operate by the concerned CODEC.

LAN Interface

LP40 card can be connected to LAN with no additional LAN card. MAC is built in the CPU, and the maximum connection speed is 10/100 Mbps. The speed is automatically selected when the LAN cable is connected.

Universal Asynchronous Receiver & Transmitter (UART)

UART is the element that makes the asynchronous serial communication available, and is used also for debugging the board. The connection into the outside is made by the SIO port on the front panel. The basic operation speed is 19.2 kbps and the speed can be changed.

2.4.2 LP40 Board

LP40 is a vice control board that controls the overall functions of OfficeServ 7400, which is mounted on the slot 1 of the basic cabinet and the extension cabinet. The board perform the management of the subscriber cards and the terminals under the control of MP40, the main control board. In addition, the board transmits the signals of the various events generated at the subscribers card and terminals to MP40.
LP40 performs the conversion of the voice channel stream between MP40 switches and the subscribers cards. On LP40 board, three optional boards can be mounted. The selective mounting according to the functions by the optional boards can be available, and the option board provides the functions of DTMF, R2, CID, Conference, MISC, etc.

2.4.2.1 Block Diagram

The block diagram of LP40 board is shown below:

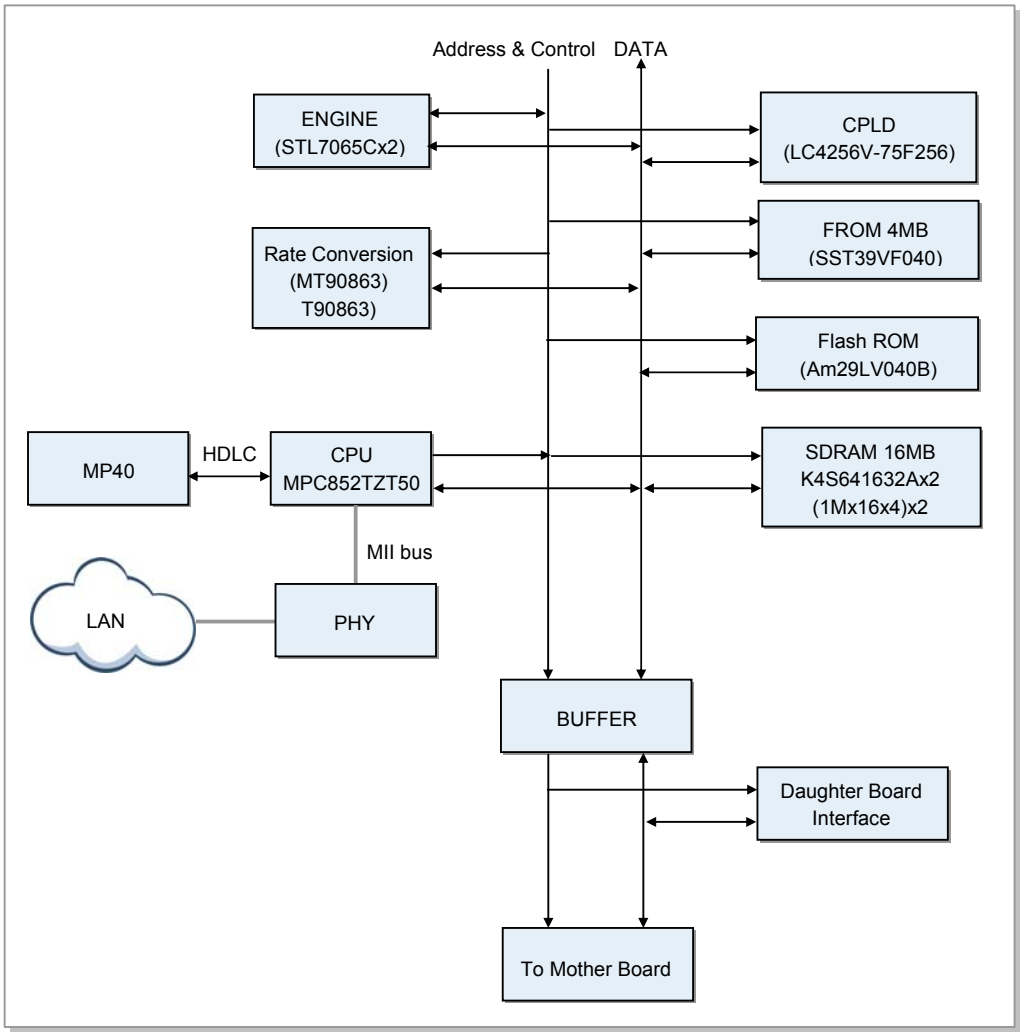

Figure 2.4 Block Diagram of the LP40 Board

2.4.2.2 Main Functions

The main functions of LP40 board are as follows:

CPU (MPC852TZT50)

One MPC852 of Motorola Co. Ltd is used as the main processor. MPC852 is a data bus that operates in the 32-bit mode.

The main specifications of MPC852 are as follows:

- Embedded Power PC core
- Data cache of 4 Kbytes and the instruction cache of 4 Kbytes
- Memory Management Unit(MMU) supported
- 32-bit Dynamic Bus Controller
- 32-bit Address Lines
- Memory Controller(8banks)
- Fast Ethernet Controller(FEC)
- Two 16-bit timers and one 32-bit timer
- System Integration Unit Functions built-in
- Seven external interrupts and 18 internal interrupts
- SIP operation of the high performance can be made by the built-in communication processor
- On-chip 16x16 Multiply Accumulate Controller
- 2 Baud Rate Generator(BRG)
- Two SCC where HDLC communication can be made are supported.
- One SMC where the asynchronous communication can be made is supported.
- One SPI where the serial communication can be made is supported.
- PCMCIA Interface supported
- DEBUG Interface supported

SCC

- SCC3: Operates by HDLC communication port for exchanging the messages with MP40.
- SMC1: A debugging port for the system engineer.

System Clock

LP40 card uses 50MHz as the main clock oscillator.

BOOT ROM (Flash ROM)

For Boot ROM, the flash ROM of 512 Kbytes is used. Boot ROM has the program(system operation program) for the initial operation of the system, and performs the downloading the main program from the flash ROM into SDRAM.

SDRAM

To SDRAM, 16 Mbytes is provided. SDRAM is configured with two elements of 8 Mbytes. SDRAM performs the role of saving the data necessary for the system processing.
In addition, SDRAM is designed to operate in No Wait for the maximized system performance.

Flash ROM

FROM is 4 Mbytes, and saves the main program at itself for the operation of LP40.

Engine (SAMSUNG ASIC: STL7065C)

For the Engine of LP40, two ASIC of Samsung Electronics Co. Ltd. are used. Engine performs the detection of the DTMF signals and the conference function, and also provides the function by which the individual compensation can be made for the voice signal connected to the subscriber card.

Rate conversion (MT90863)

LP40 receives the voice signals of 8MBPS stream from MP40 to converge them into the voice signals of 2 Mbps. LP40 uses the device performing the rate conversion that transmits the converged signals to the subscriber card. LP40 board converges four 8Mbps stream into 16 2 Mbps stream.

WATCH DOG

WATCH DOG is the function of recovering automatically the system when there an abnormality occurs in the system.
If the system operates for about five seconds, the system is designed to re-operates.

CPLD

CPLD uses the CPLS of Lattice Co. Ltd. CPLD is configured with the interface logic between devices at the LP40 board, and composes the logic for programming by which the logic can be changed. If there occurs the causes for the logic change or for the upgrade, the logic can be changed via the JTAG bus at the outside PC

Daughter Board Interface

Daughter board is configured in order to be used by making options for the common resources inside LP40, and up to three boards can be mounted. As the daughter boards, there are SCM, MFM, RCM, MIS, RCM2, and CRM, and their installation are marked on the boards.

The main functions of each daughter board are as follows:

- Multi-Frequency Module(MFM): MFM is the option board that is configured with the ASIC chips that detects the DTMF signals. The positions where the MFM boards are mounted are LOC1 or LOC2, and the mounting positions are marked on LP40 board. When MFM board is mounted, The DTMF signals coming from 12 channels can be detected simultaneously.
- R2 CID Module(RCM): RCM is the option board that is configured with ASIC chips detecting the Caller Identification(CID). The module generates and detects the R2 signals, which are the signaling signals between trunk lines. The position where RCM board is mounted on LP40 is LOC1 or LOC2, and the mounting position is marked on LP40 board. When RCM board is mounted, the R2 signals can be generated via 30 channels, and R2 signals of eight channels or the CID of 14 channels can be detected. The selection of the detected signals(R2/CID) is determined by the positions of the switch on the RCM board.
- Miscellaneous(MIS): MIS is the option board mounted on L40 board. The position mounting on LP40 is LOC 3, and the mounting positions marked on the LP40 board. MIS provides two external held music input ports, external paging port, the loud bell port, and the common bell port, and also provides the two dry contact ports that connects or blocks the signal transmission or the electric power supply with the external devices.
- R2 CID Module 2(RCM2): RCM2 is the option board that can detect and generate the Caller Identification(CID). The position where RCM2 board is mounted on LP40 board is LOC1 or LOC2, and the mounting position is marked on LP40 board. If RCM2 board is mounted, The CID signals of 14 channels can be detected and generated. The operation mode(Detection generation signal) and can be selected into R2 or into CID by the switch inside RCM2 board. The support for R2 function will be made later, the R2 function is not provided in the present.
- Switch Conference Module(SCM): SCM is the option board that performs the conference function. The position that SCM board is mounted on LP40 board is LOC1 or LOC2, and the mounting position is marked on LP40 board. Only on one of LOC1 or LOC2, the board can be mounted. If SCM board is mounted on, the simultaneous calling of five persons and 12 groups can be made, and DTMF signals coming from 12 channels can be detected simultaneously.
- Common Resource Module(CRM): CRM board is the option board that performs the DTMF signal detection, R2 signal generation, CID signal generation and detection. The position used when CRM board is mounted on LP40 board LOC1or LOC2, and the position is marked on LP40 board.

CHECK

Caution when Daughter board is mounted

Be sure to mount the daughter board on the control board in the status of the switch-off when mounting the board. The mounting position of the Daughter board is marked on the board with the indication into LOC1, LOC2, and LOC3. Only on LOC3 the MIS board can be mounted. In addition, only one SCM board can be mounted on LOC1 or on LOC2. The rest daughter boards can be mounted on LOC1 and LOC2 irrespective of te position and the mount.

LAN Interface

LP40 card can be connected to LAN with no additional LAN card. The MAC addresses have built in CPU, and its maximum connection speed is 10/100 Mbps. The speed is automatically selected when the LAN cable is connected.

Universal Asynchronous Receiver & Transmitter (UART)

UART is the element by which the asynchronous serial communication can be made, and is also used for debugging the boards. The connection to the outside can be made by the SIO port on the front panel. The basic operation speed is 19.2 kbps, and the speed can be changed.

2.5 Universal Board

On the universal slot of the OfficeServ 7400 System, the board providing the various services can be mounted. Universal boards can be classified into four types of voice trunk line board, the voice internal line board, the voice application board, and the data board according to the provided services.

Table 2.1 Types of Universal Boards

Board Types	Board Name
Voice Trunk Line Board	8TRK, TEPRI, TEPRI2
Voice Internal LIne Board	8SLI, 16SLI, 16SLI2, 16MWSLI, 8HYB, 8HYB2, 8DLI, 16DLI, 16DLI2
Voice Application Board	MGI, MGI64, 4DSL, 4WLI
Data Board	LIM, PLIM, GPLIM, GSIM, GWIM

2.5.1 8TRK board

8TRK board is the trunk line board of eight ports, which is mounted on the universal slot. To each port, the general line or the private switch, or the general phone lines of other keyphone system can be connected. 8TRK board performs the functions of Real driver, Ring detection, TSAC, and CODEC control via TMC ASIC.

2.5.1.1 Block Diagram

The block diagram of 8TRK board is shown below:

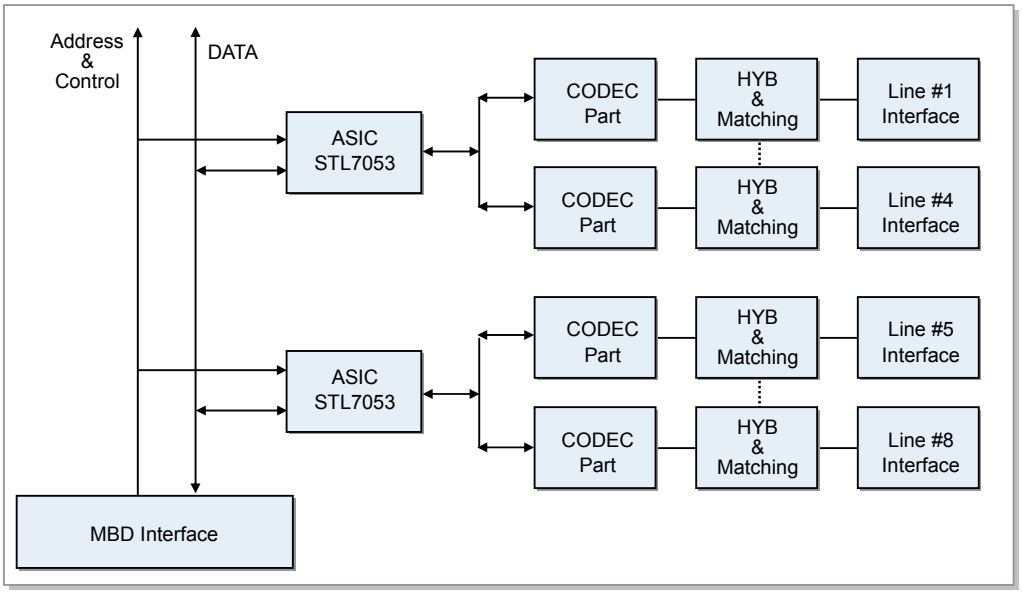

Figure 2.5 Block Diagram of the 8TRK Board

2.5.1.2 Main Functions

The main functions of 8TRK board are as follows:

Configuration

The detailed block diagram of the interface circuit in C.O line is shown below:

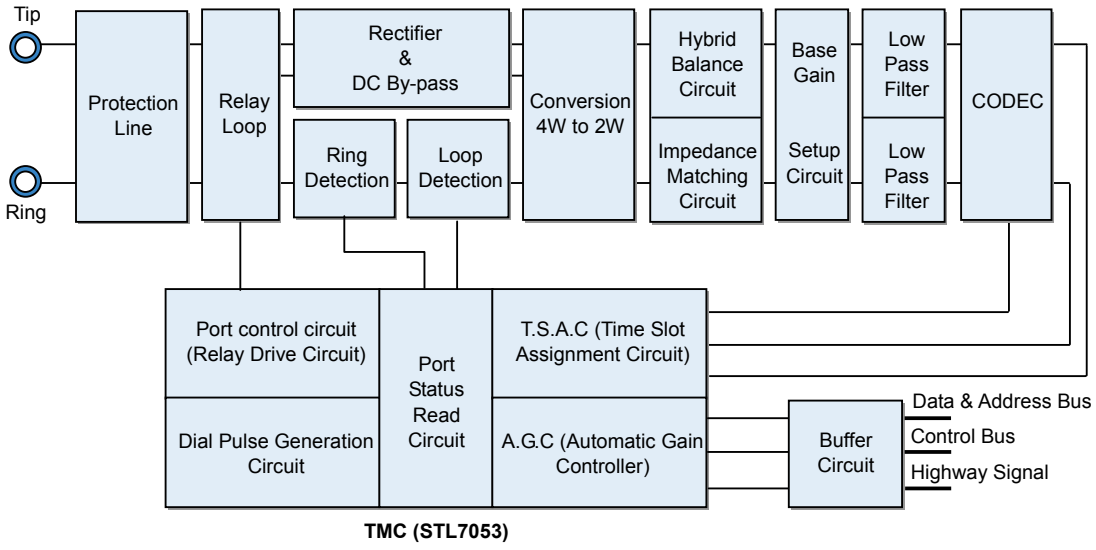

Figure 2.6 Block Diagram of the C.O A Line Interface Circuit

The interface circuit of the C.O line is configured with the DC current by-pass circuit, the matching trans, the balance network, the hybrid circuit, the channel assign timing control, the PCM CODEC, the Digital Gain Circuit Logic, etc in order to send.receive the trunk line and the voice frequency(300~3400 Hz) In addition, the additional DC by-pass circuit is configured in order to minimize the trans for the voice path trans.

HOS, Ring Signal Detection Circuit is built-in inside this circuit. In order to control the highway buffer(74ABT125) of the Time slot Assign circuit, the TSAC Enable signal generated inside the TMC is used. The Hybrid circuit for matching the impedance is designed into the Hybrid for the line impedance 600 Ω .

Voice Transmission/Reception

The surge protection function is used between the tip lead and the ring lead for preparing the high voltage supply. In addition, the third protection circuit is configured by using the zener diode inside the matching circuit of trans secondary impedance. The bi-directional voice received from the C.O. is separated from the line loop feeding power, and passes through the coupling capacitor, and is entered into the rans for voice signal.

The voice signal transmitted to the trans secondary side is divided into the transmission path(Tx path_ and the reception path(Rx path) at the Impedance & Balance circuit In addition, the low frequency compensation function that the resistance is matched into 600 Ω is provided at the low frequency impedance matching & balance circuit. In the present, its design is made into the mode of the Long Loop Impedance Matching.

The Tx voice signal converged like this is made into the Pulse code Modulation(PCM) by the CODEC so that the corresponded channel is allocated. After them, the signal is transmitted into the time switch by passing through the PCM highway and the digital gain control circuit.

The Rx PCM data, the Rx voice signal, is converged into the analog signal by CODEC. The voice signal converged like this is transmitted into the balancing circuit through the impedance a matching circuit. And only the voice signal is supplied to the trans secondary side to be transmitted into the line feeding power.
This signal is matched with the voice path of the C.O line Interface. By doing so, the additional voice signal is transmitted into the additional path separately from the transmission path.

Circuit of Sensing Ring Reception

The ring reception signal transmitted from the Central Office(C.O) is transmitted into the reception signal in the status in which the trunk line interface is in the Hook on. The ring signal passes through the poly-capacitor(0.47 uF/250 V) via the normal contacting point of the loop relay to block the DC voltage. By doing so, only the ring signal of more than certain level passes through the bridge diode. This signal passes through the resistance to be entered into the Photo-coupler in order to generate the ring-sensing signal. A normal status is generated as ‘H’ when the ring is transmitted.

DC Current By-Pass Circuit

DC Current by-pass circuit occupies the DC loop among the trunk lines, and passes the AC signal. This part is configured with the hybrid IC in order to minimize the mounting space. When both ends of Tip/Ring configures the loops at the -48 V, it makes the DC path, and fixes the resistance into 33 Ω in order to satisfy the given specifications.
The output of the Hook-Off Sensing(HOS), a function of sensing the loop is provided to the system by the photo-coupler till the loop is occupied by the additional function. At ‘H’, the general status of HOS, ‘L’ is sensed.
This is converged to be transmitted into the CPU data bus.

2.5.2 TEPRI board

TEPRI board is the board used in the connection of the OfficeServ 7400 system to the T1/E1 trunk line or to the ISDN PRI trunk line. The board can be mounted on the whole slot of the extension cabinet among the universal slots of each cabinet.

2.5.2.1 Block Diagram

The block diagram of TEPRI board is shown below:

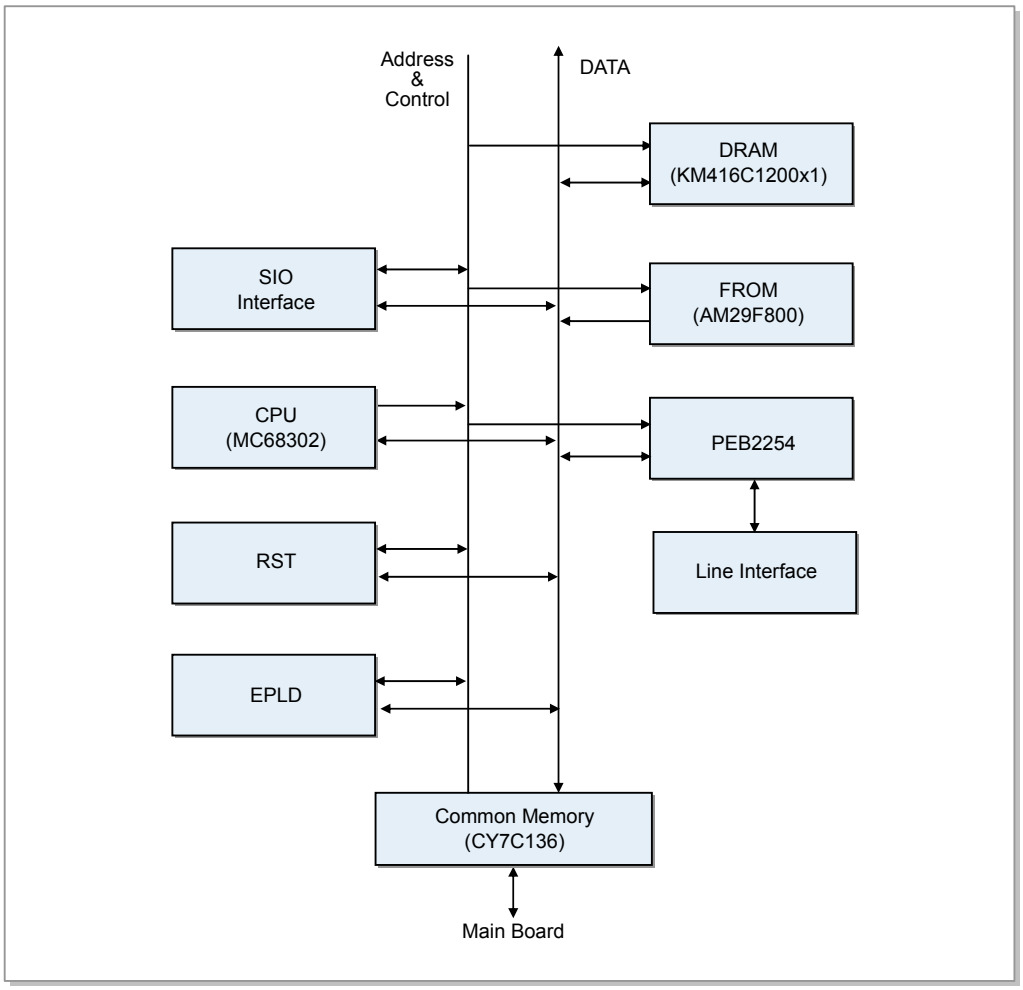

Figure 2.7 Block Diagram of the TEPRI Board

2.5.2.2 Main Functions

The main functions of TEPRI board are as follows:

Line Interface

- The selective use of T1/E1 signaling is available by programming.

- he resistance circuit that can satisfy both of T1(100 Ω) and E1(120 Ω) simultaneously is used.
- The surge protection in the level recommended by ITU is provided.
- Output port protection by the line monitor
- Jitter characteristics satisfying ITU-T I.431 and G703 is provided
- The line coding mode can be selected.(HDB3, AMI)
- The limit value of the Loss Of Signal(LOS) can be set.
- The local loop and the remote loop are provided.
- HDLC or Channel Associated Signaling(CAS) is supported via the Common Channel Signaling(CCS).

CPU (MC68302)

- 68302FN16 used.
- For CPU clock, 16.384 MHz is used, and 16 bit is used for the data bus.
- For ROM, 1 Mbytes(AM29F800B) is used.
- For RAM, 2 Mbytes DRAM(KM416C1200) is used, and the RAM backup is not used.
- For the interrupt for Timing Reference, two general purpose timers inside the CPU are used.
- For reset, DS-1706 is used, and the reset button for testing is available.
- CPLD MACH4-64/32 is used in order to accommodate the peripheral circuits of CPU.
- For the IPC communication with MP40 board or with LP40, DPRAM(71C132Y) is used. When IPC is used in the interrupt mode, CPU is connected to LP40 via the resistance 0 Ω. When used in the polling mode, the resistance 0 Ω is removed. In the present it operates in the polling mode.
- Connected to CPU port so that the RY/BY signal of the flash ROM can be read.

Clock

- Digital Phase Locked Loop(DPLL) exists inside PEB2254.
- The synchronization of the system clock is performed by the PLL circuit of the MP40 board.
- 4.096 MHz, CLKX, and FSX are provided by mother board.
- SCLKX/SCLKR of the PEB2254 is converged into 8.192 MHz to be provided by using the delay line.
- The Active signal indicating the Valid Reference clock is received at CPU port.

SIO

- A serial port for testing is provided by using the serial communication controller of CPU.
- RJ-45 connecter can be connected at the front side of the cabinet.
- Baud Rate source clock is used as the CPU master clock, and its use can be made up to 19.2 kbps, and the speed is determined by software.

2.5.3 TEPRI2 board

TEPRI2 board is the board used in the connection of the T1/E1 trunk line or ISDN PRI trunk line to OfficeServ 7400 System. The board can be mounted on the whole slots(1, 2, 4~11 slots) of the basic cabinet supporting 64 channels among the universal slots of each cabinet.

2.5.3.1 Block Diagram

The block diagram of TEPRI2 board is shown below:

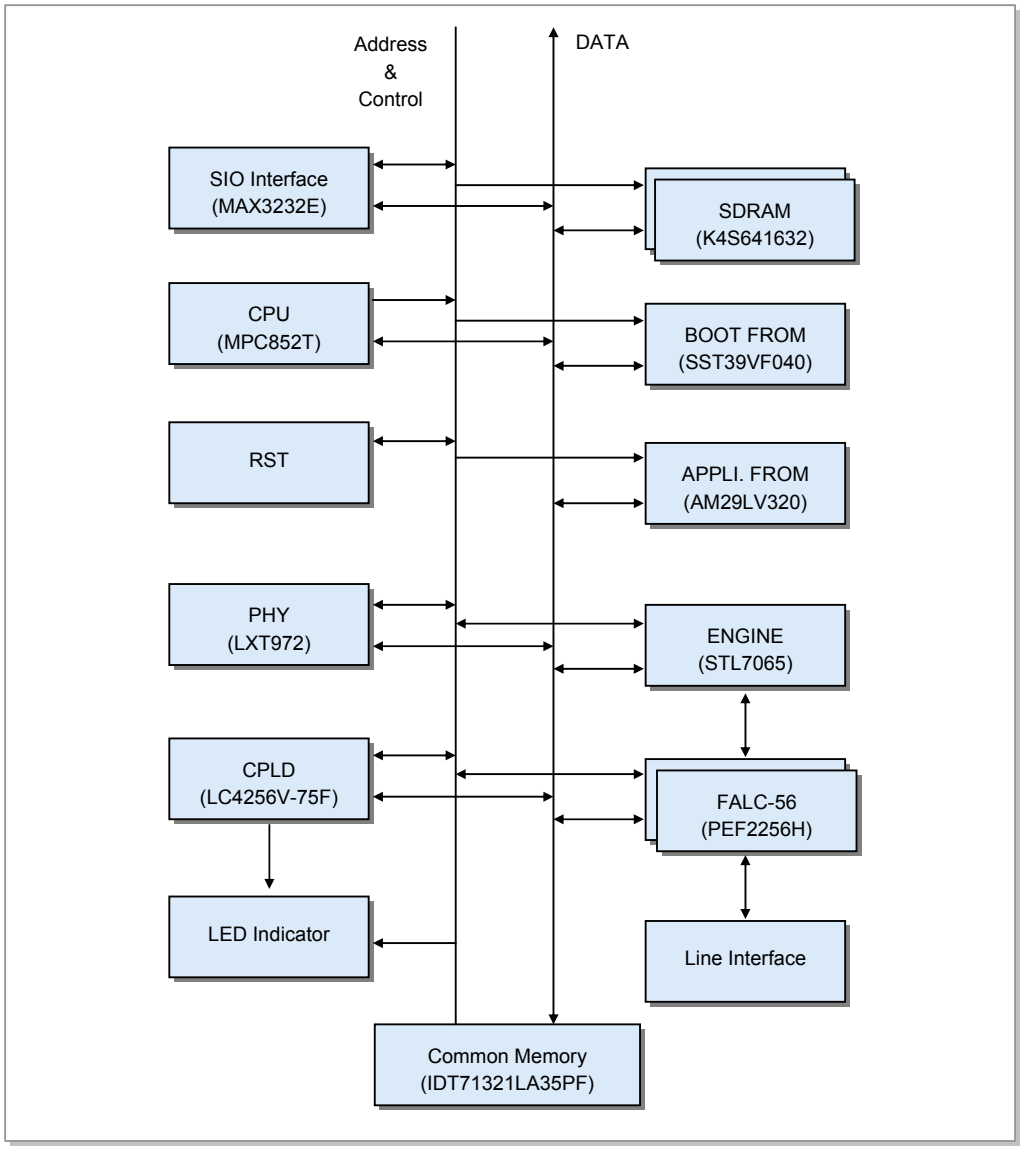

Figure 2.8 Block Diagram of the TEPRI2 Board

2.5.3.2 Main Functions

The main functions of the TEPRI2 board as as follows:

Line Interface

- T1/E1 signaling can be selected to be used by programming.
- The interface is implemented into the register so that the impedance of the T1(100 Ω) and E1(120 Ω) can be simultaneously satisfied.
- The surge protection in the level recommended by ITU is provided.
- Output port protection by the line monitor.
- The jitter characteristics satisfying ITU-T I. 431 and G703 are provided.
- The line coding mode can be selected(HDB3, AMI).
- The limit value of Loss Of Signal(LOS) can be set.
- Local and the remote loop are provided.
- DPLL for recovering data and clock is used.
- HDLC or Channel Associated Signaling via Common Channel Signaling(CCS) is supported

CPU (MPC852T)

One MPC852TZT50 of Motorola Co. Ltd. is used as the main processor. This is a data bus, which operates in 32-bit mode.

The main specification of the MPC852T are as follows:

- Embedded Power PC core
- Data cache of 4 Kbytes and Instruction cache of 4 Kbytes
- Memory Management Unit(MMU) supported.
- 32-bit Dynamic Bus Controller
- 32-bit Address Lines
- Memory controller(8 banks)
- Fast Ethernet Controller
- Two 16-bit timers and one 32-bit timer
- System Integration Unit Function is built-in
- Seven external interrupts and 18 internal interrupts
- 2 baud rate Generator
- Two SCCs where HDLC communication can be made are supported.
- One SMC where the asynchronous communication can be made is supported
- MAC to which 10/100 Mbps LAN can be supported is built-in.
- Debugging Interface
- 1.8 V Core and 3.3 V I/O operation with 5 V TTL compatibility

SCC

- SMC1: A debugging port for the system engineer.

Clock

- Fro CPU clock, 50 MHz is used as the main clock oscillator
- The synchronization of the system clock is performed by the PLL circuit of the MP40 board.
- 4.096 MHz, 8.192 MHz, FOI, and FSX are provided by mother board.
- 4.096 MHz of the mother board is provided to SCLKX/SCLKR of the PEF2256H.
- The Active signal indicating the Valid Reference clock is received at CPU port.

Boot ROM (Flash ROM)

- For Boot ROM, Flash ROM(SST39VF040) of 512 Kbytes is used.
- For Boot ROM, Socket is used, which performs the role of saving Boot program and DB information.

Application ROM (Flash ROM)

- For Application ROM, Flash ROM(AM29LV320D) of 4 Mbytes is used.
- Application ROM is used for an application program, and saves the application code program.

SDRAM

- For SDRAM, DRAM(K4S641632) of 16 Mbytes is used, which is configured with two elements of 8 Mbytes. At SDRAM, the main program resides to operate, and saves the data necessary for the system processing. RAM backup is not performed.
- The access time of SDRAM is set short for the maximized system performance.

WATCH DOG

- WATCH DOG is the function of recovering automatically the system when there an abnormality in the board. The restart-up is made in case of abnormal operation for about five seconds.

LAN Interface

- The connection to LAN is available with no additional LAN board.
- CPU has the 10/100 PHY MAC addresses built-in.
- The maximum connection speed is 100 Mbps.
- When connected to LAN, the speed is automatically sensed(Auto Nego) to operate.
- Remote Monitoring function is provided via Ethernet.
- PHY operates in 10/100 Mbps Full Duplex by using the LXT972.

UART (Universal Asynchronous Receiver & Transmitter)

- UART is the element that makes the asynchronous serial communication available.
- Used as the system I/O port(SMDR or PCMMC).
- Connected to the outside via RJ-45 connecter on the front side of the cabinet.
- As the Baud Rate source clock, OSC 1.8432 MHz clock is used.

  Default speed is 19.2 kbps, and the maximum operation speed can be supported to 115.2 Kbps by software.

EEPROM

- EEPROM used for saving MAC, 3-Wire Serial 1kbit EEPROM(AT93C46, 128 byte) is used.
- The proper number of the hardware on the board is allocated when manufactured in the early at the factory.
- Serial Peripheral Interface(SPI) of CPU is connected to port to communicate.

Reset

- For the reset chip, DS1706RESA is used.
- Among the resets, there are power on reset, the push button reset, software reset, and Watch Dog reset.

CPLD

- CPLD configures most of logics used in the TEPRI2 board, and CPLD

  LC4256V-75F of Lattice Co. Ltd. is used.
- CPLD can be changed at the external PC via JTAG bus.

IPC DPRAM

- 2 Kbytes DPRAM(71C132Y) is used for the IPC communication with LP40 board.
- IPC operates in the polling mode.

Engine Block

- STL7065 is used for the gain compensation of the TX, Rx Highway of the TEPRI2 board.

2.5.4 8SLI board

8SLI board is mounted on the universal slot of OfficeServ 7400 to process simultaneously eight voice channels. The part can be connected to a general phone via 8SLI board, and all data generated at 8SLI are transmitted to MCP board or to LCP board.

2.5.4.1 Block Diagram

The block diagram of the 8SLI board is shown below:

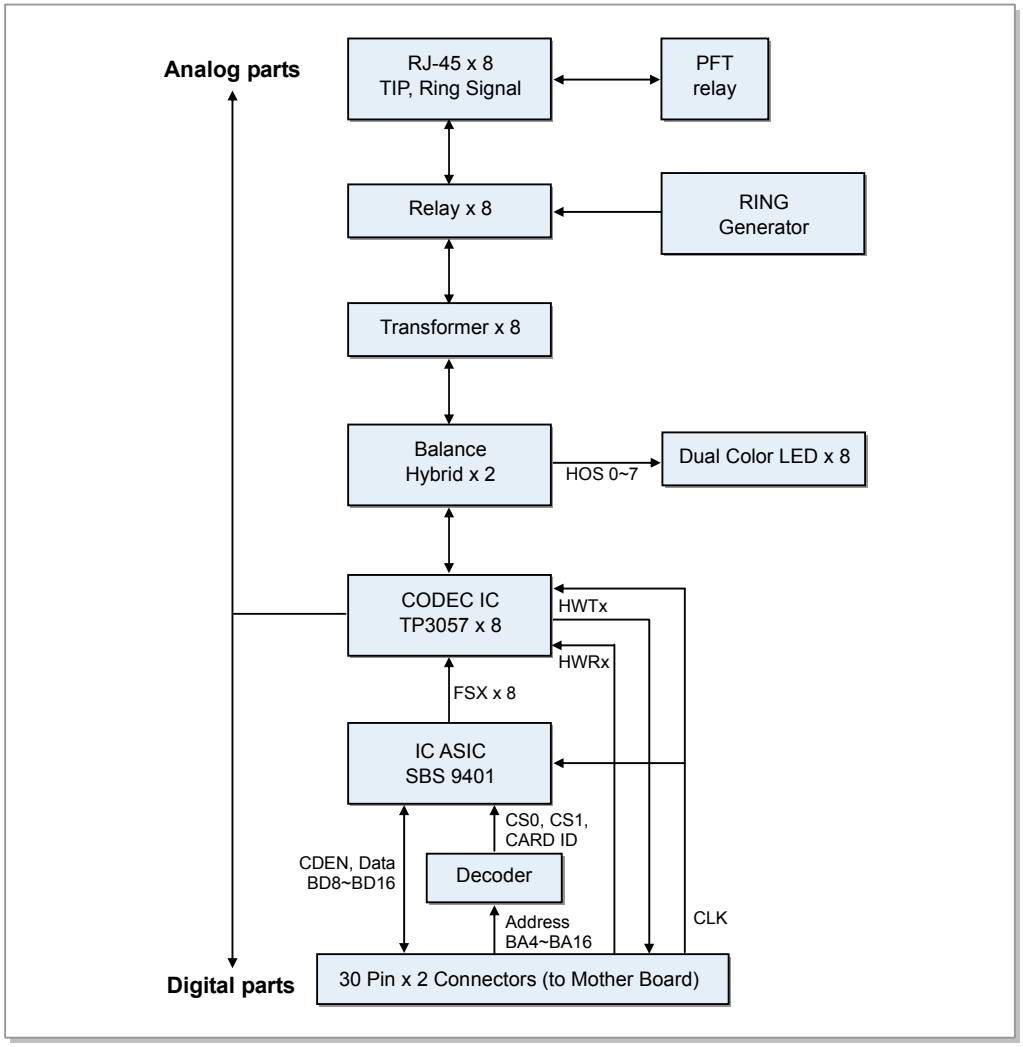

Figure 2.9 Block Diagram of the 8SLI Board

2.5.4.2 Main Functions

The main functions of the 8SLI board are as follows:

ASIC SBS9401

SBS9401 provides the function of controlling four ports of the Digital Adaptor for Subscriber Loops(DASL) and four ports of dial pulse generation via eight ports of Time Slot Assignment Control(TSAC) and four ports of UART, Micro Channel Control.
There are additional functions besides them, but only the modes for using SLI are described.
As for the functions related to SLI, there are TSAC taking eight channels, battery On/Off controlling port, Ringing Relay controlling port, Hook-Off sensing function.

Voice Path

In the voice signals(300-3400 Hz) entered from the subscribers, only the voice signals are transmitted to the secondary side in the status where DC is supplied in the primary side of TRANS(T5692). The voice signals pass through CODEC to be converged into PCM code to be transmitted into the high way. As for the gain between the Balance logic and CODEC, the output signal of the CODEC is adjusted into +2.0 dBm, and is adjusted at the reception signal of CODEC toward the subscribers direction by -7.0 dBm.

For 8SLI board, T5692(600 Ω) transformer and the Hybrid IC developed by Samsung electronics Co. Ltd. have been used. In the 8SLI board, the feedback circuit removing the echoes generating when converged from two lines into four lines has built. The resistance value of the Termination Network is configured so that it can be matched to the complex resistance as well as the pure resistance such as 600 Ω. In the local, KP0078SA is used as the Hybrid IC. The Hybrid ICs used by each country are shown in the table below:

Table 2.2 Hybrid types by Countries

HYBRID IC Names	Countries
KP0072SA	UK, NEWZEALAND
KP0075SA	HOLLAND
KP0078SA	KOREA, USA
KP0071SA	ITALY
KP0073SA	GERMANY, AUSTRALIA
KP0077SA	CHINA

-48 V Supply

-48 V power passes through Loop Disconnect circuit, Feeding Resistor, and Power Tr to be transmitted to the subscriber’s phone via TIP. And the power passes through Power TR and Feeding Resistor again via ring to be connected to GND.

Loop Disconnection

The -48 V power connected to each port is switched over by TR. When LD signal is LOW, the TR turns on, and the power is supplied. If HIGH, TR turns off to stop the supply of the power.

Ring Trip

Ring trip means the stop of the ring signal transmission by operating the relay of the subscriber's phone circuit if the subscriber performs the Hook-off when the ring is transmitted to the subscriber's phone. The ring signal output operates as ON for one second, and as Off for two seconds. When the subscriber performs the hook-off in the On time for one second when the ring relay is attached to the subscriber's tip and the ring end, the ring path passes through the relay to be Ground.

Ring Transmission

When the relay operates by the relay control signal coming out from SBS9401, the ring of the 80 Vrms/20~30 mA 20/25 Hz is transmitted to the subscriber's line.
As the source of the ring, there are the square wave generation circuit inside 8SLI board and the Sine wave ringer that can be mounted outside separately, and the board designated by countries is selected to be used.

CODEC

For CODEC, 3054/3057 that has been mounted on the existing 8SLI board is used.

Balance Hybrid

Balance Hybrid has already implemented inside the Hybrid. But, it is implemented into 600 Ω. Therefore, the circuit that matches to the Complex resistance is mounted as the additional Hybrid together with CODEC.

Protection

There are the primary protection and the secondary protection.

- Primary Protection
  Varistor is connected between the tip and the ring, and protects the elements connected between the tip and the ring.
- Secondary Protection
  The secondary protection is performed by connecting the Zener Diodes to the TRANS secondary side.

Ring Generator

- DC-DC converter
  - Converges the 48 V DC voltage into 75~80 V DC voltage. RC filter at the input end is used in order to remove the noise when the electric noise generated at the ring generator is entered together with the -48 V DC power.

2.5.5 16SLI board

16SLI board processes simultaneously 16 voice channels, and is mounted on the universal slot of the OfficeServ 7400. The board can be connected to the general phone via the 16SLI board. All data generated at the 16SLI board are transmitted to the MP40 board or to Lp 40 board via the data bus.

2.5.5.1 Block Diagram

The block diagram of the 16SLI board is shown below:

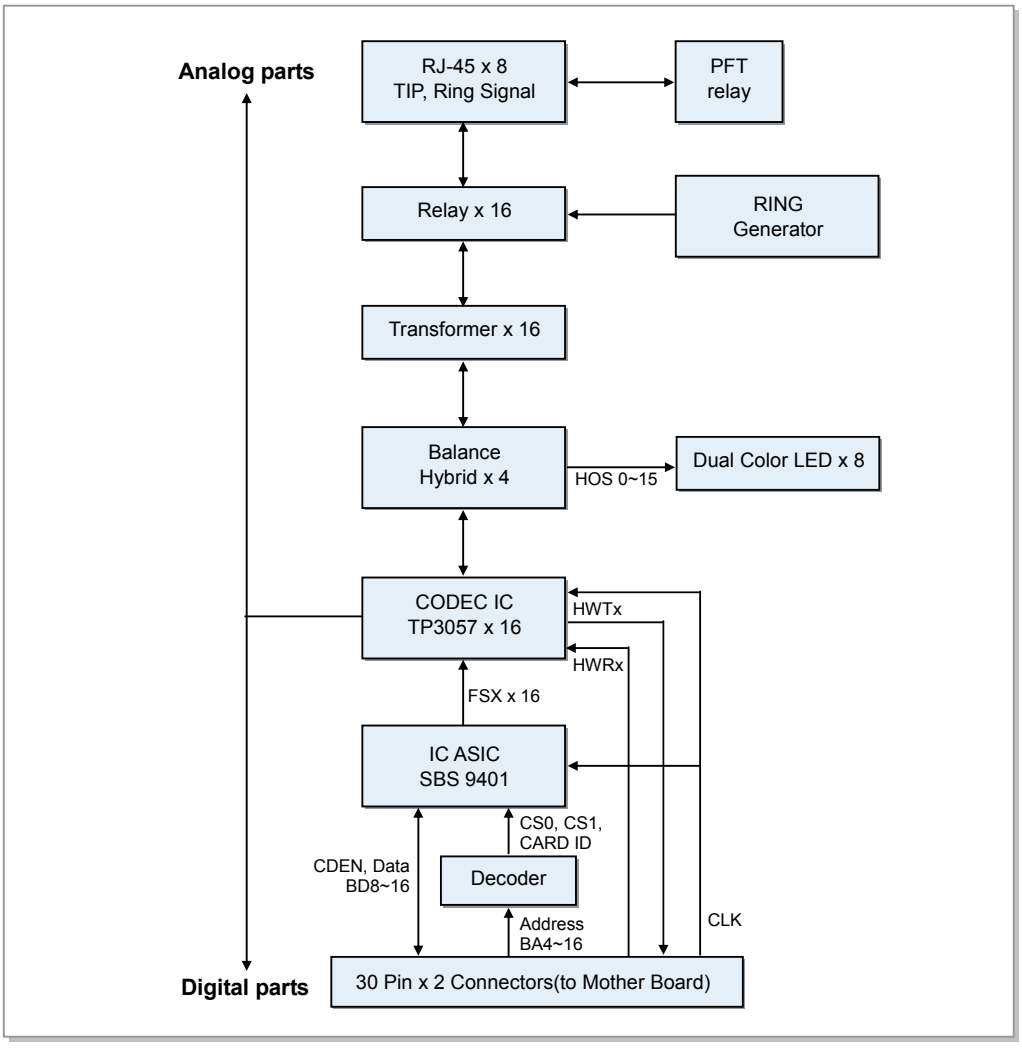

Figure 2.10 Block Diagram of the 16SLI Board

2.5.5.2 Main Functions

For the main functions of the 16SLI board, refer to '2.5.4.2 Main functions of the 8SLI board' of this manual.

2.5.6 16SLI2/16MWSLI board

16SLI2 board is the board that provides 16 port of the analog internal line, and provides the voice communication function by the interwork with the general phone via the internal line. 16MWSLI board is the board where the message waiting function is added to the same function as 16SLI2.

2.5.6.1 Blic Diagram

The block diagram of the 16SLI2/16MWSLI board is shown in the table below:

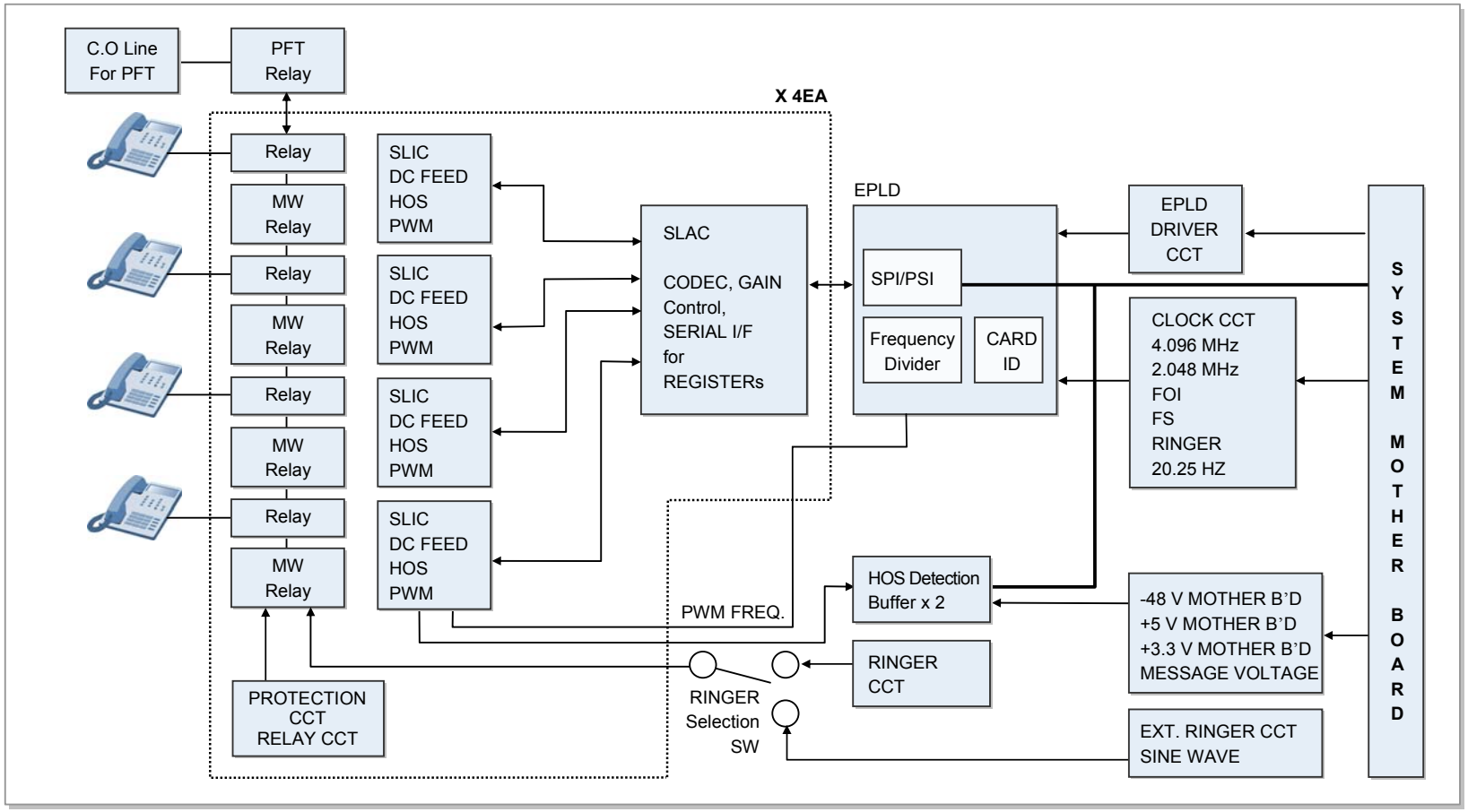

Figure 2.11 Block Diagram of the 16SLI2/16MWSLI Board

2.5.6.2 Main Functions

The main functions of the 16SLI2/16MWSLI board are as follows:

Line Interface

Message Waiting Lamp On, Battery Feeding, Ringing Relay, and Hook-Off are included and the protection against the surge discarded from the line is also included.

Ring Generator

The ring generator receives the Square wave of 20/25 Hz supplied from mother board, generates the square wave ring signal, and provides them to SLT. In addition, it provides the ring signal coming from the external sine ringer installed additionally to the line.

Message Waiting Functions

Message Waiting function is the one of turning on periodically the lamp of the MW phone having the messages remained in the specific internal line. MW voltage is commonly used with the internal Ringer circuit, and the output voltage is more than 100 V. In the MWSLI, the internal Ringer circuit is needed for the use of the MW voltage even when the external ringer is used.
The cycle of MW Lamp can be adjusted at the KMMC #511.
In the **[Continuous LED]**, if making the lamp always turned on, and making the lamp periodically On/Off,

1) Select **[INTERRUPT LED]**, and press the **[Right]** soft button.
2) Moves into the time cycle with **[Right]** soft button.
3) Enter the ring cycle data in the order of On time, Off time.

Le79555-2QC

Le79555 is the Subscriber Line Interface Circuit IC made by Legerity Co. Ltd.
Its package type is 32Pin QFN, and includes the Polarity Reverse function.
It performs the main functions of the subscribers by the interface with the Le58QL021 QSLAC I.C.

Le58QL021

Le58QL021 is the Quad Low Voltage Subscriber Line Audio Processing Circuit I.C made by Legerity Co. Ltd. One I.C has four Codecs and filter, and is connected to four SLIC and SPI Bus.
The following can be programmed by using the internal filter.

- SLIC device input impedance
- Transhybrid balance
- Transmit and receive gains
- Equalization(frequency response)
- Digital I/O pins
- Programmable debouncing on one input
- Time slot assigner
- Programmable clock slot and PCM transmit clock edge options

2.5.7 8HYB/8HYB2 board

The boards of 8HYB and 8HYB2 are the ones where 8SLI and 8DLI function can be simultaneously used, which is mounted on the universal slot of OfficeServ 7400 to be used.

2.5.7.1 Block Diagram -DLI Part

The bock diagram of the 8HYB/8HYB2 board's DLI part is shown below:

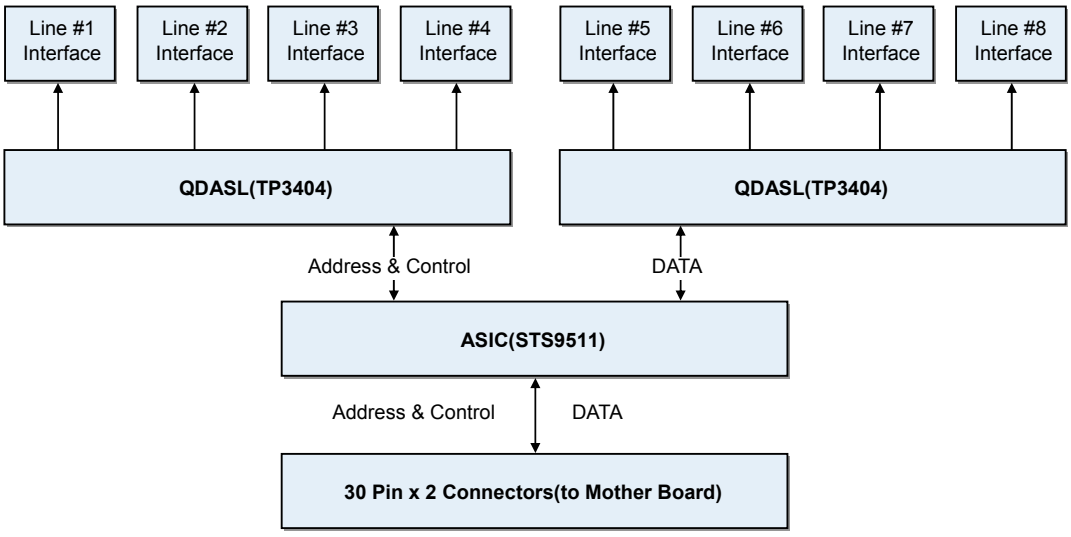

Figure 2.12 Block Diagram of the 8HYB/8HYB2 Board DLI

2.5.7.2 Block Diagram -SLI Part

The block diagram of the 8HYB/8HYB2 board's SLI part is shown below:

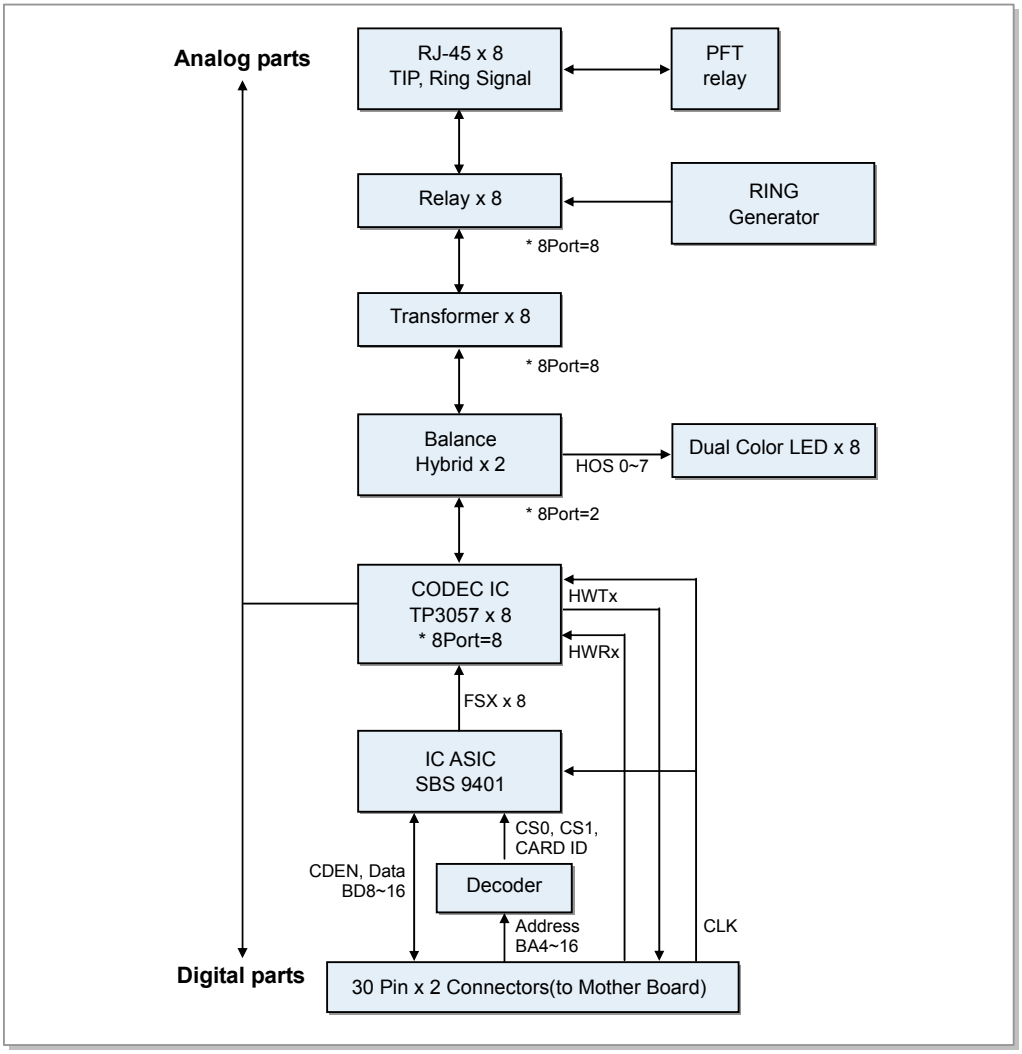

Figure 2.13 Block Diagram of the 8HYB/8HYB2 Board SLI Part

2.5.7.3 Main Functions

The main functions of the 8HYB/8HYB2 board are as follows:

- Analog internal line and the digital internal line are simultaneously provided.
- 20/25 Hz ring is generated.
- DTMF/Dial Pulse sensing
- Hook-Off sensing
- Tone Generation function
- Eight ports of the analog internal line and eight ports of the digital internal lines are provided.
- Eight ports of SLI and eight ports of DLI function are provided in one board Ass'y.
- 16 ports are configured by using the eight ports of RJ-45. No. 4 and no. 5 pins inside are used in the SLI port, and no. 7 and 8 pins are used as the DLI port.

2.5.8 8DLI board

8DLI board provides eight ports and can be connected to the digital phone. One port uses the transmission element where the interface of 2B + D(two voice channels of 64 kbps and one signal channel) can be performed.
For the signal transmission, Alternative Marking Inversion(AMI) of the full multiplex mode of 144 kpbs as the code transmission mode, by which all the voice channel and the data channel can be used in end-to-end communication. The actual transmission rate between the 8DLI board and the digital phone is. 16 kbps is used for the synchronization among the 48 kbps, which is the part where144 kbps is excluded, and the rest 32 kbps transmits the null data.
For the transmission path between DLI board and the digital phone, the line with the thickness of AWG 26 is used, and the maximum transmission distance is 400m. DLI board supplies the -48 V power to the phone, and is configured with the poly switch blocking the excessive current and the circuits for the digital interface.
On/Off of the -48 power is controlled via the Fet inside 8DLI board.

2.5.8.1 Block Diagram

The block diagram of the 8DLI board is shown below:

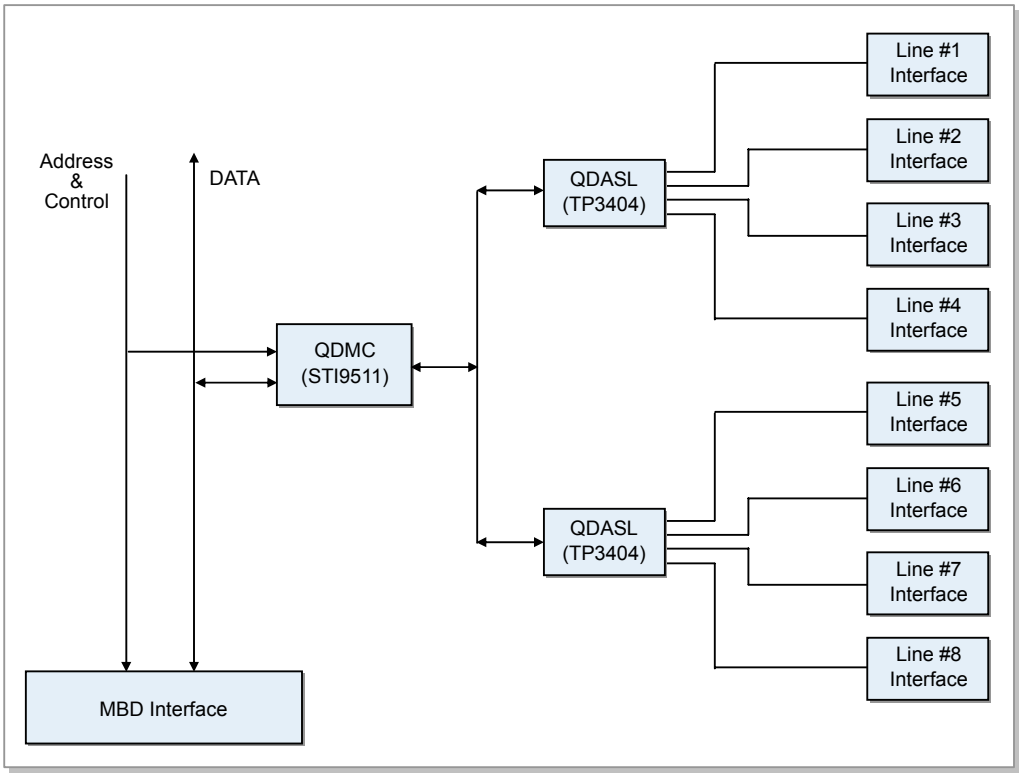

Figure 2.14 Block diagram of the 8DLI Board

2.5.8.2 Main Functions

The main functions of the 8DLI board are as follows:

QDMC (STI9511)

QDMC(STI9511) is the ASIC of special use for controlling TP3404, which is the Quad Digital Adapter for Subscriber Loops(QDASL) chip made by National Semiconductor Co. Ltd. TP3404 controlled by this chip is the extension of the TP3401/3402/3403 that has be used. It is the chip where the transceiver of the single-channeled Time Compression Multiplexed(TCM) is extended into four ports and of which Micro wired control and the other control structure are changed.

The functional characteristics of the Quantum Discrete Memoryless Channel(QDMC) are as follows:

- Data Transmission/Reception function in the UART format for D channel
- The selectable speed of UART(2/4/8/16 kbps)
- B channel of By-pass Interface function
- Micro wired Serial Control(16-bit) interface

- TP3404 2 chip control(Totally 16 channels are available.)
- Recognition function of the used board and the Identification
- 4.096 MHz master clock
- 5 V operation
- 60 pin Quad Flat Pack(QFP)

QDASL Interface

For the D channels used in the serial data transmission, there are RxD and TxD.
D channel makes the AMI codes with B channel, and transmits them to the line. D channel data are used in the phone control, and B channel data are used in the manufacture of voice signals. There is the /INTD for processing the micro channel interrupts of QDSL on each port. INT of QDSL is generated only in the access to the micro channel and the initialization of the QDSL. As the generation conditions on this occasion, there are NO SIGNAL(CO), OUT OF SYNC(C1), and BIPOLAR VIOLATION(C7).
INT is generated only in the first power on and in he change of the QDSL status by some error, and is used with binding UART Tx INT and AND GATE. INT is the clock of the µ-CH control part that sets the initial status of the port's QDSL, which is configured with CCLK(1 MHz), CI for the control data entry, and CO for the status output. In addition, B channel opens the hardware buffer by the hardware frame synchronization allocated to itself, and is transmitted to QDSL. The control data is transmitted into the subtime slot slot D-channel where 2-bit 256 channels can be allocated. The subtime slot here means to divide B channel of 8 bits into four by 2 bits. Therefore, the data of four frames should be received in order to receive D channel of on byte from QDSL.
Unlike that, QDMC provides 128 subtime slots.

Digital Phone Interface

AMI code is generated at QDASL(TP3404), transmitted into the general phone via TRANS. AMI codes received at the phone via TRANS are demodulated into the serial data, and are transmitted into QDMC. QDMC converges the entered serial data into the parallel data via UART, and transmits them to CPU. In addition, the voice data transmits the data of PAL(22 V10) to the highway with /TSB of QDSL.
One QDMC controls two QDASL(Totally eight ports), and adds the /TSB signals generated at each QDSL to use them.
For the TRANS for matching, DLT-1 is used. The resistance 100 Ω on the QDASL LO end is for matching the impedance, and 2µ F is used for reducing the noise. And two Zener diodes(3.6 V) of the TRANS entry end is used for protecting Hazard. The -56 V power that is provided to the phone is supplied via the poly switch in order to prevent to flow an excessive current in the phone. Varistor on the RANS entry end is for the Hazard protection.

Transportation Block

The transportation block is the circuit block that transmits the data(D-channel) and the voice(B-channel) between the digital phone and the 8DLI board in the full duplex mode. 8DLI board is the master board, which operates in the slave mode. When the master transmits the transmission data, the slave, after receiving the data, has a little guard time(stop time), and transmits the transmission data. And the master used the ping-pong mode receiving the data.

The -48 V DC voltage is supplied to TRANS via the poly switch, and the poly switch performs the control the current when there a short occurs in the path, and the Zener diode performs the protection against the outside high voltage.

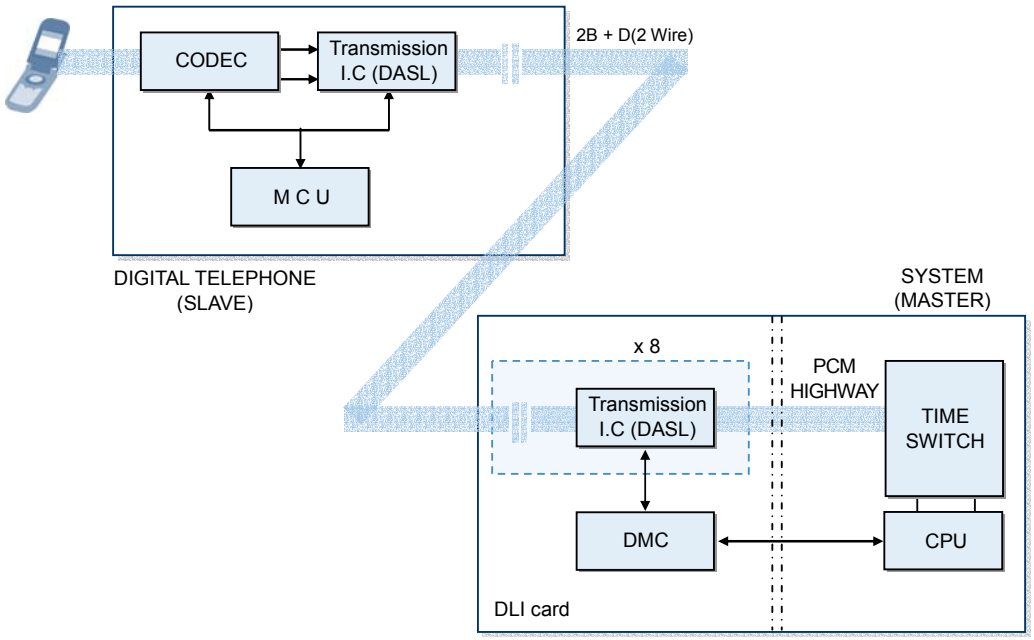

Figure 2.15 Basic Configuration Diagram between Digital Phone and System

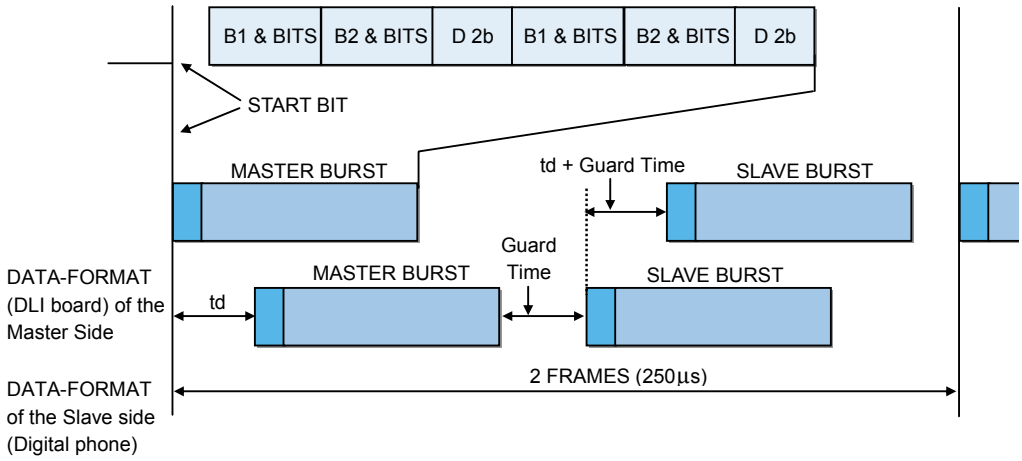

Figure 2.16 Data Transmission Format Diagram

2.5.9 16DLI/16DLI2 board

The boards of 16DLI and 16DLI2 provides 16 ports of the circuits of the interface with the digital phone that is the terminal of OfficeServ 7400 system, Digital Pulse Interval Modulation(DPIM), and uses QDSL where the interface with four 2B = 1D(two voice channels of 64 kbps and one channel of 16 kbps) can be performed.

For the signal transmission, the AMI coding mode of 144 kbps full duplex is used. For the ene-to-end communication, the voice channel B1 and B2, and two channels are supported, by which two internal lines can be connected to one port.

The actual transmission between 16DLI board and the digital phone is 192 kbps, 16 kbps for the synchronization among the 48 kbps excluding 144 kbps of 2B+1D is used, and 32 kbps is used for the Null data. For the physical transmission path between 16DLI/16DLI2 board and the digital phone, the line of the AWG 26 thickness is used, and the maximum transmission distance is 400m.

In UART inside QDMC, there are three buffers of RX, TX composed of one byte. When more than three buffers are used, the data are damaged. Therefore, the data should be transmitted after the buffer status is checked. That is, when the parallel data are converged into the serial data at QDMC to transmit them to QDSL, QDSL converges the received data into AMI code to transmit them to the digital data. Unlike that, the signal data generated at the digital phone converges the serial data into the parallel data at the UART Rx buffer inside QDMC via QDSL and transmits them to CPU. On/Off of the -48 V power is controlled via the FET inside the 16DLI board.

2.5.9.1 Block Diagram

The block diagram of the 16DLI/16DLI2 board is shown below:

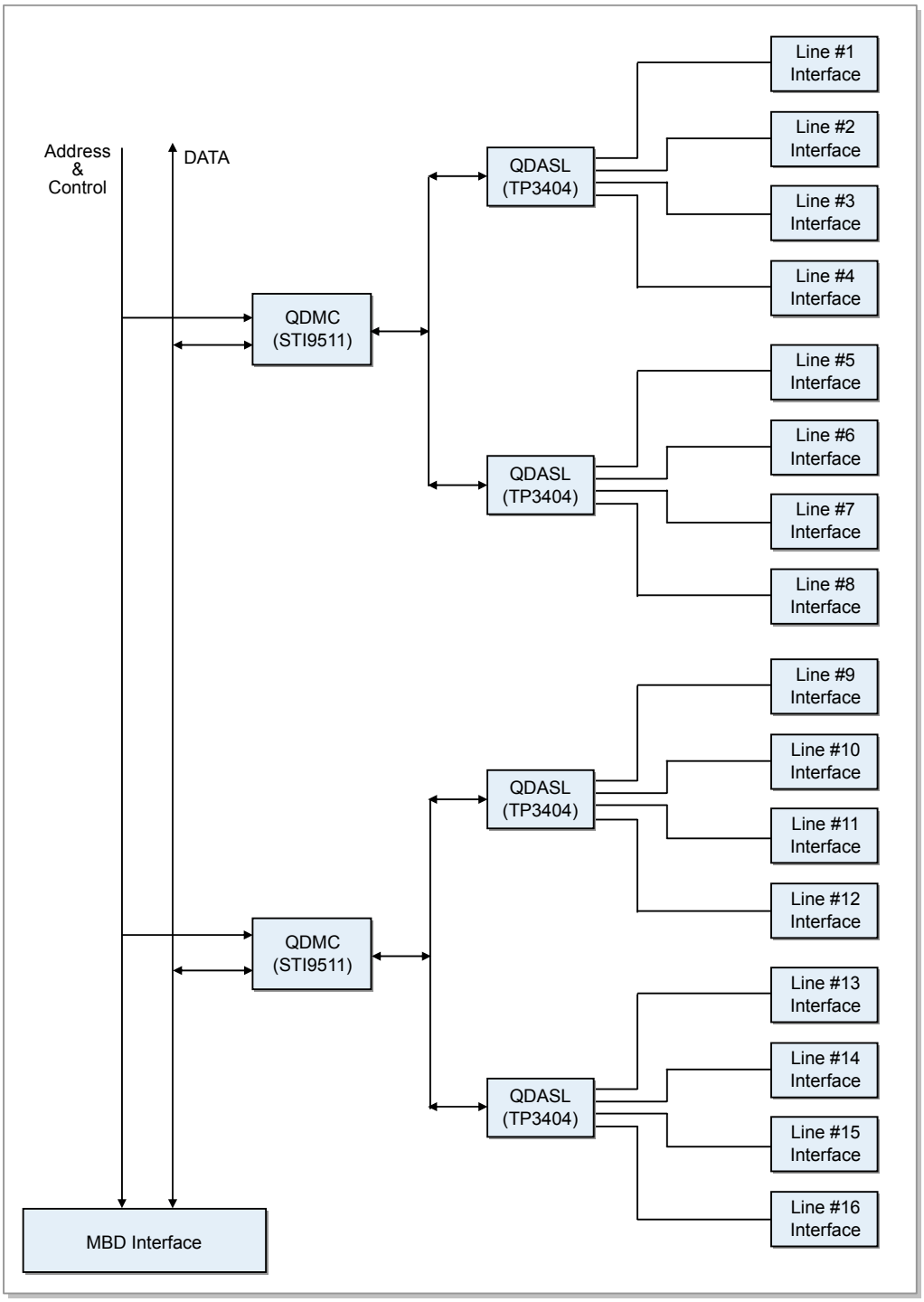

Figure 2.17 Block Diagram of the 16DLI/16DLI2 Board

2.5.9.2 Main Functions

The main functions of the16DLI/16DLI2 board are as follows:

QDMC (STI9511)

QDMC(STI9511) is ASIC of special use for controlling TP3404, which is the Quad Digital Adapter for Subscriber Loops(QDSL) made by National Semiconductor Co. Ltd. TP3404 is the chip that expands the transceiver of the single-channeled Time Compression Multiplexed(TCM) transmission mode into four ports and of which micro wired control and other control control structure are changed.

The functional characteristics of QDMC are as follows:

- Data transmission/reception function of UART format for D channel
- Selectable UART speed(2/4/8/16 kbps)
- B channel of By-pass Interface Functions
- Micro wired Serial Control(16-bit) interface
- Two TP3404 control layers(Totally 16 channels available)
- Used board and identification recognition function
- 4.096 MHz master clock
- 5 V operation
- 60 QFP

QDASL Interface

As for D channel for the serial transmission, there are RxD and TXd.
AMI codes are made with B channel to be transmitted to the line. D channel data are used for controlling the phone, and B channel data are used for making the voice signals. There is //INTD for processing the micro interrupts of QDSL in each port. INT of QDSL are generated only in the access to te micro cannel and the initialization of QDSL. As for the INT generation conditions on this occasion, there are NO SIGNAL(CO), OUT OF SYNC(C1), and BIPOLAR VIOLATION(C7).
INT is generated only when the power is firstly on and when the QDSL status is changed by some errors. Therefore, UART Tx INT and AND gate are bound to be used. INT is the µ-CH control part that sets the initial status of QDSL, which is configured with CI for the control data entry and CO for the status output. In addition, B channel opens the hardware buffer with itself matched with the hardware frame synchronization allocated to itself, and is transmitted to QDSL, and the control data are transmitted into D-channel where 2-bit 256channels can be allocated. The subtime slot here means to divide the B channel of 8 bits into four by 2 bits. Therefore, if D channel data of one byte are to be received from QDSL, the data of four frame should be received.
Unlike that, QDMC provides 128 subtime slots.

Digital Phone Interface

AMI codes are generated at QDASL(TP3404) to be transmitted to the general phone via TRANS. AMI code received at the phone via TRANS are demodulated into the serial data to be transmitted to QDMC, and QDMC converges the entered serial data into the parallel data via UART to transmit them to CPU. In addition, the voice data of DASL are transmitted into the high way with /TSB of.

One QDMC controls two QDASLs(totally eight ports). Therefore, /TSB signal s generated at each QDSL are combined to be used.

For the TRANS for matching, DLT-1 is used. The resistance 100 Ω on the QDASL LO end is used for matching the impedance, and 2 μ F is used for reducing the noise. In addition, two Zener diodes(3.6 V) of the trans input end are for the Hazard protection.

-48 V power supplied to the phone is supplied via the poly switch in order to prevent the flow of excessive current in the phone. Varistor of the input end of TRANS is for the Hazard protection.

2.5.10 MGI Board

MGI board is mounted on the universal slot of OfficeServ 7400 system, and provides the voice communication function via IP network. MGI board is connected to 10/100 Mbps Ethernet, and performs coding/decoding the voice data in the mode of ITU-T or G.723.1 G.729.

2.5.10.1 Block Diagram

The block diagram of the MGI board is shown below:

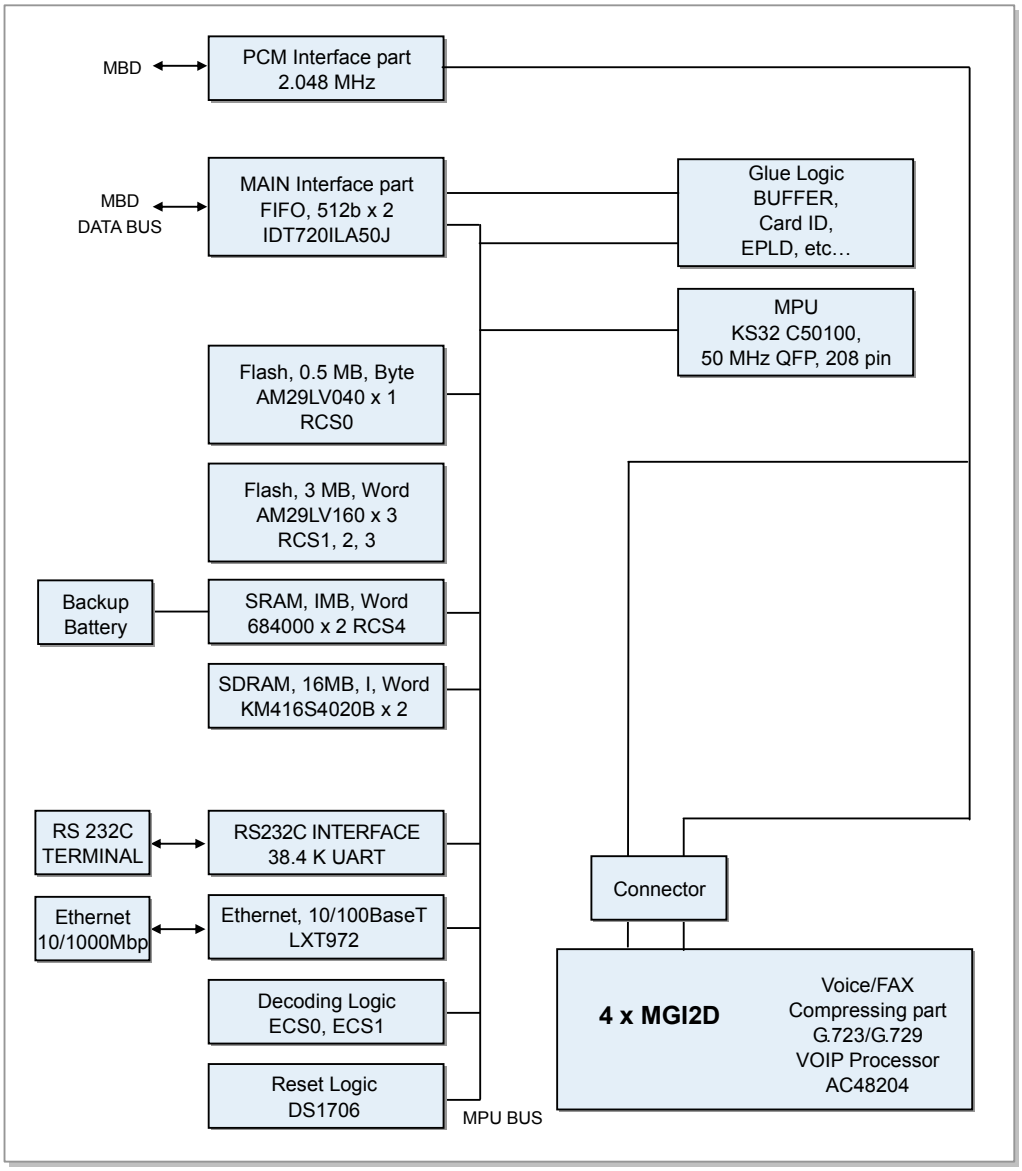

Figure 2.18 Block Diagram of the MGI board

2.5.10.2 Main Functions

On the MGI board, four MGI2Ds, which is an option board configured with VoIP CODEC AC48204 and SRAM, are mounted. The main functions of MGI board are as follows:

CODEC AC48204

- The maximum acceptable channels are 16 EA(4CH/Chip × 4 EA).
- The interface between CODEC and the host is implemented into Erasable Programming Logic Device(EPLD).
- For CODEC, the one made by AudioCodes Co. Ltd. is used.
- Four separate voice, fax channels per chip are supported.
- H.323 voice coder that can be configured by users is used.
- 'Soft', Field-upgradeable Functionality
- Roburst Bad Frame Interpolation(BFI)
- G.165/G.168 Adaptive Echo Canceller
- Toll Quality Voice that lowers the bit rate to the average of 3.2 kbps by using Silence Suppression.
- TIA 464A DTMF sense/generation
- MF sense/generation
- Parallel host processor interface
- Tone signal that can be programmed by the host
- Configurable PCM Interface: PCM highway or parallel interface
- On-chip PCM highway interface(G.711 μ-law/A-law PCM Interface where the host configuration time slot can be allocated and selected)
- Gain control

RS-232C Interface

- UARTO inside KS32C50100 used.
- Maximum 38.4 kbps UART
- Used for debugging, Flash memory update, DSP program update, and test

MCP Interface

- Two FIFO IDT7201LA50J used
- 512 bite each of Tx, Rx
- Card ID: 7D(8 CH): 7C(16 CH)
- Card ID is automatically changed when the option board is connected.

Power

- 3.3 V used(1.8 V Power generated at 3.3 V.)
- 5 V used.
- The circuit for supplying2.5 V later is designed in advancement
- The connection between 5 V and 3.3 V device is implemented by the insertion of the private buffer for securing the reliability.

Ethernet Interface

- LXT972 used: Ethernet Interface PHY transceiver
- RJ-45 connector used

Reset Logic

- Power On Reset
  - Reset when lowering the power into 3.O V or less by using the DS1706 Power monitor chip.
  - When the power turns on, the reset signal is added till the power becomes stable. After a certain time elapses, the signal is cancelled, and the normal operation starts.
  - Assert/RESET of KS32C50100.
- DS1706 Watchdog Timer Reset
  - Resets when there is no change in the WATCH DOG timer for more than 1.2 seconds.(Connect the TD pin to VCC.)
  - Assert the /RESET.
  - It is implemented that, in preparation for the situation that the /AS does not come out, WDT or CPUCLK can be selected at the status input end of DS1706 as jumper.
- Manual Reset
  - Operates by sensing that the reset switch I pressed.
  - Reset switch is connected to the /RESET of KS32C50100 after it passes through the logic of sensing EPLD by using the SR flip-flop circuit.
  - The output of the reset switch is connected by the push button reset entry of the DS1706, and DS1706 is connected by entering/RESET of KS32C50100.
- DSP Reset
  - In the initialization of the DSP, the reset of the DSP can be controlled or maintained at random by software for downloading the kernel program. Therefore, it is designed that the reset can be performed when a certain addresses by each DSP are entered.
  - Each DSP in the main software should be reset in the software dimension when the booting is performed after the Power On Reset.

2.5.11 MGI64 Board

MGI64 board is mounted on the universal slot of the OfficeServ 7400 System, and makes the voice calls via the IP network available. MGI64 board is connected to the 100 Mbps Ethernet, and performs the coding/decoding of the voice data in the mode of the ITU-T.(G.711, G.723.1, G.729)

2.5.11.1 Block Diagram

The block diagram of the MGI64 board is shown below:

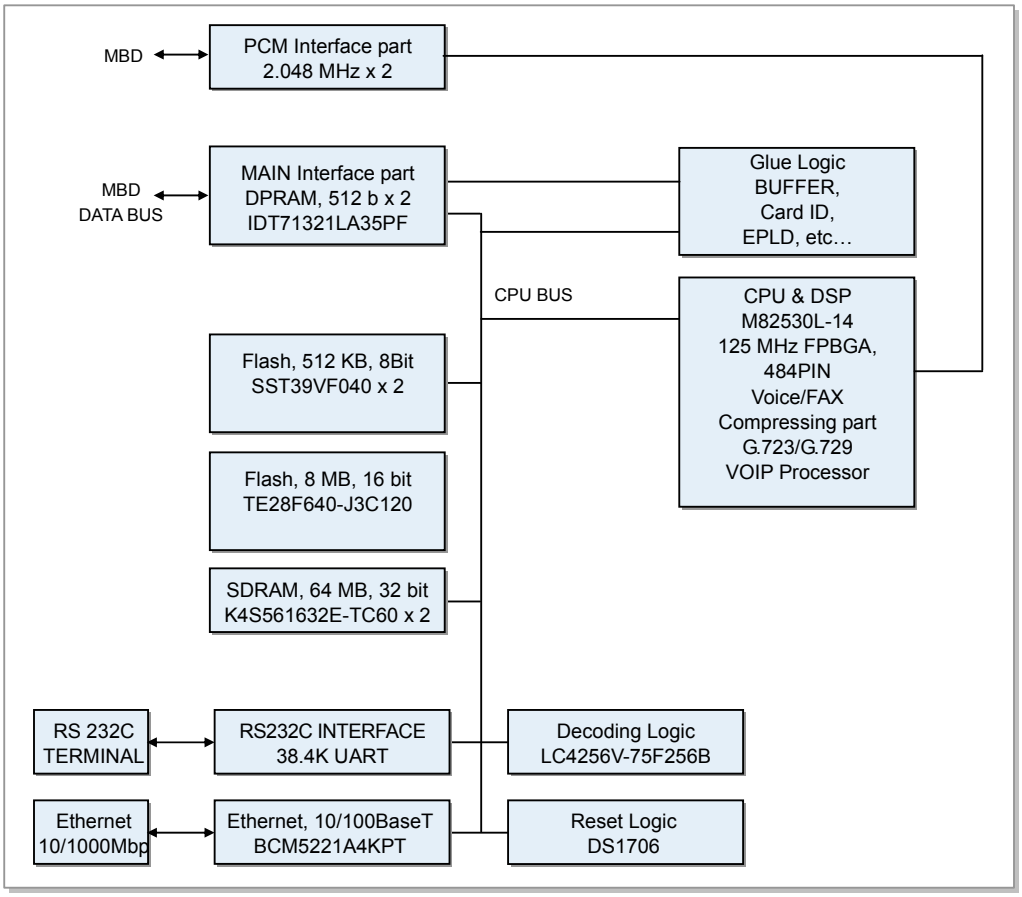

Figure 2.19 Block Diagram of the MGI64 Board

2.5.11.2 Main Functions

The main functions of the MGI64 board are as follows:

CODEC M82530 (MAIN CPU & DSP)

- The maximum acceptable channels are 64.
- CODEC and the host are implemented together inside the chip.
- For CODEC, the one made by MindSpeed Co. Ltd is used.
- 64 separate voice channels per chip are supported.
- 'Soft', Field-upgradeable Functionality
- Roburst Bad Frame Interpolation(BFI)
- G.165/G.168 Adaptive Echo Canceller
- Toll Quality Voice that lowers the bit rate into the average of 3.2 kbps by using the Silence Suppression.
- TIA 464A DTMF sensing/generation.
- MF sensing/generation.
- Parallel host processor interface
- Tone signal that can be programmed by the host.
- Configurable PCM Interface: PCM highway or the parallel Interface
  On-chip PCM highway interface(G.711 μ-law/A-law PCM Interface that the host configuration time slot can be allocated and selected.)
- Gain control

RS-232C Interface

- UART0 inside M82530 used
- Maximum 38.4 kbps UART
- Used for debugging, DSP program update and test.

MP40 Interface

- Two FIFO IDT7201LA50J DPRAM used.
- 2 Kbytes by combining Tx and Rx.
- Card ID: 7D

Power

- 5 V used.
- The circuit for the supply of 3.3 V is implemented by using 5 V.
- The circuit for the supply of 1.2 V, which is the power for CPU core is implemented by using3.3 V.
- The connection between 5 V and 3.3 V devices is implemented by the insertion of the private buffer for securing the reliability.

Ethernet Interface

- BCM5221 used: Ethernet Interface PHY transceiver
- RJ-45 connecter used.

Reset Logic

- Power On Reset
  - Reset is performed when the power is lowered into 3.0 V or less by using the DS1706 Power monitor chip.
  - When the turns on, the reset signal is added till the power becomes stable. And after a certain time elapses, the signal is cancelled, and the normal operation starts.
- WATCH DOG Timer Reset
  It is implemented that the board reset is generated unless the access to the specific address inside CPUrk CPLD is made within five seconds by using the internal clock inside OSC that is entered into CPLD.
- Manual Reset
  - Operates by sensing that the reset switch is pressed.
  - Reset switch connects the reset signal inside the CPLD by using the DS1706, and the reset signal is generated at CPU, FLASH ROM, PHY, and STL7065.

2.5.12 4DSL Board

4DSL board performs the data transmission/reception with the IP device long-distanced outside from the intranet by sing the VDSL technology, and is mounted on the universal slot of the OfficeServ 7400 System.

2.5.12.1 Block Diagram

The block diagram of the 4DSL board is shown in the table below:

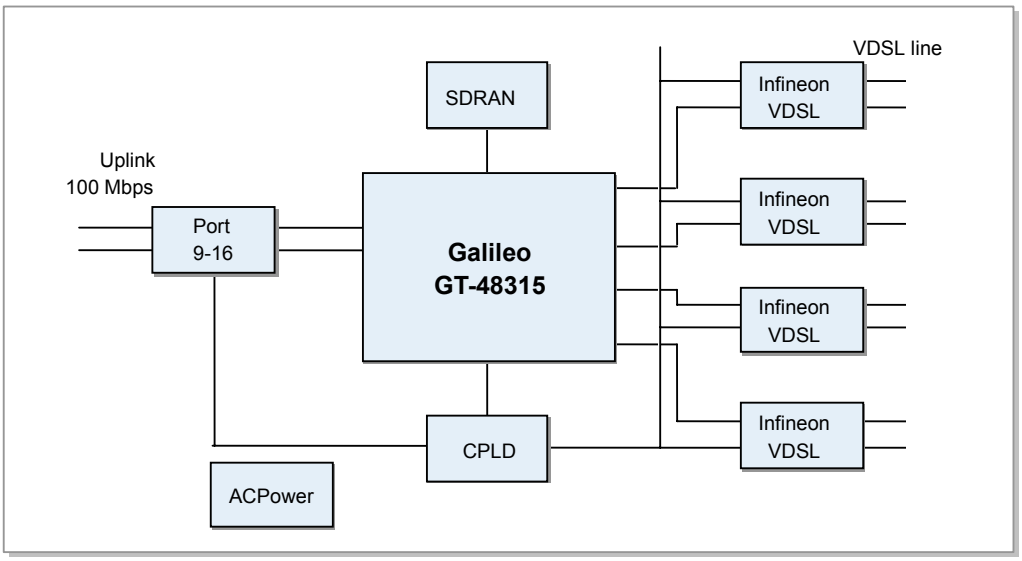

Figure 2.20 Block Diagram of the 4DSL Board

2.5.12.2 Main Functions

The characteristics of the 4DSL board b each block are as follows:

Digital Transceiver (DSP)

- PEF 22818 Ethernet, ATM single port chipset, P-TQFP-144-10 package
- 10/100 M Ethernet Interface
- 2 ATM UTOPIA level 2 PHYs(slave), or dual master Interface
  - 2 Mbit/s PCM Interface(on the non-interleaved(fast) channel)
- External host parallel port
- Serial UART Interface
- EEPROM Interface(I2C)
- Model initialization, monitoring, and firmware upgrade via the RS-232 port.
- Reed Solomon FEC(Forward Error Correction) coding
- Power: Core 1.2 V, I/O 3.3 V

Analog Front End (AFE)

- PEF 22815, 64 pin P-TQFP package
- 12 MHz analog bandwidth
- 13 bit DAC/ 12 bit ADC
- Automatic Gain Control(AGC)
- Clock source: 38.88 MHz
- Power: Analog, digital 1.8 V, digital I/O 3.3 V

VDSL Line Driver

- PEF 22810, P-DSO-8-3 package
- Line Driver for VDSL
- 14 Vp-p differential voltage swing at +/-5 V supply voltage
- 10 dBm transmit power on the line at +/-5 V supply voltage
- Power: +/-5 V

2.5.13 4WLI Board

4WLI board is the one used for the system connected to the WBS24 Base Station in order to provide the wireless LAN function. For the base station, the WBS24 board(to be release afterwards) is used. Up to four base stations can be served at each 4WLI, and the number of the maximum available simultaneous calls are 16, and can be used by registering 48 terminals.

2.5.13.1 Block Diagram

The block diagram of the 4WLI board shown in the figure below:.

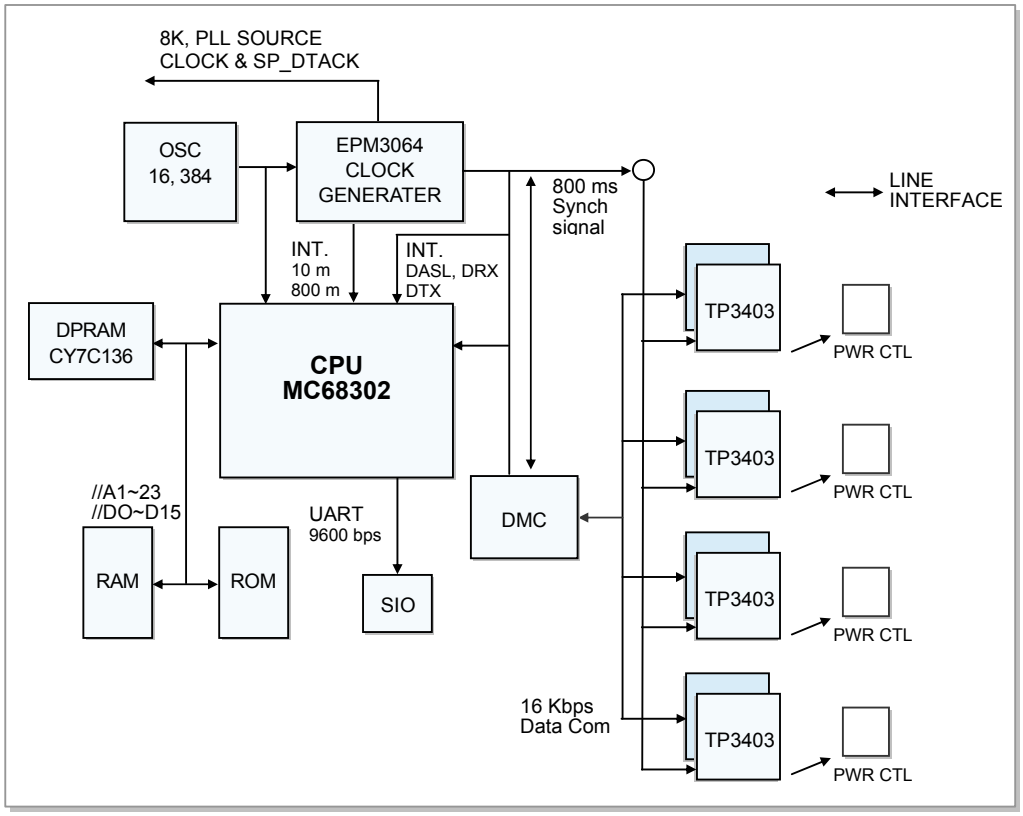

Figure 2.21 Block Diagram of the 4WLI Board

2.5.13.2 Main Functions

The main functions of the 4WLI board are as follows:

CPU

- For the processor, the MC68302 made by Motorola Co. Ltd is used, and heightens the operation speed via the 16-bit Word Operation.
- For the interrupt, the Dedicate mode is selected, and
- LEVEL7 is used as ABORT,
- LEVEL6 as DASL INT,
- LEVEL4 as DASL UART Rx, Tx, 10 ms INT,
- LEVEL1 as 800 ms INT.
- The time point of the DASL SYNCH data transmission is controlled by using I/O port.
- I/O user interface uses SCC3 inside the processor, and its transmission speed is 9600 bps. The program can be upgraded by the PC by using the flash memory of 8 Mbits(1 Mbytes) as the program memory.
- Two 4 Mbits RAM(Total: 1 Mbytes) is used for Word Operation.

Base Station Connection Block

- DMC ASIC chip performs the time slot allocation, UART data communication, micro control for eight DASL transmission chips.
- DASL transmission chip receives the frame signal with the same timing at the base station end connected to each port via the MBS mode. In addition. Two DASLs are connected to each base station. The first DASL supports the UART interface between the base station and 4WLI board for the 16 kbps data communication, and as for the second DASL, by using the DEN mode, the multi frame signals of 800 ms within the tow cycles of the 2.048 MHz B clock are correctly transmitted into all connection base stations.
- EPLD is used for securing the space on the board PCB. Make the savage of the PULL_UP of 1.2 kΩ at the output end of the TTL level in order to implement the connection with CMOS device.
- The power breeding control can be performed by software by using the MOSFET at each port.

Reset Block

Reset block uses the WATCH DOG chip to prevent the abnormal operation of the system resulted from the voltage change, and secures Power On Reset Timing Margin. Manual Reset switch and NMI(Non-Maskable 5)

2.5.14 WBS24 Base Station (To Be Released Afterwards)

Wireless Base Station 2.4 GHz(WBS24) base station is the wireless LAN access point with the system.

2.5.14.1 Block Diagram

The block diagram of the WBS24 Base Station is shown in the figure below:

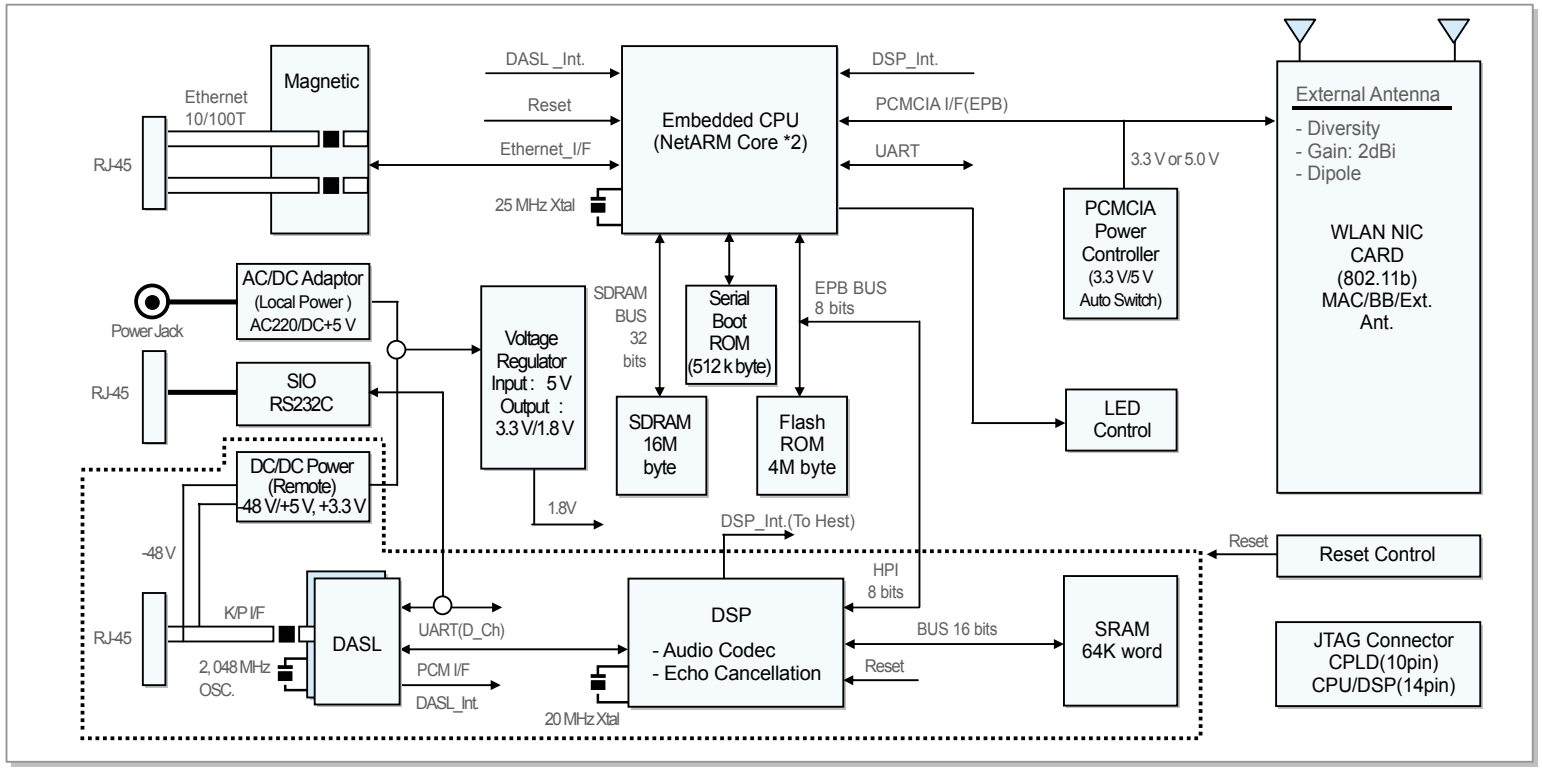

Figure 2.22 Block Diagram of the WBS24 Base Station

2.5.14.2 Main Functions

WBS24 performs the inteface with the system via the 4WLI board mounted ont the OfficeServ 7400 system as shown in the figurebelow, and provides the wireless voice/data service to the system. In addition, the voice received from the WIP-5000M, which is the wireless terminal privately used for the voice si transmitted to the system, and the data received rom the wireless data terminals such as notebook, PC, etc are transmitted into the LAN metwork.

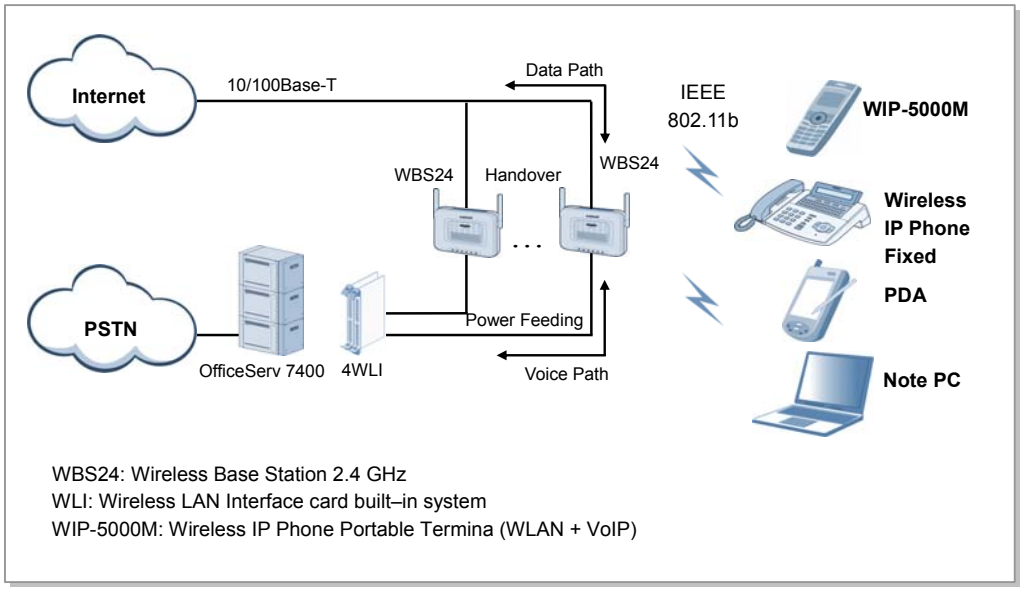

Figure 2.23 Configuration Diagram of the Keyphone Connection

The main funnctions of the WBS24 Base Stationare as follows:

- One maximum 4WLI is mounted on the OfficeServ 7400 System.
- Up to four WBS24 interfaces per 4WLI can be performed.
- Up to four voice channels per WBS24 of simultaneous calls are available.
- The range of the frequency arrival is 50 m indoors(There can occur the difference according to the frequency obstruction materials in the office), and outdoors it is 200 m or more.(when there is no obstruction to the frequency within the visible distance.)
- The -48 V power is provided from the system, and the maximum extensible wired distance is 500 m.
- The calling path formation/maintenance and the Handover function supported.
- Echo Cancellation, Voice CODEC(G.729, G.711) Functions supported.

Table 2.3 System Specification Synchronized with WBS24

Items	System specifications	Remarks
RF Module	- Wireless Standard: IEEE 802.11b - Data Rate: Up to 11 Mbps - Security Function: WEB 64/128 Bit Encryption - Output Power: Up to 100 mW(NIC board 70 mW) - Channel: 13 Channel(Non Overlap Channel: 3) - Interface: PCMCIA	-
Ethernet	- 10/100Base-T(IEEE802.3): RJ-45 Connecter	-
Power Feeding	- Local Power: AC/DC Adapter(AC 220/DC 5 V, 2 A) - Remote Power: DC/DC Converter(-48 V/+5 V, 3.3 V, 1 A)	-
Antenna(External)	- Frequency: 2400-2500 MHz - Antenna Gain: 2.0 dB - Beam-Width: Omni directional(Dipole) - Diversity supported	The directinonalantenna Can be installed according to the installation site.
VoIP	- Audio Codec.: G.711, G.729 - Echo Cancellation: 8~16msec - Voice Channel: 4 Channel supported	-
Keyphone Interface	- Digital Interface of National Semiconductor Co., Ltd. (DASL): RJ-45 - Voice Channel Number: 4 Channel(DASL x 2) - Power Feeding function via the DASL Line is available. (Remote Power supply) - DASL Line extnesion: Up to 500 m	-
Others	SIO for monitor: RS-232C	-

WBS24 has two types of interfaces(wired/wireless). The wired Interface is classified into the interface that is synchronized with the system and the interface that synchronized with the LAN, and the standards of IEEE 802.11 b are applied to the wireless interface.

Wired Interface synchronized with the System

The connection is made to the 4WLI via the Digital adapter Subscriber Loops(DASL), which is the digital transmission of 144 kbps(2B + 1D) speed. One of WBS24 supports two lines of DASL, and one line of DASL provides two voice channels. Thus, one of WBS24 can support tatolly four voice channels simultaneously. In addition, the D channel information for the formatin of the voice calls are transmitted/received via the DASL line, and its transmission speed is 16 kbps. The caoling paths are formed or maintained by transceiving the voice packets received from tehiwreless interface into the system.

Wired Inerface synchronized with LAN

This interface is the Ethernet RJ-45 Interface to which the standards of IEEE 802.3 are applied with 10/100BASE-T, which processes the data transmission/reception such as the internet access excluding the voice from the wireless interface.

Wireless Interface

This interface uses the wireless frequency bandwidth of 2.400~2.4835 GHz, to which the standards of IEEE 802.11b are applied. As for the voice, the voice packets in the wireless sections can be transmitted/received into the VoWLAN through the terminal privately used for voices, and as for the data, the data packets in the wireless sections are transmitted/received via the terminals such as notebook, PDA, etc.
In addition, as for the wireless channels used in the local areas or in U.S.A. 13 channels are used in the local area, and 11 channels are used in U.S.A. 22MHz of bandwidth of 22 MHz per channel are occupied, and the distnace between the center frequency is 5 MHz. Thus, for the clear channel that gives no direct and indirect intervention to the wireless channels each other, the distance of more than 4channels should be made.

WLAN NIC (IEEE802.11b Wireless LAN Board)

In the wireless LAN RF part of WBS24, the regularly used NIC of the PCMCIA Interface type authenticated by WECA(Wireless Ehternet Compatibility Alliance) is used.
The wireless data transmission/reception can be made at the speed of up to 11 Mbps.
The ocnfiguratin of the wireless LAN NIC board is made with three chips of Prism 3.0 made by Intesil Co. Ltd., which is the type of the board where the external antenna can be mounted. In the voice/data packets transmitted/received in the wireless sections, several trminals can transmits/receives the packets in the wireless sections by using CSMA/CA(the mode where other base stations can obtain the transmission/reception opportunities only when the transmission/reception of the base stations that performs the first occupation is completed if the occupation is made firstly in the AIR section).
However, though-put in the wireless sections is lowered because the more the terminals are the less the duty factor in the Air section is. That is, if on the basis of the users of the internet connection and the e-mails in the offices where the wireless is used, about 20 persons can use the data, via the wireless LAN, with one AP that adapts the wireless method of the IEEE802.11b Direct Sequence Spread Spread Spectrun(DSS).
The characteristics of WLAN Nic are as folows:

- Wireless Standard: IEEE 802.11 b
- Data rate: 11/5.5/2/1 Mbps
- Modulation: CCK, BPSK, QPSK
- Network architecture: Ad-hoc, infrastructure
- Security Functions: WEB 64/128 Bit Encryption
- Output Power: Up to 100 mW(NIC board 70 mW)
- Channel: 13 EA Channel(Number of Non Overlap Channel: 3)
- Interface: PCMCIA
- Frequency: 2400-2483.5 MHz
- Antenna Gain: 2.0 dBi
- Beam-Width: Omni directional(Dipole)
- Diversity supported

2.5.15 LIM board

LIM board provides the LAN interface function to support data network to an OfficeServ 7400 system and is mounted on the universal slot of an OfficeServ 7400 system.

2.5.15.1 Block Diagram

Block diagram of a LIM board is described as follows:

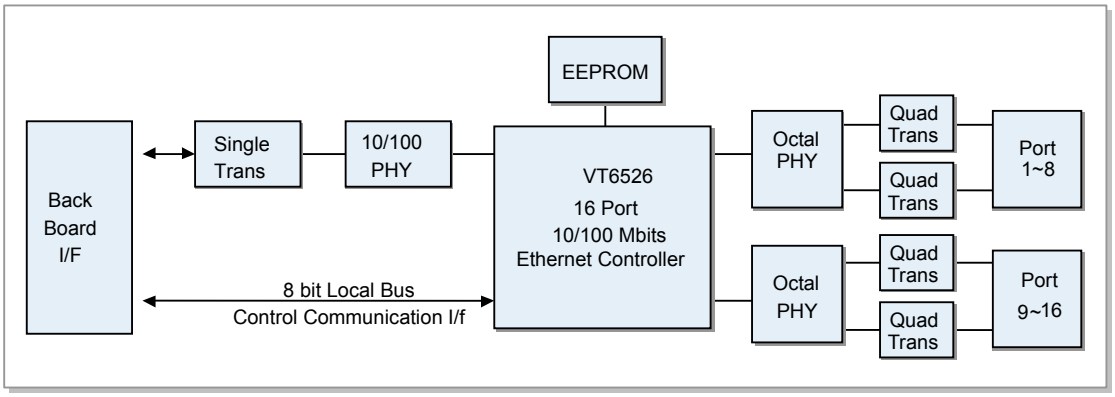

Figure 2.24 LIM Board Block Diagram

2.5.15.2 Main Features

Main features of a LIM board are described as follows:

- Port 10/100 Mbps Ethernet switch function
- Layer-2 level management Ethernet switch function interfaced with a WIM board
- Layer 2 level management/unmanagement function
- Layer 2 level VLAN, 802.1D, and 802.1s functions

LIM board uses Viatech VT6526 Ethernet switch chipset. LIM board is divided into EEPROM part that saves the information required when the a system boots, PHY that processes digita data as analog signals through 4B5B encoding/decoding, 8 bit IDE bus that performs management switch function interfaced with WIM, and 10/100 Mbps 1 port Ethernet to increase the transfer rate of data traffic when interfacing with WIM.

Basically, VT6526, a chipset that enables management.unmanagement, is used. VT6526 is classified into Bootstrap mode, EEPROM mode, and Intelligent CPU mode. Bootstrap mode is a method that sets a physical mode according to the situation whether specific pins are set to High or Low during initial booting while the unmanagement switch operates. EEPROM mode is a method that configures chipset by reading register setting value from NM24C08 connected to VT6526 during initial booting. Intelligent CPU mode is used to interface with WIM board. This mode is a method that receives VT6526 switch chipset register setting value through 8bit IDE bus from WIM bus and configures the setting value. LIM board supports the three modes.

Viatech VT6108 chipset used as 10/100 Mbps Octal PHY supports SMII, S3MII, and RMII interfaces. S3MII interface has more reliability by adding RXCLK compared with SMII. Thus, in this design, S3MII interface is used. VT6108 supports Auto MDI/MDIX so that straight/cross-over cable can be used. The LED displays the link and rate of each port.

When interfacing with WIM board, 8 bit IDE bus and control signal are connected to backplane connector through buffer to perform the management function. In addition, separate Ethernet port is configured not to occur blocking when data is exchanged with WIM board.


NOTE

Interface between LIM and WIM Boards

Since there is no CPU in a LIM board, LIM board should interface with WIM board so that the LIM board operates as Management Ethernet Switch. Thus, in MBD board of OfficeServ 7200, the local bus signals between LIM and WIM boards are connected and WIM board controls LIM board.
However, since in MBD40 board of an OfficeServ 7400, bus signal connection does not exist, LIM board operates only through unmanagement Ethernet switch.

2.5.16 PLIM Board

PLIM board provides the LAN interface function to support data network to an OfficeServ 7400 system and is mounted on the universal slot of an OfficeServ 7400 system.

2.5.16.1 Block Diagram

The block diagram of a PLIM board is described as follows:

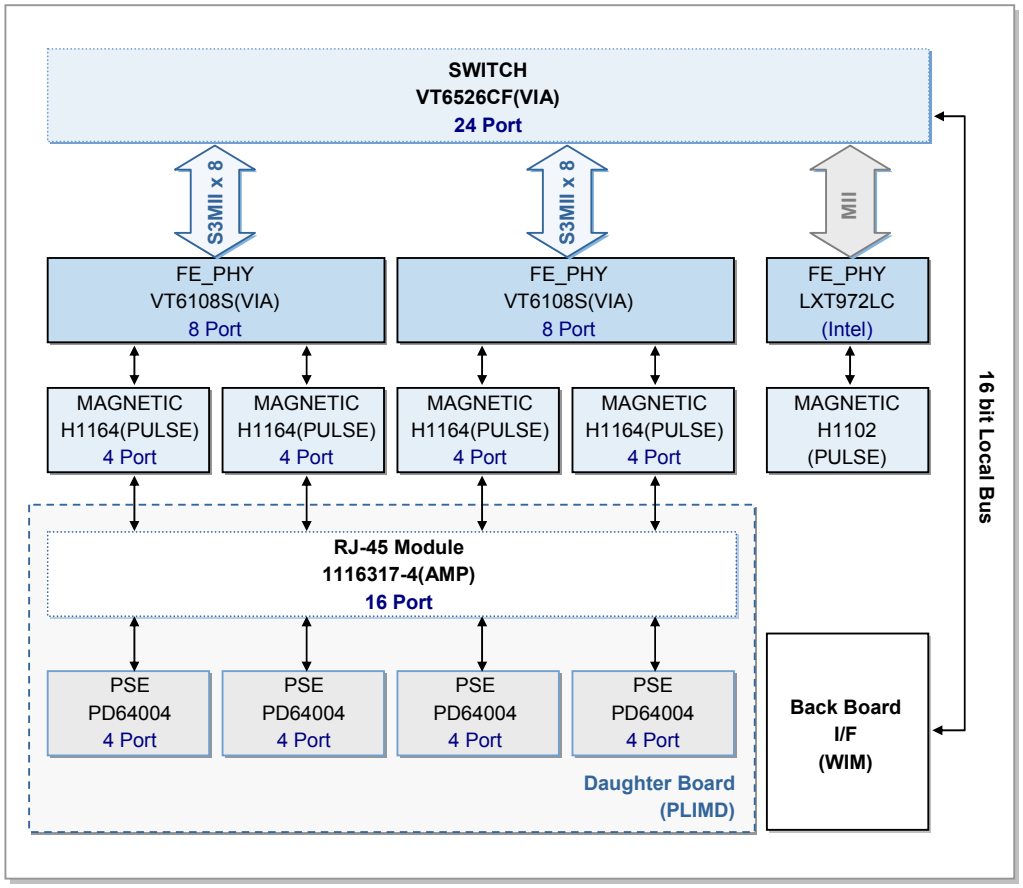

Figure 2.25 PLIM Board Block Diagram

2.5.16.2 Main Features

Main features of a PLIM board are described as follows:

- 10/100 Mbps Ethernet switch function of 16 ports
- Layer-2 level management Ethernet switch function interfaced with a WIM board
- Layer 2 level management/unmanagement function
- Layer 2 level VLAN, 802.1D, and 802.1s functions
- Power Sourcing Equipment(PSE) function for Power over Ethernet(PoE)

PLIM board uses Viatech VT6526 Ethernet switch chipset. This board is divided into EEPROM part that saves the information required when the a system boots, PHY that processes digita data as analog signals through 4B5B encoding/decoding, 8 bit IDE bus that performs management switch function interfaced with WIM, and 10/100 Mbps 1 port Ethernet to increase the transfer rate of data traffic when interfacing with WIM.

Basically, VT6526, a chipset that enables management.unmanagement, is used. VT6526 is classified into Bootstrap mode, EEPROM mode, and Intelligent CPU mode. Bootstrap mode is a method that sets a physical mode according to the situation whether specific pins are set to High or Low during initial booting while the unmanagement switch operates. EEPROM mode is a method that sets chipset configuration by reading register setting value from NM24C08 connected to VT6526 during initial booting. Intelligent CPU mode is used when this board interfaces with WIM board. This mode is a method that receives VT6526 switch chipset register setting value through 8bit IDE bus from WIM bus and configures the setting value.PLIM board supports only Bootstrap mode and Intelligent CPU mode.

Viatech VT6108 chipset used as 10/100 Mbps Octal PHY supports SMII, S3MII, and RMII interfaces. S3MII interface has more reliability by adding RXCLK compared with SMII. Thus, in this design, S3MII interface is used. VT6108 supports Auto MDI/MDIX so that straight/cross-over cable can be used. The LED displays the link and rate of each port.

When interfacing with WIM board, 8 bit IDE bus and control signal are connected to backplane connector through buffer to perform the management function. In addition, separate Ethernet port is configured not to occur blocking when data is exchanged with WIM board.


NOTE

Interface between PLIM and WIM Boards

Since there is no CPU in a PLIM board, PLIM board should interface with WIM board so that the PLIM board operates as Management Ethernet Switch. Thus, in MBD board of OfficeServ 7200, the local bus signals between PLIM and WIM boards are connected and WIM board controls PLIM board.
However, since, in MBD40 board of an OfficeServ 7400, bus signal connection does not exist, PLIM board operates only through unmanagement Ethernet switch.

Actual PoE function is implemented in PLIMD circuit, daughter board, in PLIM, and PD64004 made by PowerDsine is used for Power Sourcing Equipment(PSE) chip. PD6004 provides power of 4 ports of each device. PLIM uses 4 PD64004s and provides the PoE function of 16 ports.

PoE is divided into PSE that provides power through twisted pair LAN cable based on the IEEE 802.3af standard and Powered Device(PD) that receives power from PSE. Thus, PLIM is in charge of PSE role in PoE configuration element by providing the Ethernet switch function that supplies power.

There are two PoE implementation methods, Alternative A that supplies DC power to data signal of a UTP cable and Alternative B that supplies DC power to spare signal of an Ethernet cable. In PLIM, Alternative B method is used.

Power source must be required to provide the PoE function in PLIM. For this, Power Supply Unit(PSU) in an OfficeServ 7400 system provides -54 V. However, since this power is used in another board as well as PLIM due to system characteristics, this board is designed to the structure that PoE only external rectifier(-48~-54 V) can be mounted to increase power capacity.

Thus, to provide PoE power in PLIM board, a user can select PSU power or external rectifier power and shunt is processed on the upper right corner of the board.

- When using PSU power: Connect J1/J2/J3 P1-P2 shunt
- When external rectifier power: Connect J1/J2/J3 P2-P3 shunt

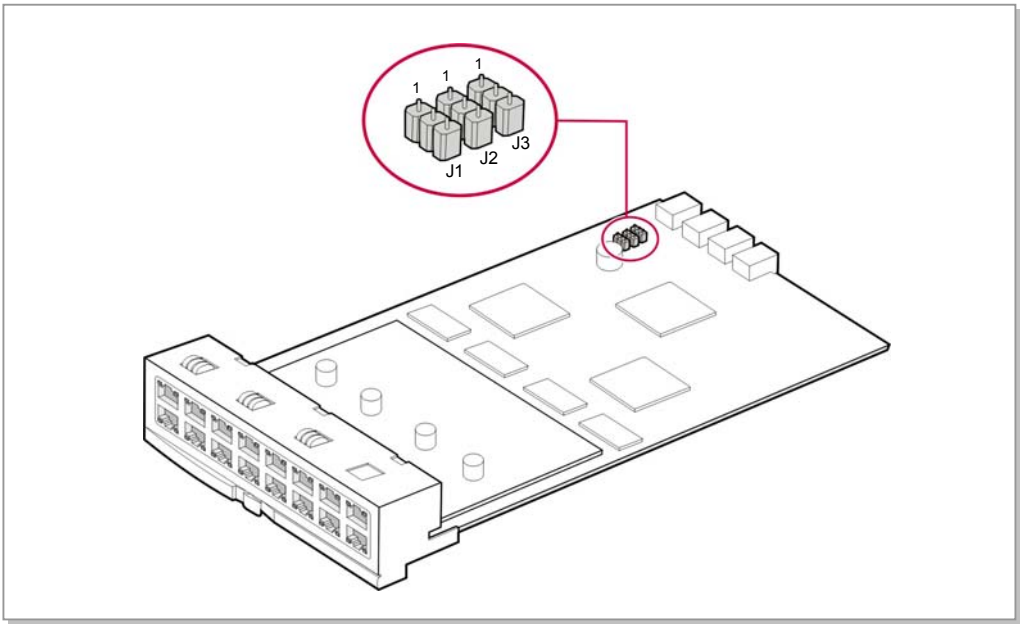

Figure 2.26 PLIM Board PoE Strap Option

CHECK

When connecting shunt in PLIM

J1, J2, and J3 pins should be connected with the same direction to operate the power sent to PLIM.
For example, if, in terms of shunt, J1 is connected to #1 pin and #2 pin, J2 and J3 should be connected to #1 and #2 pins, respectively.

2.5.17 GPLIM Board

GPLIM board is a board that exchanges data in Intranet. GbE interface is added to PLIM board and 10/100 BASE-T interface 12 ports and 1000 BASE-TX/SX/LX 2 ports are provided and this board is mounted on the universal slot of an OfficeServ 7400 system.

2.5.17.1 Block Diagram

The block diagram of a GPLIM board is described as follows:

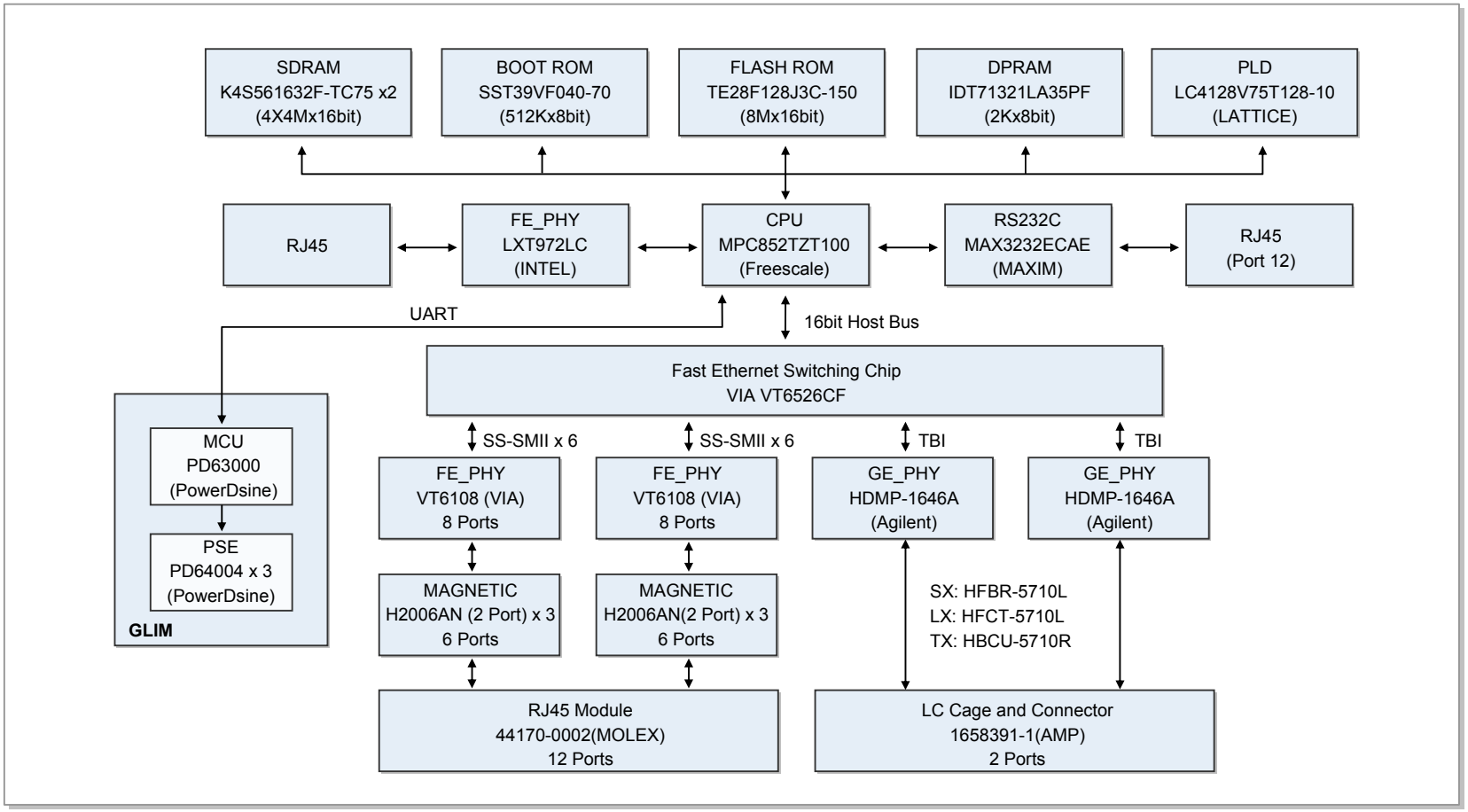

Figure 2.27 GPLIM Board Block Diagram

2.5.17.2 Main Features

Main features of a GPLIM board are described as follows:

- Fast Ethernets of 12 ports + Gigabit Ethernet switch function of 2 ports
- Management layer 2 level switch function
- Functions such as VLAN, 802.1D, and 802.1s
- Power Sourcing Equipment(PSE) function for Power over Ethernet(PoE)

CPU (MPC852TZT100A)

One MPC852 made by Motorola as the main processor. MPC852 operates with 32bit mode through data bus.

Main features of MPC852 are descripbed as follows:

- Embedded Power PC core
- 4 Kbytes data cache and 4 Kbytes instruction cache
- Supports MMU
- 32 bit Dynamic Bus Controller
- 32 bit Address Lines
- Memory controller(8 banks)
- Fast Ethernet Controller(FEC)
- 2 16 bit timers and a 32 bit timer
- Build-in System Integration Unit function
- 7 external interrupt cases and 18 internal interrupts
- High performance SIO operation due to internal communication processor
- On-chip 16x16 Multiply Accumulate Controller
- 2 Baud Rate Generator
- Supports 2 SCCs that enables HDLC communication
- Supports a SMC that enables asynchronous communication
- Supports a SPI that enables serial communication
- PCMCIA interface
- DEBUG interface

Memory

- Boot ROM: 8 bit ROM for boot. Up to 512 Kbytes is supported.
- Flash Memory: Saves OS, application program, and system parameter. Up to 16 Mbytes is supported.
- SDRAM: Saves operation S/W and data. Up to 64 Mbytes is supported.
- DPRAM: Communicates with MP40, main control board, and saves program related with management.

Switch (VT6526)

Provides the switching function of the layer 2 level and provides 10/100 Mbps of 12 ports and 1000 Mbps Ethernet interface of 2 ports.

FE PHY (VT6108)

PHY that supports fast Ethernet uses VT6108 made by VIA Tech. Media interface is connected to RJ-45 and connected to VT6108, a switch chip, through SS-SMII interface.

GE PHY (HDMP16A)

PHY that supports gigabit Ethernet uses HDMP1646A made by Agilent. Media interface is connected to SFP Cage and connected to VT6108, a switch chip, through TBI interface.

PoE

GPLIM, mother board, provides the Ethernet switch function. PoE function is provided by GLIMD board, daughter board. Parts of PSE device and MCU to control PSE should be made by PowerDsine.
Since PSE device 1 provides 4 ports, by using 3 chips, the PoE function of total 12 ports is provided. PD63000, MCU, is connected to a PSE device and can read and write of PD64004 register.

There are two PoE implementation methods, Alternative A that supplies DC power to data signal of a UTP cable and Alternative B that supplies DC power to spare signal of an Ethernet cable. In GPLIM, Alternative A method is used.

Power source must be required to provide the PoE function in GPLIM. For this, Power Supply Unit(PSU) in an OfficeServ 7200 system provides -54 V. However, since this power is used in another board as well as GPLIM due to system characteristics, this board is designed to the structure that PoE only external rectifier(-48~-54 V) can be mounted to increase power capacity.

Thus, to provide PoE power in GPLIM board, a user can select PSU power or external rectifier power and shunt is processed on the upper right corner of the board.

- When using PSU power: Connect J1/J2/J3 P1-P2 shunt
- When external rectifier power: Connect J1/J2/J3 P2-P3 shunt

2.5.18 GSIM Board

Gigabit Switch Interface Module(GSIM) provides gigabit LAN interfaces of the layer 2 and 3 to support data network and is mounted on the universal slot of an OfficeServ 7400 system.

2.5.18.1 Block Diagram

The block diagram of a GSIM board is described as follows:

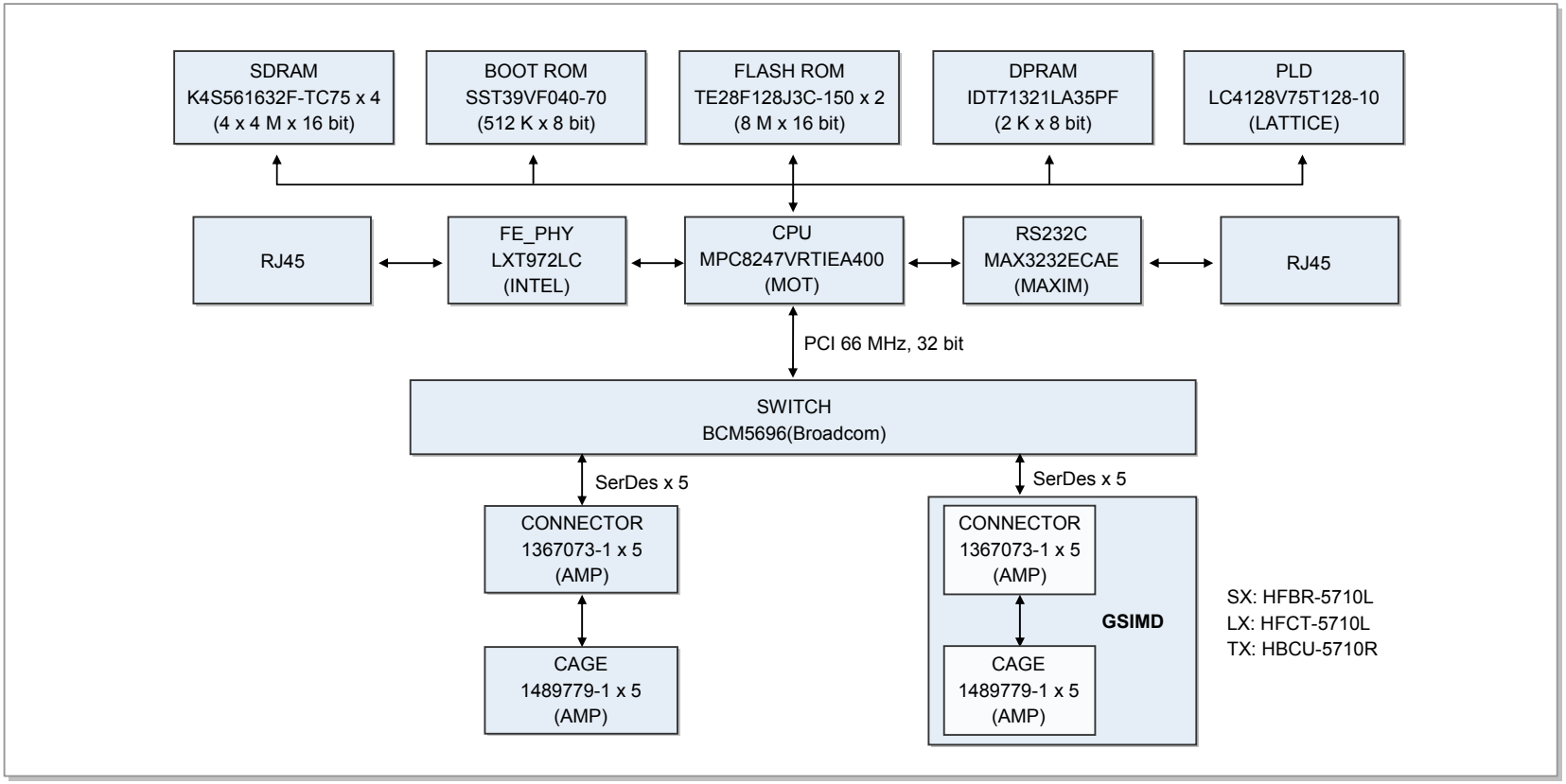

Figure 2.28 GSIM Board Block Diagram

2.5.18.2 Main Features

Main features of a GSIM board are described as follows:

- L3 Unicasting Protocol
- L3 Multicasting Protocol
- Ethernet Switch(Compatible with the 802.3 standard)
- 1000 BASE-SX/LX/TX port
- Packet Priority Control(802.1p)
- VLAN Networking(802.1q)
- Diffserv
- Flow Control(802.3x)
- Multicasting(IGMPv1/v2, DVMRP, PIM-SM)

CPU (MPC8247)

This main processor uses MPC8247 made by Motorola. MPC8247 is host processor that provides 32 bits via PCI bus.

Main features of MPC8247 are described as follows:

- Dual-issue integer core architecture
- CPU frequency: Up to 400 MHz
- CPM frequency: Up to 200 MHz
- Bus frequency: Up to 100 MHz
- Separate power supply(1.5 V) and for I/O(3.3 V)
- 64 bit data and 32 bit address 60x bus
- 32 bit data and 18 bit address local bus
- Memory Controller(8 banks)
- PCI Bridge
- Supporting 66 MHz system frequency

Memory

- Boot ROM: 8 bit ROM for boot. Up to 512 Kbytes is supported.
- Flash Memory: Saves OS, application program, and system parameter. Up to 32 Mbytes is supported.
- SDRAM: Saves operation S/W and data. Up to 128 Mbytes is supported.
- DPRAM: Communicates with MP40, main control board, and saves program related with management.

Switch (BCM5696)

Provides multi-layer switching function over the layer 3 level and provides 1000 Mbps Ethernet interface of 10 ports.
Media interface is connected to SFP Cage and interfaces with Ser/Des or SGMII interface.

- Integrated 16K MAC address table
- Integrated 8K IPv4 host table and 64k LPM routing table
- IP multicast routing/forwarding
- Support for jumbo frame length of 9216 bytes packets
- Advanced FFP
- Double tagging support for service provider VLAN

Because all GSIM boards can be mounted on the universal slot of a system, PSU capacity may not be enough due to the increase in the number of boards. Thus, this board is designed to the structure that PoE only external rectifier(-48~-54 V) can be mounted to increase power capacity.

Thus, to provide -54V in GSIM board, a user can select PSU power or external rectifier power and shunt is processed on the upper right corner of the board.

- When using PSU power: Connect J13/J4 P1-P2 shunt
- When external rectifier power: Connect J13/J4 P2-P3 shunt

2.5.19 GWIM Board

Gigabit WAN Interface Module(GWIM) provides WAN interface to support data network to a keyphone system. GWIM supports leased line for data communication between a keyphone system and Internet, supports xDSL/cable modem interface connection, and provides VPN, QoS, and firewall function. The leased line is classified into the port that supports up to E1 rate and the port that supports up to T3/E3(50 Mbps). This board has a separate DMZ port so that firewall can be easily configured. GWIM board is mounted on the universal slot of an OfficeServ 7400 system.

2.5.19.1 Block Diagram

The block diagram of a GWIM board is described as follows:

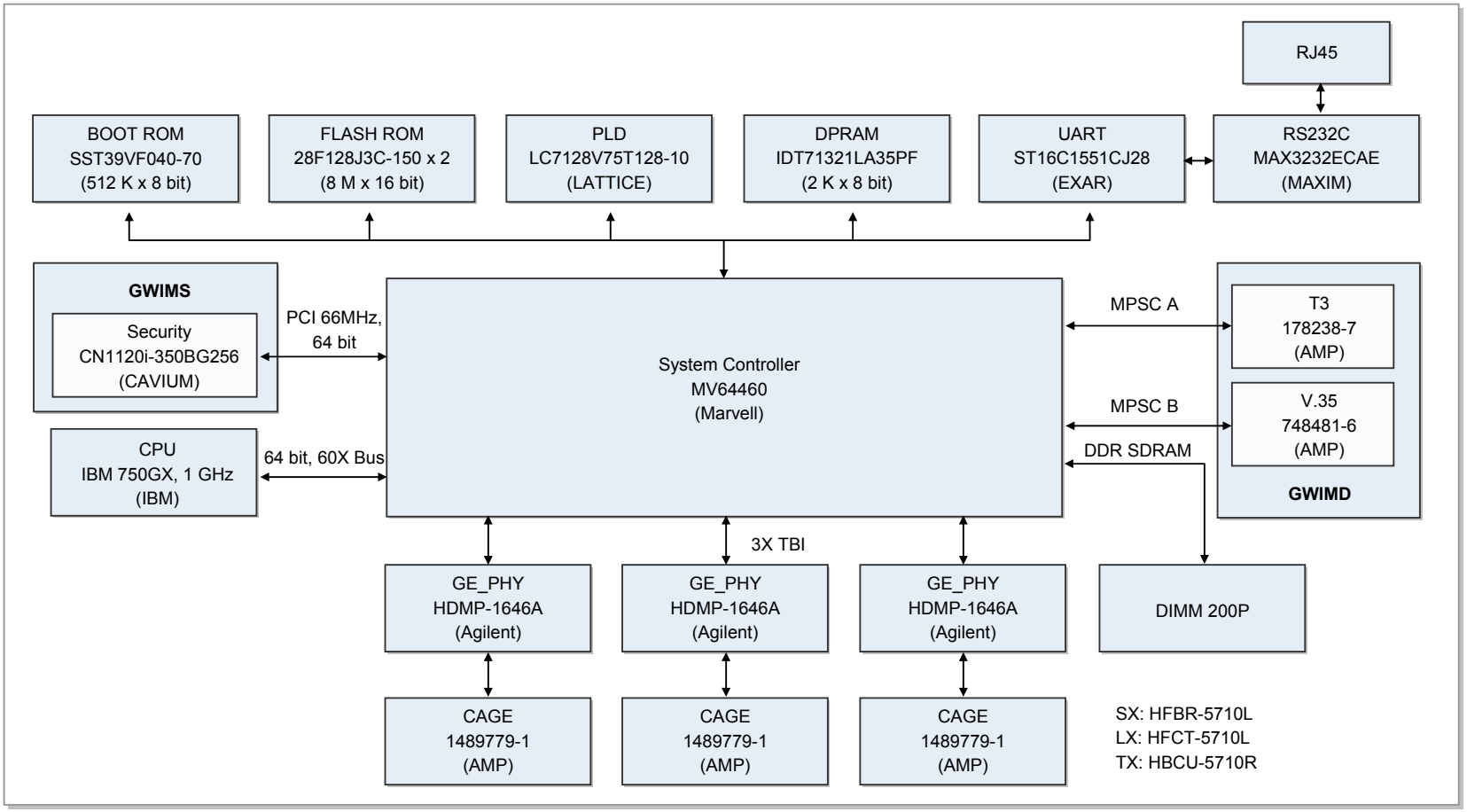

Figure 2.29 GWIM Board Block Diagram

2.5.19.2 Main Features

Main features of a GWIM board are described as follows:

- Routing between WAN and LAN
- Supports multi WAN port(leased line, xDSL/cable modem interface)
- VPN, QoS, Firewall
- Provides various external interfaces for exchanging data with external Internet
- Provides the port to connect with an internal network
- Leased line interface function through V.35 and HSSI
- 1000 BASE-FX Ethernet port interfaced with xDSL or cable modem
- 1000 BASE-TX/SX/LX Ethernet function for LAN interface
- UART port for setup
- Various applications like firewall and VPN

CPU (IBM25PPC750GX)

Main features of IBM25PPC750GX are described as follows:

- 1 GHz operating frequency
- Branch processing unit
- Floating-point units
- L1 cache structure
- Memory management unit
- Dual PLLs
- L2 cache
- 32 bit address bus
- 64 bit data bus
- Up to 200 MHz 60x bus frequency

Memory

- Boot ROM: 8 bit ROM for boot. Up to 512 Kbytes is supported.
- Flash Memory: Saves OS, application program, and system parameter. Up to 32 Mbytes is supported.
- DDR SDRAM: Saves operation S/W and data. Up to 512 Mbytes is supported.
- DPRAM: Communicates with MP40, main control board, and saves program related with management.

Network Processor (MV64460)

This network processor provides the actual switching and routing and three giga interfaces. This processor uses MV64460 made by Marvell.

- 64 bit bus with up to 200MHz CPU Interface
- DRAM Interface up to DDR400
- Support up to 5 banks of devices
- Support two 64 bit PCI/PCI-X
- Support three Gigabit Interface
- Support two MPSC Interface
- Support HDLC, UART Interface

Security Processor (CN1120)

This processor is mounted on GWIMS, optional daughter board of GWIM, and performs various application functions such as firewall and VPN. This processor is connected with MV64460 of GWIM through 64bit/66MHz PCI bus.

- 64 bit, 66MHz PCI bus Interface
- Pipelined security processor supporting security protocols
  (IPSEC, PPTP, L2PP, PPP, IKE…)
- Symmetric key encryption(DES, Triple DES, RC4)
- Authentication(SHA-1, MD5)
- Compression(LZS, MPPC)
- Public key processing unit
- Random Number Generator
- Descriptor based DMA engine

Because all GWIM boards can be mounted on the universal slot of a system, PSU capacity may not be enough due to the increase in the number of boards. Thus, this board is designed to the structure that PoE only external rectifier(-48~-54 V) can be mounted to increase power capacity.

Thus, to provide –54 V in GWIM board, a user can select PSU power or external rectifier power and shunt is processed on the upper right corner of the board.

- When using PSU power: Connect J1/J2 P1-P2 shunt
- When external rectifier power: Connect J1/J2 P2-P3 shunt

2.6 Option Board (Daughter Board)

An option board can be mounted on a specific board of an OfficeServ 7400 system. Boards that can be mounted, mounting locations in a board, and functions of each option board provided by an OfficeServ 7400 system are described in the following table:

Table 2.4 Option Board Type

Option Board	Mounted Board	Mounting Location	Function
MODEM	MP40	-	Converts digital signals to analog signals to send digital signals via a Phone Line and Converts analog signals received to digital signals.
MIS	LP40	LOC 3	Provides Ports to Connect various external devices. - 2 Music on Hold(MOH)/ Background Music source(BGM) Ports - An external Paging output Port - A auxiliary Loud bell Port - A Common bell Port - 2 dry Contact Ports
MFM	LP40	LOC 1, 2	12 DSP Circuits to detect DTMF and tone
SCM	LP40	LOC 1, 2	Provides Conference function.
RCM	LP40	LOC 1, 2	Provides Caller ID detection Circuits of 14 Channels or R2 signaling Circuits of 8 Channels.
CRM	LP40	LOC 1, 2	Provides DTMF receiver R2 sender/receiver CID sender/receiver function.
RCM2	LP40	LOC 1, 2	Provides CID Sender/Receiver function.
MGI2D	MGI	-	Provides Internet Phone(VoIP) Ports of 8 Channels.
GWIMS	GWIM	-	Provides Network Security Processing function.

2.6.1 Modem Board

Modem used for an OfficeServ 7400 system is a modem that enables 2 wire full duplex and is a board that is commonly used with the modem of an iDCS 500 system. Modem board is mounted on LOC1 of a MP40 board. When a modem board is mounted, be careful the mounting direction.

Modem board has an OfficeServ 7400 system and V.24 interface and uses a modem chip for central office, which enables PCM highway interface. Modem board supports V.90 protocol. An OfficeServ 7400 system controls modem board through serial communication method and the command used is standard AT command. This board allocates SMC2 to the serial port of controlling a modem.

2.6.1.1 Block Diagram

The block diagram of a MODEM board is described as follows:

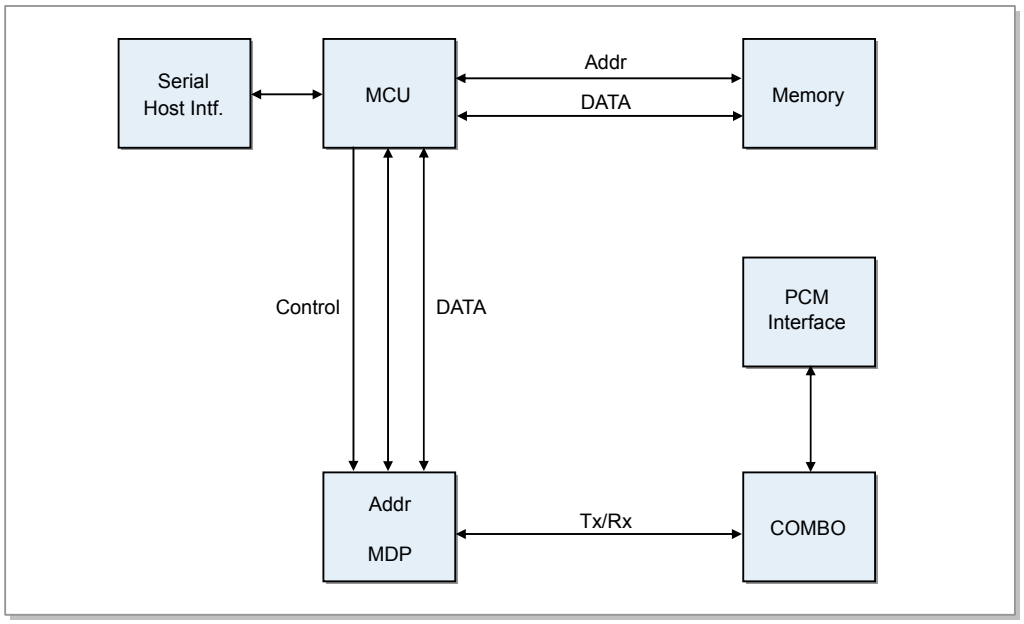

Figure 2.30 Modem Board Block Diagram

2.6.1.2 Main Features

Main features of a MODEM board are described as follows:

PCM Interface

Channel for modem is used by allocating channel 0 to highway 0. PCM interface is described as follows:

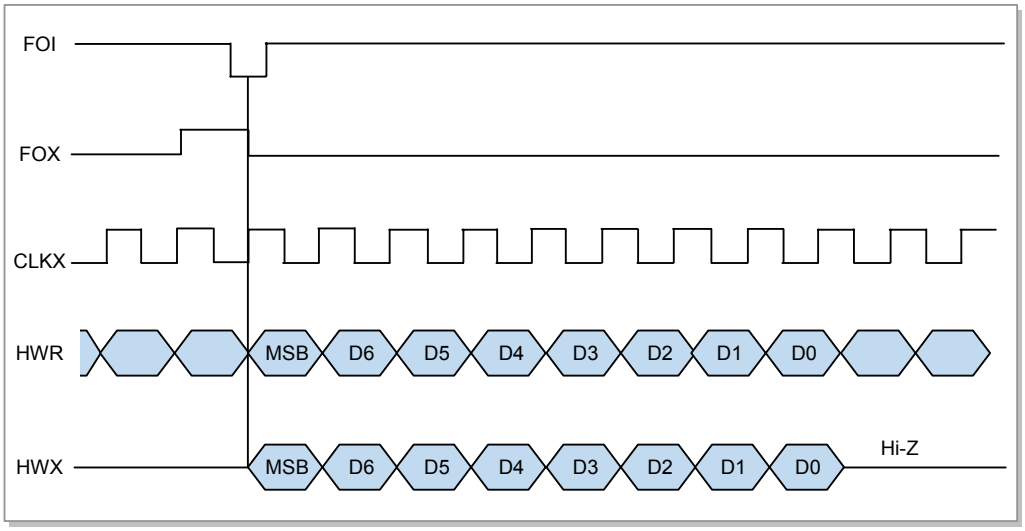

Figure 2.31 Modem Board PCM Interface

2.6.2 MIS Board

MIS board provides external music, paging, auxiliary loud dell, and dry contact, and is mounted on a selected area. Frame synchronization(Sync) signals for exchanging PCM voice data and 2 MHz signals are created from CPLD.

2.6.2.1 Block Diagram

The block diagram of a MIS board is described as follows:

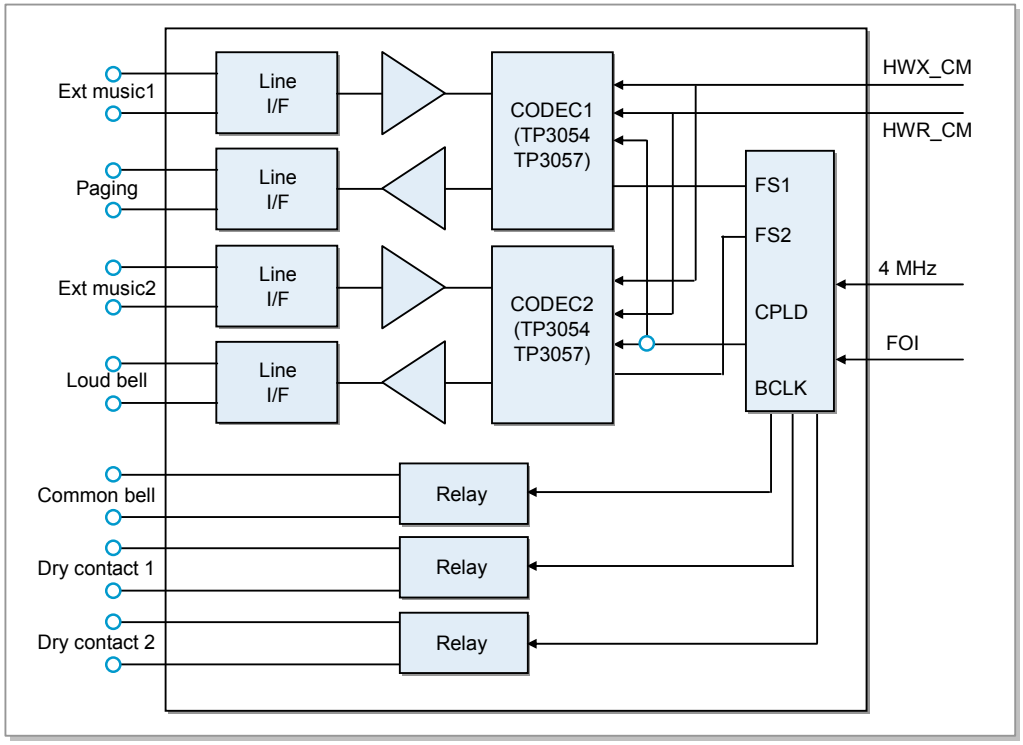

Figure 2.32 MISC Board Block Diagram

2.6.2.2 Main Features

Main features of a MIS board are described as follows:

External Music

For external music, 2 ports of each MIS board are supported. For codec, A-LAW codec and U-LAW codec are supported, and one of the codecs are automatically selected in CPLD. Thus, a user does not need to set a codec in companding type.

Paging

Paging is performed for the selected group.

Auxiliary Loud Bell

Plays ring back tone externally.

Dry Contact

Dry contact is used for the control of external equipment and up to three dry contacts are supported.

2.6.3 MFM/SCM Board

MFM/SCM board is an option board that provides the DTMF receiver function of up to 12 channels.

The MFM/SCM board is mounted on the LP40 board.

The configuration of the MFM/SCM board highway is as shown in the figure below:

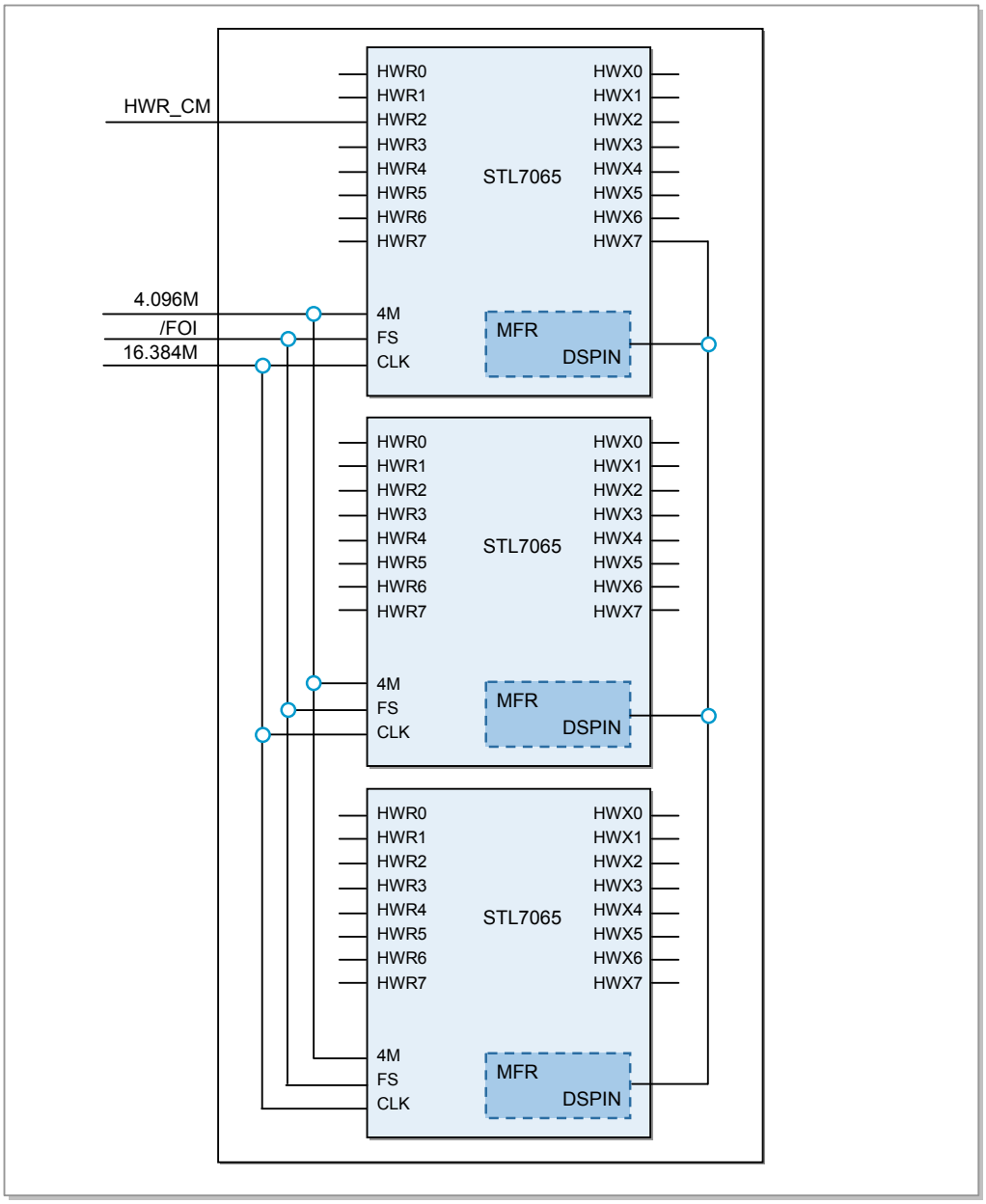

Figure 2.33 Configuration of MFM/SCM Board Highway

2.6.4 RCM Board

RCM board is an option board that provides R2 or CID(Caller ID) function.
When the RCM board is as R2, the board provides up to 8 channels. When the board is as CID, the board provides up to 14 channels. The selection of R2 and CID is performed via the selection switch in the RCM board. Note that as many as desired numbers of the relevant resources are designated before the selection via MMC of the phone.

2.6.4.1 Block Diagram

The block diagram of a RCM board is described as follows: Here, STB9404 is ASIC that provides R2 or CID detection function.

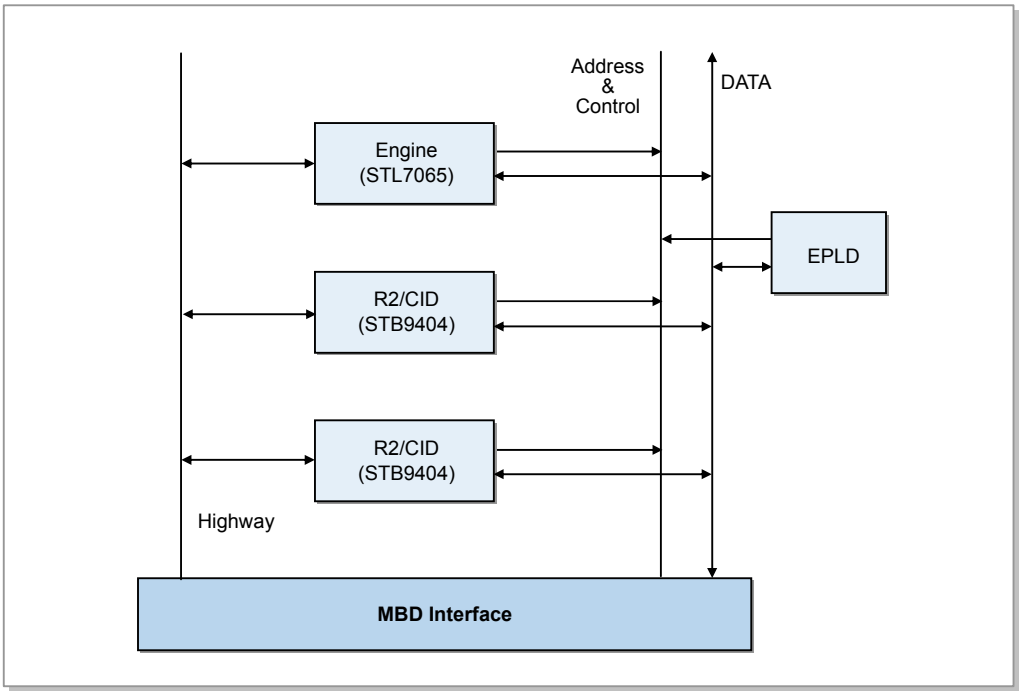

Figure 2.34 Block Diagram of RCM Board

2.6.4.2 Highway Configuration

The configuration of the RCM board highway is as shown in the figure below:

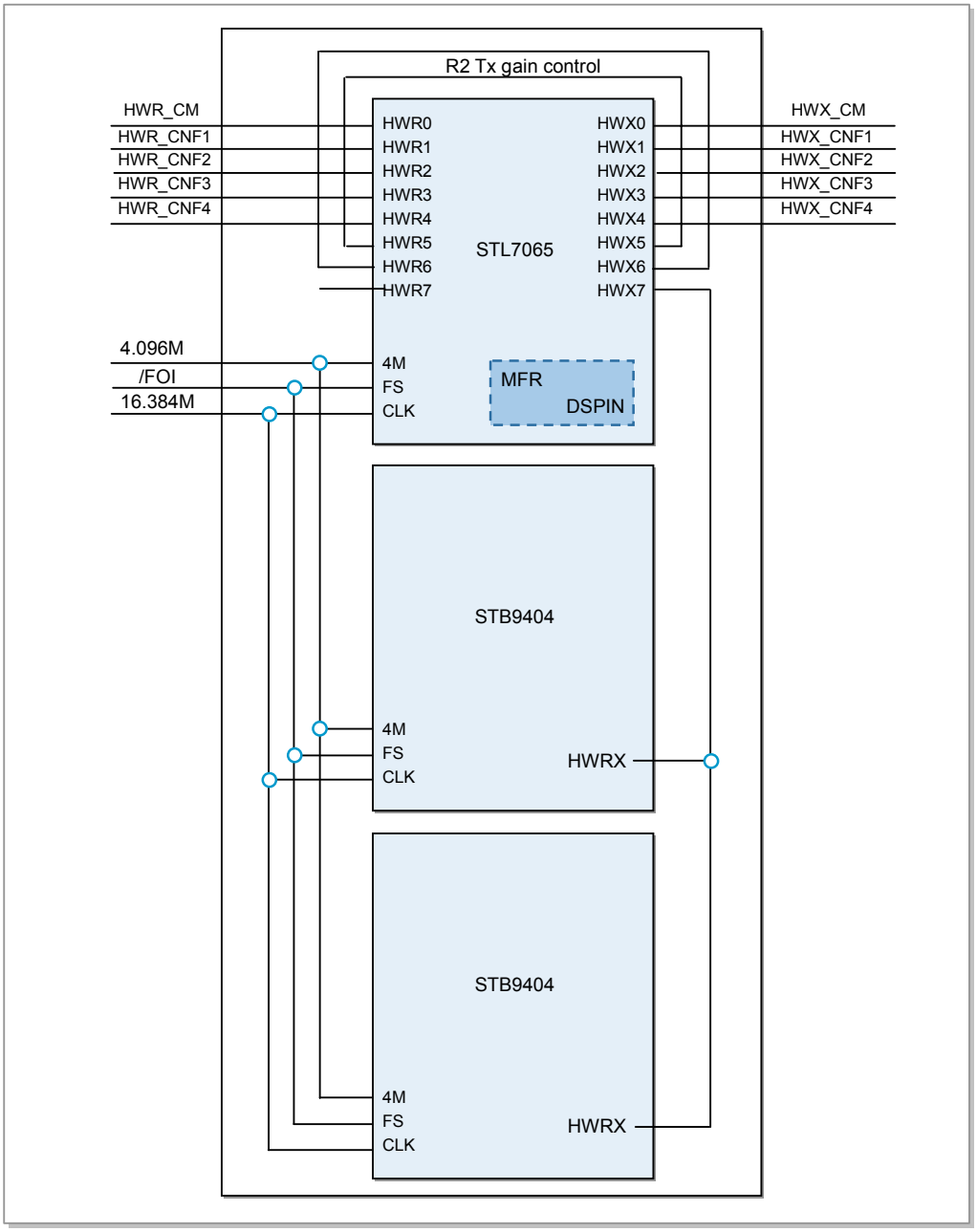

Figure 2.35 Configuration of the RCM Board Highway

NOTE

Reserved Highway

HWR_CNF1.4 and HWX_CNF1.4 are reserved highways.

2.6.5 CRM Board

The Common Resource Module(CRM) board is an option board that is responsible for DTMF signal detection, R2 signal generation, CID signal generation and detections. The DSP setup of the CRM board is adjusted in MMC827, and the combination of the above functions can be used depending on the setup condition.

2.6.5.1 Block Diagram

The block diagram of a CRM board is described as follows:

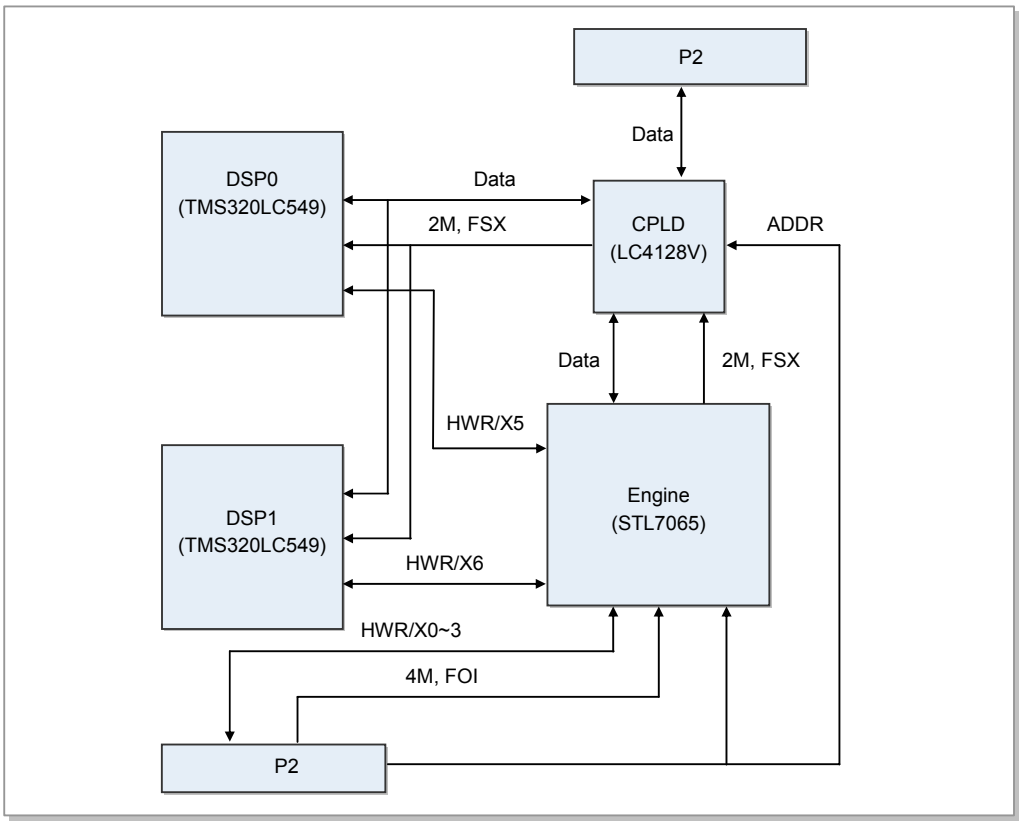

Figure 2.36 Block Diagram of CRM Board

2.6.5.2 Main Features

Main features of a CRM board are described as follows:

Common Function

In principle, the CRM engine provides Conference(5-party 6-group) and four DTMFR channels.

Function by the DSP Setup

According to user's purpose, 2-DSP in the CRM board can be set and used in MMC827. DTMF Receiver, R2 Sender/Receiver and CID Sender/Receiver functions are provided and each DSP supports 8-channel regardless of the function.

2.6.6 RCM2 Board

R2 CID Module 2(RCM2) board is an optional board that detect or generate caller identification(CID) information. The RCM2 board is installed to LOC1 or LOC2 of a LP40 board and the position to be installed is marked in the LP40 board. The installed RCM2 board can detect or generate the CID signal of 14-channel. With the switch in the RCM2 board, the operation mode(detection or generation signals) can be selected as R2 or CID. The R2 function is not applied at present but will be supported in the near future.

2.6.6.1 Block Diagram

The block diagram of a RCM2 board is described as follows:

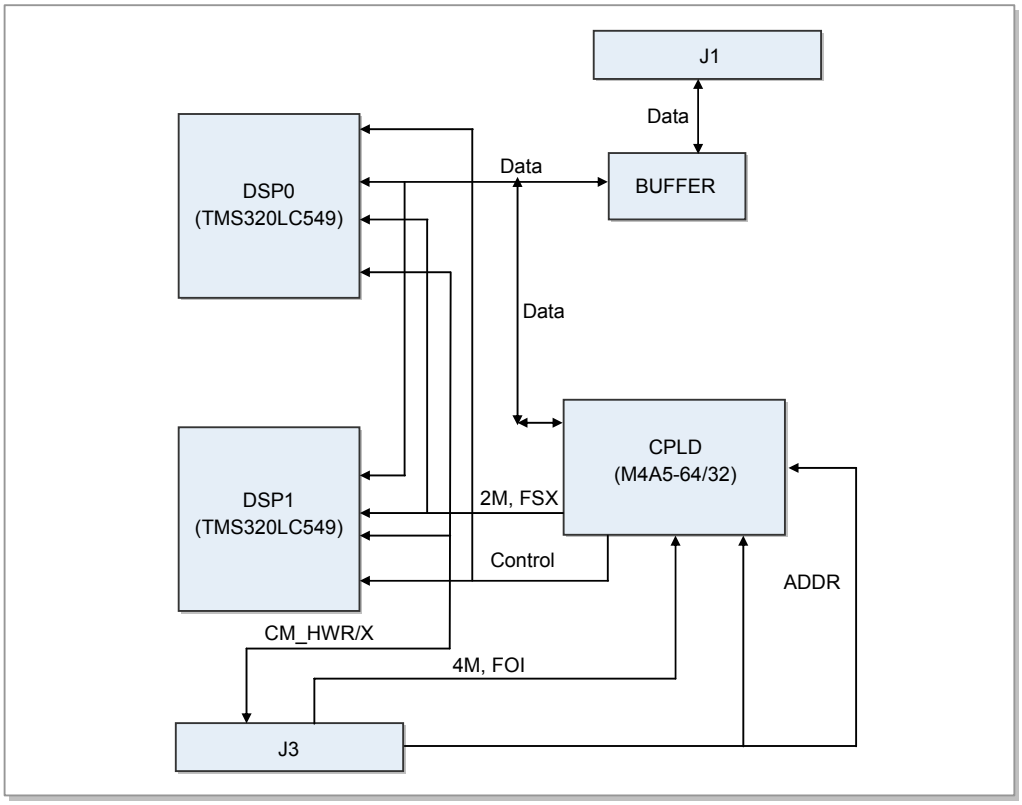

Figure 2.37 Block Diagram of RCM2 Board

2.6.7 MGI2D Board

MGI2D board is a board for the extension of VoIP channel supporting 4-channel VoIP port and can be installed to the MGI board.

2.6.7.1 Block Diagram

The block diagram of a MGI2D board is described as follows:

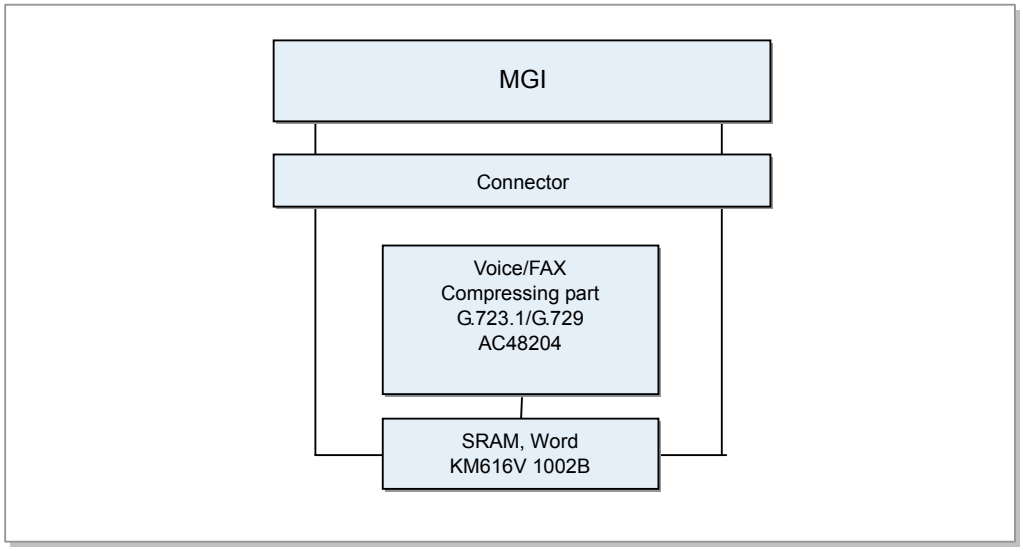

Figure 2.38 Block Diagram of MGI2D Board

2.6.7.2 Main Features

Let's see the function of AC48204 Codec, which is one of main parts of the MGI2D board.

CODEC AC48204

- Up to 16 channels can be applied.(4CH/Chip × 4)
- Erasable Programming Logic Device(EPLD) performs the interface between CODEC and a host.
- CODEC is provided by AudioCodes company.
- Every chip supports four independent voice and fax channels.
- H.323 voice coder, which can be configured by users, is supported.
- 'Soft', Field-upgradeable Functionality
- Robust Bad Frame Interpolation(RBFI)
- G.165/G.168 Adaptive Echo Canceller
- The bit rate of Toll Quality Voice can decrease up to average 3.2 kbps by using Silence Compression.
- Detection/generation of TIA 464A DTMF

- MF detection/generation
- Parallel host processor interface
- Tone signal that hosts can program
- Configurable PCM interface: PCM highway of parallel interface
- On-chip PCM highway interface(Host configuration time slot assignment and selectable G.711 mu-law/A-law PCM interface)
- Gain control

2.6.8 GWIMS Board

GWIMS board, an optional daughter board of the GWIM board, performs a variety of application functions such as Firewall and VPN. The board is connected with MV64460 of the GWIM board via 64 bit/66 MHz PCI bus.

Security Processor (CN1120)

- 64 bit, 66 MHz PCI bus Interface
- Pipelined security processor supporting security protocols
  (IPSEC, PPTP, L2PP, PPP, IKE…)
- Symmetric key encryption(DES, Triple DES, RC4)
- Authentication(SHA-1, MD5)
- Compression(LZS, MPPC)
- Public Key processing unit
- Random Number Generator
- Descriptor based DMA engine

2.7 Terminals

This paragraph describes the block fiagram and the main features for each terminal connected to the OfficeServ 7400 system.

2.7.1 DPIM

Door Phone Interface Module(DPIM) is a conversion relay unit that converts an analog signal of a door phone into a digital signal or a digital signal into an analog signal to enable the present analog door phone and the OfficeServ 7400 system to call each other.
The connectable distance between DPIM and an OfficeServ 7400 system is the maximum 400 m, and the call distance between DPIM and a door phone is the maximum 600 m.

2.7.1.1 Block Diagram of DPIM

The block diagram of a DPIM board is described as follows: DPIM uses Door Box, as it is, that Samsung's DCS-816 Analog Keyphone system uses and consists of speaker, microphone, and the transfer part to send/receive analog signals.

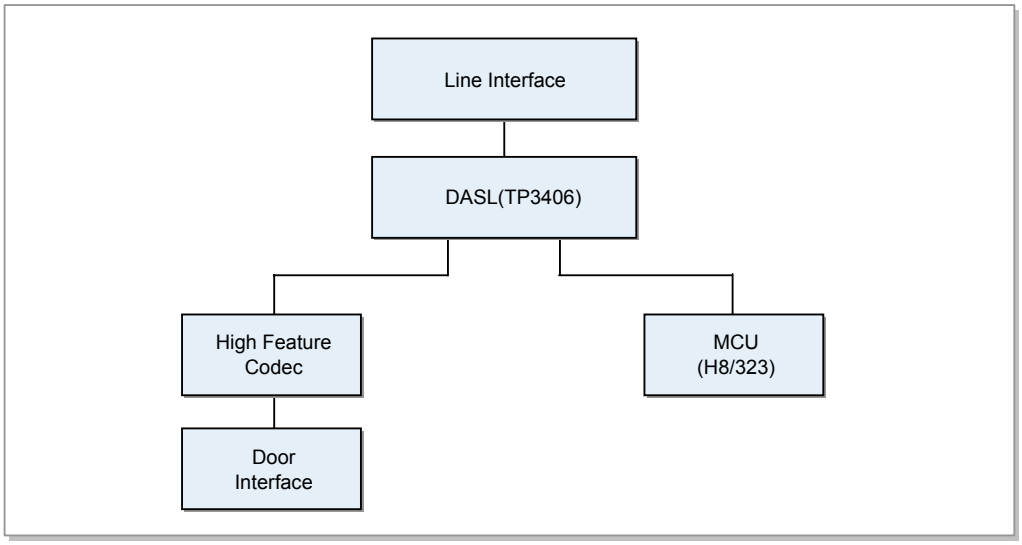

Figure 2.39 Block Diagram of DPIM

2.7.1.2 Block Diagram of a Door Phone

The block diagram of a door phone for the OfficeServ 7400 system is as shown in the figure below:

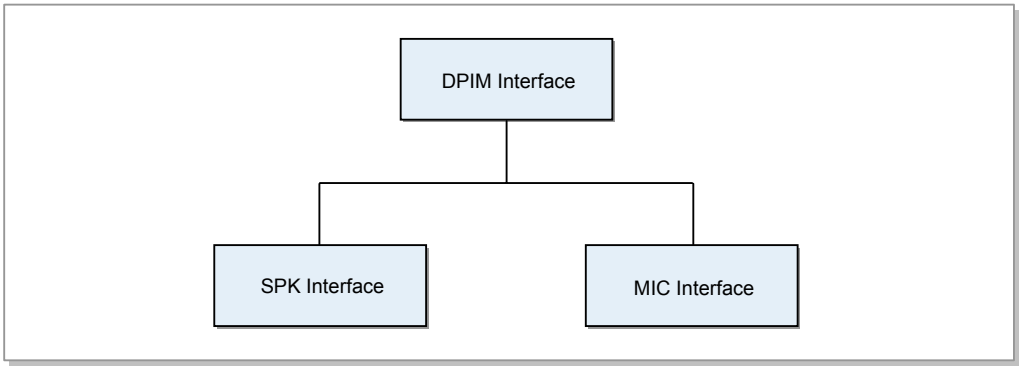

Figure 2.40 Block Diagram of Door Phone

2.7.1.3 Main Features

Main features of a DPIM board are described as follows:

Micro Controller Unit (MCU)

The signal transferred to the DPIM PCM digital transfer part is converted into analog signals in High Feature CODEC(HFC). At this time, TL084 with excellent audio property is used as an amplifier to amplify the output signals and the analog signals transferred from a door box. the digital part. 100 kΩ is used to make the input resistance of the TL084 big.

Matching Part uses T5692 like the transformer of a door box. The resistance value with the best transfer property for two transformer is 1 kΩ(R14). In addition, 100 kΩ(R9, R10) is used as a balance resistance to reduce the speaker signal entering to the microphone(pin 19) of HFC since send/receive signals of the transformer are mixed and used together.

Door Lock Control Part

DPIM can install a locker that opens a door to visiters. In general, the locker uses AC 100 V via a relay switch. At this time, the relay control port of MCU is P10(pin 48), and this port is a key scan port in a digital phone. The diode(1N4148, D6) of the relay control transistor(MMBT 2222, Q1) Tx is used for the removal of counter electro-motive force and the CAP and the resistance in both ends of the relay switch are used for the prevention of spark that occurs in a relay contact point.

Switch Detection Part

Visitors can call an inside person by pressing the switch in a door box. DPIM detects the press of the switch and transfers the information via MCU port 46(pin 15). The MCU sends the data to the D-channel of PCM transfer chip(TP 3406, U5).
The system received this data send the signal to the previsously specified port to make a call. Since this switch detection signal is transferred via the center tap of the matching transformer(T5692), the signal can be configured with only two lines and is not damaged even if DC +5 V is applied to the transformer.

+12V Generation Part

DPIM uses Step UP DC converter(LT1109, U11) to generate +12 V with the input power of +5 V by using simple peripheral circuit. LT1109-12 receives the input of +5 V and outputs +12 V 60 mA.
33 uH(L2) inductor is used for the generation of switching, and 47 uF/35 V(C7) capacitor is used for switching load. In addition, 33 uH(L1) inductor of Tx is used for the decrease of switching ripple noise. When +12 V line connected to a door box is short, the poly switch in +12 V Tx prevents overcurrent from running.

Pin Connector

- Door Lock
  Modular Pin(6P6C) 1, 6: Dry Contact(relay), Normal Open.

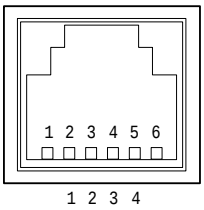

Figure 2.41 Connection of DPIM Pins

- Door Phone
  Modular Pin(6P4C) 1: L1(L1 and L2 lines are restricted to +5 V for the detection of switch contact.)
  - Pin 2: L2
  - Pin 3: P + (+12 V)
  - Pin 4: P - (GND)

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CHAPTER 3. Troubleshooting

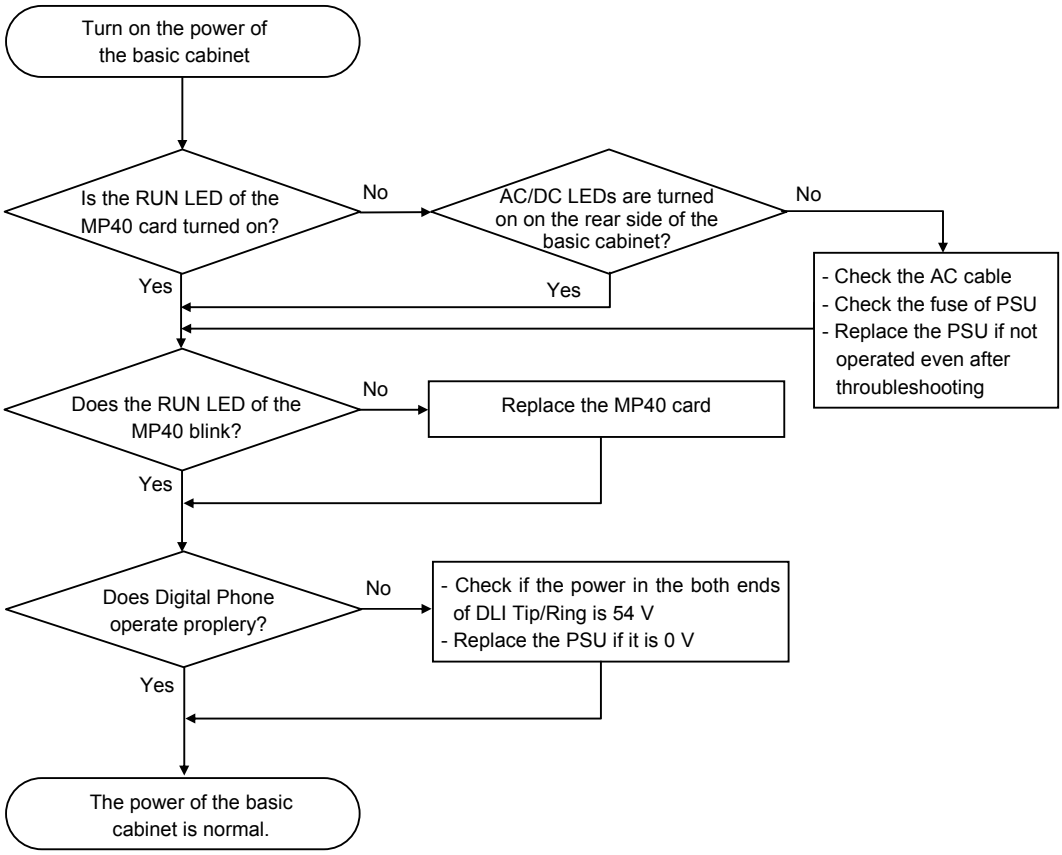
This chapter decribes various failures generated from OfficeServ 7400 and the troubleshooting procedures.

3.1 Sustem Operation Diagnoses

This section describes problems in the general operation of the OfficeServ 7400 system and the troubleshooting procedures.

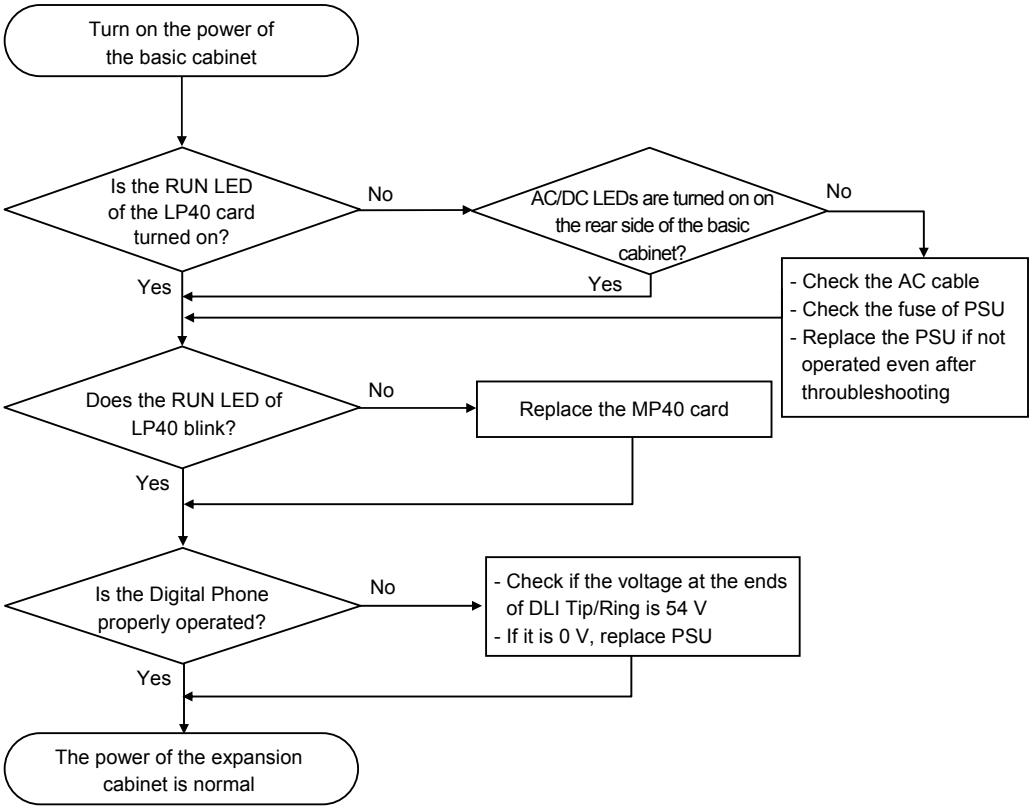
3.1.1 Checking Basic Cabinet Power

The procedure for checking if the power of Power Supply Unit(PSU) of basic cabinet is provided properly is as follows:



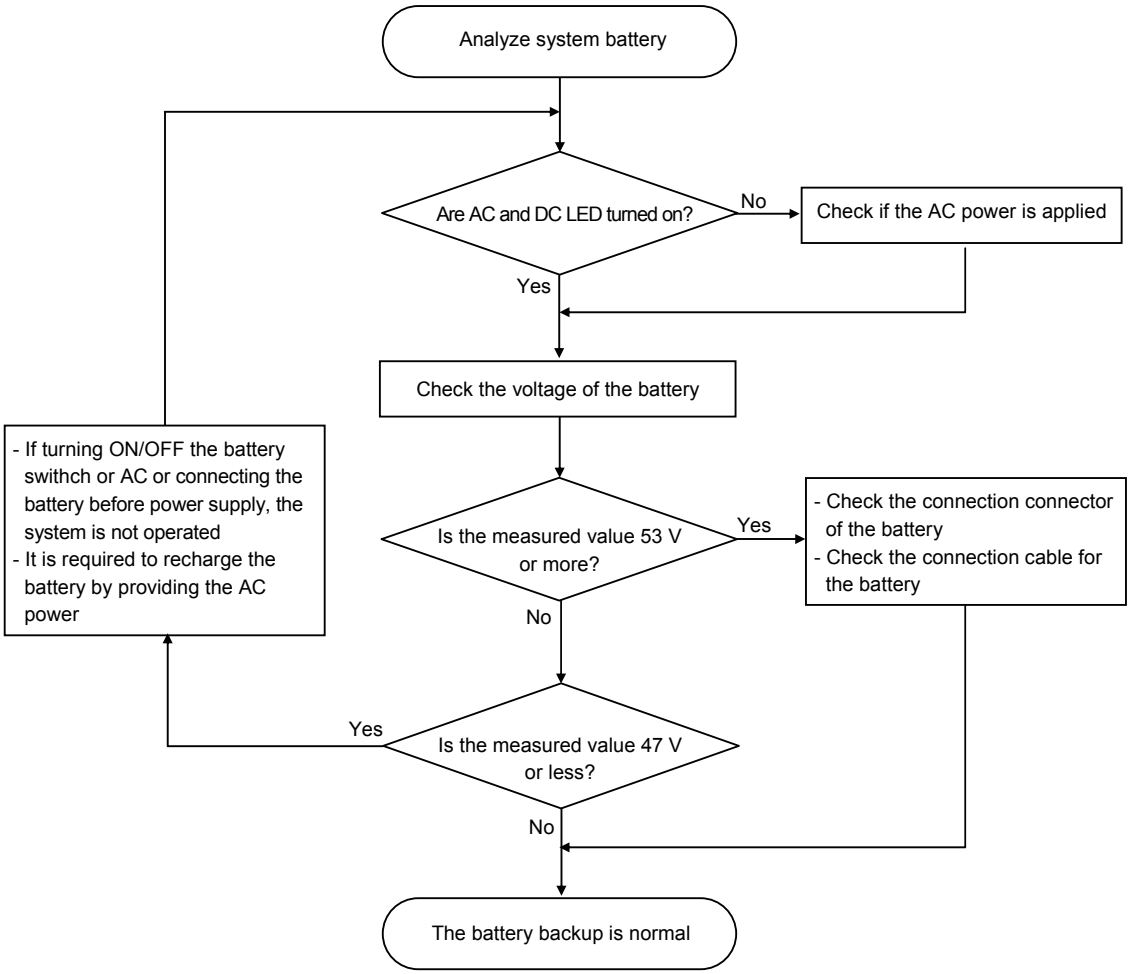
3.1.2 Checking Expansion Cabinet Power

The procedure for checking if the power of Power Supply Unit(PSU) of expansion cabinet is provided properly is as follows:



3.1.3 Abnormal Battery Backup (1)

When a battery backup problem occurs on the OfficeServ 7400 system, the troubleshooting is as follows:

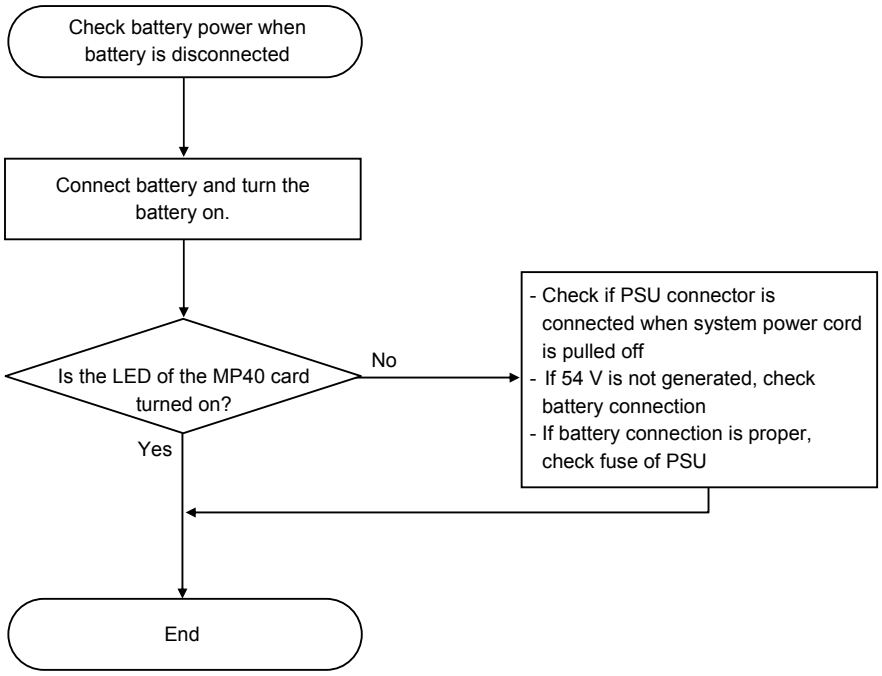


Abnormal Battery Backup

If a failure still remains for the battery backup in spite of the above procedure, refer to '3.1.4 Abnomal Battery Backup(2)' on the next page.

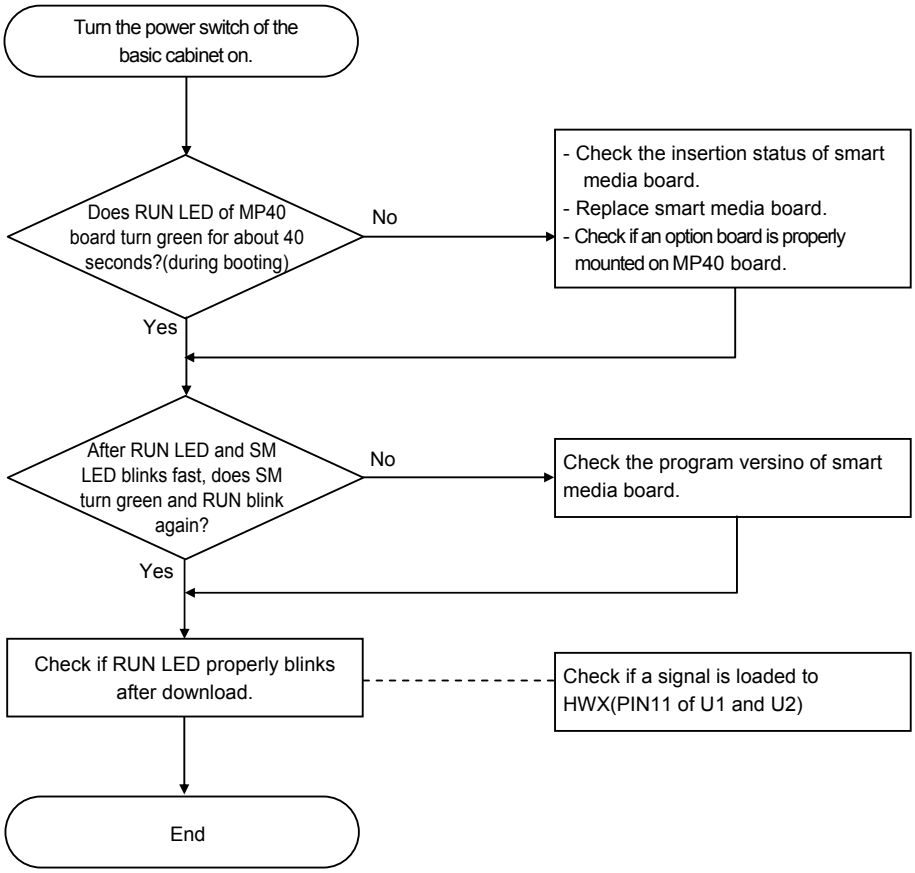
3.1.4 Abnormal Battery Backup (2)

If a failure still remains for the battery backup even after performing the procedure of '3.1.3 Abnormal Battery Backup(1)' above, check the following procedure:



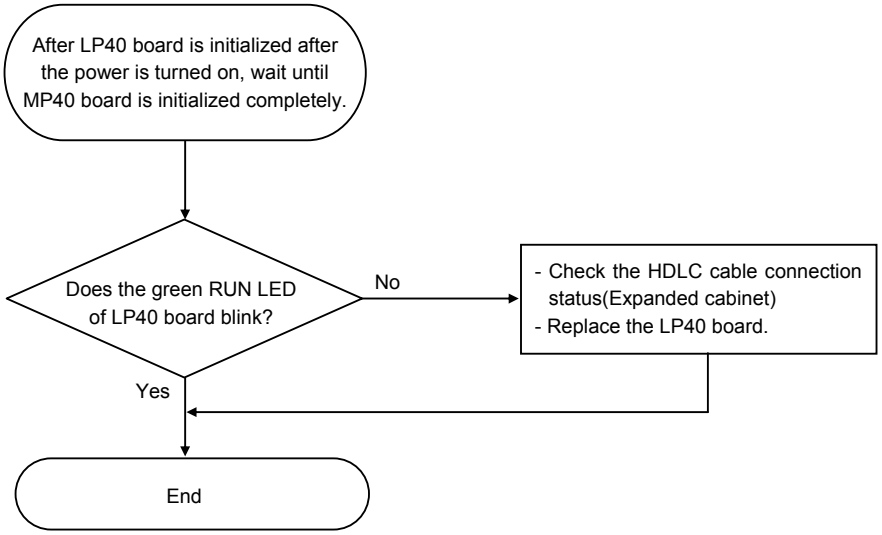
3.1.5 MP40 Board Operation Check

Check if MP40 board that controls the operation of an OfficeServ 7400 system operates properly.



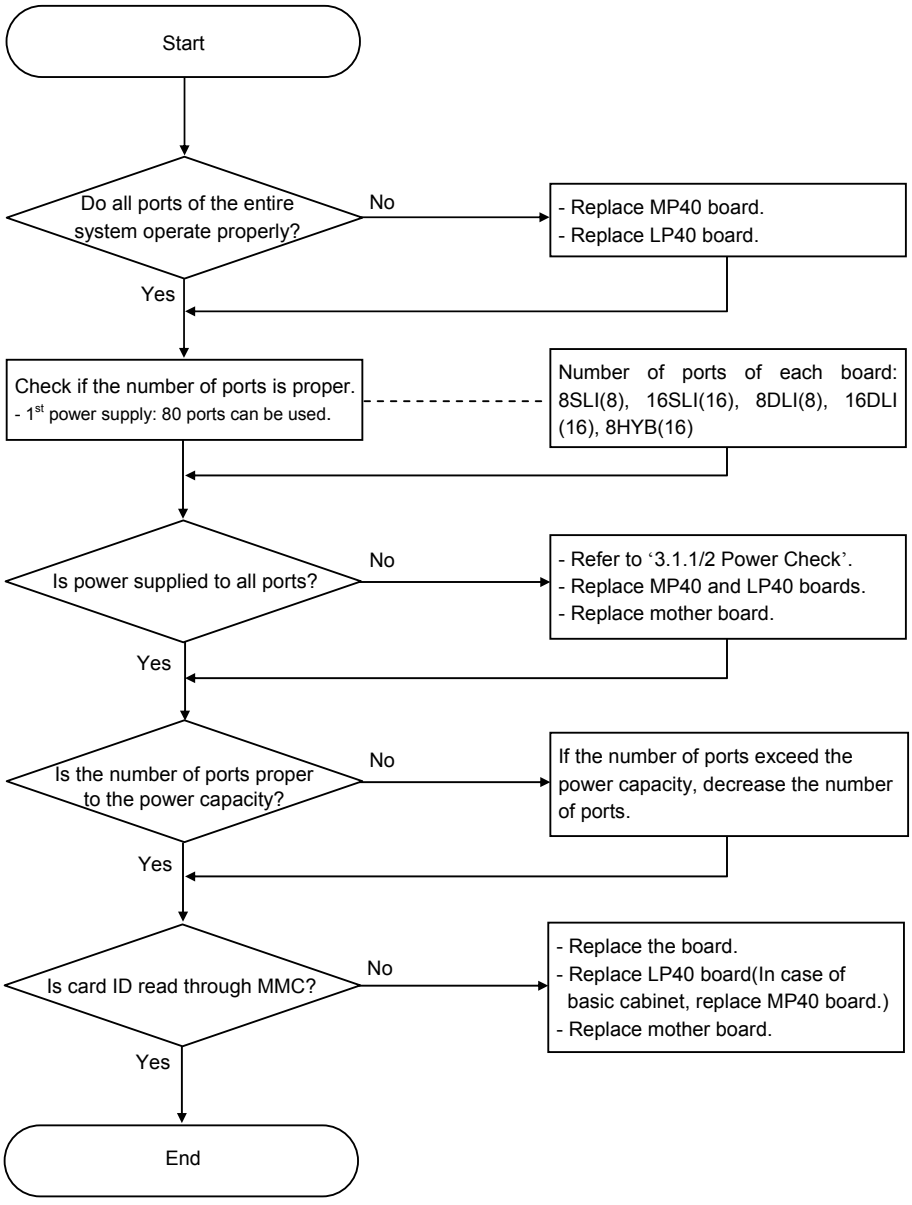
3.1.6 LP40 Board Operation Check

Check if LP40 board that controls the operation of the expanded cabinet of an OfficeServ 7400 system operates properly.



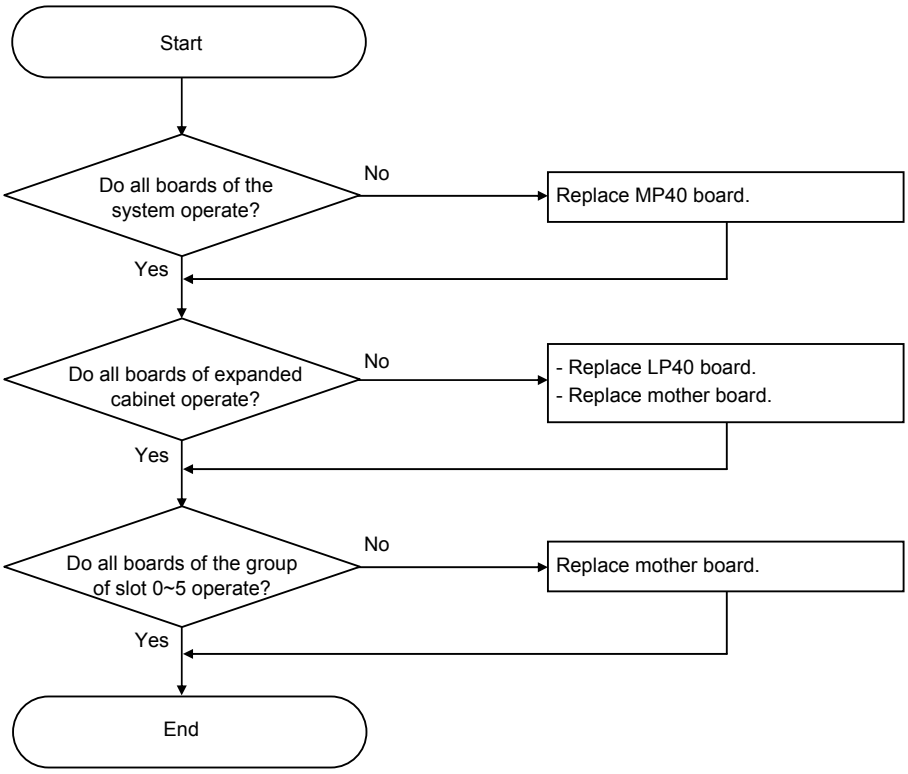
3.1.7 Power is not Supplied to xSLI or xDLI Board Ports

When power is not supplied to 16SLI, 8SLI, 8DLI, or 8HYB board port, follow the procedure below:



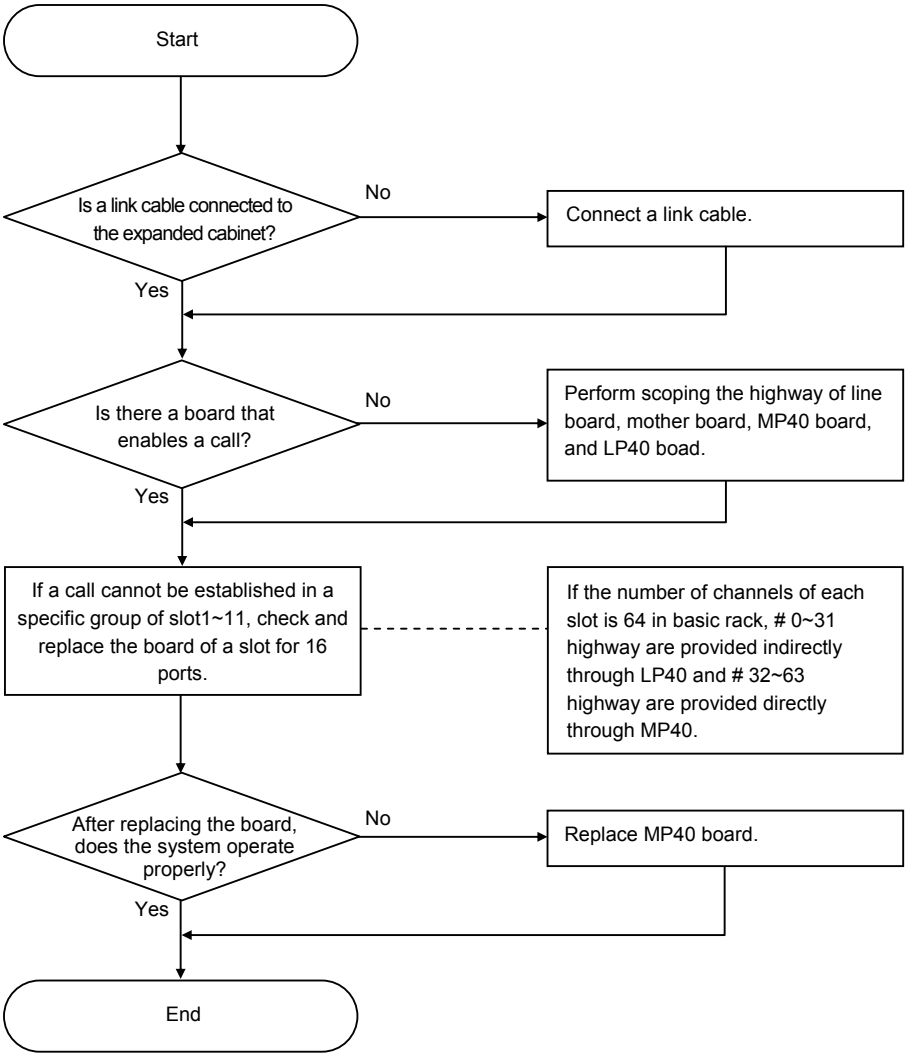
3.1.8 Board Failure

When a board mounted on each slot of an OfficeServ 7400 system does not operate, follow the procedure below:



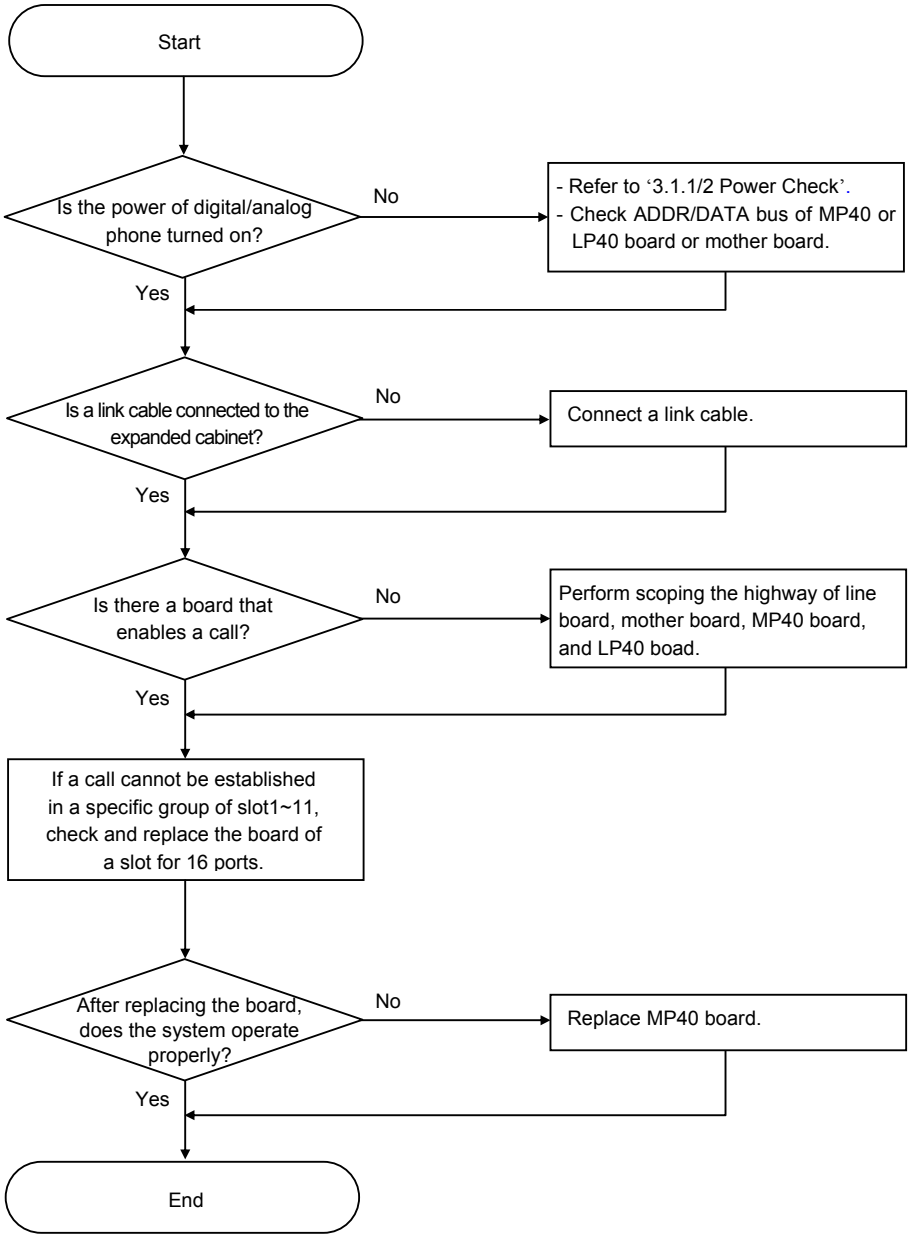
3.1.9 Call is not Connected (Related with Highway)

If a call is not connected due to highway when a phone is connected to an OfficeServ 7400 system, follow the procedure below:



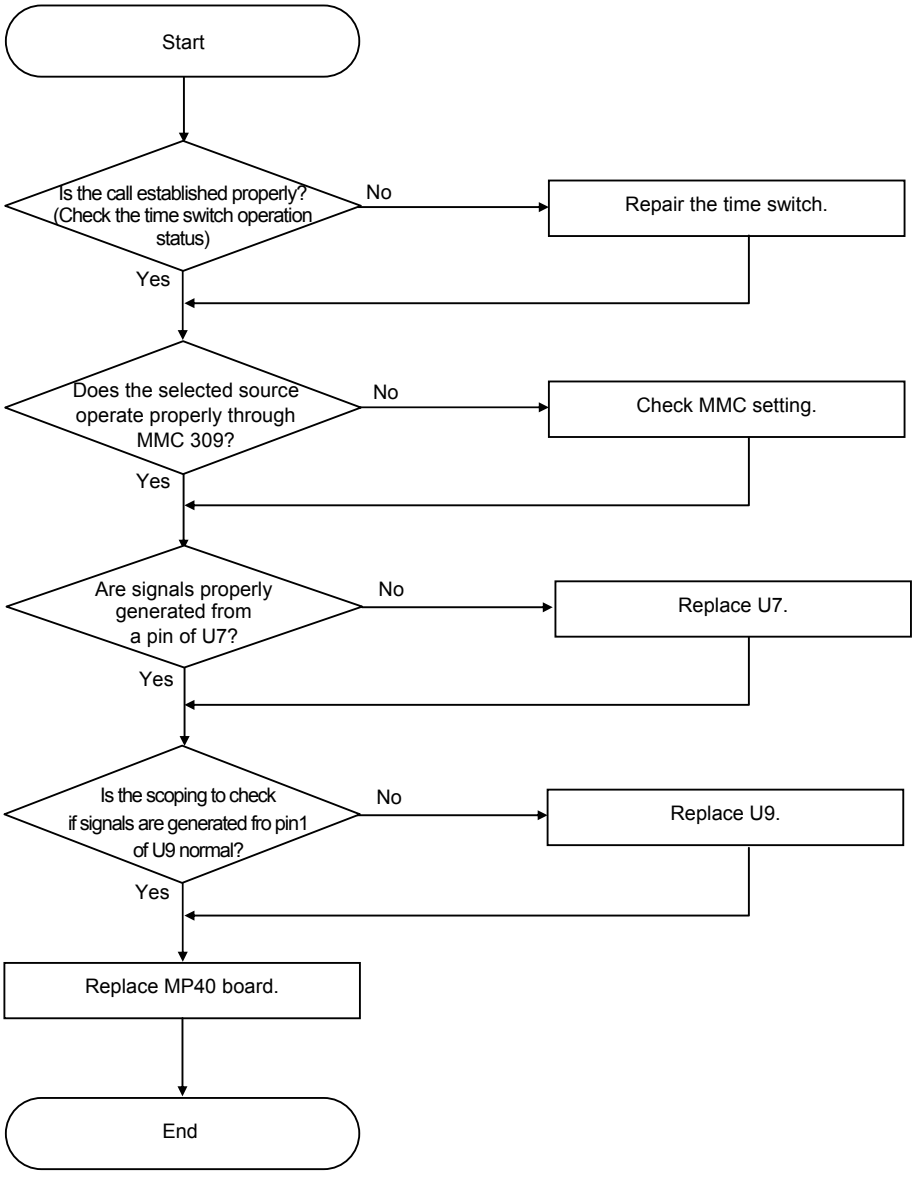
3.1.10 Call is not Connected (Related with Switching Clock)

If a call is not connected due to switching clock when a phone is connected to an OfficeServ 7400 system, follow the procedure below:



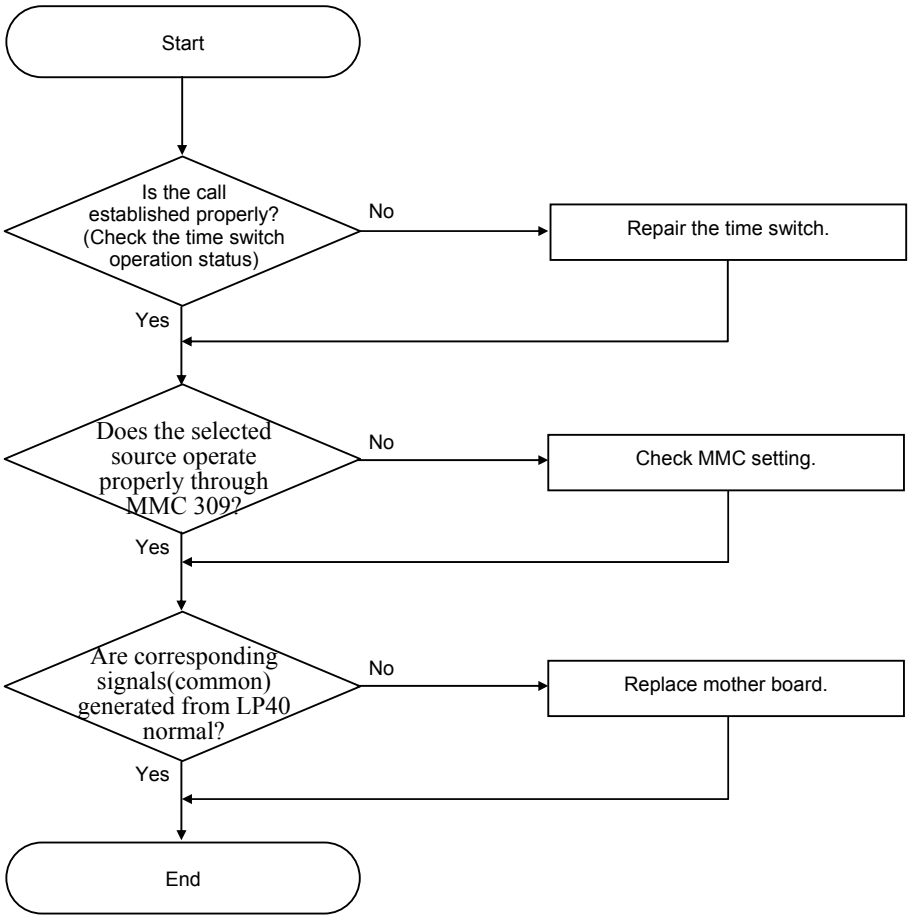
3.1.11 Music on Hold/Background Music Source Failure

When the music on hold/background music source of an OfficeServ 7400 system does not operate, follow the procedure below:



3.1.12 External Paging is not Available

When external paging cannot be performed, follow the procedure below:

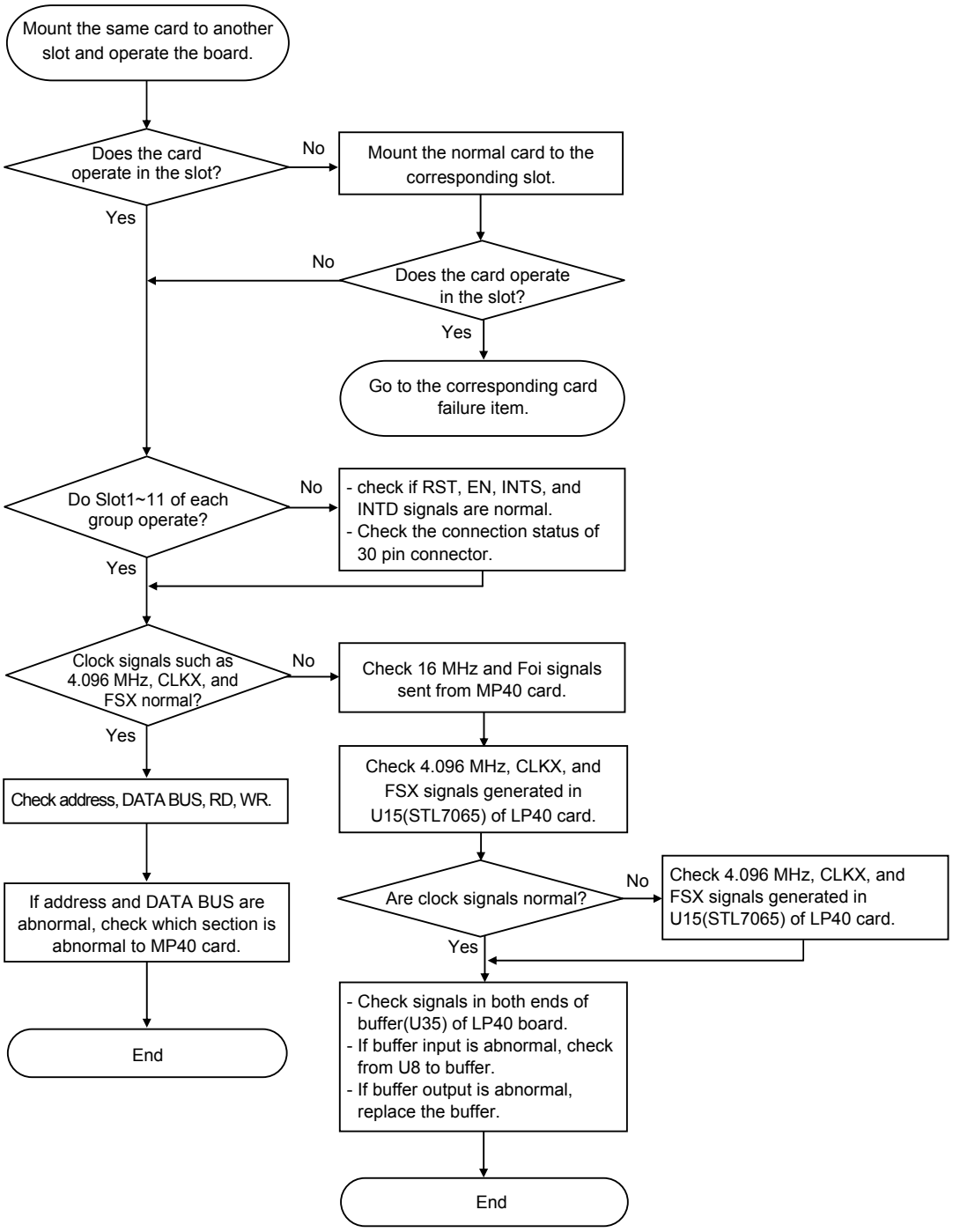


3.2 Mother Board

This subsection describes the troubleshooting procedure when failures occur on the mother board.

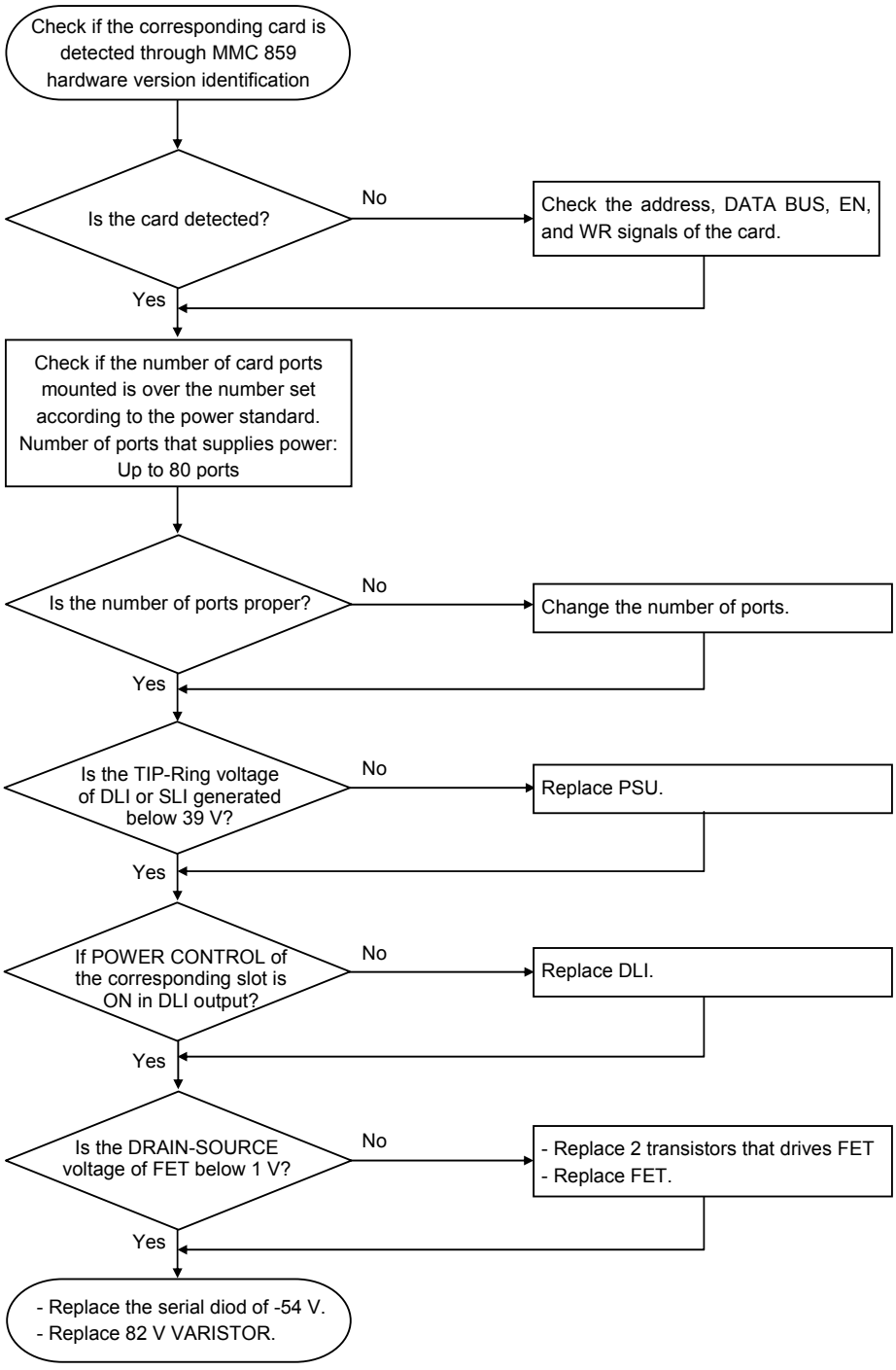
3.2.1 Mother Board Failure

When an error occurs in mother board, follow the procedure below:



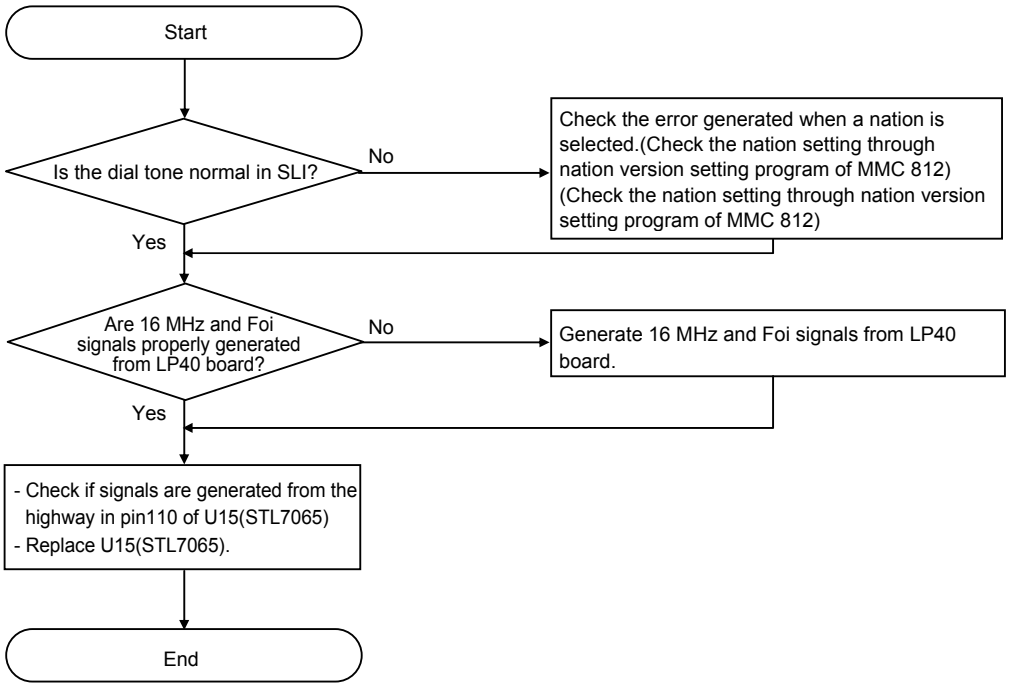
3.2.2 -54 V is not Supplied to Mother Board

When -54 V is not supplied to mother board, follow the procedure below:



3.2.3 DTMF Receiver of Mother Board Does not Operate

When the DTMF receiver of LP40 board does not operate, follow the procedure below:



3.3 Control Board

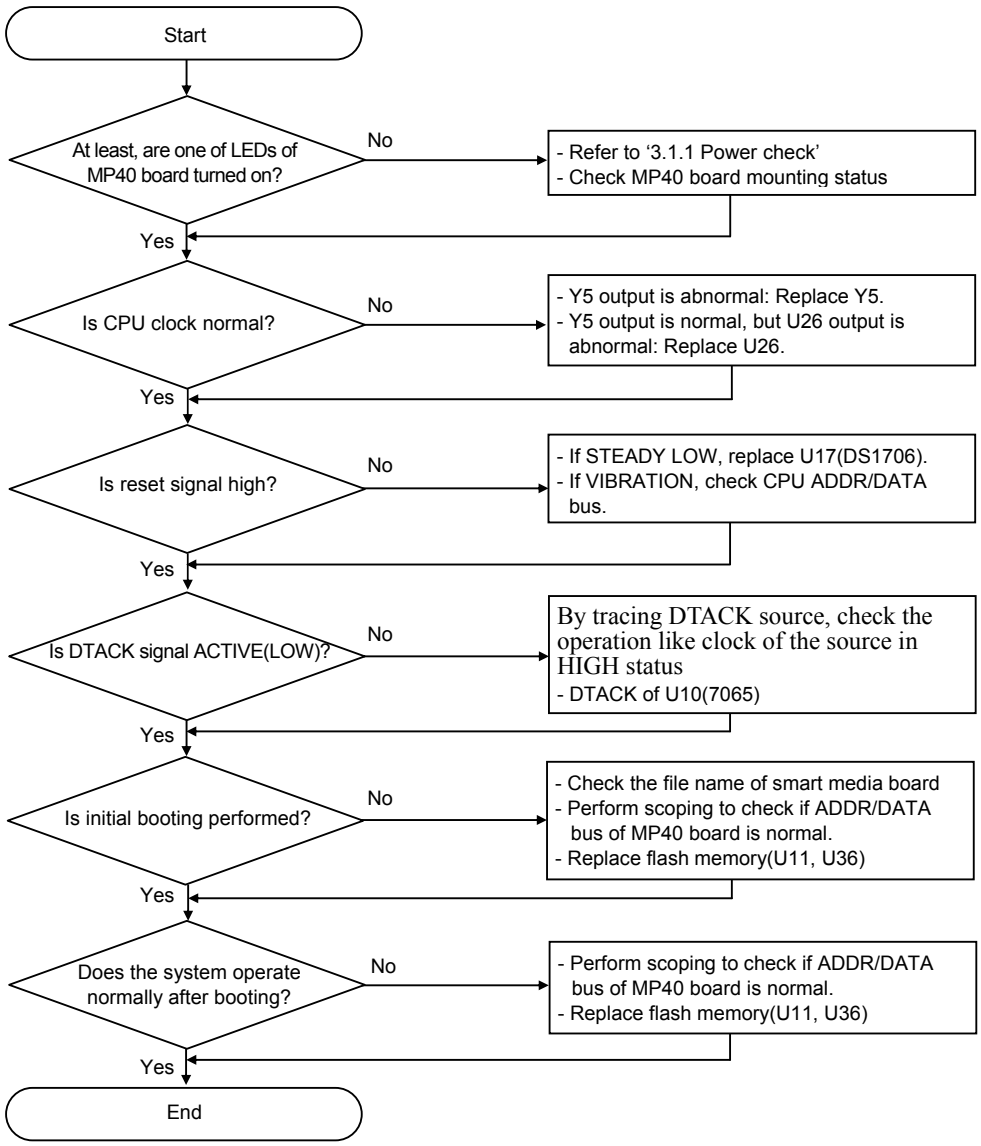
This subsection describes the troubleshooting procedure when failures occur on the MP40 board and LP40 board.

3.3.1 MP40 Board

This subsection describes the troubleshooting procedure when failures occur on the MP40 board.

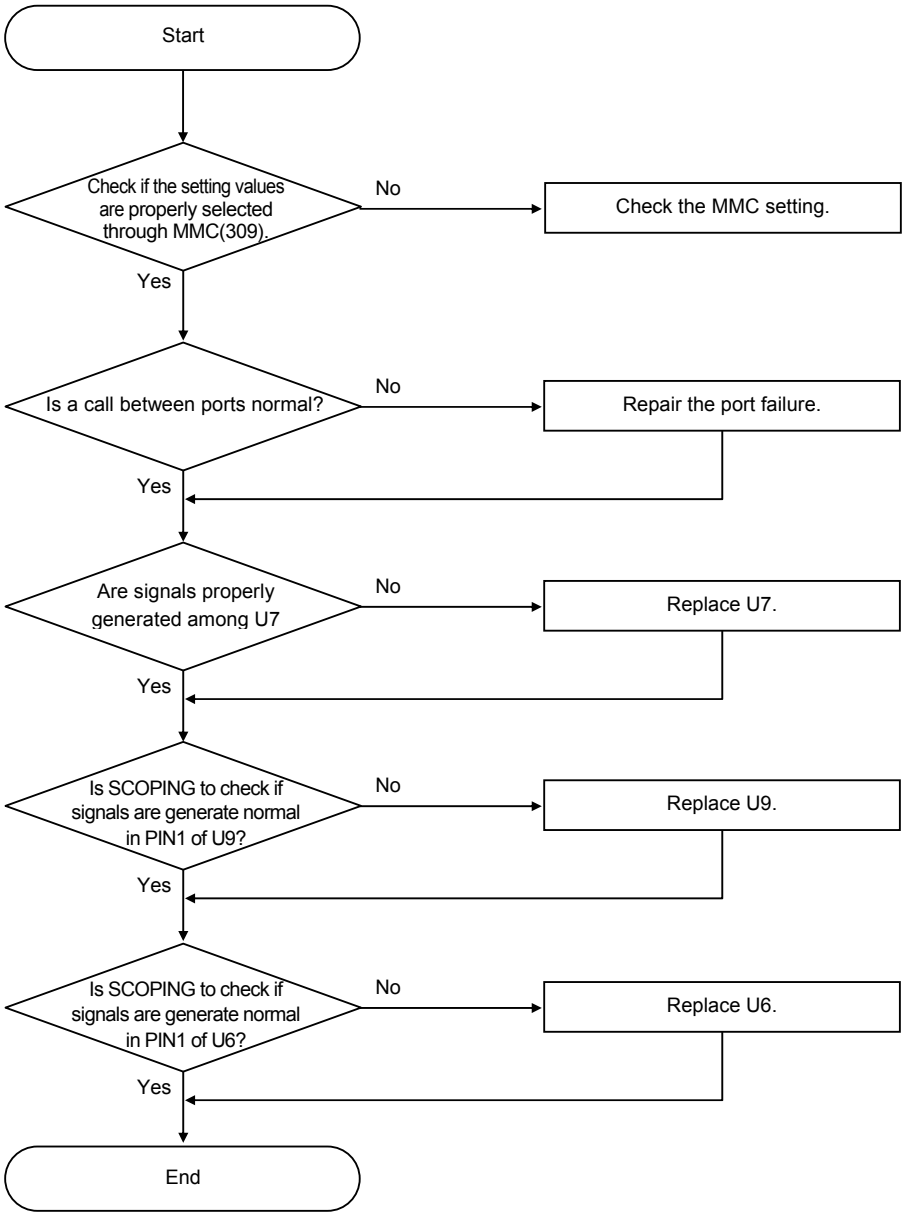
3.3.1.1 Processor Operation Failure

When an error occurs in MP40 board, follow the procedure below:



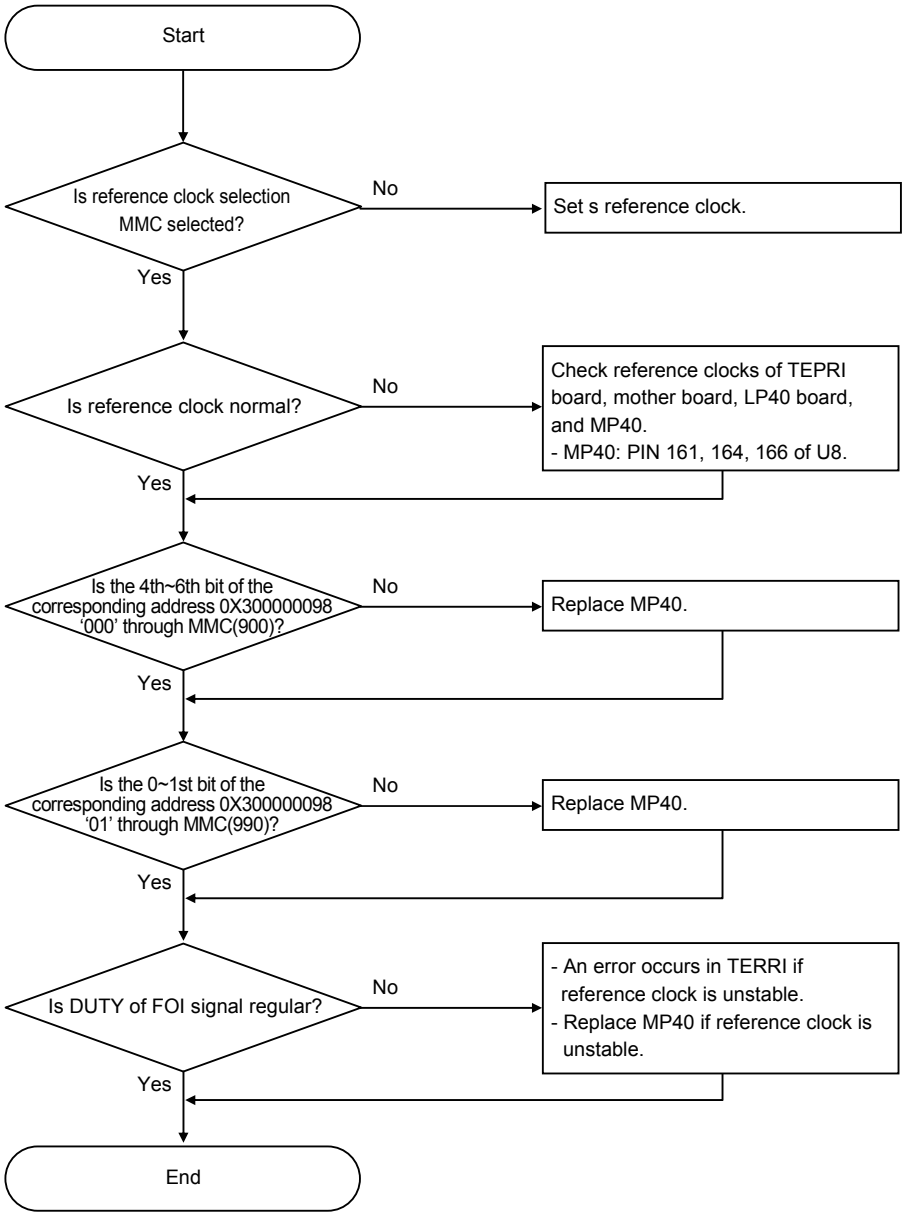
3.3.1.2 Internal Music on Hold (MOH)/Background Music Source (BGM)

Check if the setting values are properly selected through MMC. When an error occurs in internal music on hold or background music source, follow the procedure below. At the time, the music on hold is set to an internal music on hold.



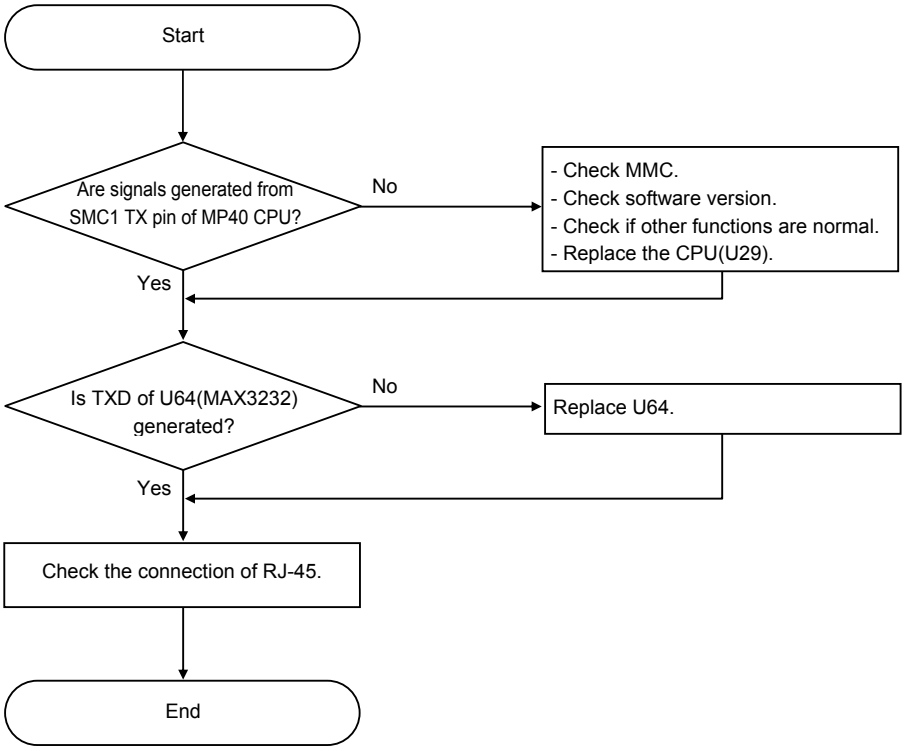
3.3.1.3 PLL Operation Failure

When an error occurs in Phase Locking Loop(PLL), follow the procedure below:



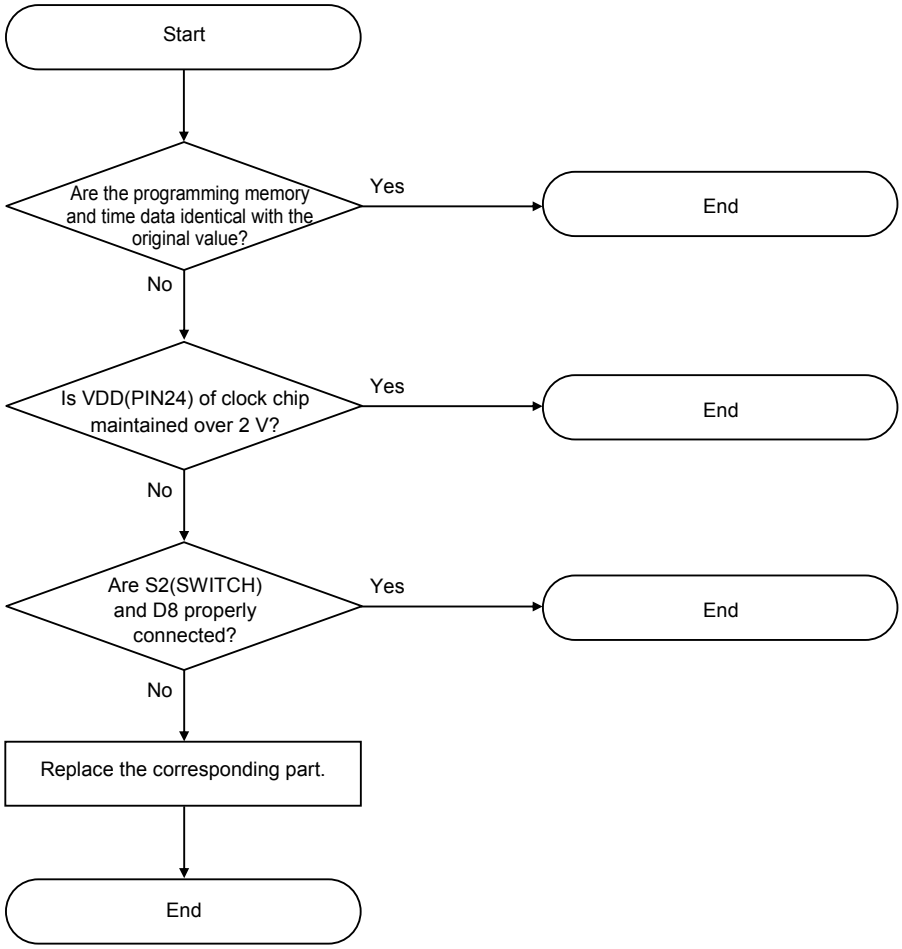
3.3.1.4 SIO Port Operation Failure

When an error occurs in the system UART port of the basic cabinet while MP40 board is used, follow the procedure below:



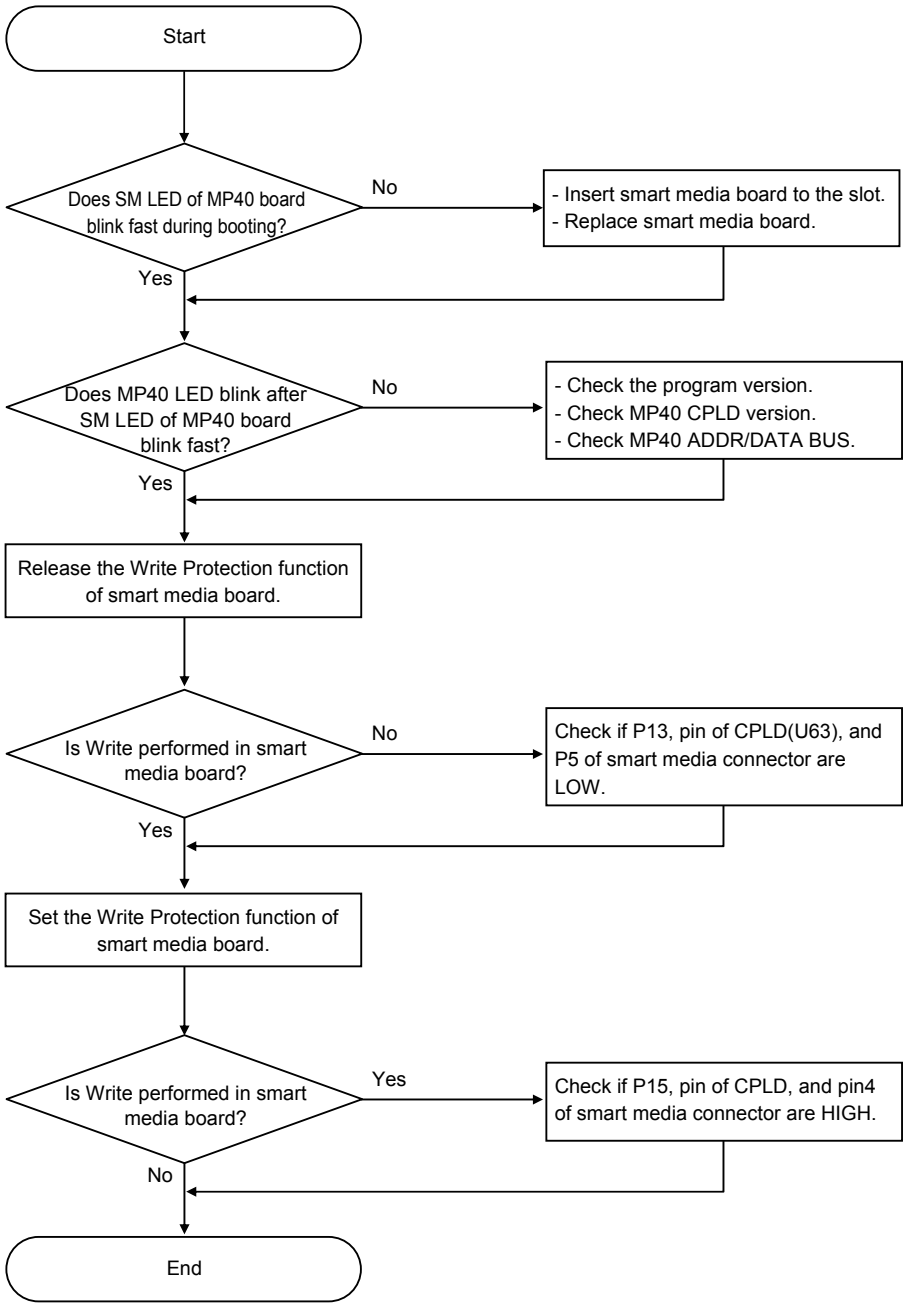
3.3.1.5 Memory/Time Data Backup Failure

When an error occurs when the memory of an OfficeServ 7400 system and time data are backed up, follow the procedure below:



3.3.1.6 Smart Media Board Failure

When an error occurs in smart media board, follow the procedure below:

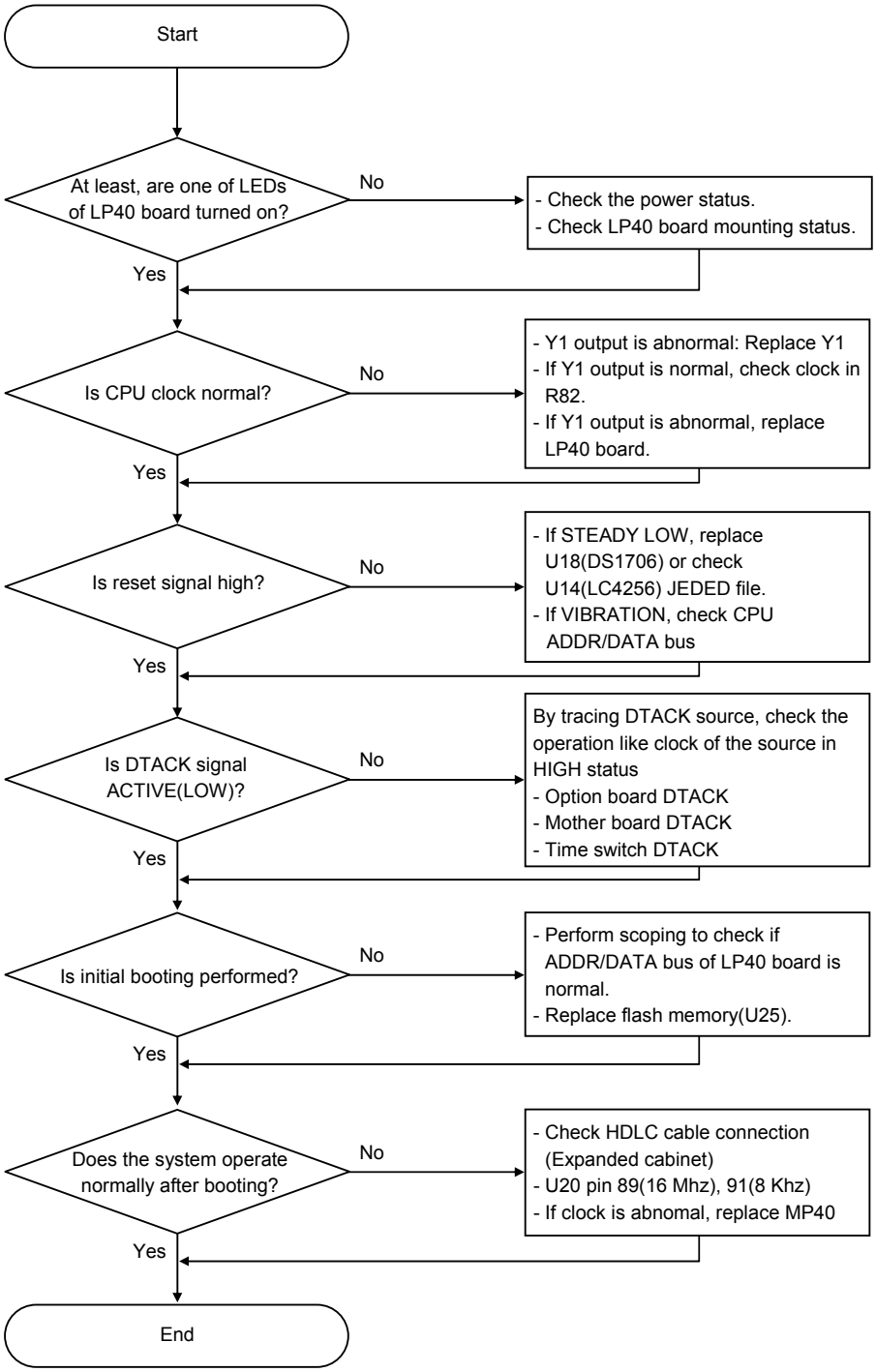


3.3.2 LP40 Board

This subsection describes the troubleshooting procedure when failures occur on the LP40 board.

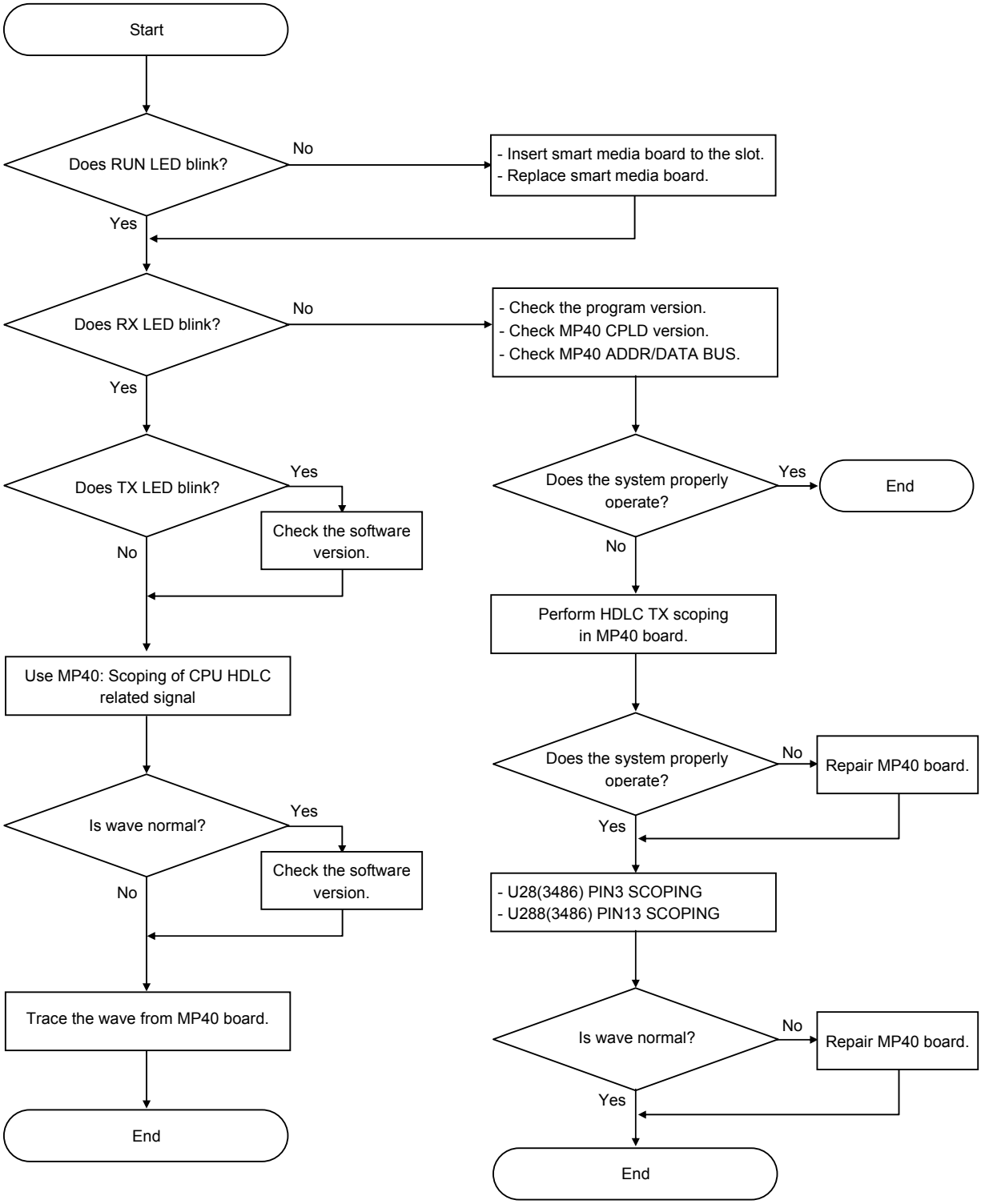
3.3.2.1 CPU Operation Failure

When an error occurs in LP40 board, follow the procedure below:



3.3.2.2 HDLC Communication Failure

If only High level Data Link Control(HDLC) of a specific LP40 board does not operate, follow the procedure below:



3.4 Universal Board

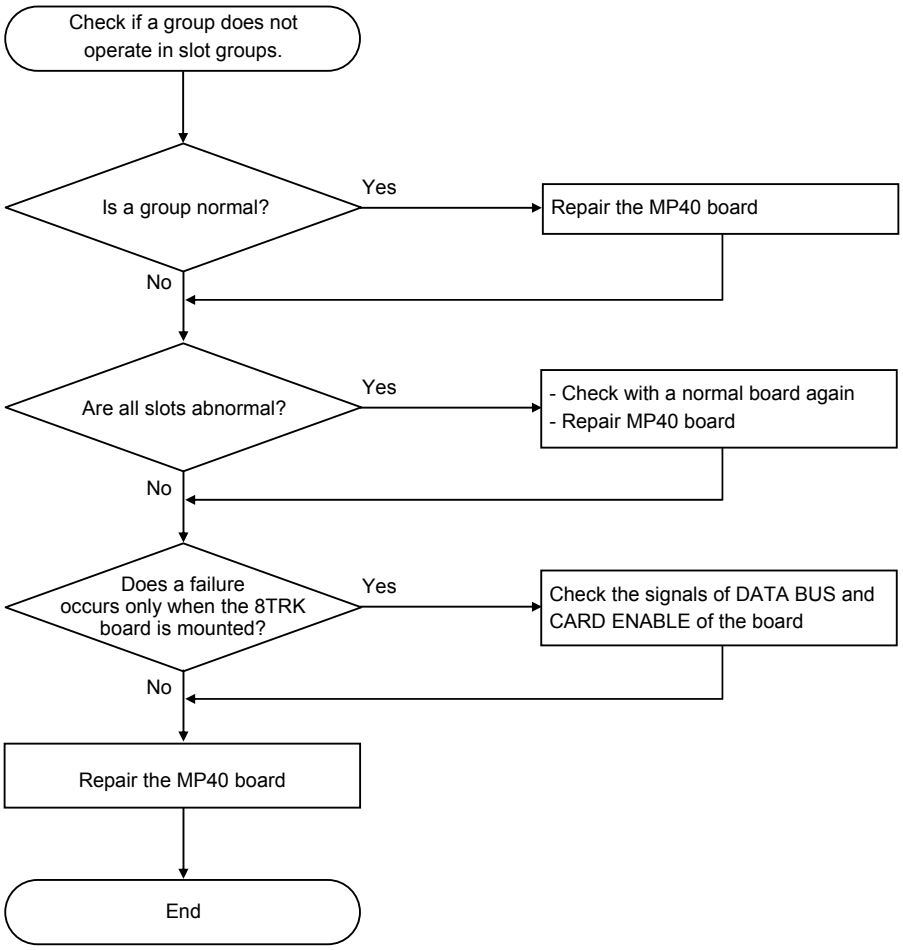
This section describes the problems that occur on various universal boards and troubleshooting procedures.

3.4.1 8TRK Board

This subsection describes troubleshooting procedures when failures occur on 8TRK board.

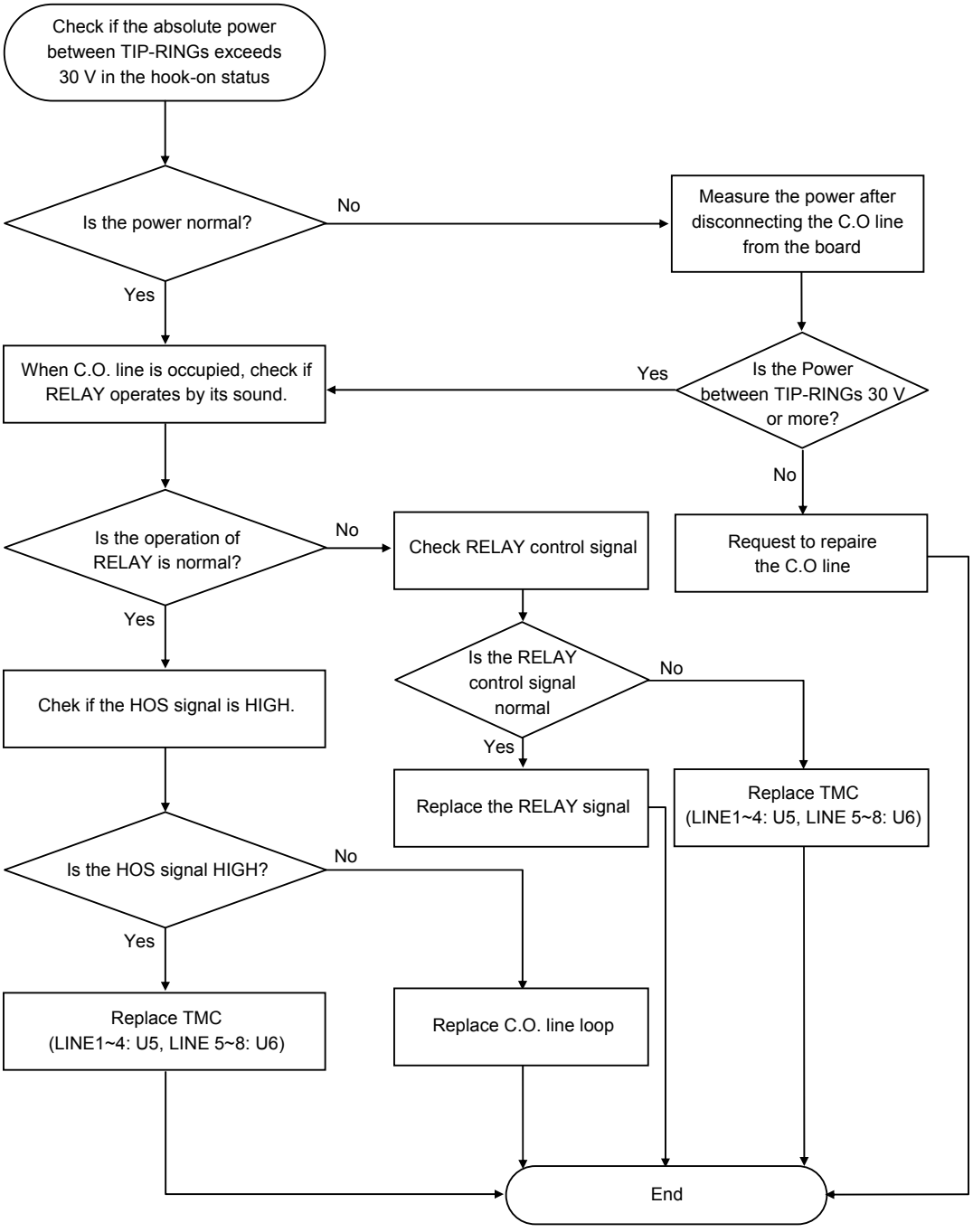
3.4.1.1 8TRK Board is not Detected

When 8TRK is not detected, the troubleshooting sequence is as follows:



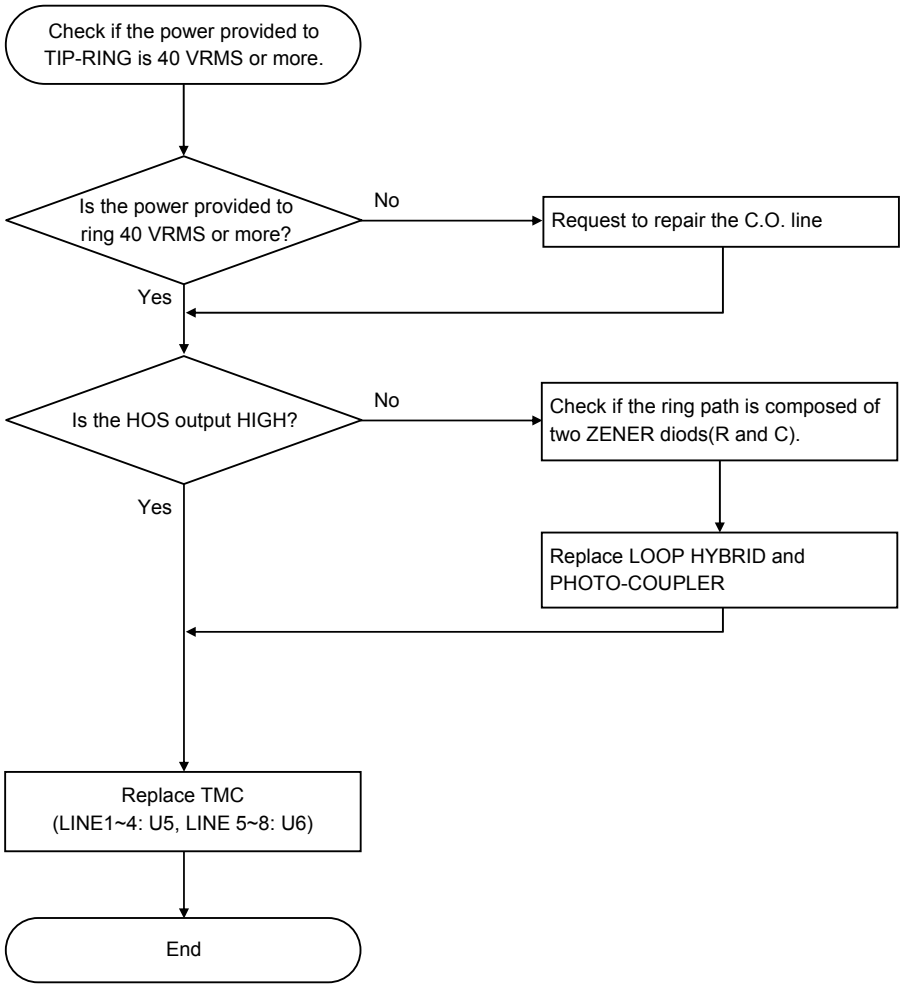
3.4.1.2 An External Call is not be Originated

When a call is not originated as the C.O. line is not detected, the troubleshooting sequence is as follows:



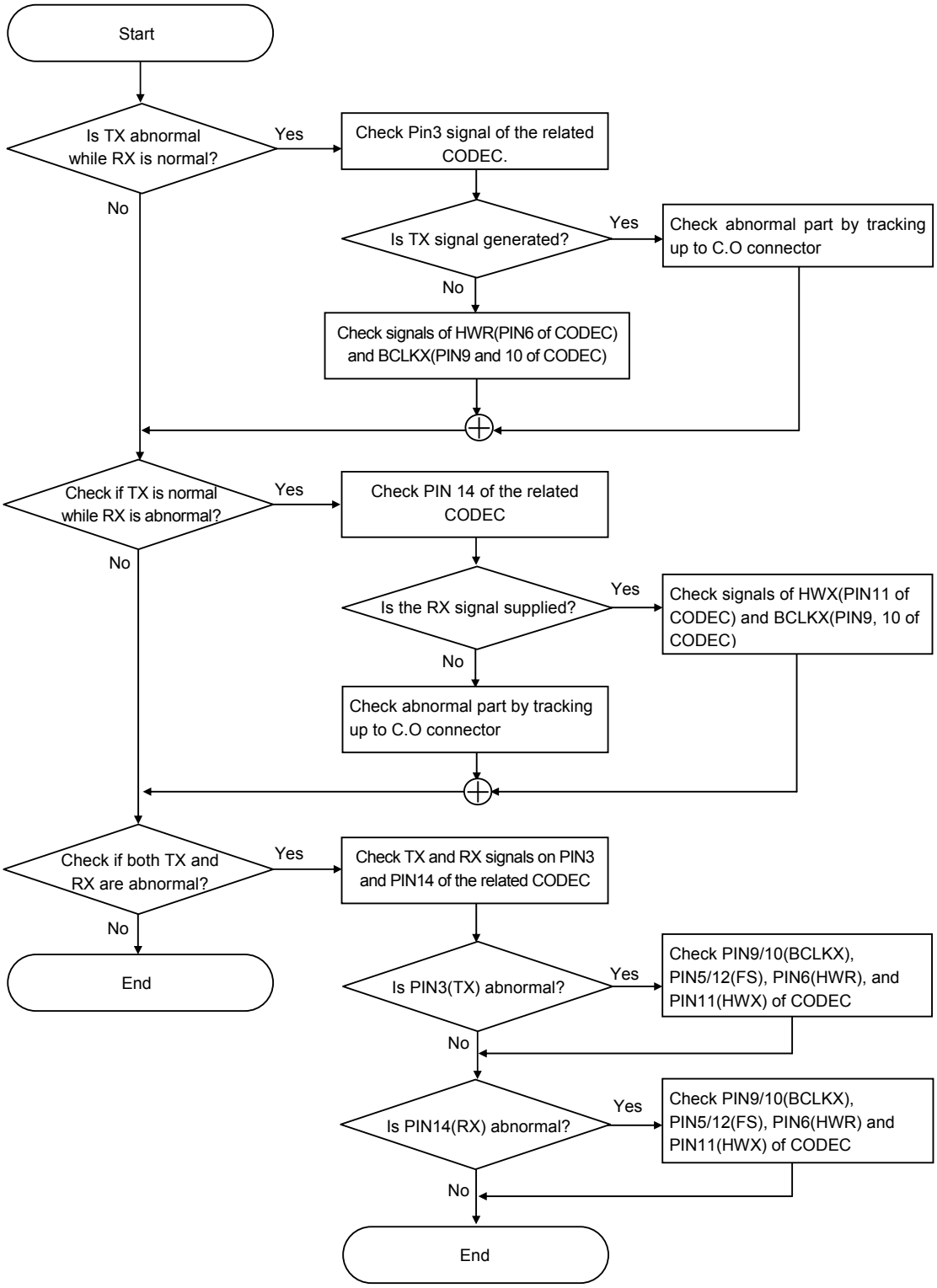
3.4.1.3 Ring is not Terminated

When C.O. line ring is not terminated, the troubleshooting sequence is as follows:



3.4.1.4 An External Call is not be Connected

When an external call is not connected, the troubleshooting sequence is as follows:

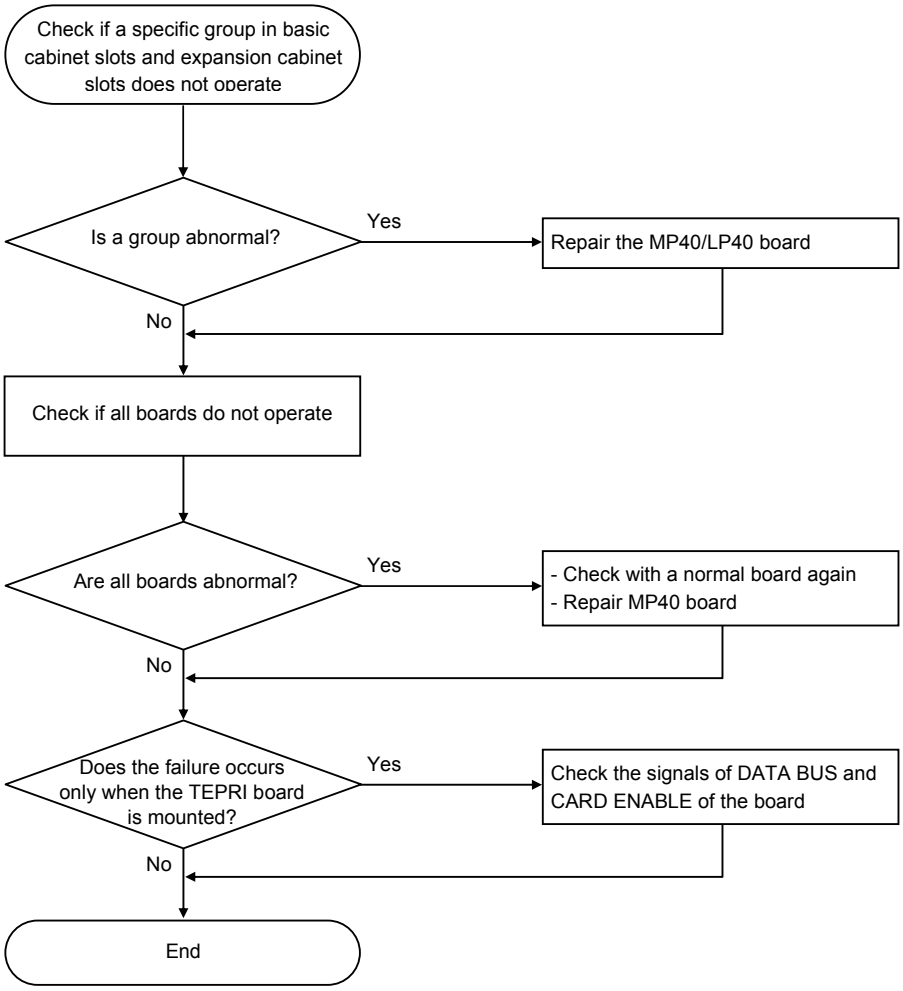


3.4.2 TEPRI Board

This subsection describes troubleshooting procedures when failures occur on TEPRI board.

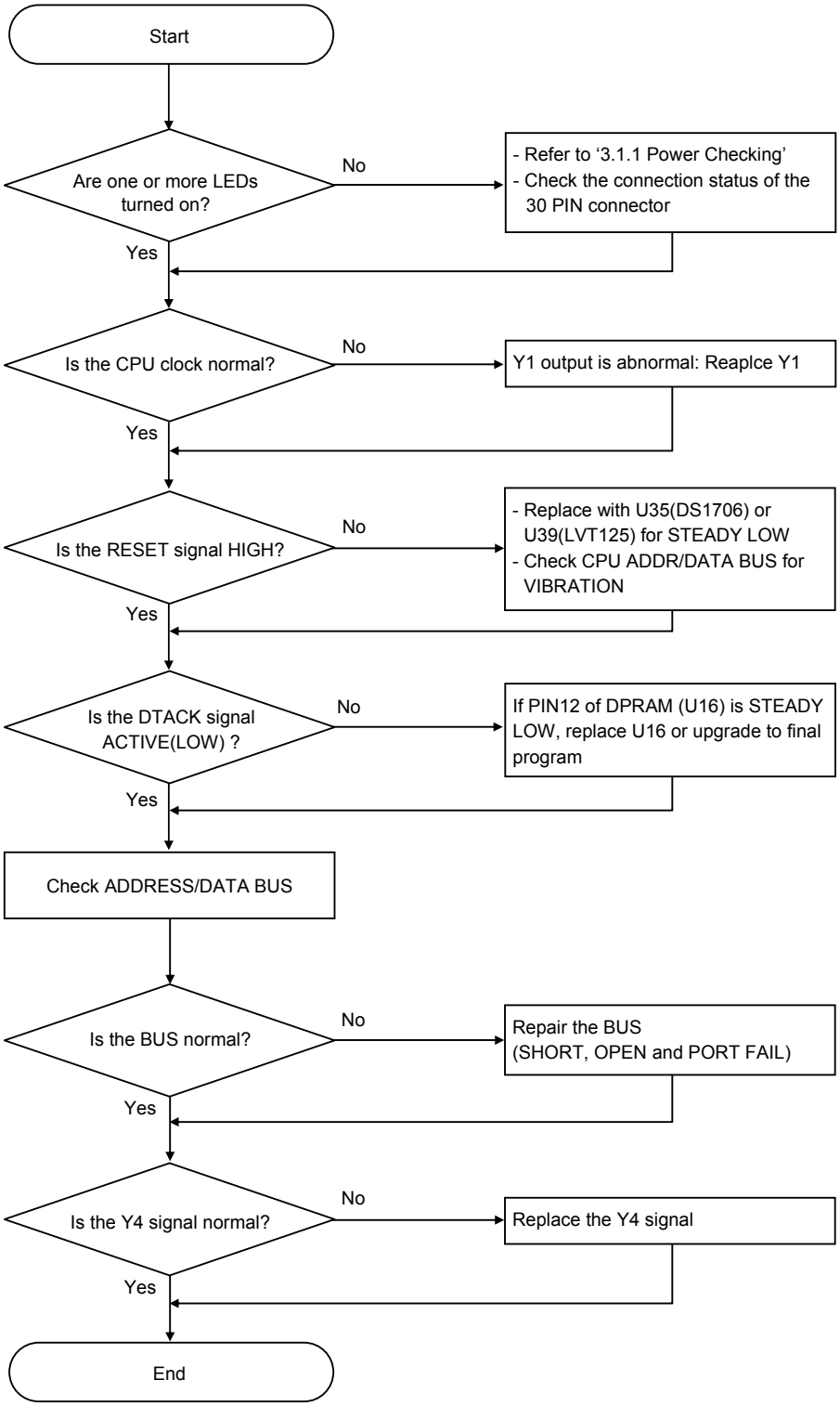
3.4.2.1 TEPRI Board is not Detected

When the TEPRI board is not detected, the troubleshooting sequence is as follows:



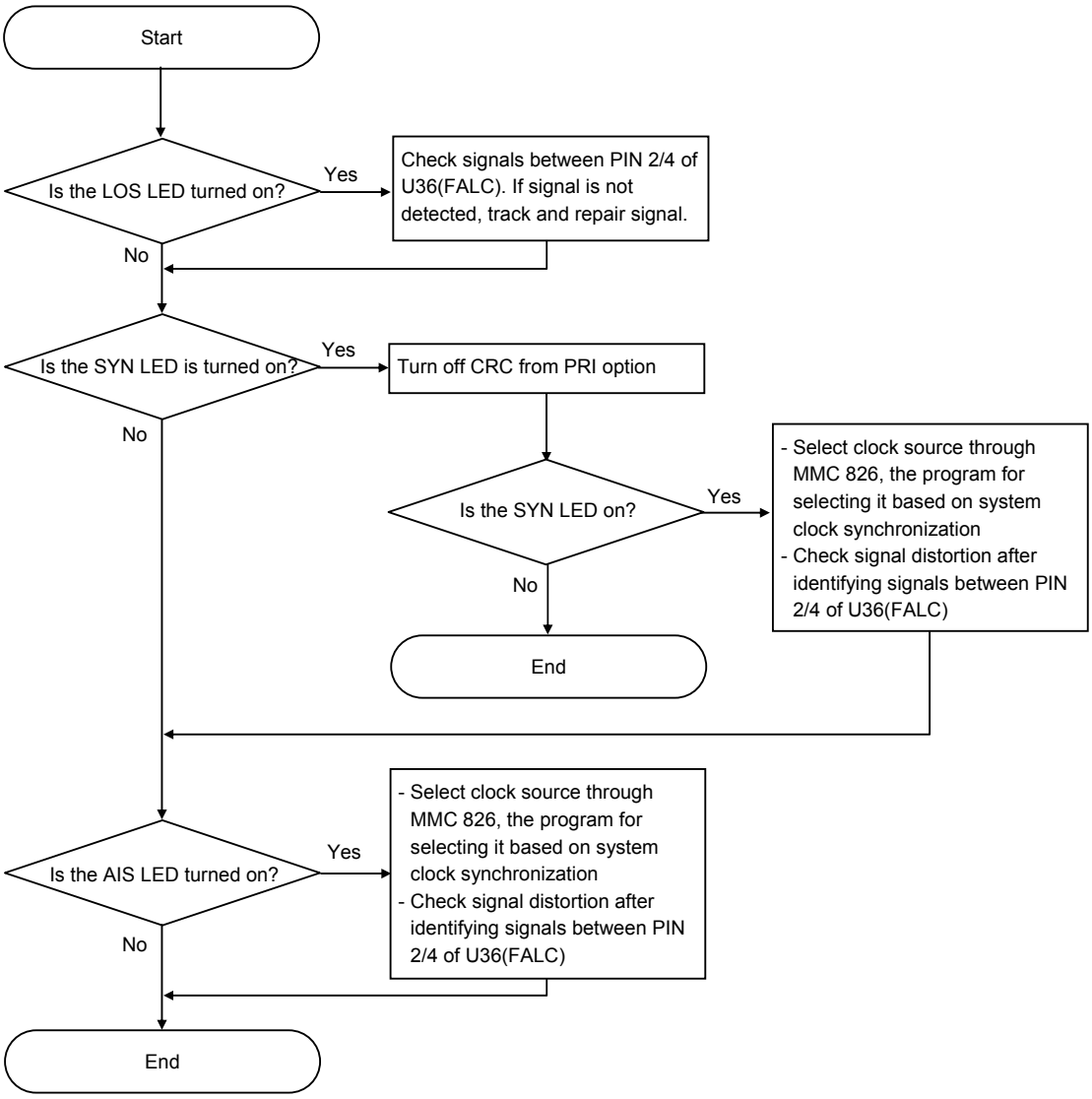
3.4.2.2 Processor Operation is Abnormal

When the processor of the TEPRI board does not properly operated, the troubleshooting sequence is as follows:



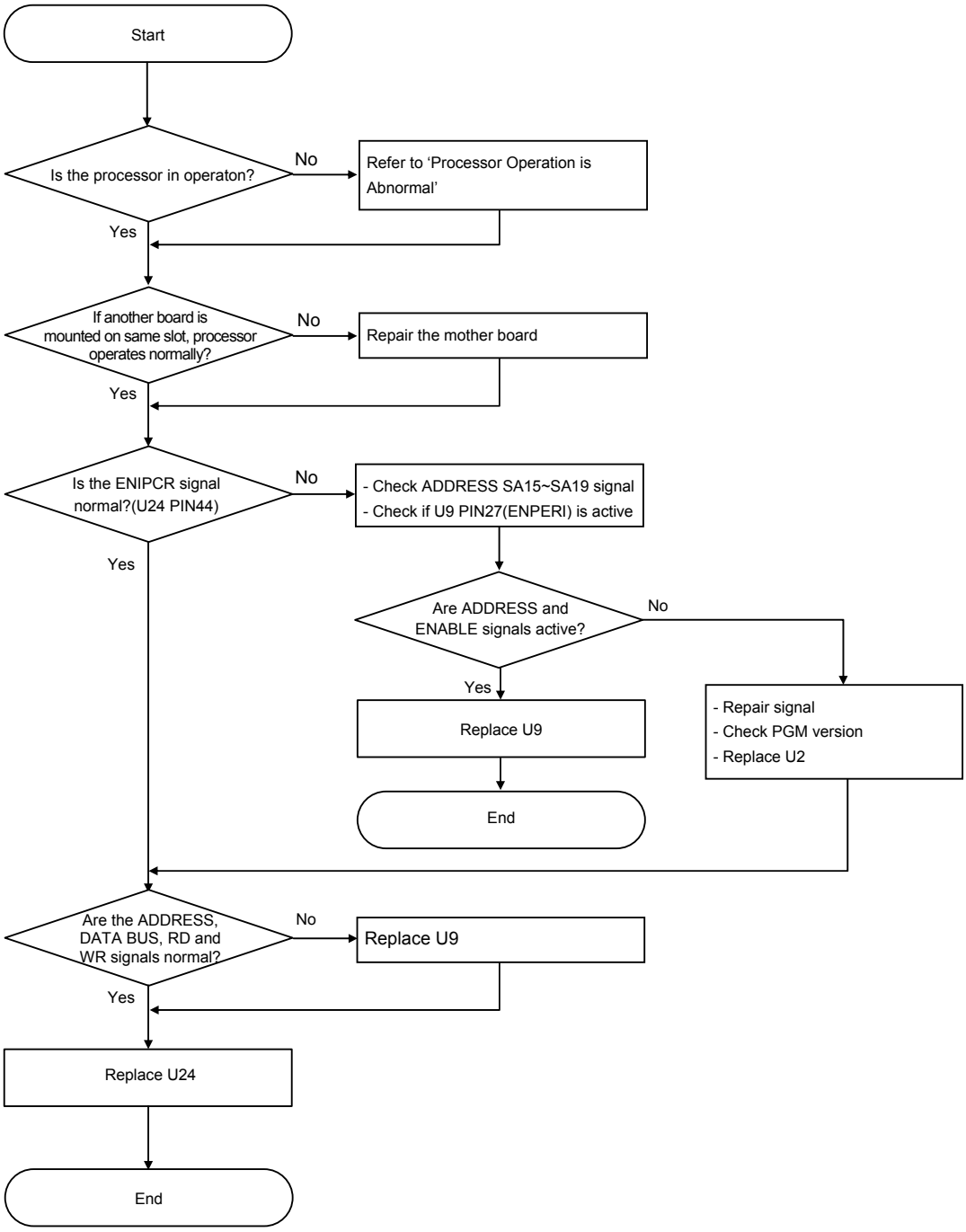
3.4.2.3 LED for Line Indication is Abnormal

On the TEPRI board, when the LED for line indication is abnormal, the troubleshooting sequence is as follows:



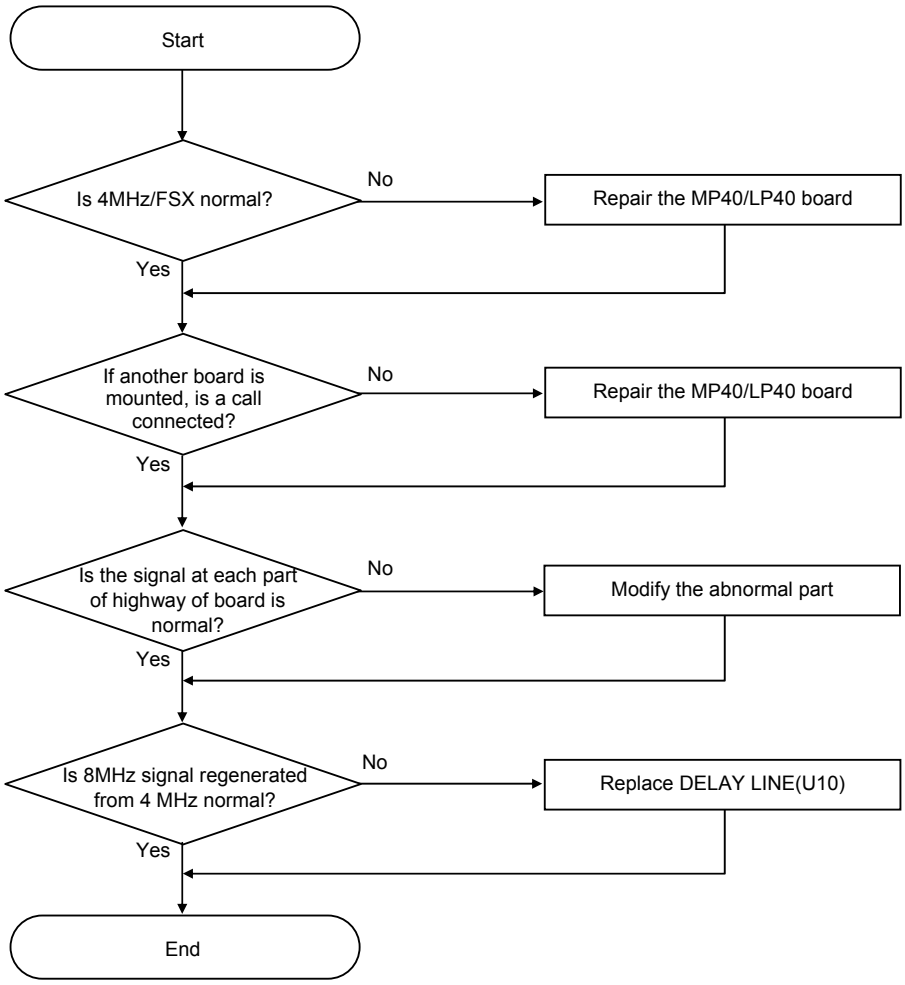
3.4.2.4 IPC LED is Abnormal

If the IPC LED of the TEPRI board blinks, it means that the TEPRI board is normal. When the IPC LED does not blinks and turns off, the troubleshooting sequence is as follows:



3.4.2.5 A Call is not Connected or There is Noise during a Call

When a call is not connected or there is noise during a call while the LED status of the TEPRI board is normal, the troubleshooting sequence is as follows:

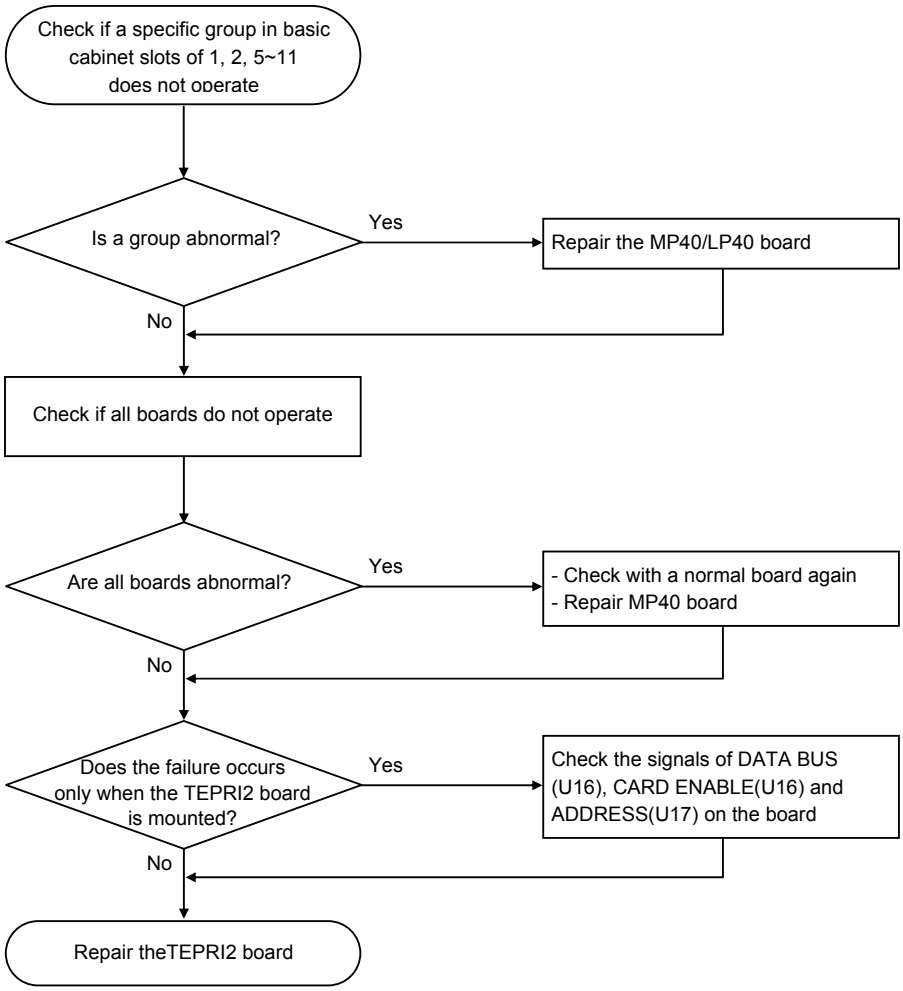


3.4.3 TEPRI2 Board

This subsection describes troubleshooting procedures when failures occur on TEPRI2 board2.

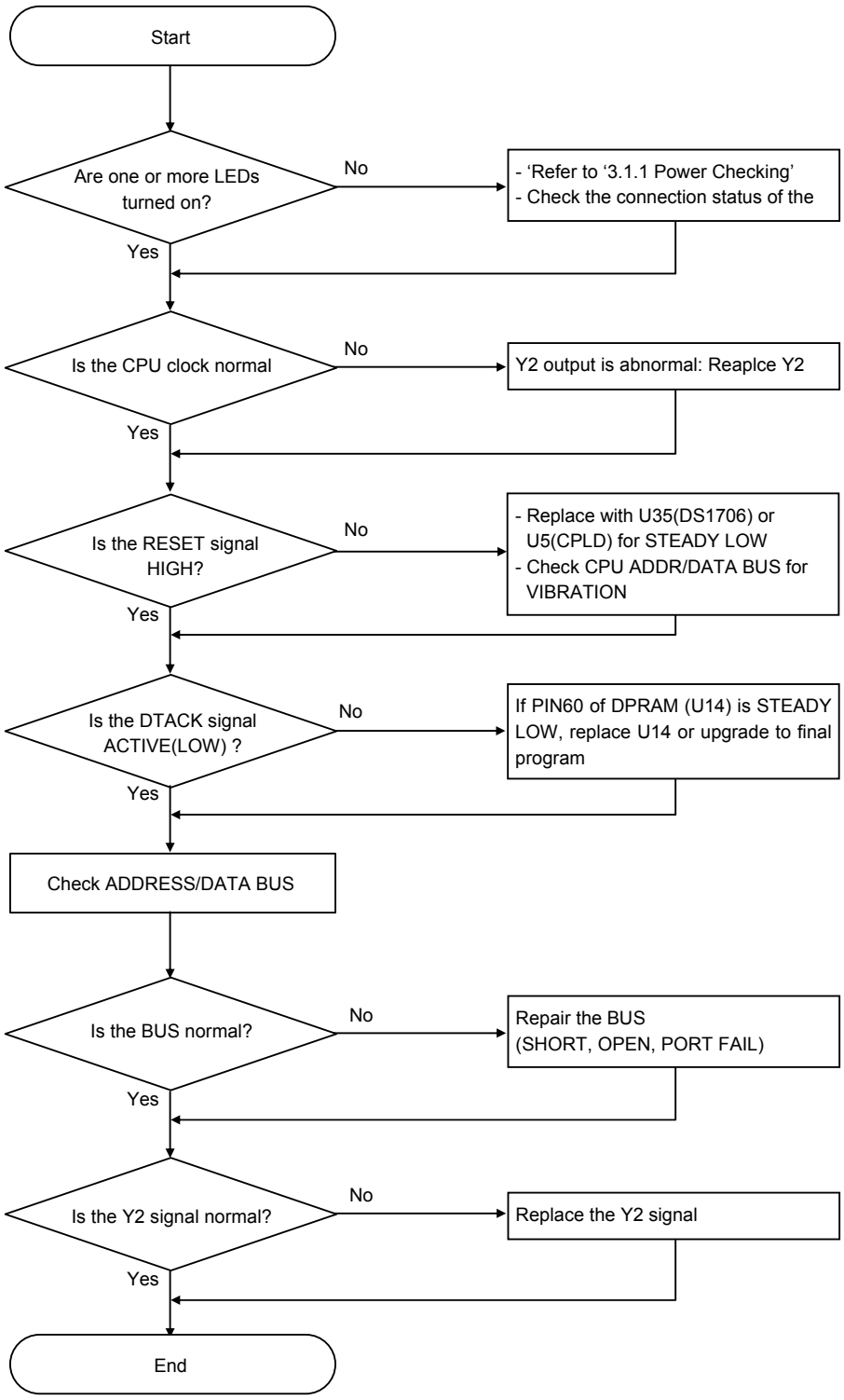
3.4.3.1 TEPRI2 Board is not Detected

When the TEPRI2 board is not detected, the troubleshooting sequence is as follows:



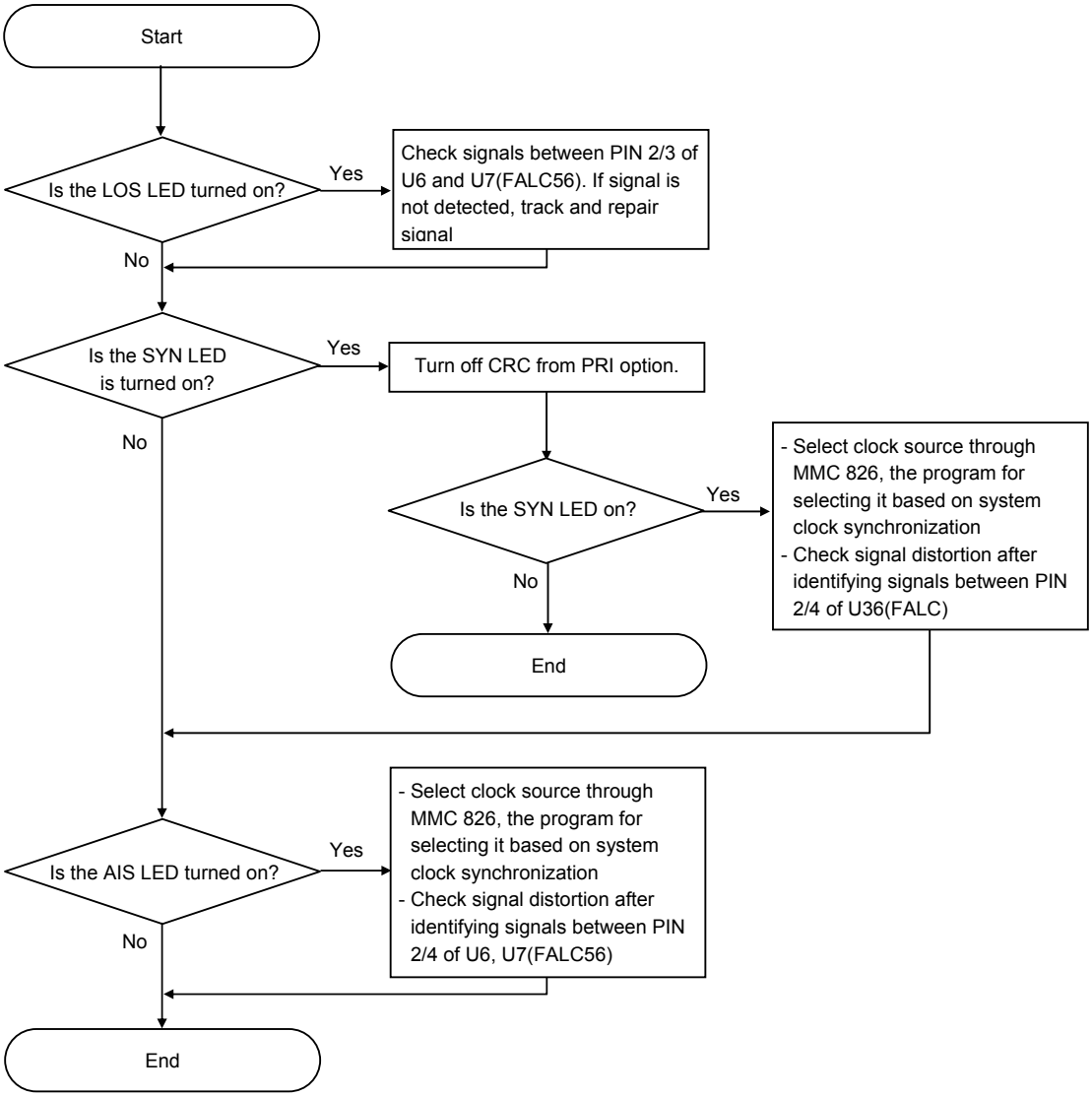
3.4.3.2 Processor Operation is Abnormal

When the processor of the TEPRI2 board does not properly operated, the troubleshooting sequence is as follows:



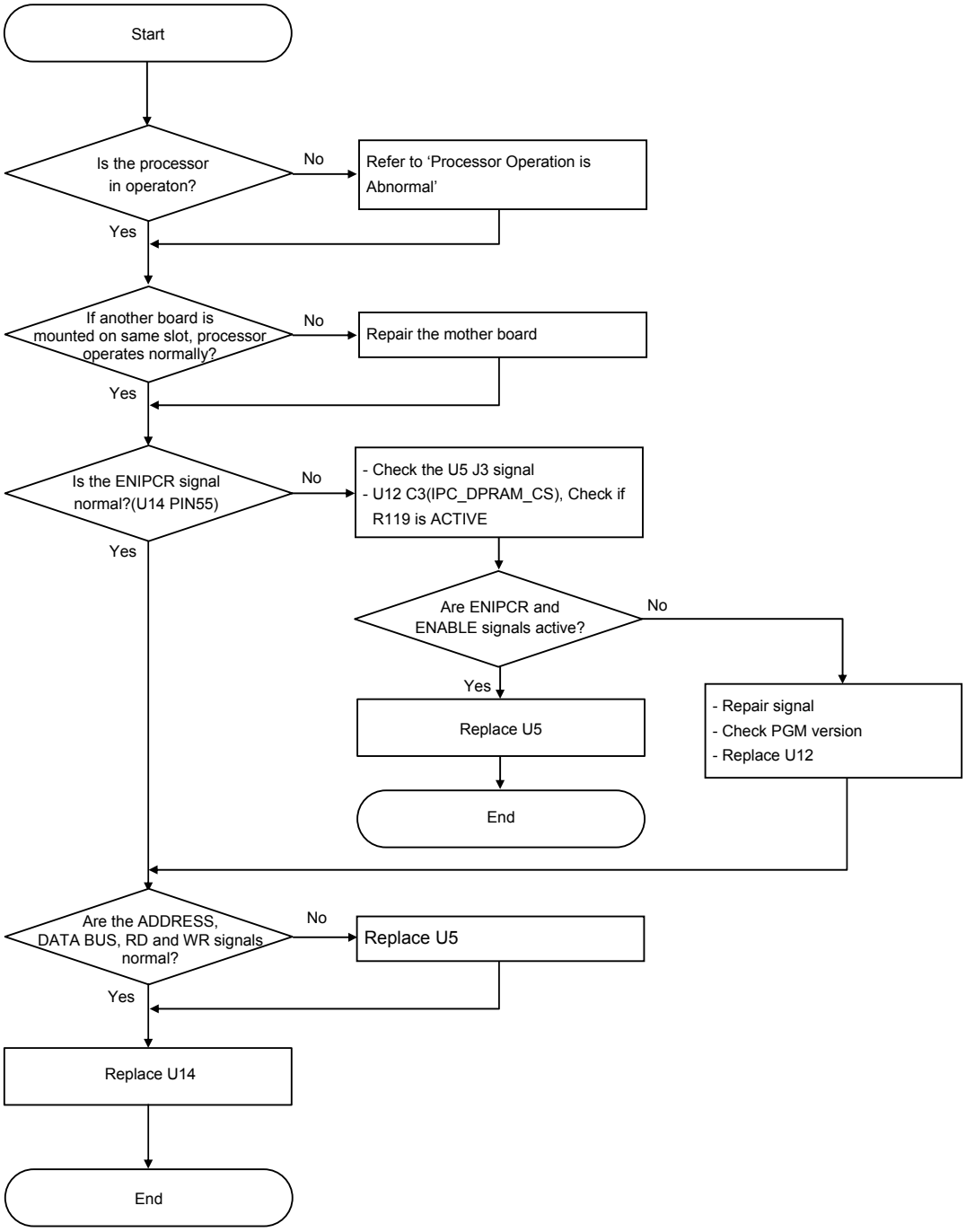
3.4.3.3 LED for Line Indication is Abnormal

On the TEPRI2 board, when the LED for line indication is abnormal, the troubleshooting sequence is as follows:



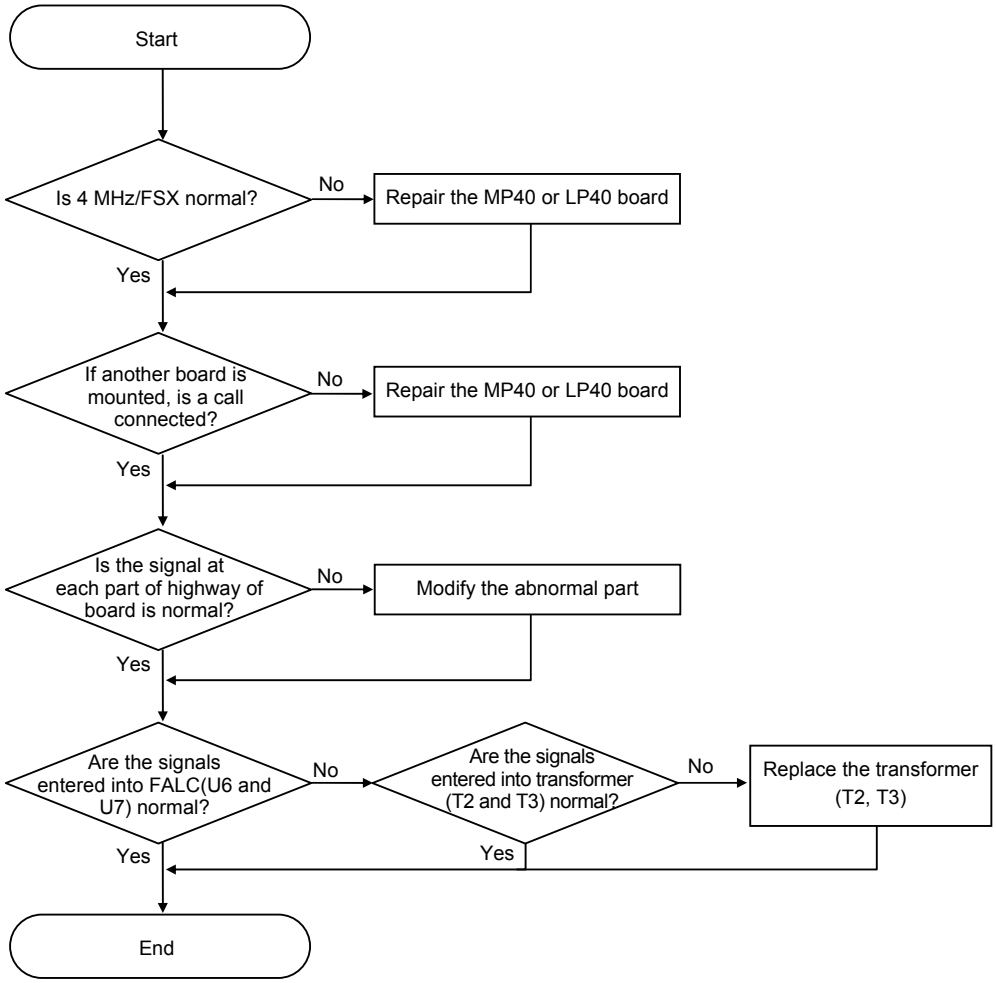
3.4.3.4 RUN LED is Abnormal

If the IPC LED of the TEPRI2 board blinks, it means that the TEPRI board is normal. When the IPC LED does not blinks and turns off, the troubleshooting sequence is as follows:



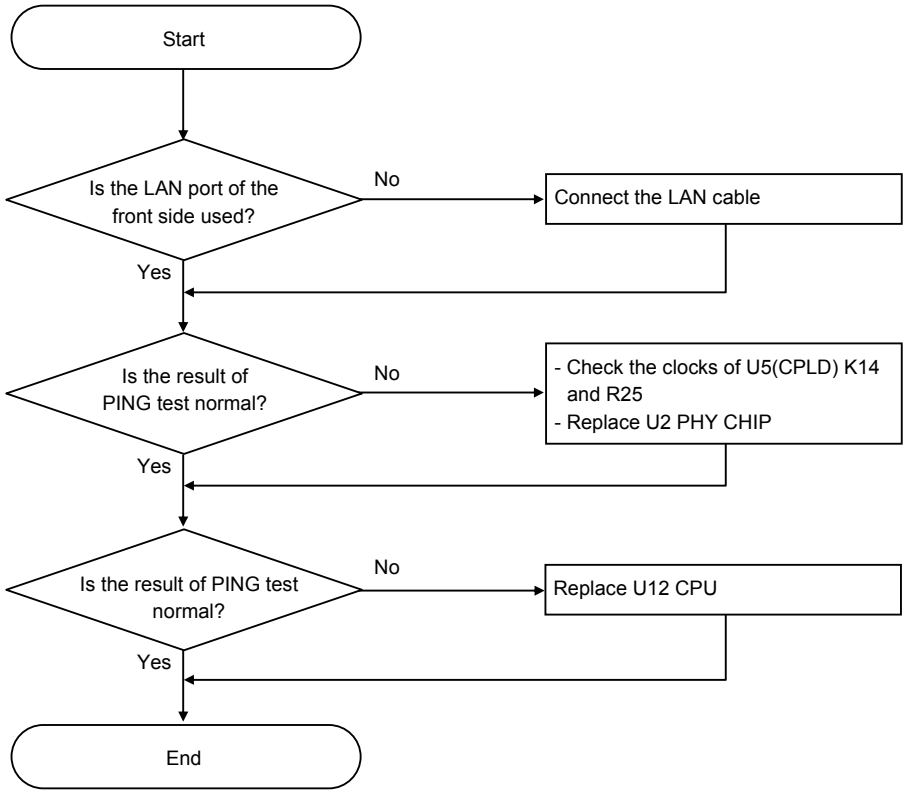
3.4.3.5 A Call is not Connected or There is Noise during a Call

When a call is not connected or there is noise during a call while the LED status of the TEPRI2 board is normal, the troubleshooting sequence is as follows:



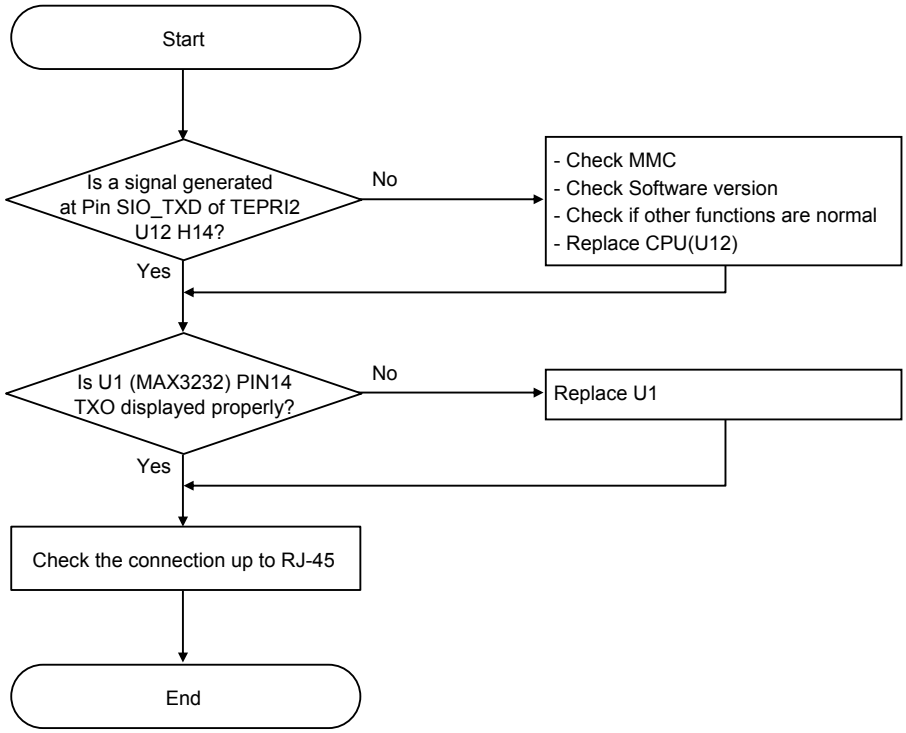
3.4.3.6 Operation of LAN Port is Abnormal

When a failure occurs to the LAN port of the TEPRI2 board, the troubleshooting sequence is as follows:.



3.4.3.7 Operation of SIO Port is Abnormal

When a failure occurs to the SIO port of the TEPRI2 board, the troubleshooting sequence is as follows:

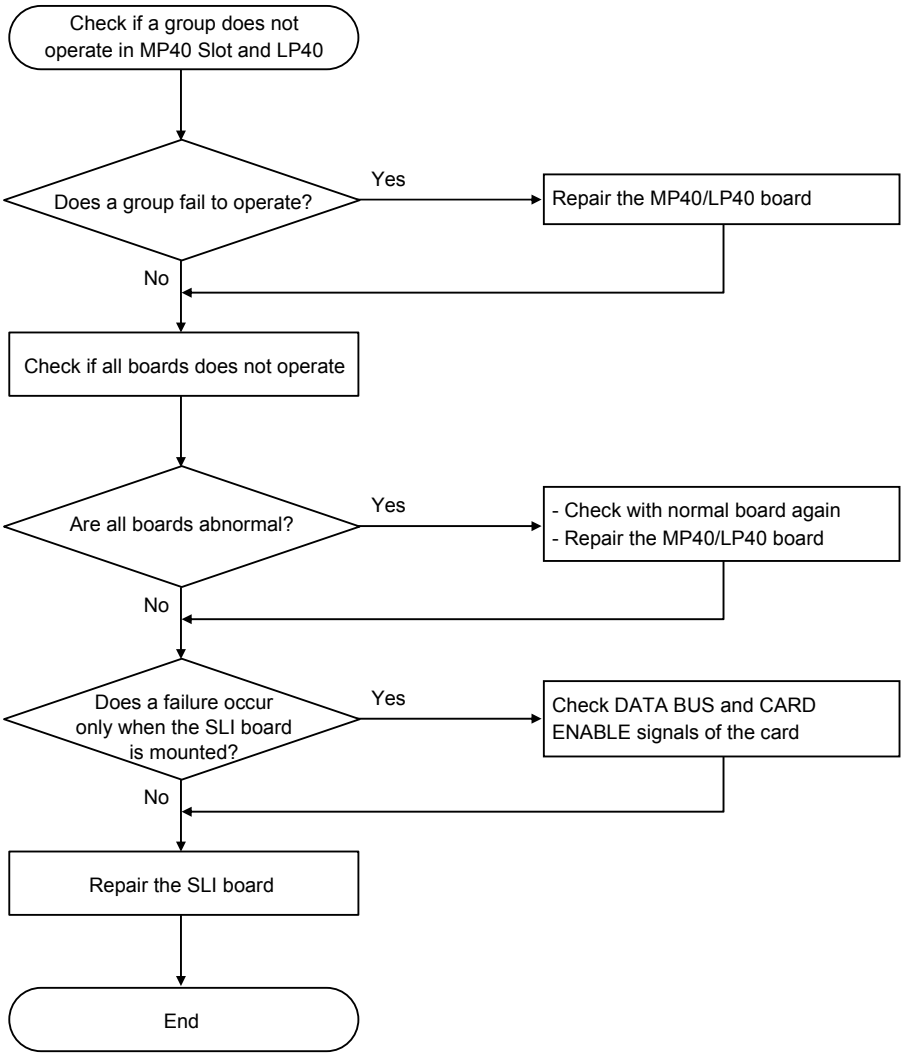


3.4.4 8SLI/16SLI/8HYB/8HYB2 Board

When a failure occurs on the 8SLI/16SLI/8HYB/8HYB2 board, the troubleshooting sequence is as follows:

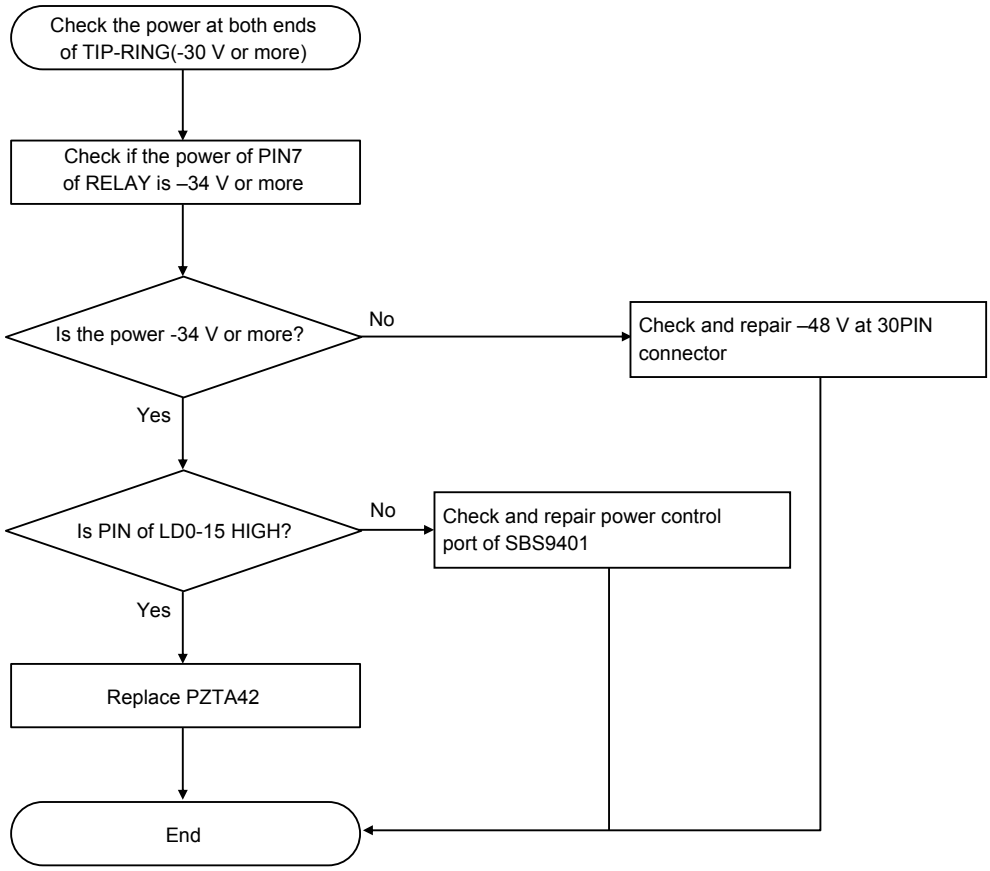
3.4.4.1 8SLI/16SLI/8HYB/8HYB2 Board is not Detected

When the 8SLI/16SLI/8HYB/8HYB2 board is not detected, the troubleshooting sequence is as follows:



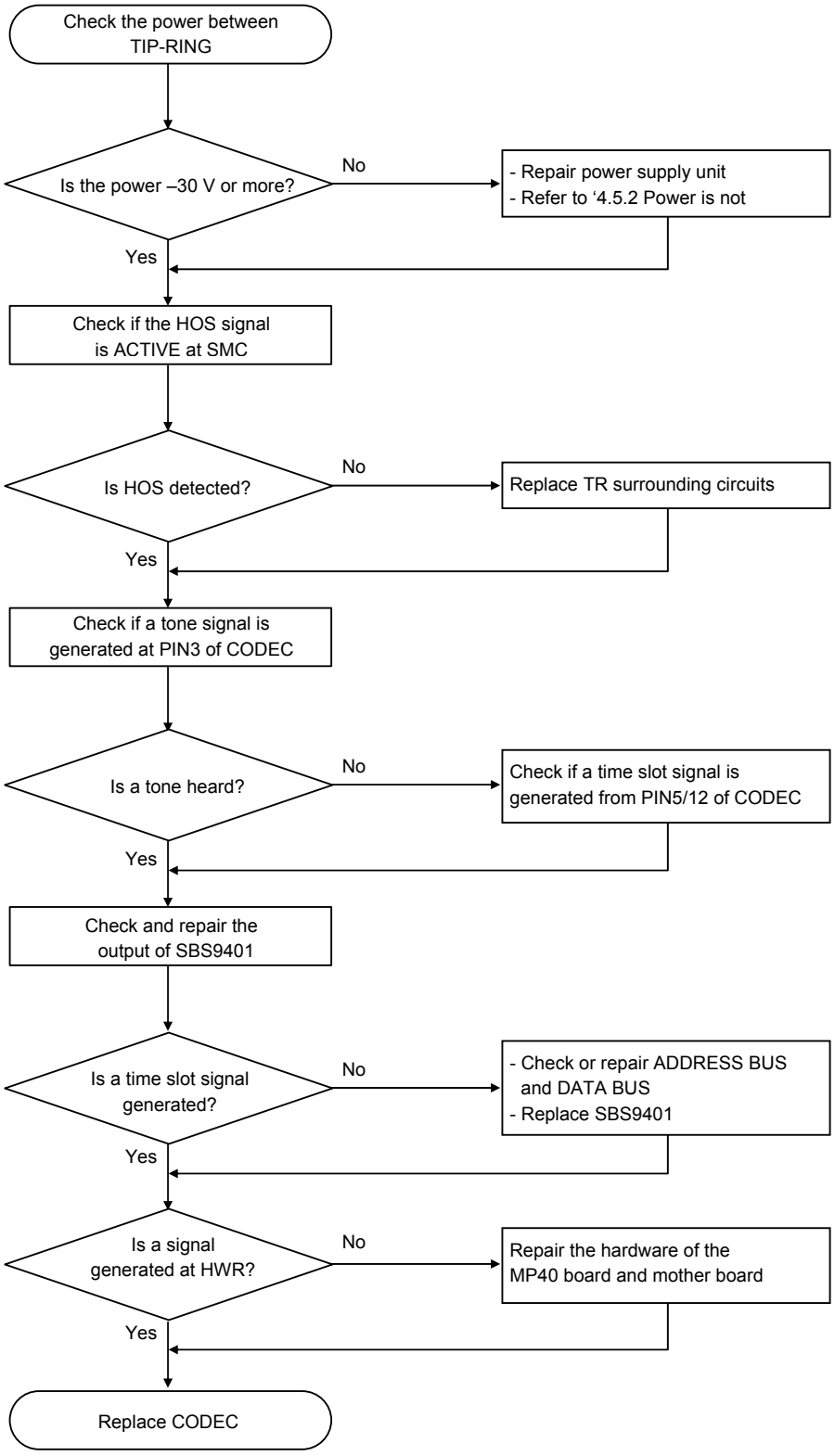
3.4.4.2 Power is not Supplied

When the power is not supplied to the 8SLI/16SLI/8HYB/8HYB2 ports, the troubleshooting sequence is as follows:



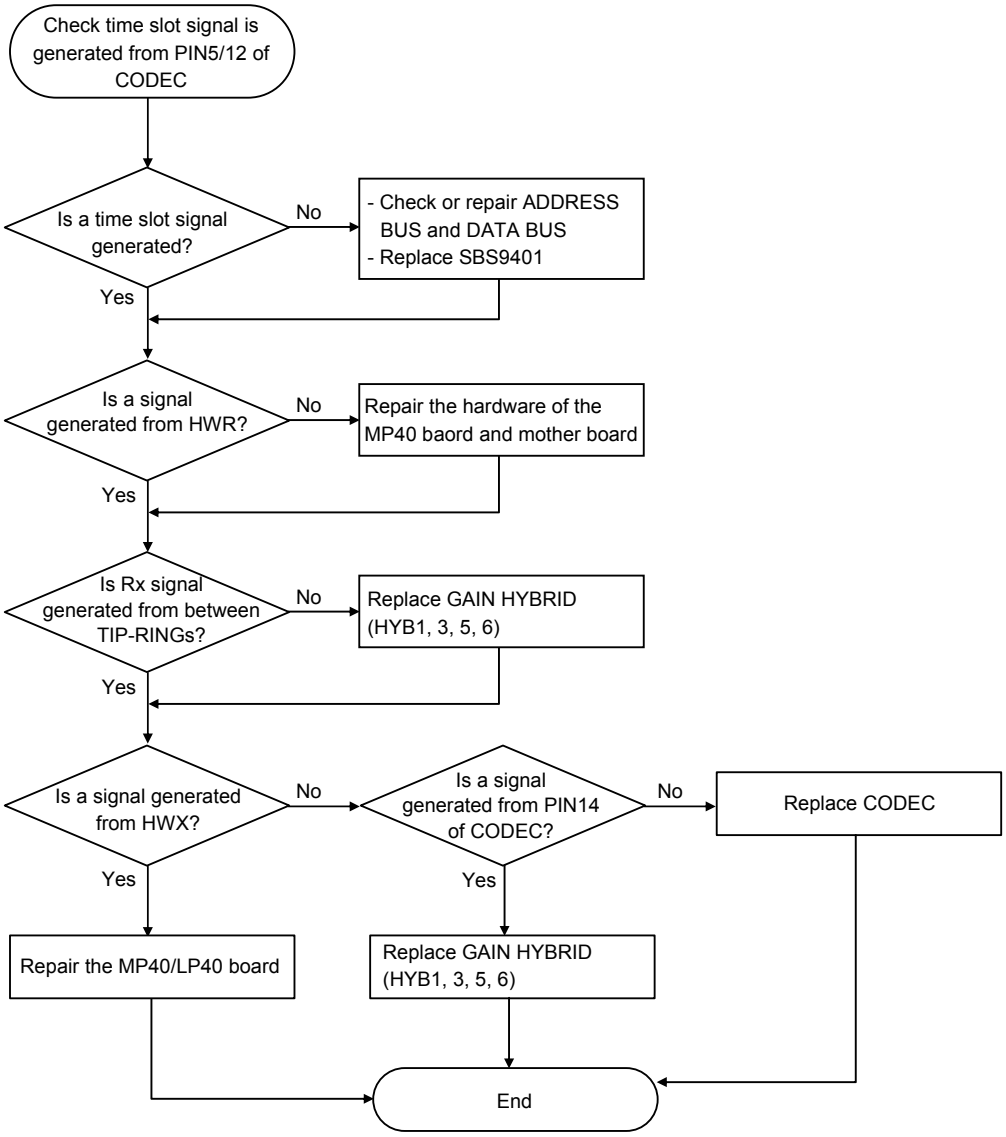
3.4.4.3 A Tone is not Heard

When a tone is not heard from the 8SLI/16SLI/8HYB/8HYB2 port, the troubleshooting sequence is as follows:



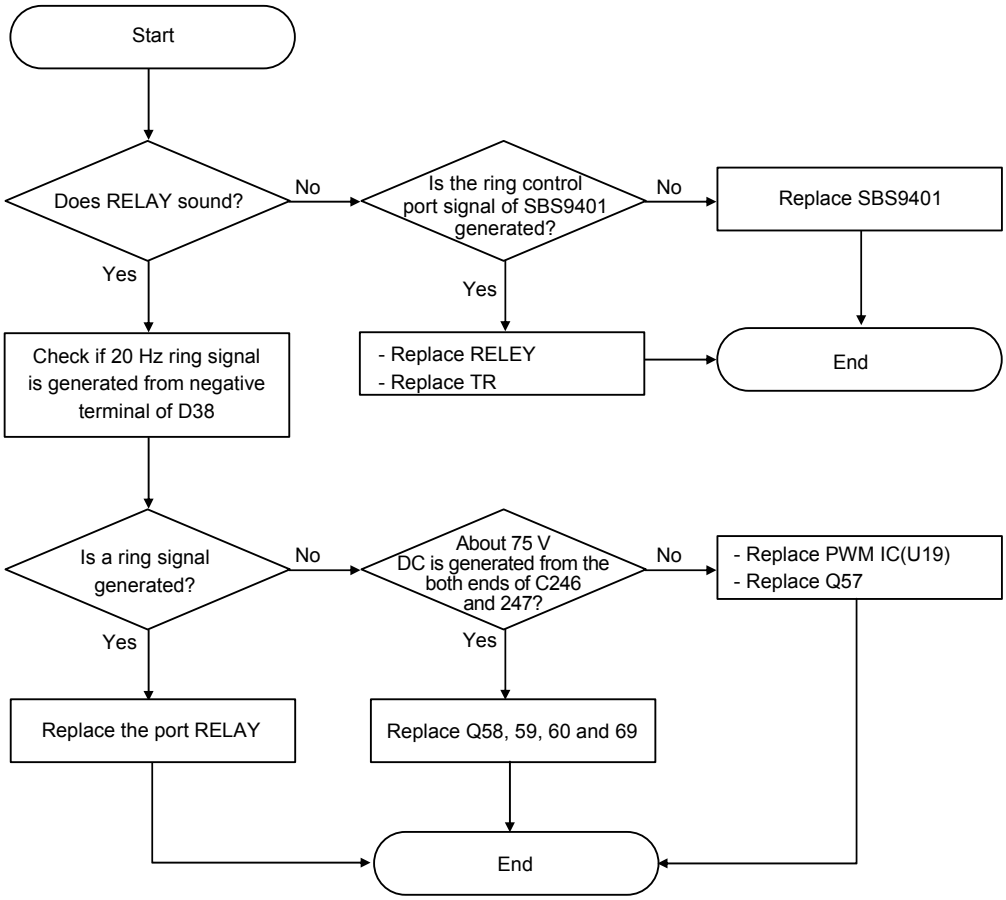
3.4.4.4 A Call is not Connected

When a call is not connected to the 8SLI/16SLI/8HYB/8HYB2 port, the troubleshooting sequence is as follows:



3.4.4.5 Ring does not sound

When the ring of the 8SLI/16SLI port does not sound, the troubleshooting sequence is as follows:

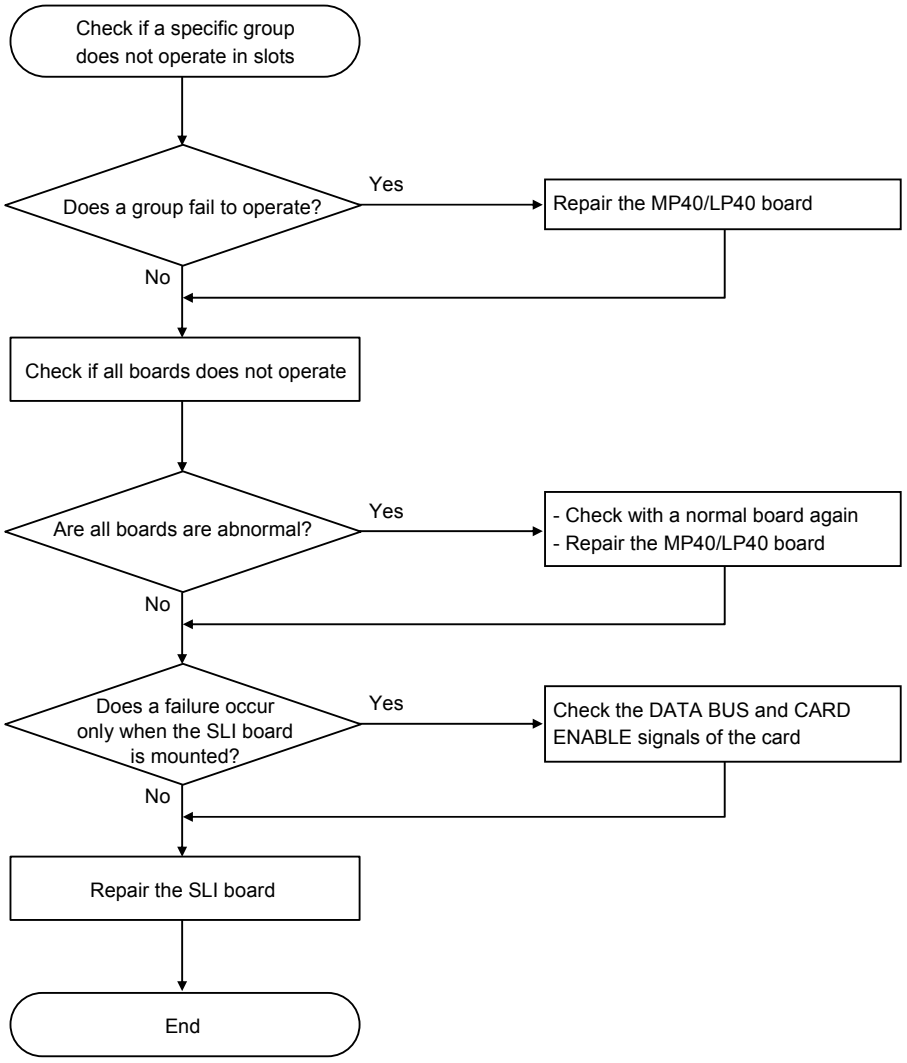


3.4.5 16SLI2/16MWSLI Board

This subsection describes the troubleshooting procedures when failures occur on the 16SLI2/16MWSLI board.

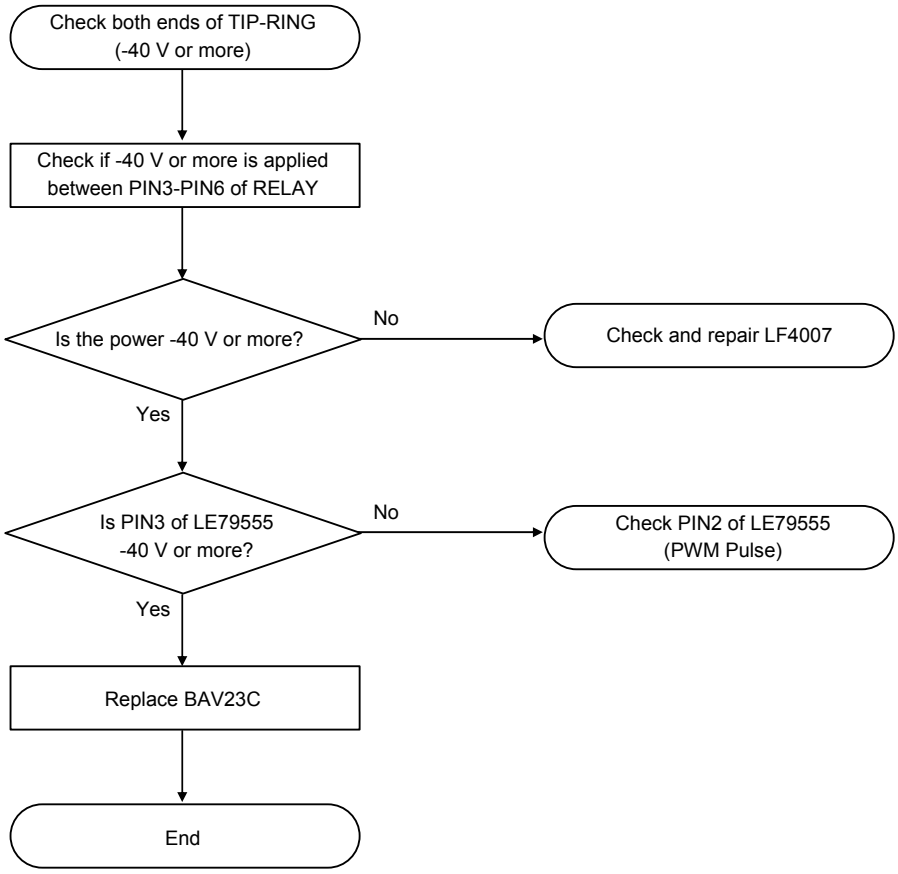
3.4.5.1 16SLI2/16MWSLI board is not detected

When the 16SLI2/16MWSLI board is not detected, the troubleshooting sequence is as follows:



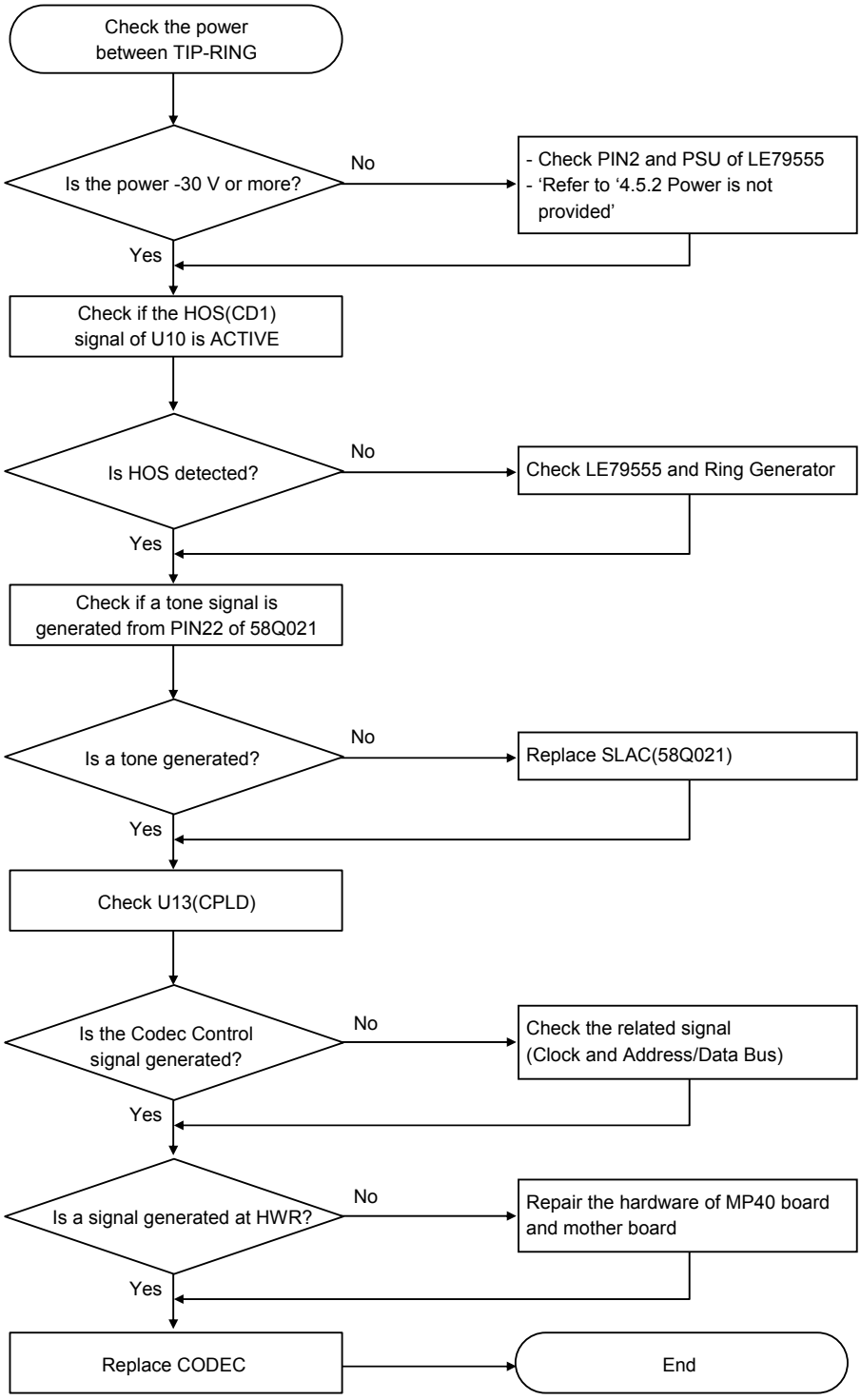
3.4.5.2 Power is not Supplied

When the power is not supplied to the 16SLI2/16MWSLI port, the troubleshooting sequence is as follows:



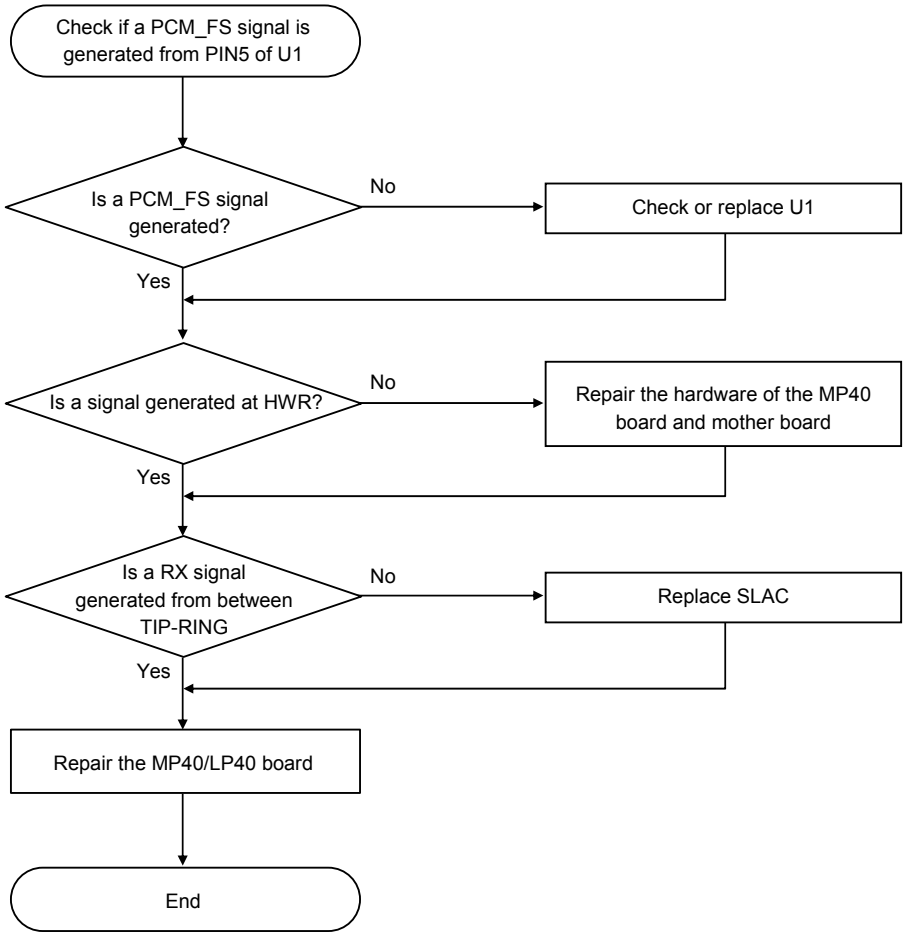
3.4.5.3 A Tone is not heard

When a tone is heard from the 16SLI2/16MWSLI port, the troubleshooting sequence is as follows:



3.4.5.4 A call is not connected

When a call is not connected to the 16SLI2/16MWSLI port, the troubleshooting sequence is as follows:

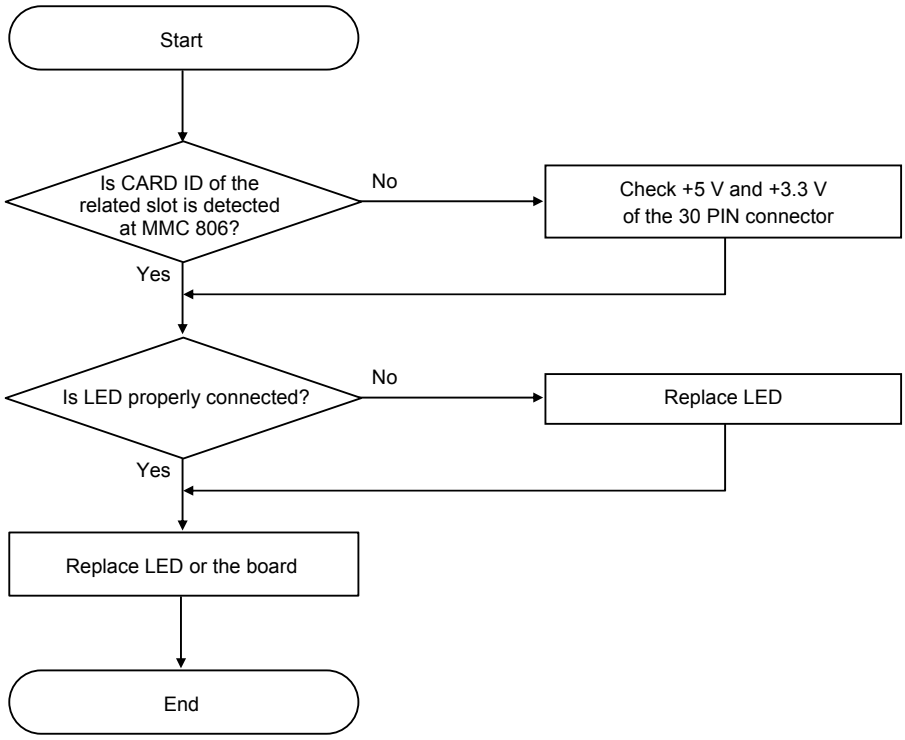


3.4.6 MGI Board

This subsection describes the troubleshooting procedures when failures occur on the MGI board.

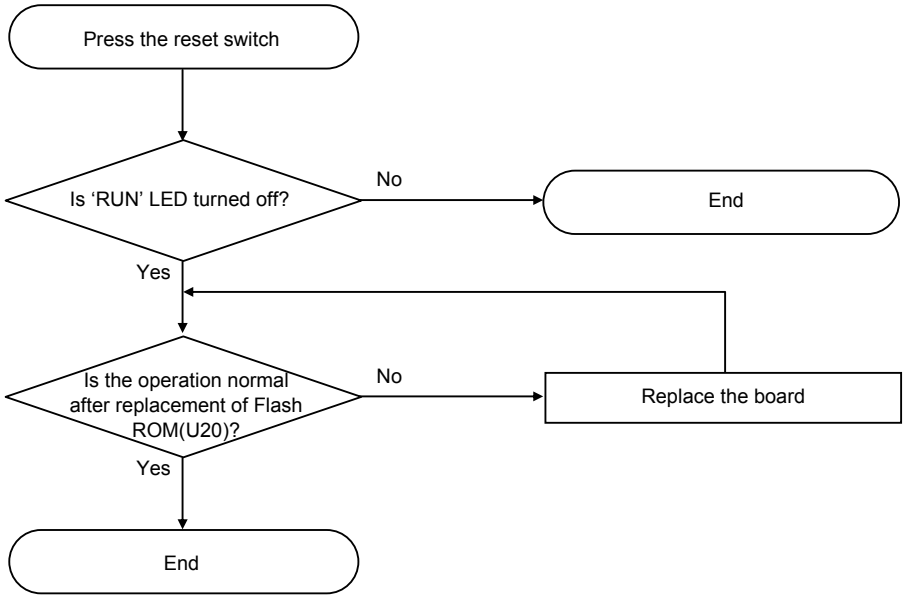
3.4.6.1 PWR LED is Turned off

When the 'PWR' LED on the front side of the MGI board is turned off while all boards mounted to OfficeServ 7400 and all connected terminals are properly operated, the troubleshooting sequence is as follows:



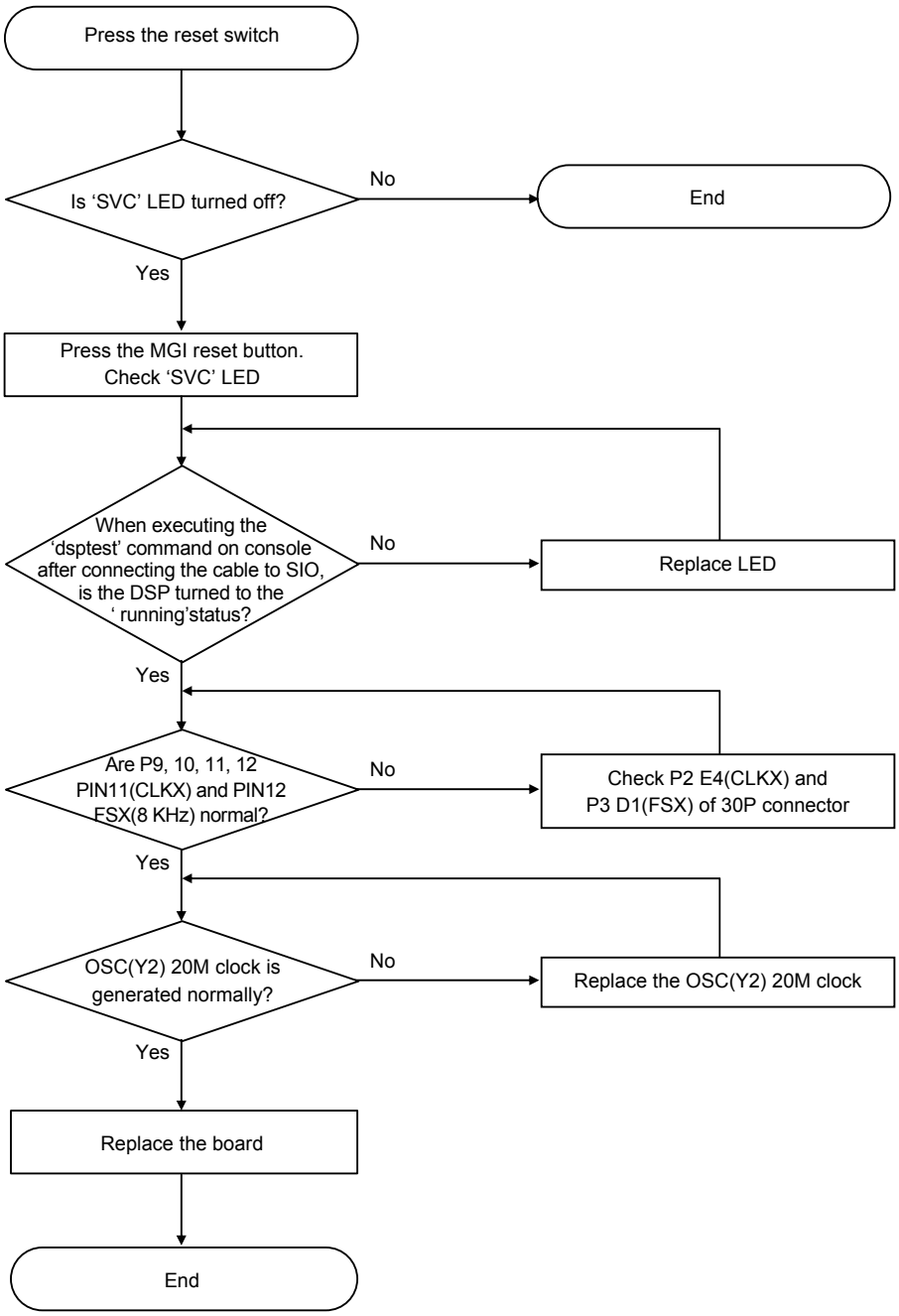
3.4.6.2 RUN LED is turned off

If 'RUN' LED on the front side of the MGI board is turned off while all boards mounted on the OfficeServ 7400 system and all terminals connected operate properly, the troubleshooting sequence is as follows:



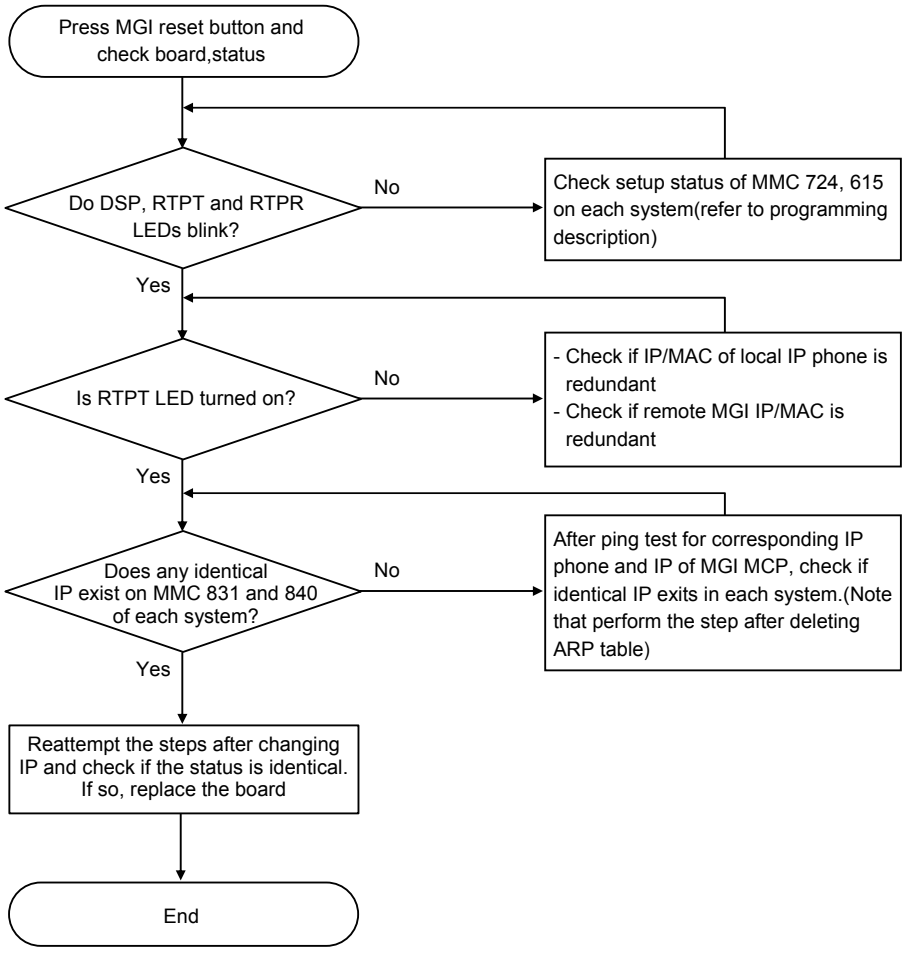
3.4.6.3 SVC LED is not turned on

If 'SVC' LED on the front side of the MGI board is turned off while all boards mounted on the OfficeServ 7400 system and all terminals connected operate properly, the troubleshooting sequence is as follows:



3.4.6.4 A call is not connected Between IP Phone and Digital Phone

If a call is not connected between an IP phone and digital phone while while all boards mounted on the OfficeServ 7400 system and all terminals connected operate properly (A call between local IP phone/local digital phone, local IP phone/digital phone or remote IP phone/digital phone is not connected), the troubleshooting sequence is as follows:

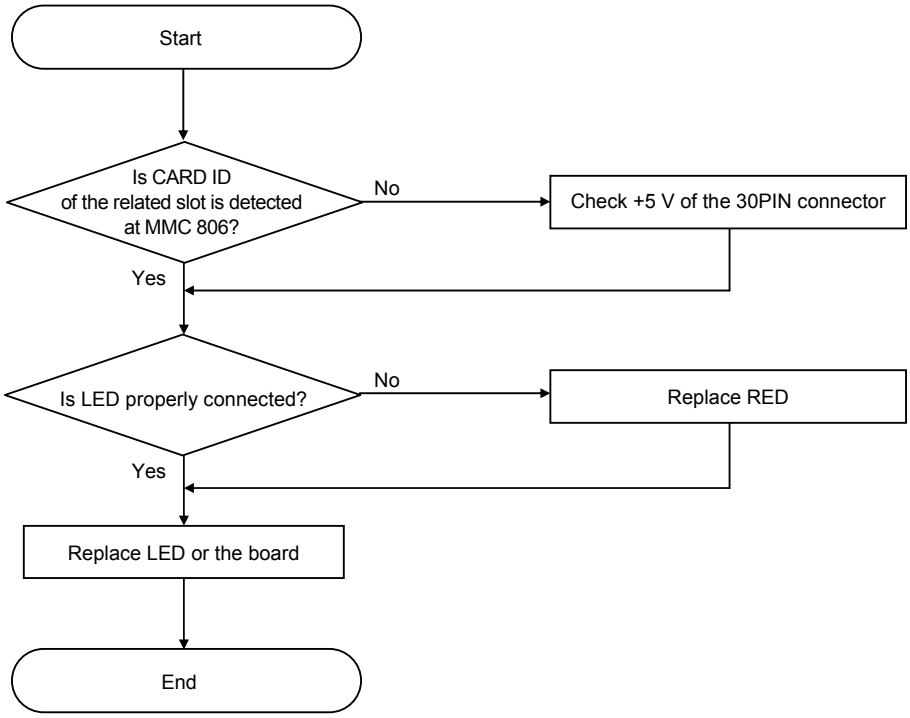


3.4.7 MGI64 Board

This subsection describes the troubleshooting procedures when failures occur on the MGI64 board.

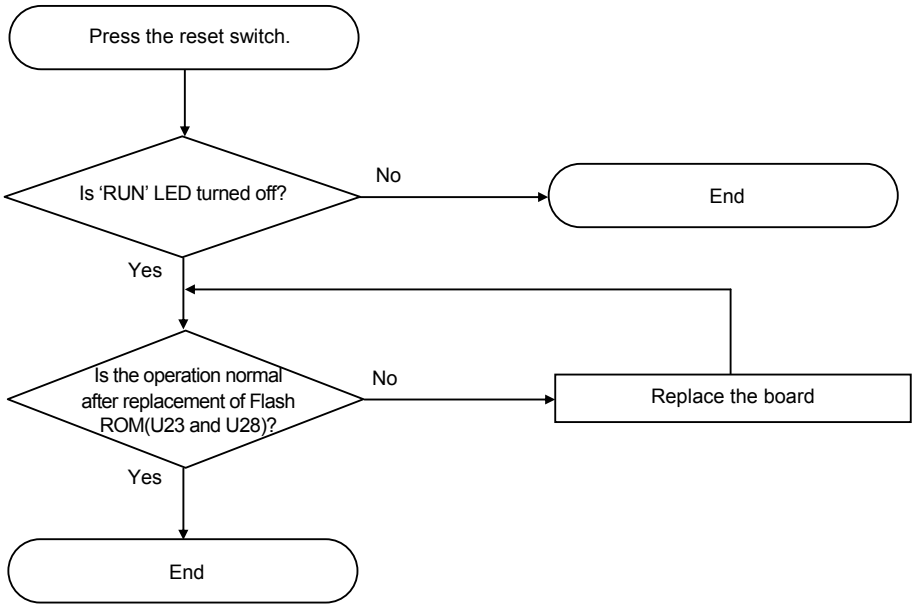
3.4.7.1 PWR LED is turned off

When 'PWR' LED on the front of the MGI64 board while all boards mounted to OfficeServ 7400 and all connected terminals are properly operated, the troubleshooting sequence is as follows:



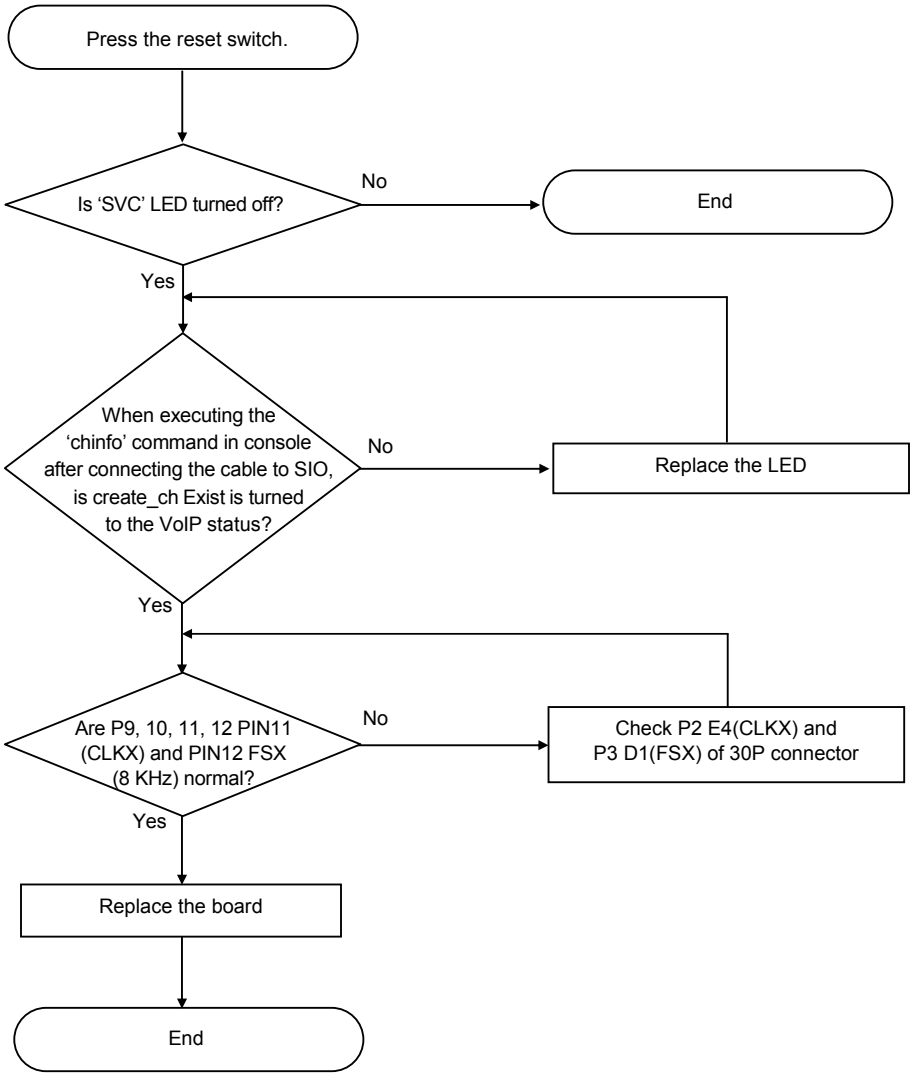
3.4.7.2 RUN LED is turned off

If 'RUN' LED on the front side of the MGI64 board is turned off while all boards mounted on the OfficeServ 7400 system and all terminals connected operate properly, the troubleshooting sequence is as follows:



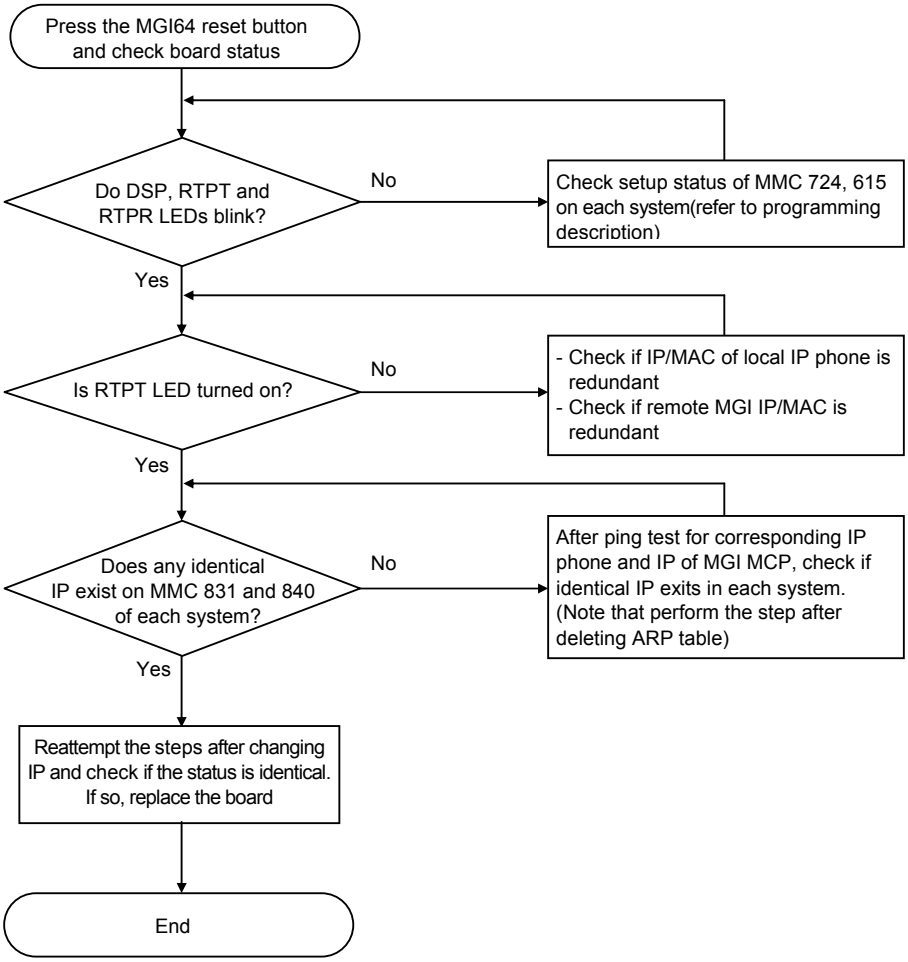
3.4.7.3 SVC LED is not turned on

If 'SVC' LED on the front side of the MGI64 board is turned off while all boards mounted on the OfficeServ 7400 system and all terminals connected operate properly, the troubleshooting sequence is as follows:



3.4.7.4 A call is not connected Between IP Phone and Digital Phone

If a call is not connected between an IP phone and digital phone while while all boards mounted on the OfficeServ 7400 system and all terminals connected operate properly (A call between local IP phone/local digital phone, local IP phone/digital phone or remote IP phone/digital phone is not connected), the troubleshooting sequence is as follows:

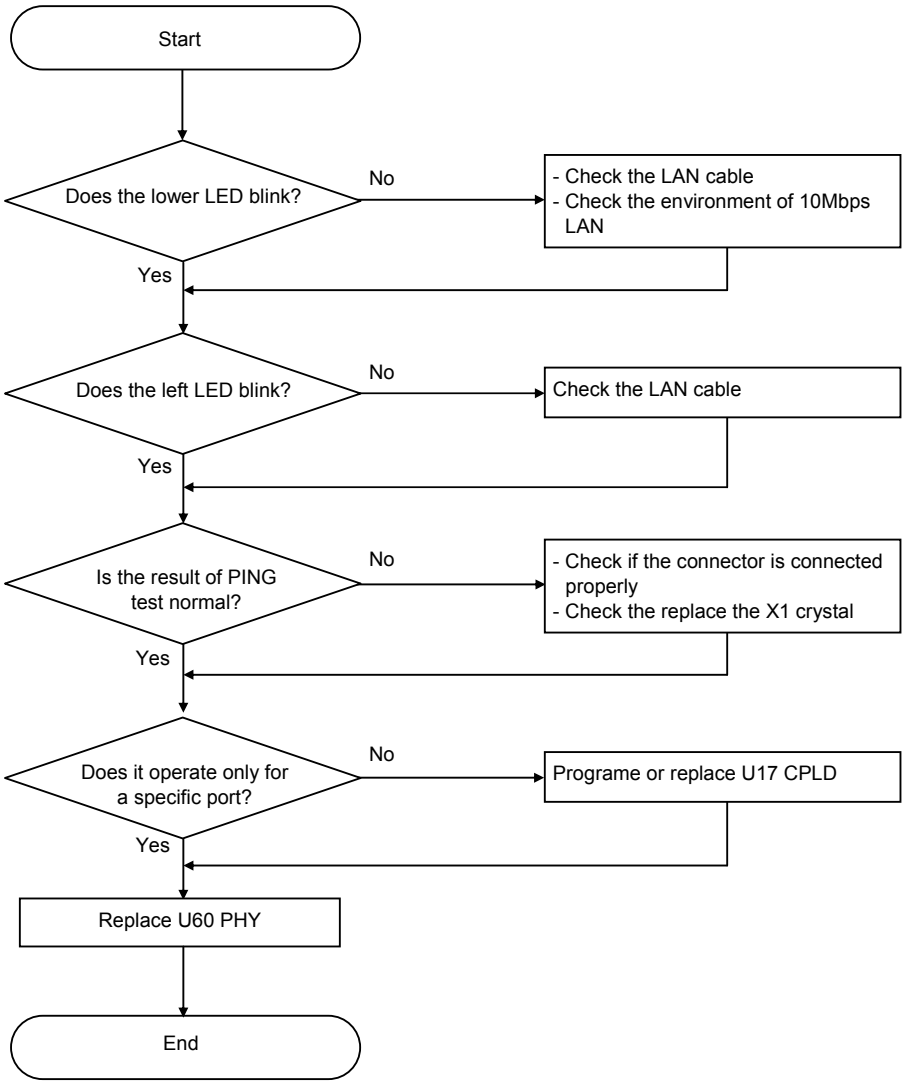


3.4.8 4DSL Board

This subsection describes the troubleshooting procedures when failures occur on the 4DSL board.

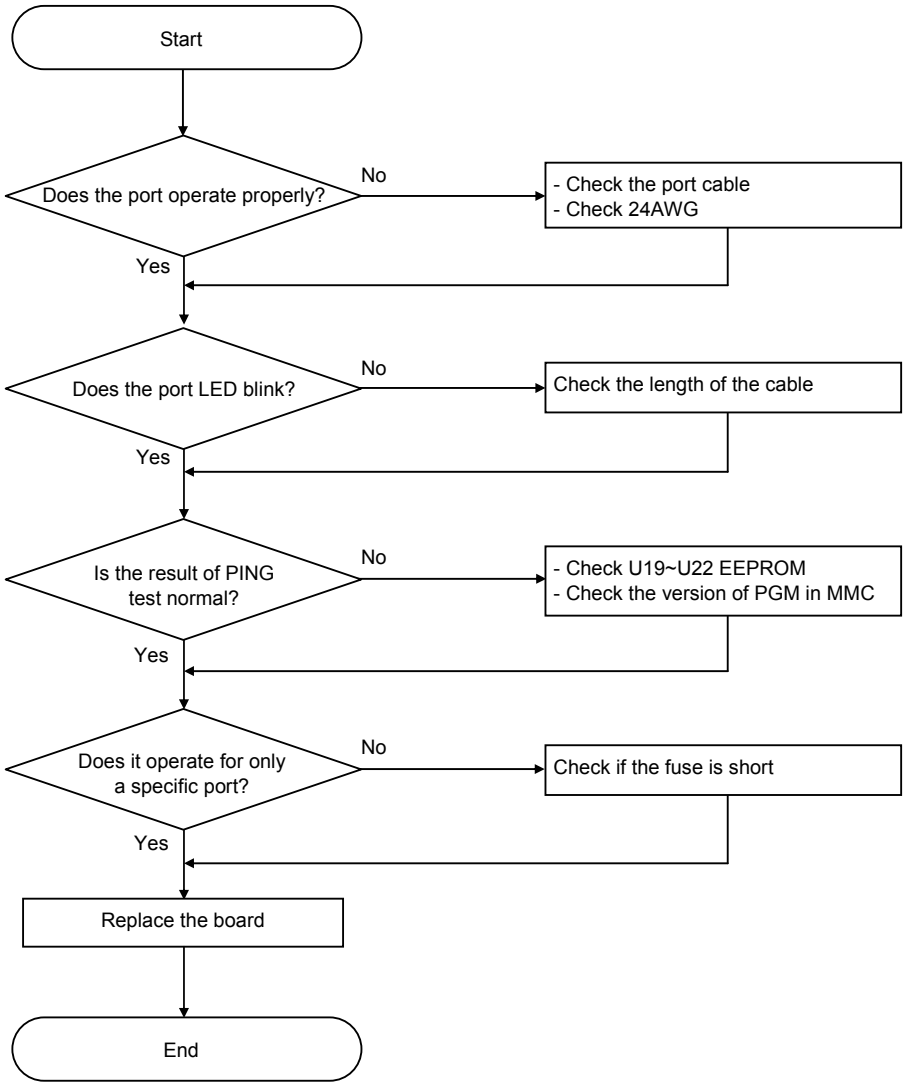
3.4.8.1 Operation of LAN Port is Abnormal

When a failure occurs to the LAN port of the 4DSL board, the troubleshooting sequence is as follows:



3.4.8.2 DSL operates abnormally

When a failure occurs to Digital Subscriber Line(DSL) of the 4DSL board, the troubleshooting sequence is as follows:

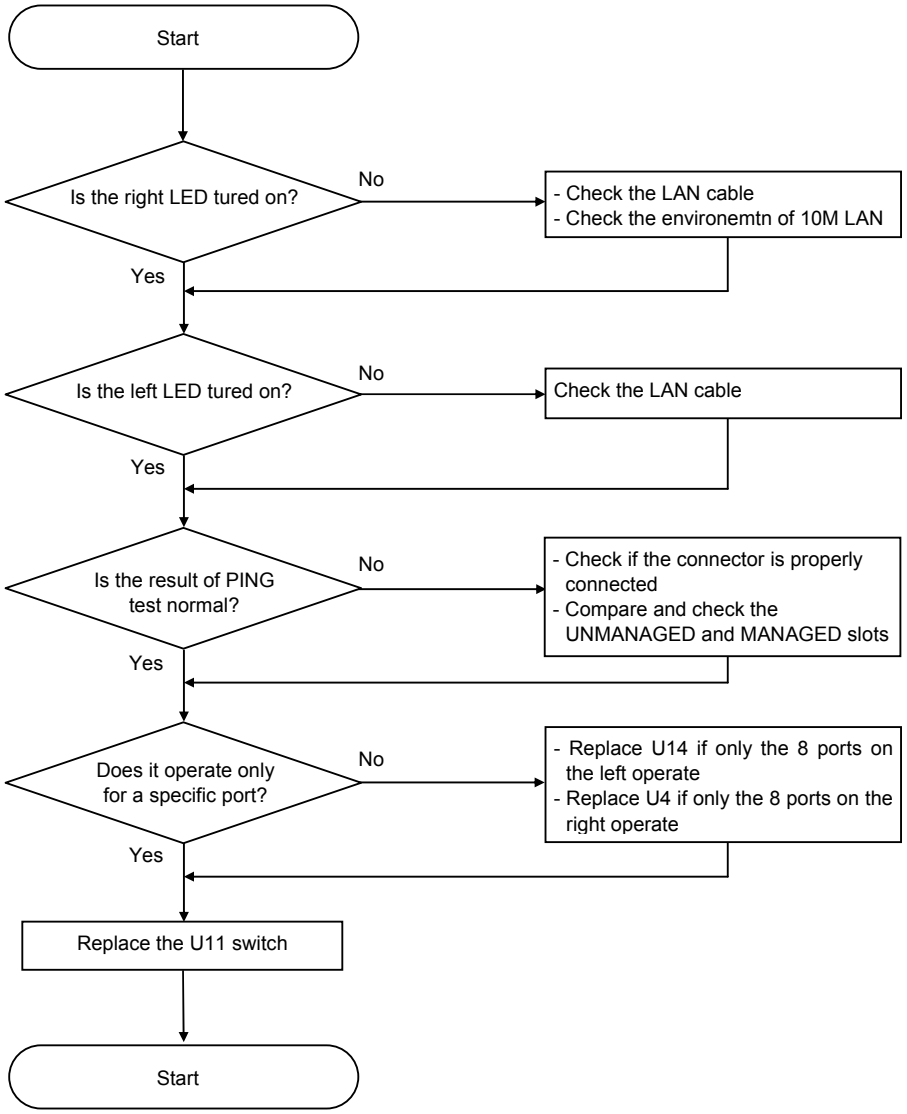


3.4.9 LIM Board

This subsection describes the troubleshooting procedures when failures occur on the LIM board.

3.4.9.1 LAN Port operates abnormally

When the LAN port of the LIM board operates abnormally, the troubleshooting sequence is as follows:

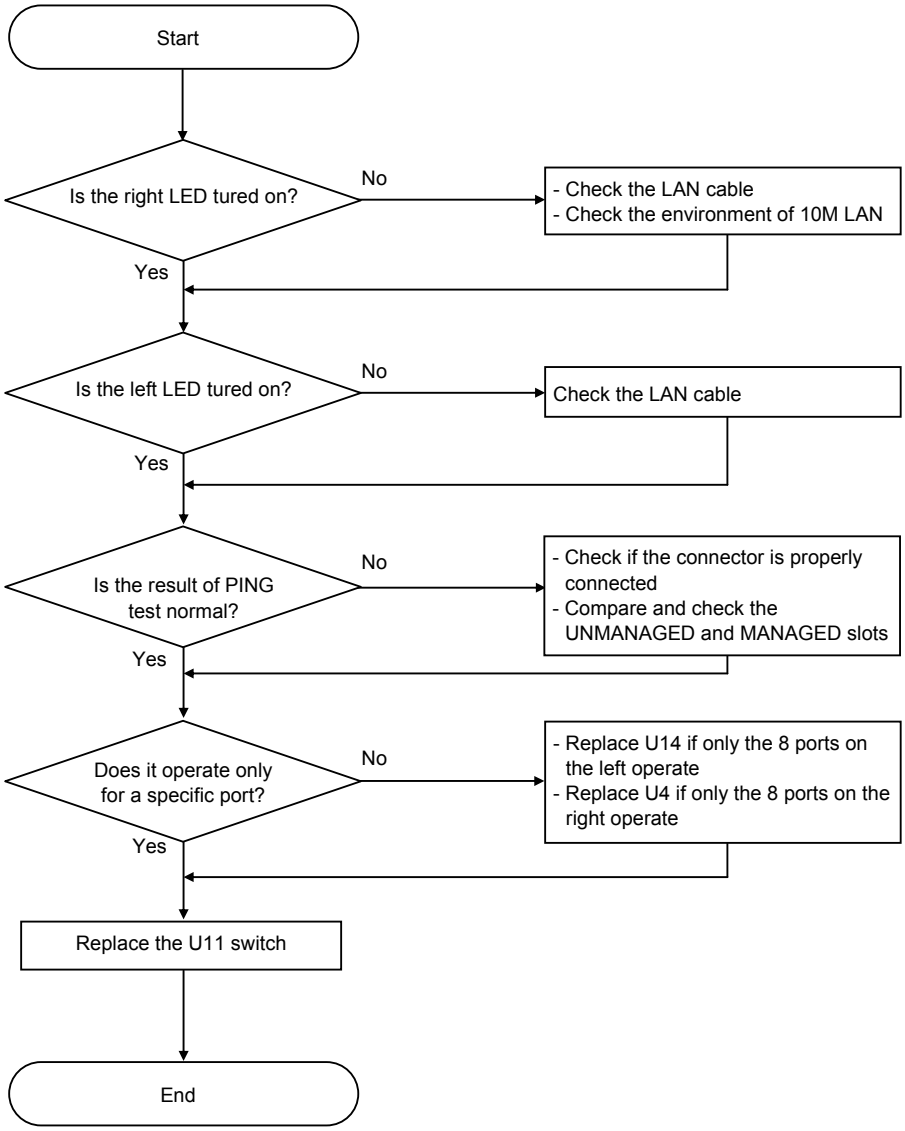


3.4.10 PLIM Board

This subsection describes the troubleshooting procedures when failures occur on the PLIM board.

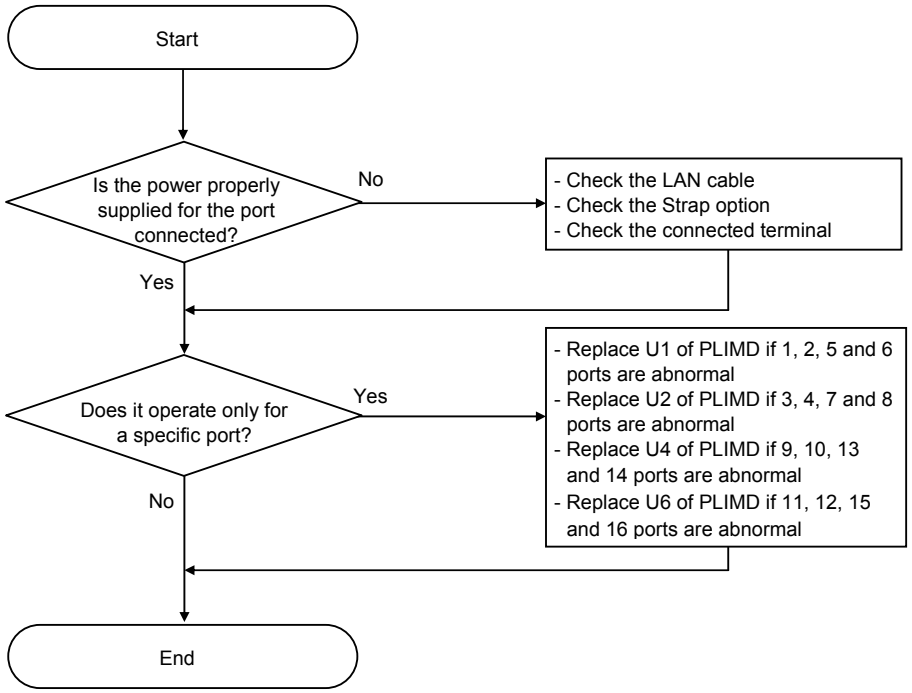
3.4.10.1 LAN port operates abnormally

When a failure occurs to the LAN port of the PLIM board, the troubleshooting sequence is as follows:



3.4.10.2 PoE operates abnormally

When the PoE of the PLIM board operates abnormally, the troubleshooting sequence is as follows:



3.4.11 GPLIM Board

This subsection describes the troubleshooting procedures when failures occur on the GPLIM board.

3.4.11.1 Troubleshooting Procedures by Failure Types

For failures by types, the checking and troubleshooting procedures are described as follows:

1) RESET Input Signal

The RESET input signal is collected to U13(LC4128V) CPLD. Check the status for each input and troubleshoots the status if abnormal.

- Is SYS_RST_L(U13-PIN126) High?
  This signal is in High status if it is normal. Otherwise, the voltage of the system or U33(DS1706) is abnormal, or the peripheral resistances has not been installed properly.
- Is 852T_PORST_L(U13-PIN60) High?
  It is the reset signal that runs the CPU. If this signal is in Low status, check the status of the CPU and peripheral parts.
- Is 852T_SOFTRST_L(U13-PIN102) High?
  It is a software reset signal. If this signal is in Low status, check the status of the CPU and EPLD source.
- Is BP_RESET_L(U13-PIN45) High?
  It is a signal for resetting IC. If this signal is in Low status, check if U13(LC4128V) is normal. If this signal is in High status, check if U25-PIN2(74LCX14) is also High. If U25-PIN2(74LCX14) is in Low status, check U31.

2) RESET Output Signal

The RESET output signal is generated at U13(LC4128V) CPLD and transferred to each part of the board. If the RESET output is abnormal, the board does not operate.

- Is ALT_RST_L(U13-PIN35) High?
  This signal is a Backplane Reset signal. If this signal is in Low status, it means that the Reset signal is held on the backplane or U3(MC74LCX245) is defective.

3) CLOCK

If a clock entered into U13(LC4128V) is abnormal, check 100MHz Clock of U13-PIN50 and RTC CLOCK(32.768KHz) of U13-PIN114.

- Is CLK_EPLD_50M normal?
  This signal is a 50MHz CLOCK. If the 50MHz CLOCK is not measured, check the Y1(50 MHz OSC), U1(CY2305) and peripheral parts.
- Is RTCCLK_32K normal?
  This signal is a clock signal of 32.768KHz. If this signal is abnormal, it means that U19(RTC8564NB) is abnormal or installed wrong.

4) RESET Device

If the LED does not blink at the beginning even though the checking and troubleshooting procedures are checked for RESET input signal, it means that U13 CPLD may be abnormal or the program is not downloaded. Perform an inspection using CPLD program equipment. If it is normal, check the soldering status. Otherwise, download the program again.

5) ROM Access

If RESET is released, ROM(39VF040, U12) is accessed. For the access, check the U12-PIN22(ROM_CE_L) and U12-PIN24(ROM_OE_L) signals. If the status of two signals repeats High and Low, it means ROM Access. Otherwise, check the status as follows:

- PLD(U13)
  The two types above displayed on U13-PIN91 and U13-PIN90. Check this signal to check if the PLD operates properly.
- CPU(U9)
  If U13 is normal, it means CPU(U9) is abnormal or the assembly is wrong.

6) UART Device

Inspect PIN13 and PIN14 of UART(U30). If it is not measured to move to Low or High, troubleshoots as described in 'ROM Access' above.
Scope and inspect pins of U30(MAX3232) and RJ45(J10-PORT12).

7) Memory Access

If the console message stops being displayed, it is not likely to move to Boot ROM Prompt(moved to this status if entering 'd' on 5 → 1 count.). For this case, it is required to inspect overall assembly status and defects of parts for the board.

8) GIGA PORT Device

12 Gigabit Ports are connected to external devices through the SFP module mounted on the SFP cage via GE PHY Transceiver(HDMP1646A, U28, U31) at VT6526(U17).
Check the status and installation of the parts on those devices and connection path.

9) LAN PORT Device

12 FE LAN ports connect from VT6526(U17) to the external device through 12Port RJ45 Module via PHY Device(VT6108, U23, U24). Check the status and installation of the parts on those devices and connection path.

10) Power Check

SWITH Chip(VT6526) applies 2.5V(2.5 V_MAC) generated using 3.3V and 5V entered from Backplane for its main power. GIGA Transceiver(HDMP1646A) and SFP Module use the power of 3.3 V entered from Backplane. FAST Ethernet PHY Device(VT6108) uses the power of 2.5V(2.5 V_PHY0, 2.5 V_PHY1) generated using 3.3V and 5V entered from Backplane.
Check if each power is normal.

11) Connector and Daughter Board (GLIMD)

If the power for PoE is supported for each port, check if Connector(J8) connecting the mother board and daughter board is normal, and PD64004(U1, U2, U3), which is a PoE manager supplying the power at Daughter board, and peripheral circuits are normal.

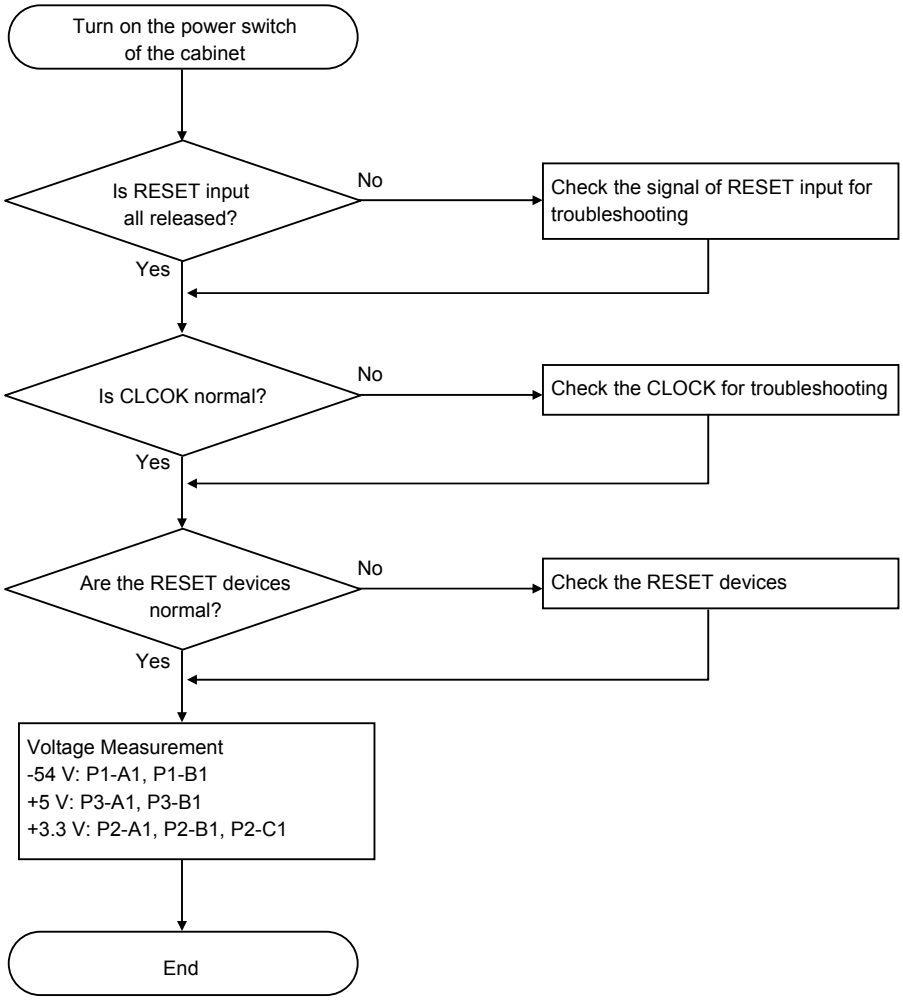
12) OSC and PoE MCU

If the power is properly provided to each port for the PoE function and the connector is normal, check if OSC(Y1) supplying clock to PD63000(U4) is normal and a signal is properly transferred between PD63000 and CPU(U9) of the mother board.

3.4.11.2 Port LED on the Front Side does not Blink at the Beginning

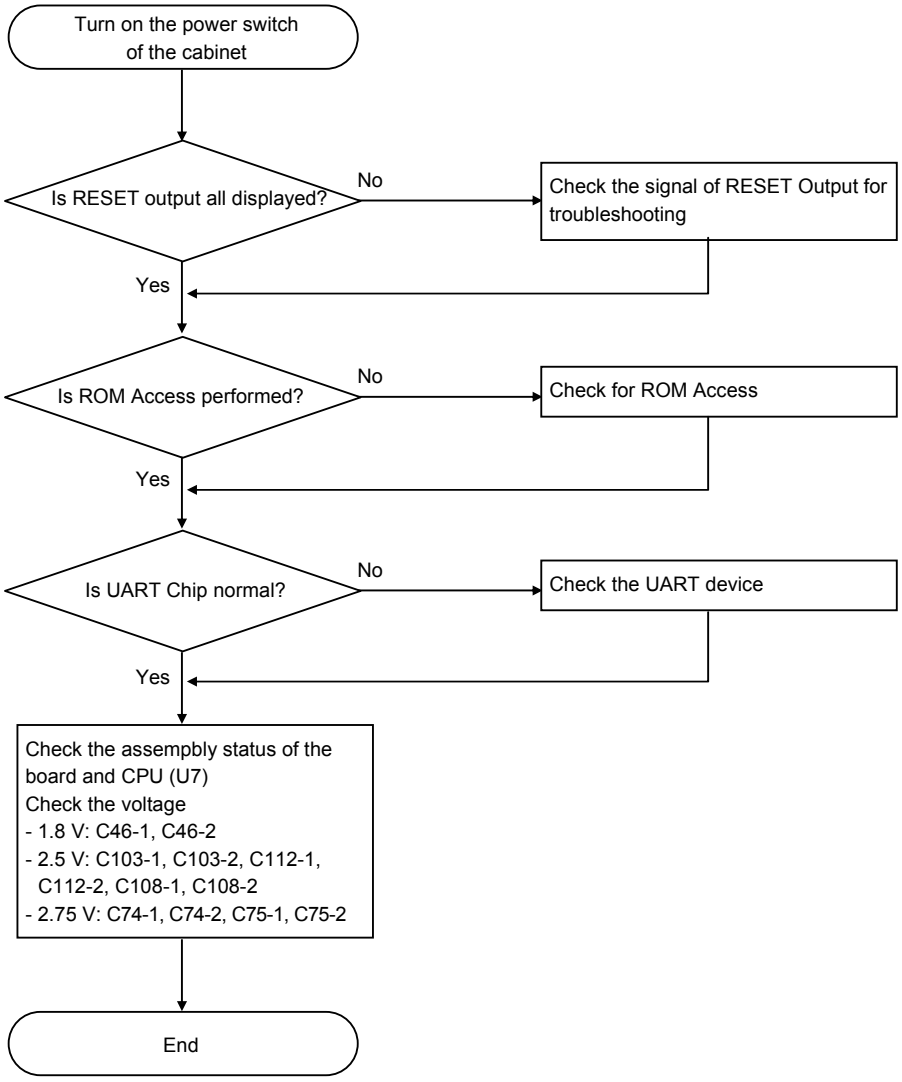
If the Port LED on the front side does not blink when the PLIM board starts, it means that the RESET signal of the board is still applied or the devices controlling the RESET signal has a failure.

For this case, the troubleshooting sequence is as follows:



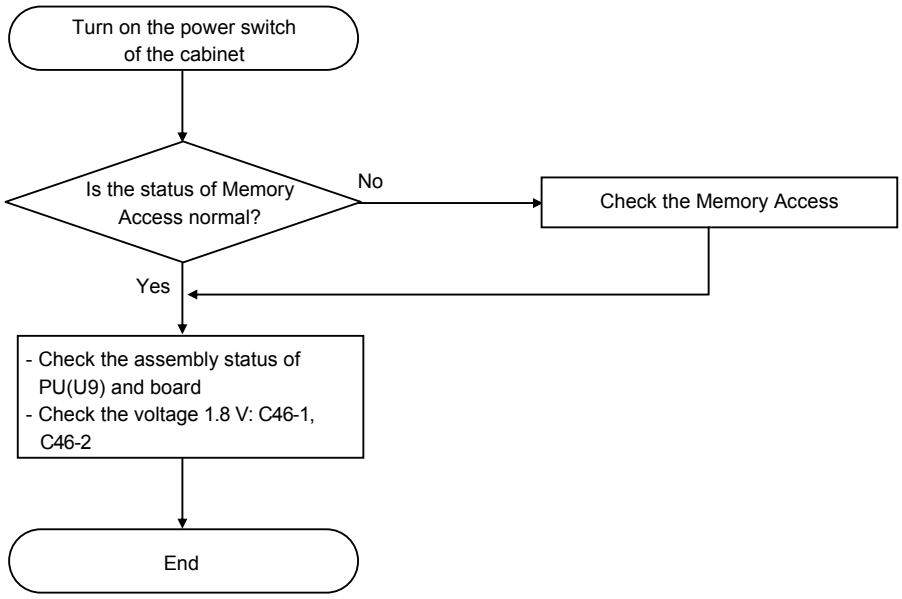
3.4.11.3 Message is not displayed on Console

If the Port LED blinks at the beginning, it means that all RESET sources are normal and the board is ready to operate. Nevertheless, if the board is not operated, perform the following troubleshooting procedure:



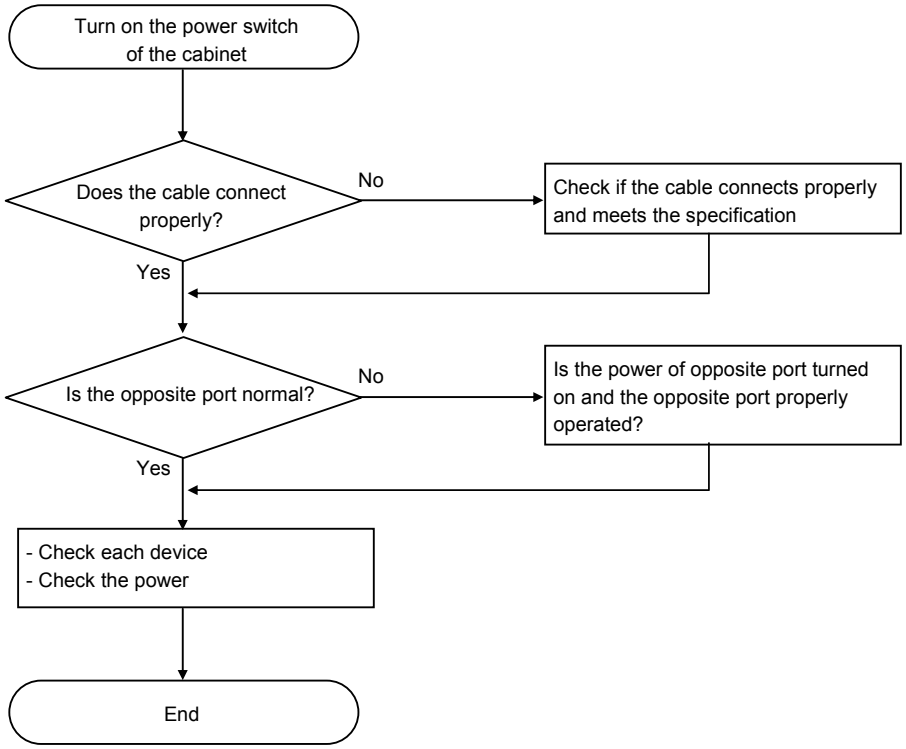
3.4.11.4 A message is stopped being displayed on Console

If the message output stops after a part of serial message is displayed, it is likely to be caused by a failure from the memory.



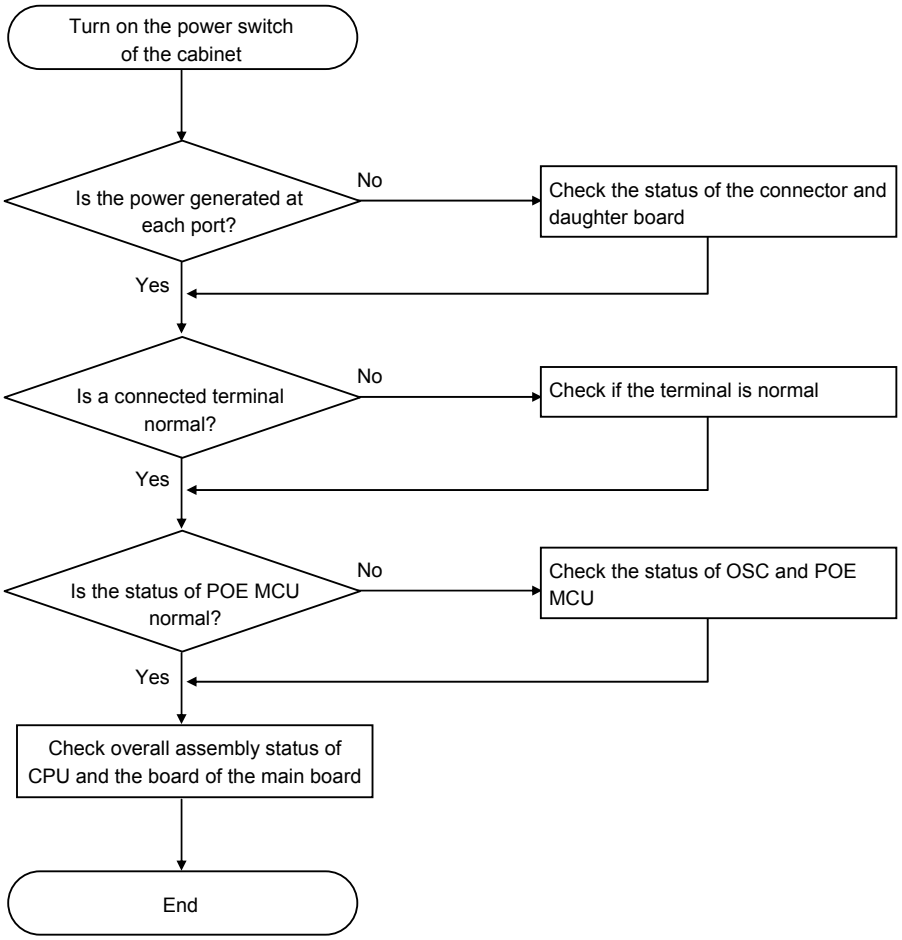
3.4.11.5 LINK LED of Port is not Turned on

If LINK LED is turned on when the relevant cable connects, check the status as follows:



3.4.11.6 PoE does not operate

For 12 10/100 ports of the GPLIM board, PoE is supported. If PoE is not supported, check the status in the order of the following procedure. The actual PoE circuits are implemented on GLIMD, which is the daughter board.



3.4.12 GSIM Board

This subsection describes the troubleshooting procedures when failures occur on the GSIM board.

3.4.12.1 Troubleshooting Procedures by Failure Types

For failures of the GSIM board by types, the checking and troubleshooting procedures are described as follows:

1) RESET Input Signal

The RESET input signal is collected to U19(LC4128V) CPLD. Check the status for each input and troubleshoots the status if abnormal.

- Is SYS_RST_L(U19-PIN99) High?
  This signal is in High status, if it is normal. Otherwise, the voltage of the system or U25(DS1706) is abnormal, or the peripheral resistances has not been installed properly.
- Is 5696_COREVRM_PGOOD(U19-91) High?
  If the regulator that determines the status of the CORE voltage of BCM5696 is properly operated, this signal is in High status. If this signal is in Low status, check the Switching Regulator or the status of the peripheral circuits.
- Is SOFT_RESET_L(U19-PIN98) High?
  It is a software reset signal. This signal is displayed as High at MPC8247(U22) if it is in normal status. If the signal is in Low status, check the status of the U22 assembly and defects of the parts.
- Is BP_RESET_L(U19-PIN68) High?
  It is a Backplane Reset signal. If this signal is in Low status, it is likely because the backplane holds on the reset signal or U14(MC74LCX245) is defective.

2) RESET Output Signal

The RESET output signal is generated at U19(LC4128V) CPLD and transferred to each part of the board. If the RESET output is abnormal, the board does not operate.

- Is EPLD_SYSRST_L(U19-PIN4) High?
  It is a signal to reset other devices on the board. If this signal is in Low status, check if U19(LC4128 V) is normal. If this signal is in High status, check U28-PIN4, PIN8 and PIN10(74LCX14) are in High status continuously. If it is in Low status, check U28.
- Is EPLD_PORST_L(U19-13) High?
  It is a signal to reset CPU. If this signal is Low, check if U19 is normal and U28-PIN2 is in High status.

3) CLOCK

If a clock entered into U19(LC4128V) is abnormal, U19 does not operate properly. check 100MHz Clock of U19-PIN114 and RTC CLOCK(32.768KHz) of U19-PIN50.

- Is EPLD_CLK_100M normal?
  This signal is a 100MHz CLOCK. If the 100MHz CLOCK is not measured, check the Y3(100MHz OSC), U15(ICS8305) and peripheral parts.
- Is RTCCLK_32K normal?
  This signal is a clock signal of 32.768KHz. If this signal is abnormal, it means that U6(RTC8564NB) is abnormal or installed wrong.

4) RESET Device

If the LED does not blink at the beginning even though the checking and troubleshooting procedures are checked for RESET input signal, it means that CPLD may be abnormal or the program is not downloaded. Perform an inspection using CPLD program equipment. If it is normal, check the soldering status. Otherwise, download the program again.

5) ROM Access

If RESET is released, ROM(39VF040, U30) is accessed. For the access, check the U30-PIN22(ROM_CE_L) and U30-PIN24(ROM_OE_L) signals. If the status of two signals repeats High and Low, it means ROM Access. Otherwise, check the status as follows:

- PLD(U19)
  The two outputs above are displayed on U19-PIN18 and U19-PIN19. If this signal is not displayed, check the 8247_RCS0_L(U19-PIN117) and 8247_OE_L(U19-PIN110) signals of U19. If it is turned to the Low or High status, check the status of U19.
- CPU(U22)
  If the ROM Access is not performed even though U19 is normal, it is likely because the MPC8247(U22) or its installation is abnormal.

6) UART Device

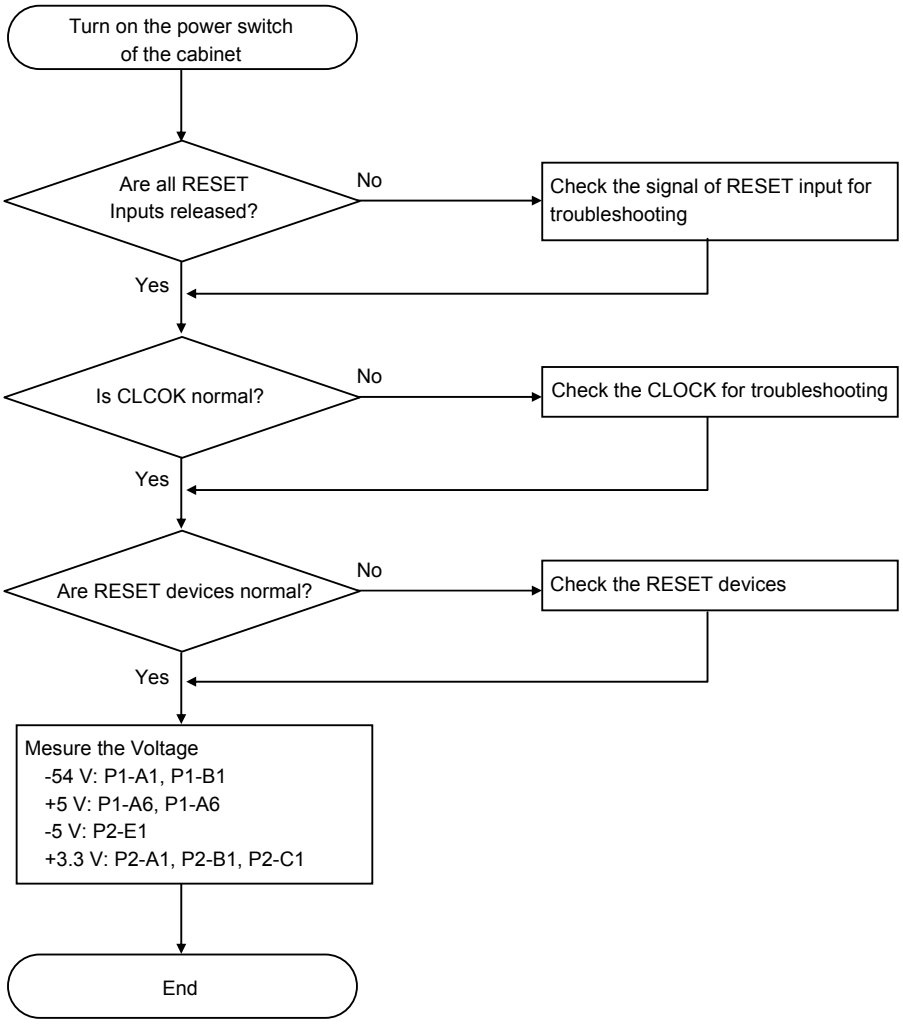
Check U33(MAX3232) device. The UART_TXD signal of U33-PIN11 should be moved to Low or High as well as TXD1_OUT of U33-PIN14.
If the failure is not found, check the assembly status of J1 and MPC8247.

7) Power

For the power of Fiber Module or LED, -54 V is used after regulation. Therefore, check U17(P12 V), U24(P5 V_B) and U31(P3V3_B) in order, and if any abnormal voltage occurs, check the regulator of the peripheral circuits.

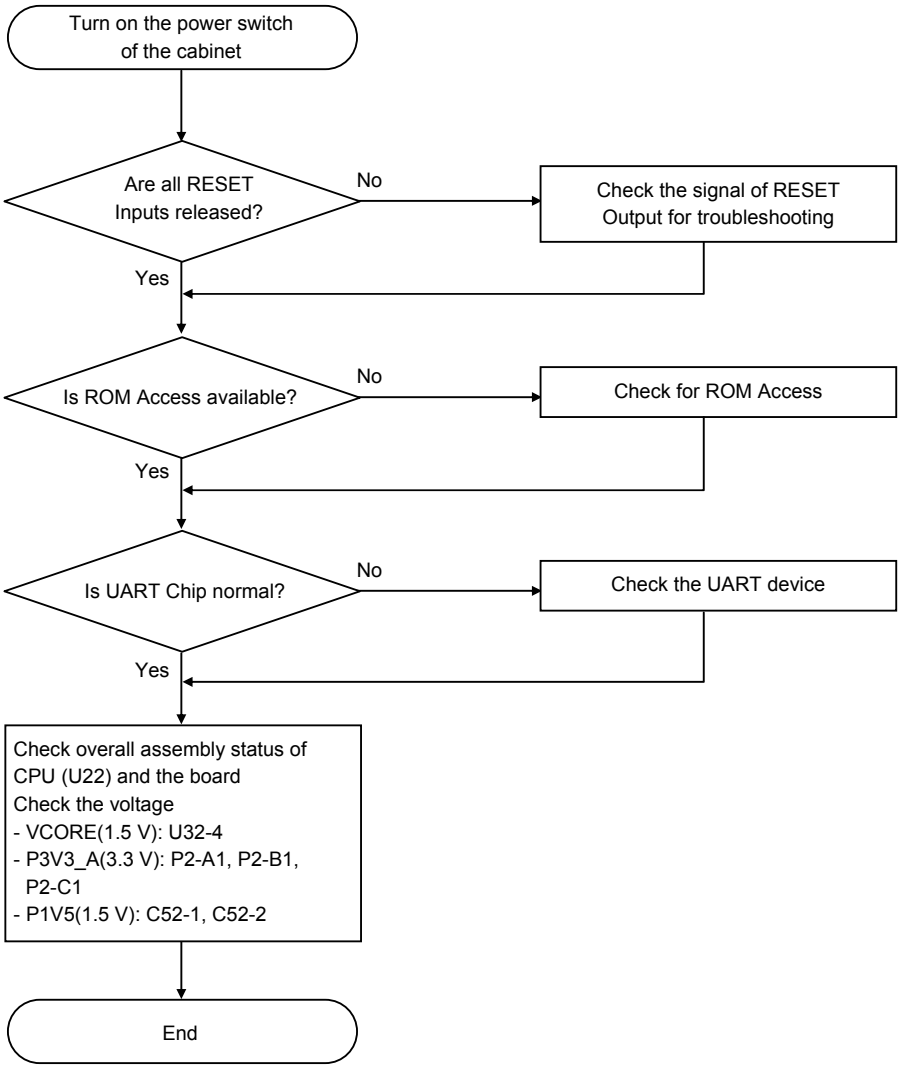
3.4.12.2 LINK/ACT LED Remains in Turn-on Status

If the Link/Active LED remains in turn-on status even after the reset of Backplane is released, it means that the booting is not properly processed because the GSIM board has not its own RUN LED. For this case, check each part of the board in the following order:



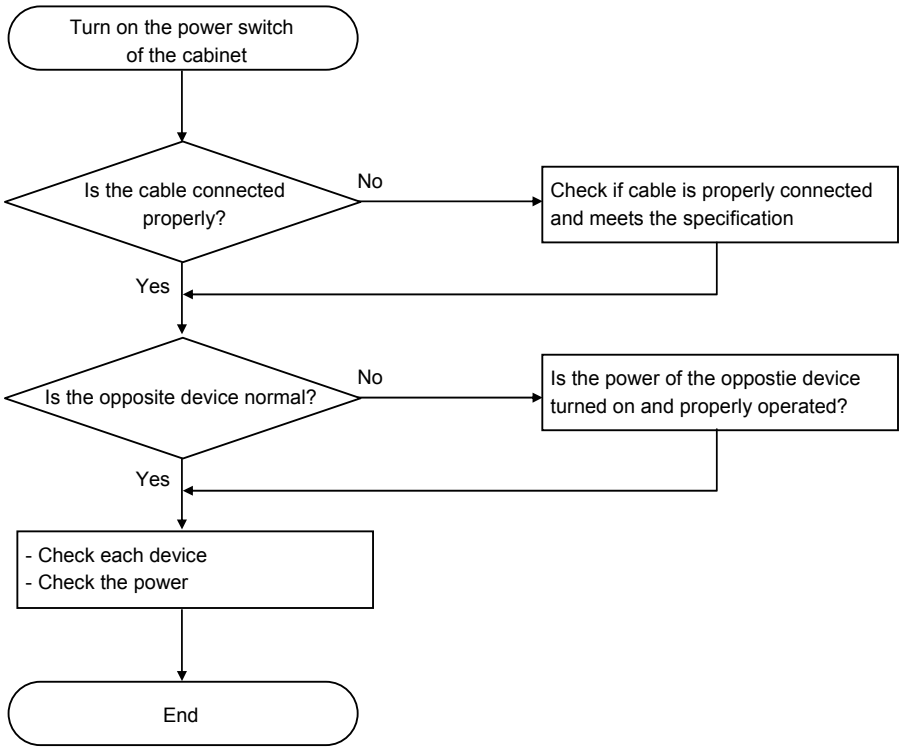
3.4.12.3 A Message does not Display on Console

If the message does not display on the console connected to the GSIM board, check the board as follows:



3.4.12.4 LINK/ACT LED does not Blink

There are 10 Gigabit ports on the GSIM board and a LINK/ACT LED exists on each port. The LINK/ACT LED is composed in the form that LINK/ACT U19(LC4128V) displays a signal related to LINK/ACT after receiving from BCM5696 and latching. If LINK/ACT LED does not blink even though packets are exchanged as the relevant cable is connected, it is required to check the assembly status of U19(LC4128V) or U18(BCM5696).



3.4.13 GWIM Board

This subsection describes the troubleshooting procedures when failures occur on the GPLIM board.

3.4.13.1 Troubleshooting Procedures by Failure Types

For failures of the GWIM board by types, the checking and troubleshooting procedures are described as follows:

1) RESET Input Signal

The RESET input signal is collected to U27(LC4128V) CPLD. Check the status for each input and troubleshoots the status if abnormal.

- Is SYS_POW_RST_L(U27-PIN34) High?
  This signal is in High status, if it is normal. Otherwise, the voltage of the system or U32(DS1706) is abnormal, or the peripheral resistances has not been installed properly.
- Is SUBBD_PWRGOOD(U27-PIN38) High?
  If the regulator is properly operated when Security Option Board(GWIMS) is mounted, this signal is displayed as High. If this signal is in Low status, it is required to check if the voltage and regulator of GWIMS is normal.
- Is COREVRM_PWRGD(U27-PIN44) High?
  If the CPU Power(1.5V) Regulator of GWIM is normal, this signal is displayed as High. If the signal is in Low status, check the regulator and peripheral parts on page 8 of the circuit diagram.
- Is P1V25_PWRGOOD(U27-PIN45) High?
  This signal is displayed on the regulator that generates the voltage of 1.25V(DDR Termination) presented on page 7 of the circuit diagram., and is in High status if normal. If this signal is displayed as Low, check if U9 and peripheral parts are normal.
- Is SOFT_RESET_L(U27-PIN63) High?
  It is a Software Reset signal. If it is normal, it is displayed on MV64460(U13) as High. If the signal is displayed as Low, check if the assembly status and parts of U13 are normal.
- Is BP_RESET_L(U27-PIN119) High?
  It is a Backplane Reset signal. If this signal is displayed as Low, it means that Backplane holds on the Reset signal or U4(MC74LCX245) is defective.

2) RESET Output Signal

The RESET output signal is generated at U27(LC4128V) CPLD and transferred to each part of the board. If the RESET output is abnormal, the board does not operate.

- Is ALT_RSTOUT_L(U27-PIN42) High?
  It is a signal to reset MV64460(U13). If this signal is displayed as Low, check if U27(LC4128V) is normal. If it is displayed as High, check if U31-PIN6(74LCX14) is displayed as High. If it is displayed as Low, check U31.
- Is ALT_RSTOUT2(U27-PIN37) Low?
  It is a signal to reset PCI Device. If this signal is displayed as High, check if U27 is normal and each output signal of U31 is displayed as High.
- Is ALT_RSTOUT3(U27-PIN36) Low?
  It is a signal to reset CPU(U7) and UART(U35). If this signal is displayed as High, check if U27 is normal and Pin 4 of U31 is displayed as High.

3) CLOCK

If a clock entered into U27(LC4128V) is abnormal, U27 does not operate. Inspect 100MHz Clock of U27-PIN114 and RTC CLOCK(32.768KHz) of U27-PIN112.

- Is CLK_100M_EPLD normal?
  This signal is 100MHz CLOCK. If 100MHz CLOCK is not measured, check Y3(100MHz OSC), U14(CY2305) and the peripheral parts specified on page 10 of the circuit diagram.
- Is RTCCLK_32K normal?
  This signal is 32.768KHz Clock. If this signal is defective, it means U15(RTC8564NB) is defective or the installation is wrong.

4) RESET Device

If the board does not operate properly even after troubleshooting RESET input signal, it is likely that CPLD is abnormal or the program is not downloaded. Perform an inspection using CPLD program equipment. If it is normal, check the soldering status. Otherwise, download the program again.

5) ROM Access

If RESET is released, ROM(39VF040, U34) is accessed. For the access, check the U34-PIN22(CS_BOOTROM_L) and U34-PIN24(OE_BOOTROM_L) signals. If the status of two signals repeats High and Low, it means ROM Access. Otherwise, check the status as follows

- PLD(U27)
  The two types above displayed on U27-PIN8 and U27-PIN9. If this signal is not displayed, check the MV_DEV_ALE_R(U27-62) signal. If it is detected that this signal is changed to Low or High, check if U27 is normal.

- MV64460(U13)
  If ROM Access is not available even though U27 is normal, it is likely that MV64460(U13) is abnormal or is not properly installed.
- CPU(U7)
  If U27 and U13 are normal, it is likely that CPU(U7) is abnormal or is not installed properly.

6) UART Device

Inspect PIN11 and PIN15 of UART(U35). If it is not measured to move to Low or High, check if the ROM Access is available.
Inspect the U35-PIN10(UART, TX) signal. If it is not measured to move to Low or High, the device may be abnormal.
Inspect the U37(MAX3232) device. The UART_TXD signal of U37-PIN11 should be moved to Low and High as well as STXD_O of U37-PIN14. In addition, check the assembly status of J11.

7) DIMM

It is available to mount DDR SDRAM on DIMM Socket of GWIM. If a failure occurs, the troubleshooting procedure is as follows:

- Is DDR SDRAM mounted?
  Check if a memory is mounted on the DIMM Slot(J5) board.
- Is DDR SDRAM normal?
  Check if the board is normal after replacing the memory.

8) Memory Size

Check if the memory size of 512Mbytes is displayed through a message displayed. Otherwise, DIMM is abnormal or the SPD information of DIMM is not accessed properly. The SPD information of DIMM is accessed through I2C Bus displayed at MV64460(U13). If this bus is abnormal, DIMM is not accessed properly.

Check the pin signals of No. 22(MV_SCK) and 23(MV_SDA) of U30(PCA9548). If not measured as moving to Low or High, it means that one of the following devices is abnormal or installed improperly.

- U30(PCA9548)
- U15(RTC8564NB)
- U41(AT24C02)
- DIMM(J5)
- U13(MV64460)

9) Memory Access

If a console message stops being displayed, it is not likely to move to Boot ROM Prompt(moved to this status if entering ‘d’ on 5 → 1 count.). For this case, it is required to inspect overall assembly status and defects of parts for the board.

If a prompt is displayed, enter the ‘mt’(memory test) command and wait for an amount of time. Check if an error message is displayed.

10) V.35 Device

V.35 connects from MV64460(U13) to U1(SP504MCF) of the GWIMD board through J7 of GWIM and to external devices through J5 Connector of the GWIMD board.

Check if the GWIMD board is properly mounted to J7. If so, check if the resistances mounted on U1(SP504MCF), U13(MV64460) of GWIM and the connection path are normal and properly installed.

11) HSSI Device

HSSI connects to external devices through U38(SY100324) and U39(SY100325) Transceiver from MV64460(U13).
Check if the parts on those devices and connection path are normal and installed properly.

12) LAN PORT Device

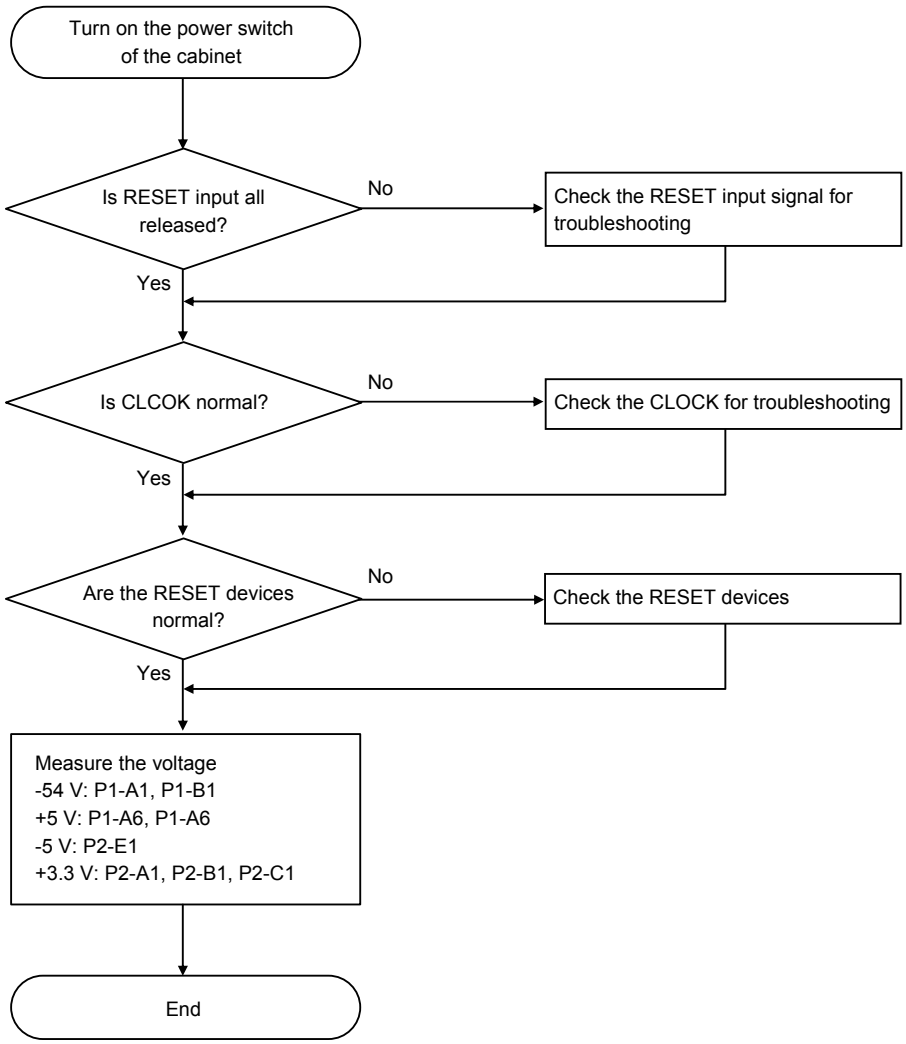
Three LAN ports connect to external device through the SFP module via Gigabit Transceiver(HDMP1646A, U24, U25, U26) from MV64460(U13).
In those ports, P1 and P2 connects to the GWIMD board through J7 Connector, and the SFP Cage of P3 is mounted on the GWIM board.
Check if the parts on those devices and connection path is normal and installed properly.

13) Power

V.35 uses P5V_A(+5 V) entered Backplane as its power. HSSI uses P5V_A and N5V(-5 V) as an input power and each Gigabit Transceiver(HDMP1646A) uses P3V3_A(+3.3 V) entered from Backplane. SFP Module uses P3V3_B(+3.3 V) generated on page 6 of the circuit diagram.
Check if each power is normal.

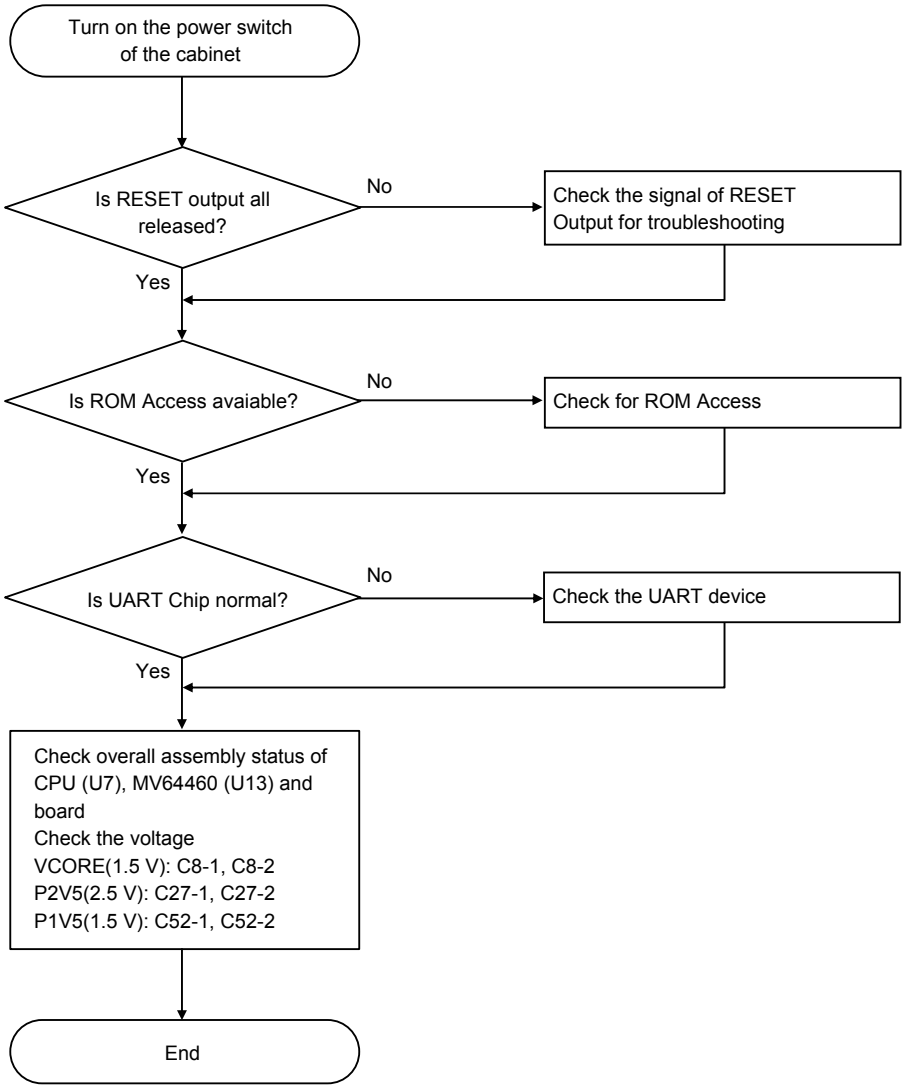
3.4.13.2 RUN LED does not Blink

RUN LED does not blink if the RESET signal of the GWIM board is not released and applied, or the devices controlling the RESET signal are abnormal. For this case, check each part of the board in the following order:



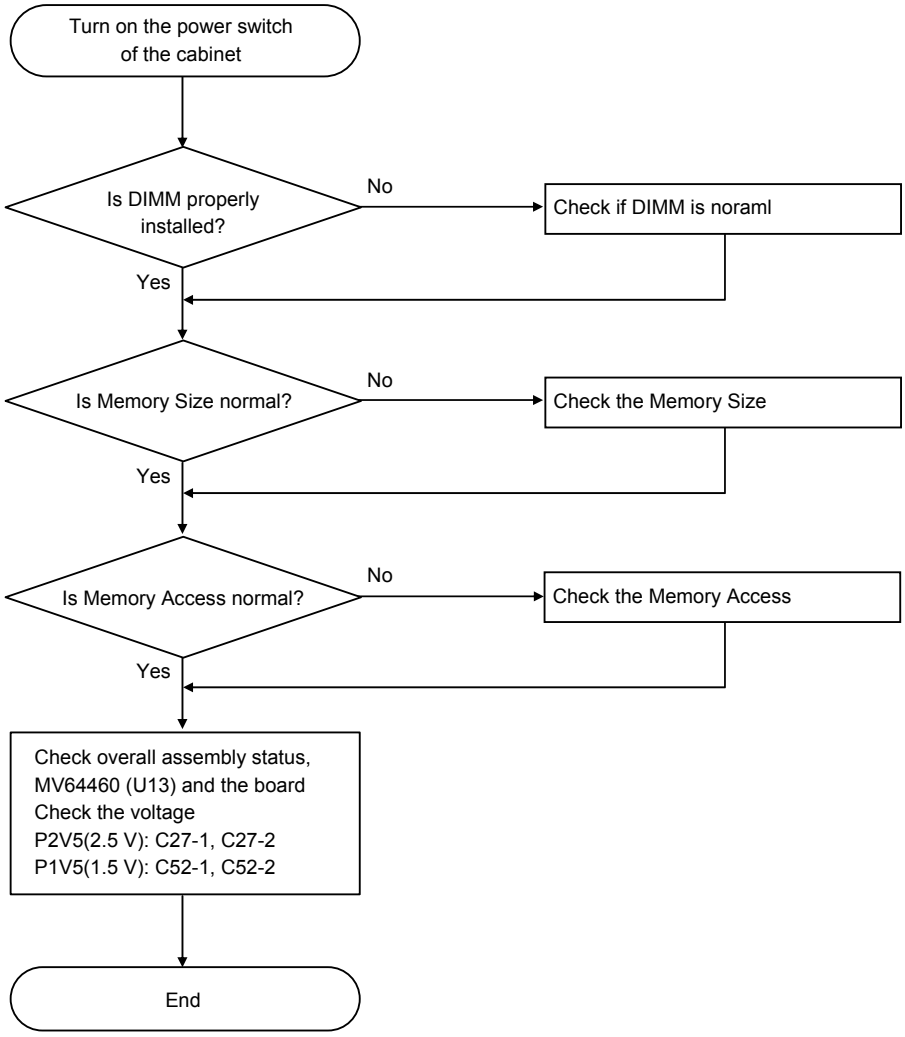
3.4.13.3 A Message is not displayed on Console

When a message is not displayed on the console connecting to the GWIM board, the troubleshooting procedure is as follows:



3.4.13.4 A message is stopped being displayed on Console

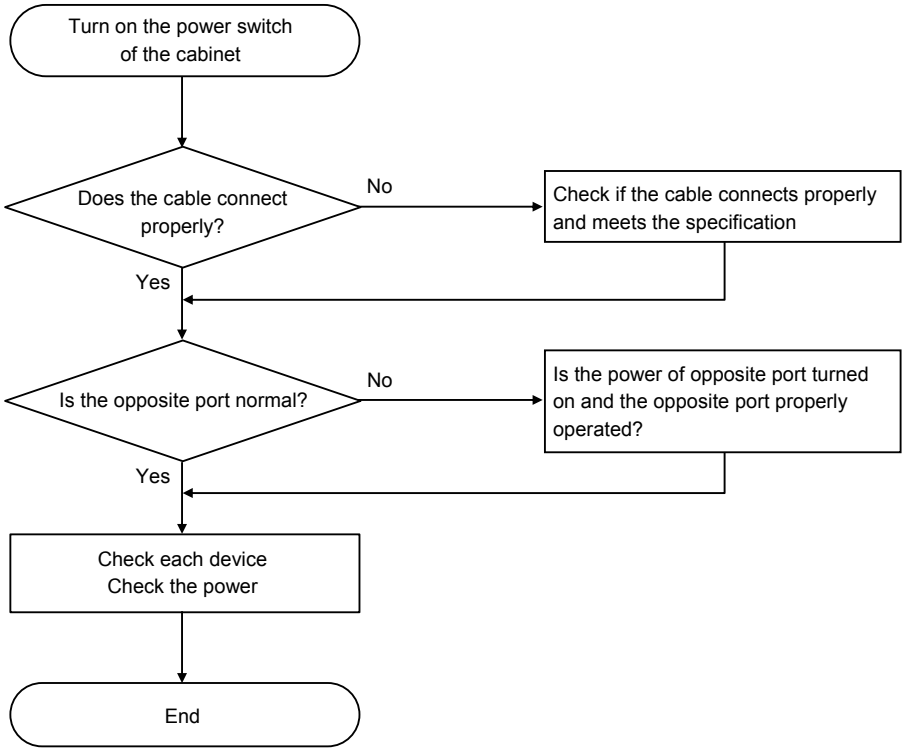
If the message output stops after a part of serial message is displayed, it is likely to be caused by a failure from the memory.



3.4.13.5 LINK LED is not Turned on

There are Five LINK LEDs on the GWIM board; V.35 LINK LED, HSSI LINK LED, LAN Port 1 LINK LED, LAN Port 2 LINK LED and LAN Port 3 LINK LED.

If LINK LED is not turned on even though the cable is connected, check it as follows:



3.5 Option Board (Daughter Board)

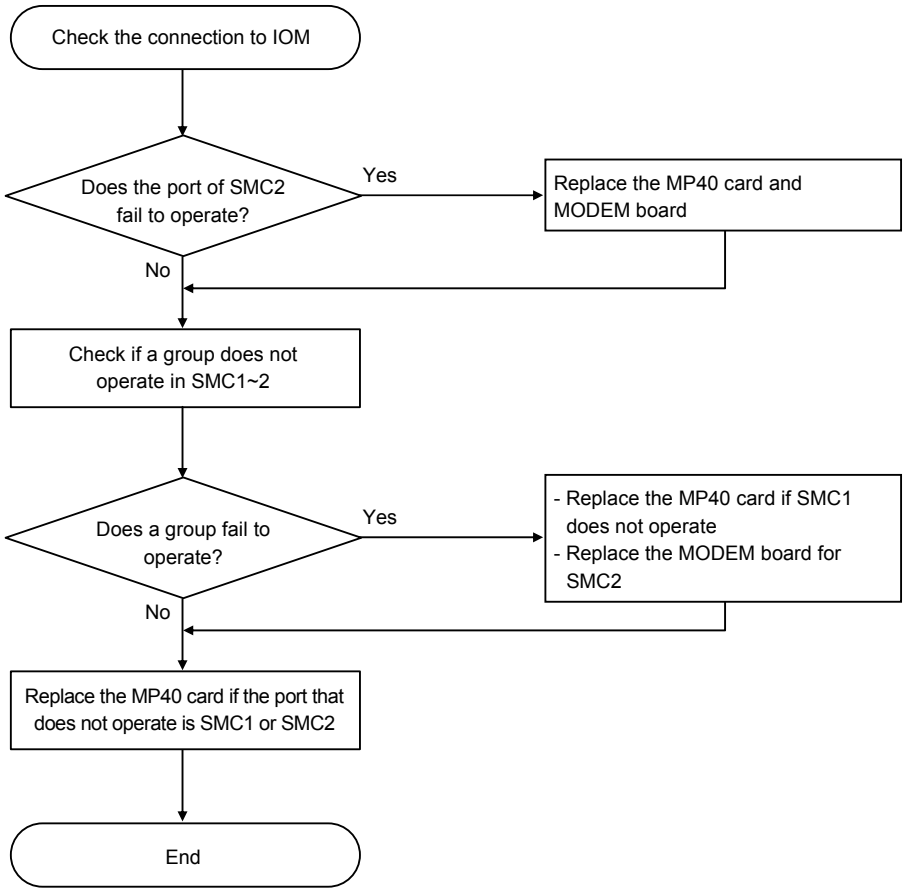
This section describes the problems that occur on various universal boards and troubleshooting procedures.

3.5.1 MODEM Board

This subsection describes troubleshooting procedures when failures occur on the MODEM board.

3.5.1.1 SMC2 Port does not operate

When the SMC port of the basic cabinet does not operate, the troubleshooting sequence is as follows:

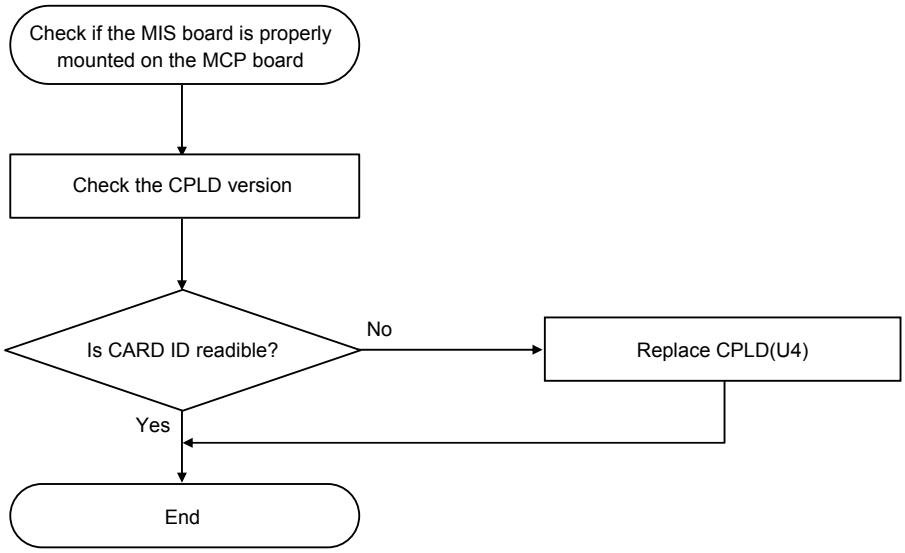


3.5.2 MIS Board

This subsection describes troubleshooting procedures when failures occur on the MIS board.

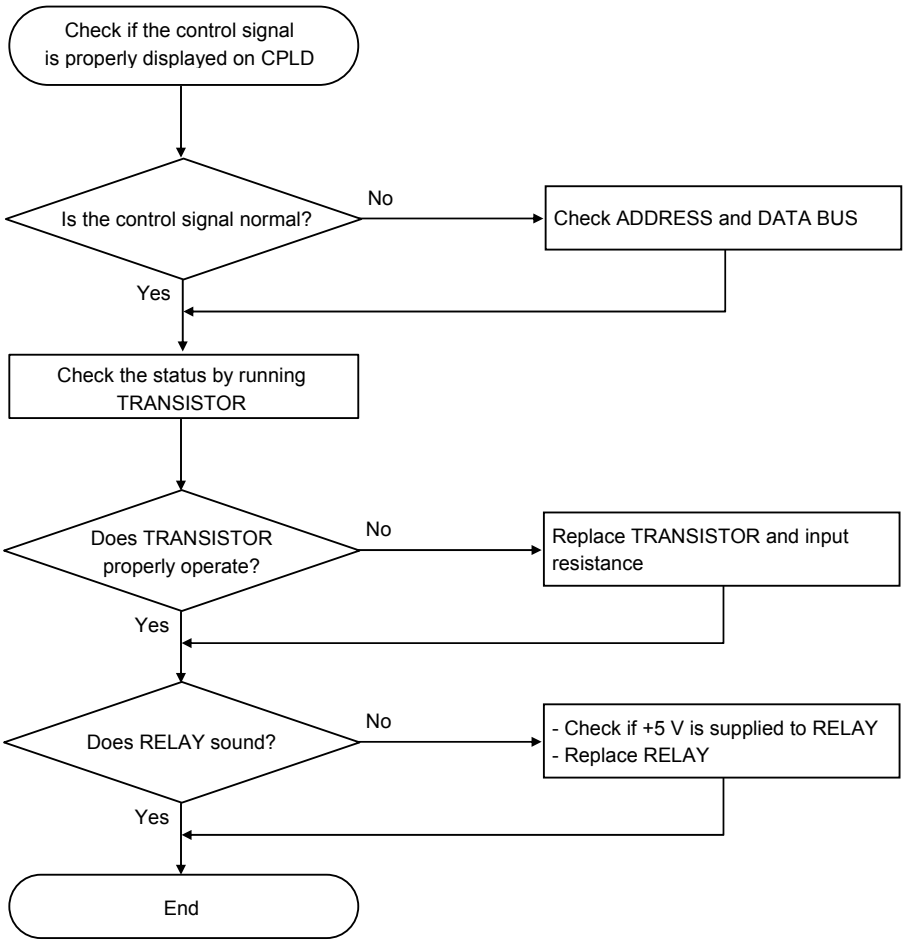
3.5.2.1 MIS Board is not Detected

When the MIS board is not detected, the troubleshooting sequence is as follows:



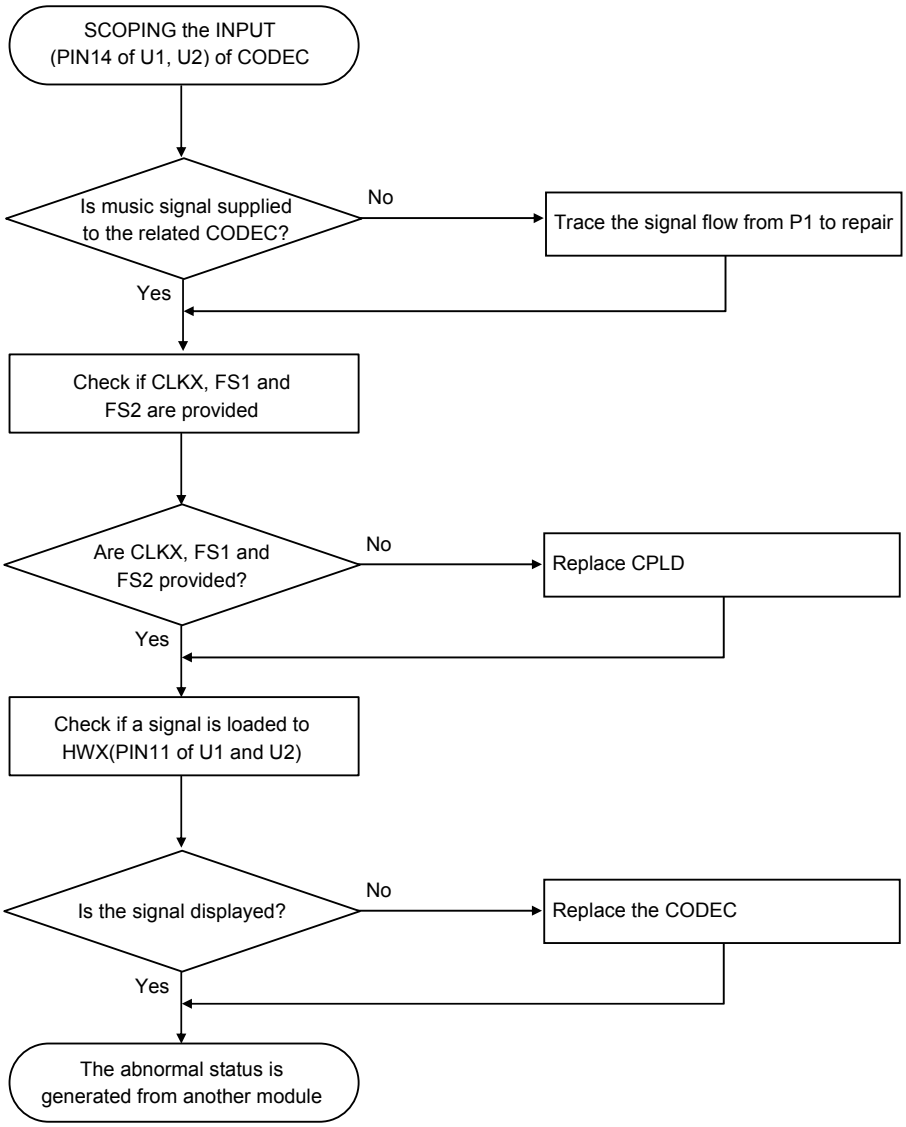
3.5.2.2 RELAY is not Controlled

When RELAY is not controlled, the troubleshooting sequence is as follows:



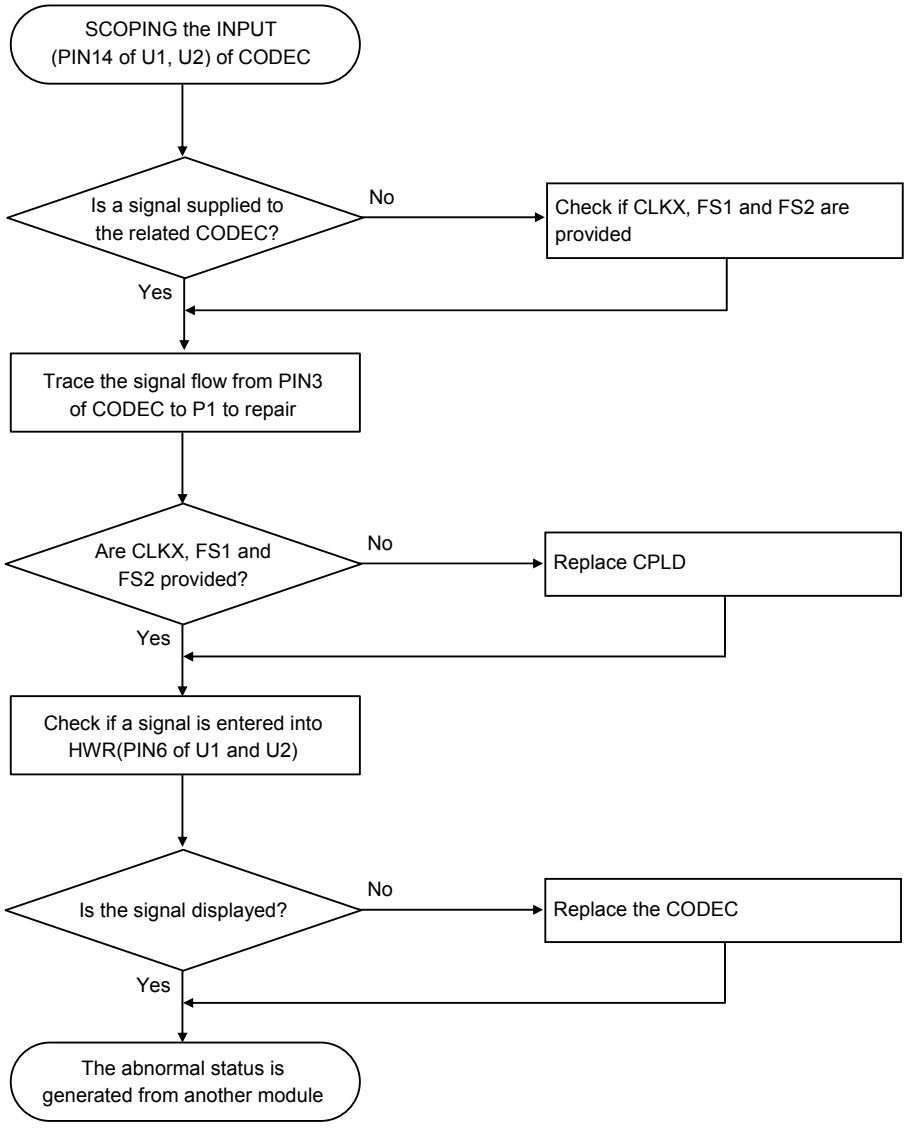
3.5.2.3 External Sound Source is not heard

When external sound source is not heard, the troubleshooting sequence is as follows:



3.5.2.4 External Paging/Auxiliary Call Device does not Operate

When an external paging device or auxiliary call device(loud bell) does not operate, the troubleshooting sequence is as follows:

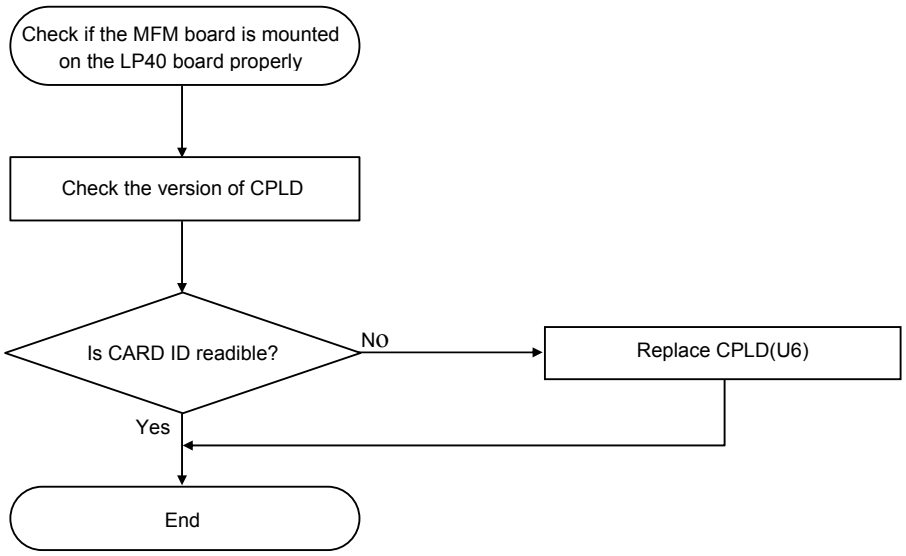


3.5.3 MFM/SCM Board

This subsection describes troubleshooting procedures when failures occur on the MFM/SCM board.

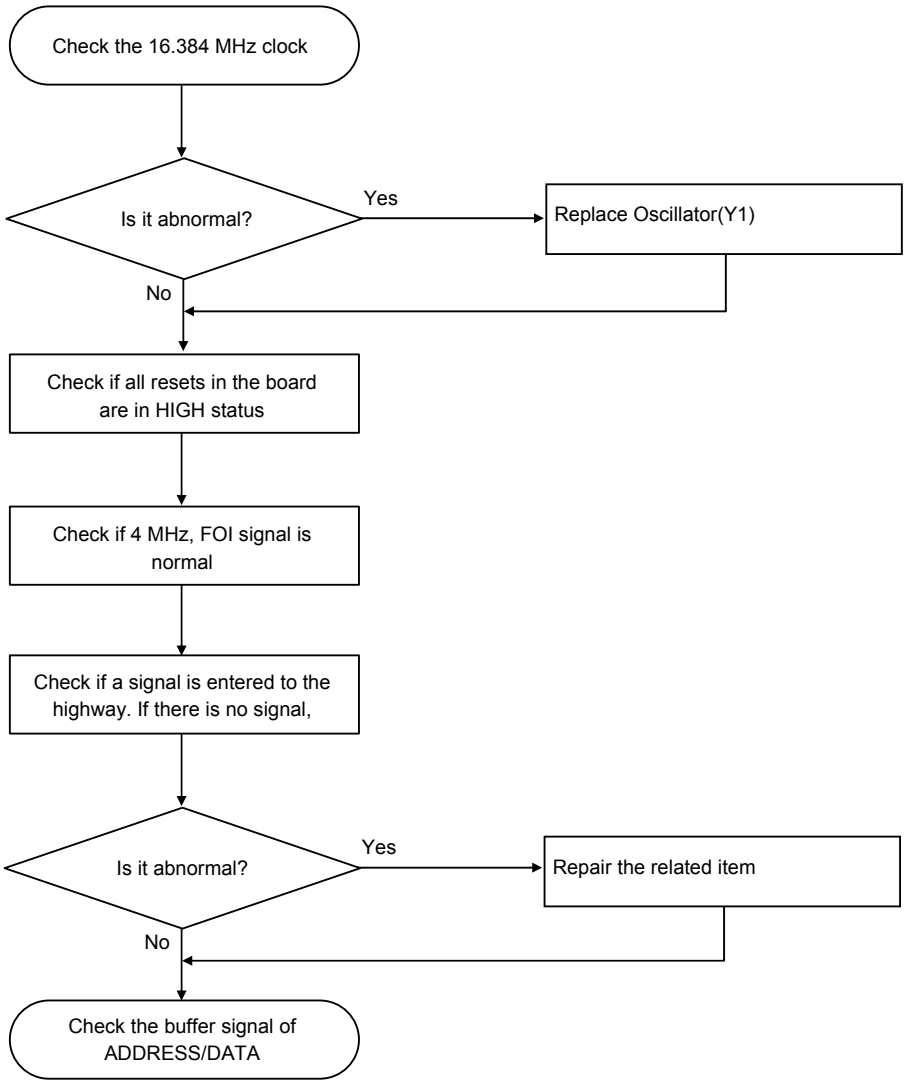
3.5.3.1 MFM/SCM Board is not Detected

When the MFM/SCM board is not detected, the troubleshooting sequence is as follows:



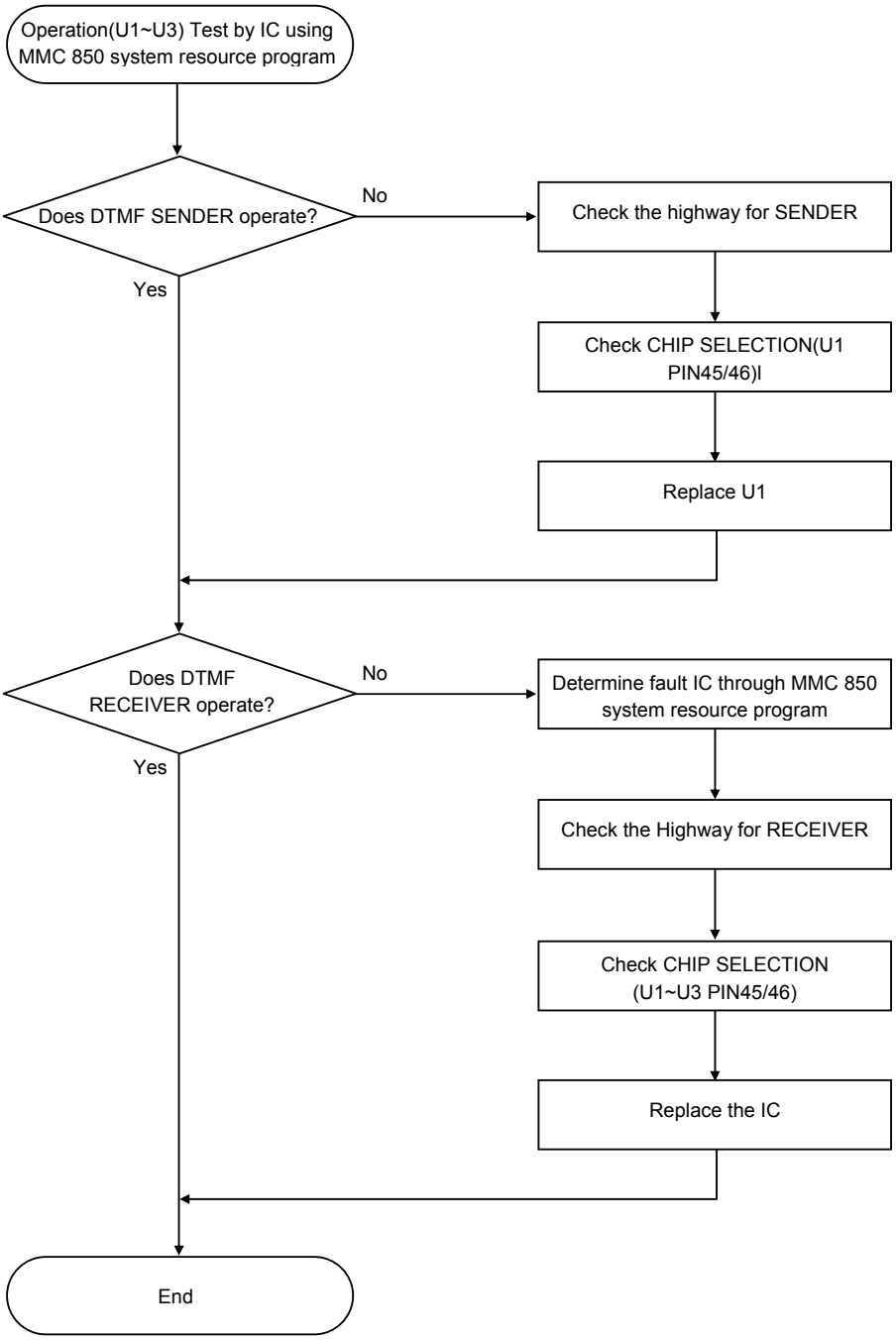
3.5.3.2 All DSPs of the MFM/SCM board does not operate properly

When all DSPs of the MFM/SCM board does not operate properly, the troubleshooting sequence is as follows:



3.5.3.3 A part of DSP on the MFM/SCM board does not operate properly

When a part of DSP on the MFM/SCM board does not operate properly, the troubleshooting sequence is as follows:

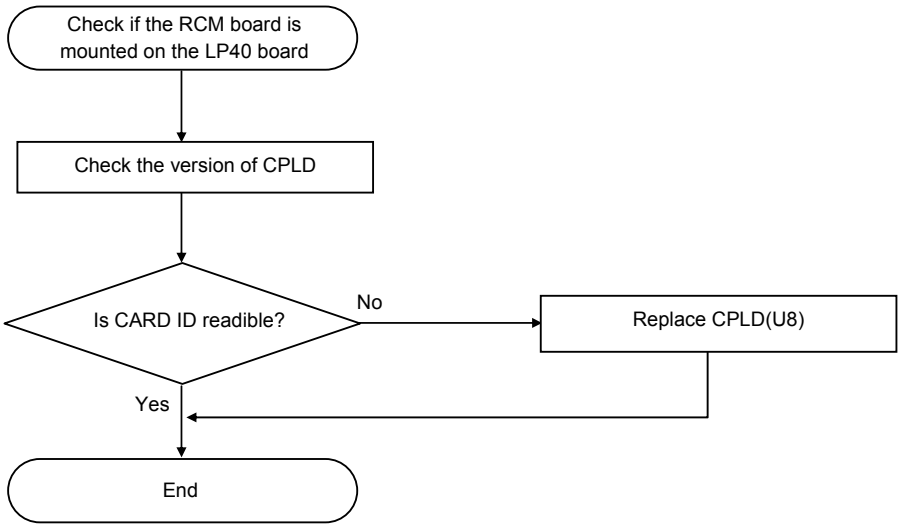


3.5.4 RCM Board

This subsection describes troubleshooting procedures when failures occur on the RCM board.

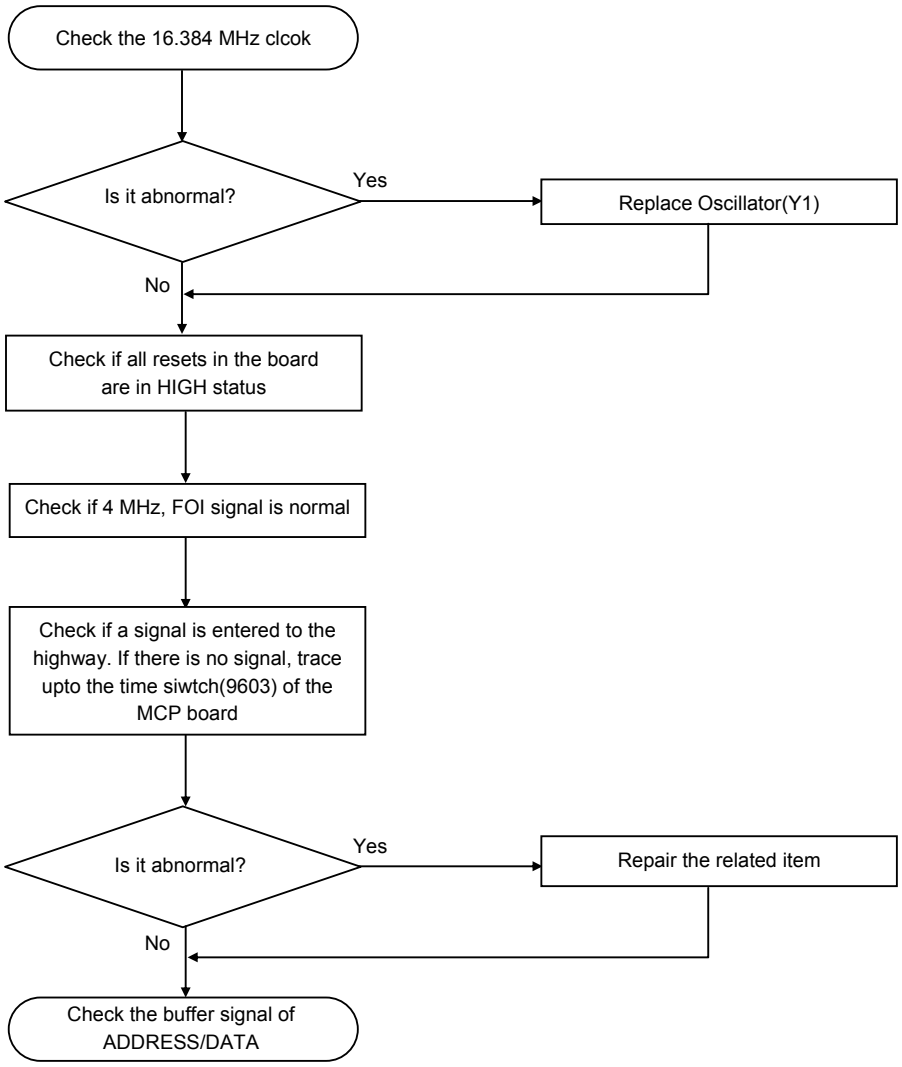
3.5.4.1 RCM Board is not Detected

When the RCM board is not detected, the troubleshooting sequence is as follows:



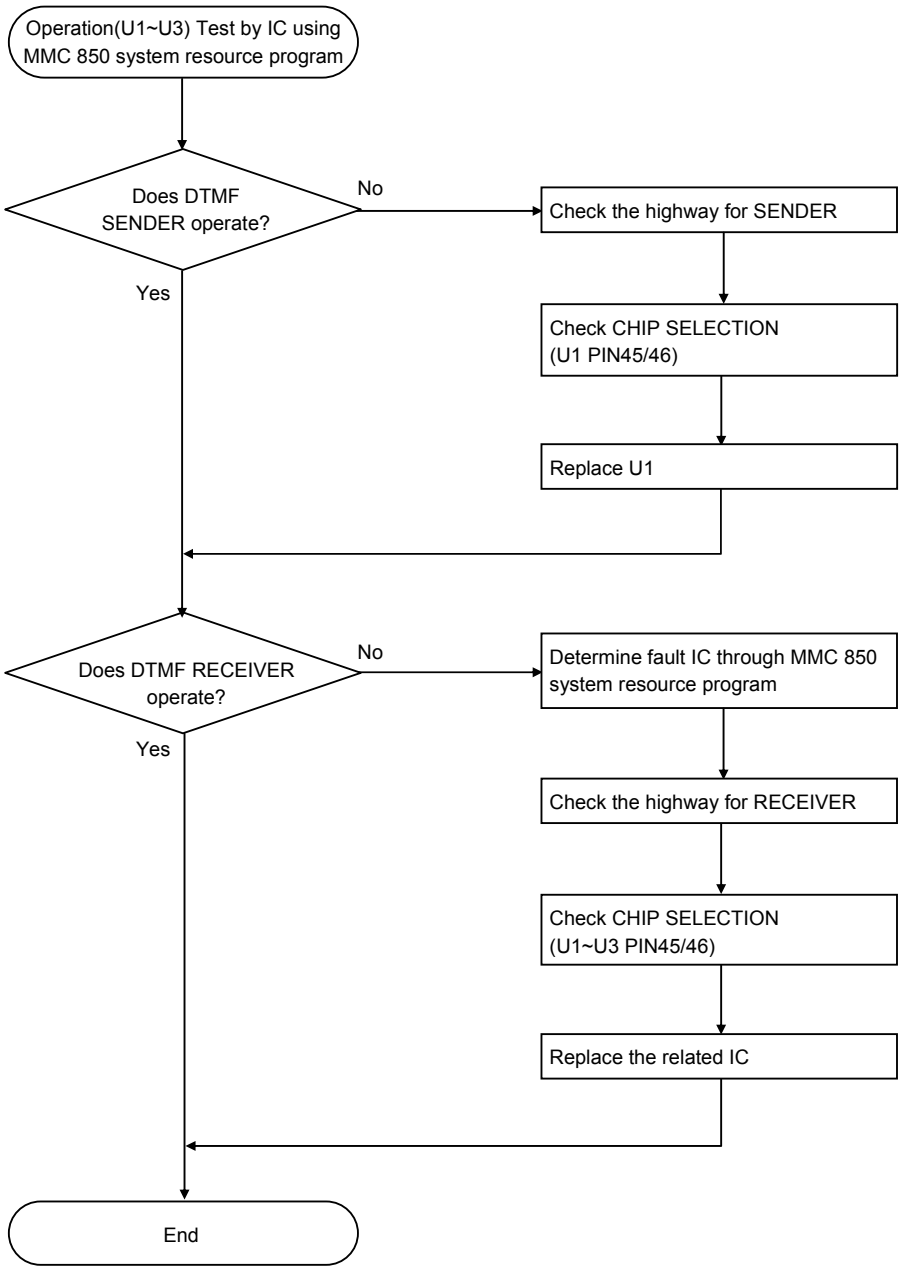
3.5.4.2 All DSPs of RCM Board does not operate properly

When all DSPs of the RCM board does not operate properly, the troubleshooting sequence is as follows:



3.5.4.3 A part of DSP on the RCM Board does not Operate (1)

When a part of DSP on the RCM board, the troubleshooting sequence is as follows:



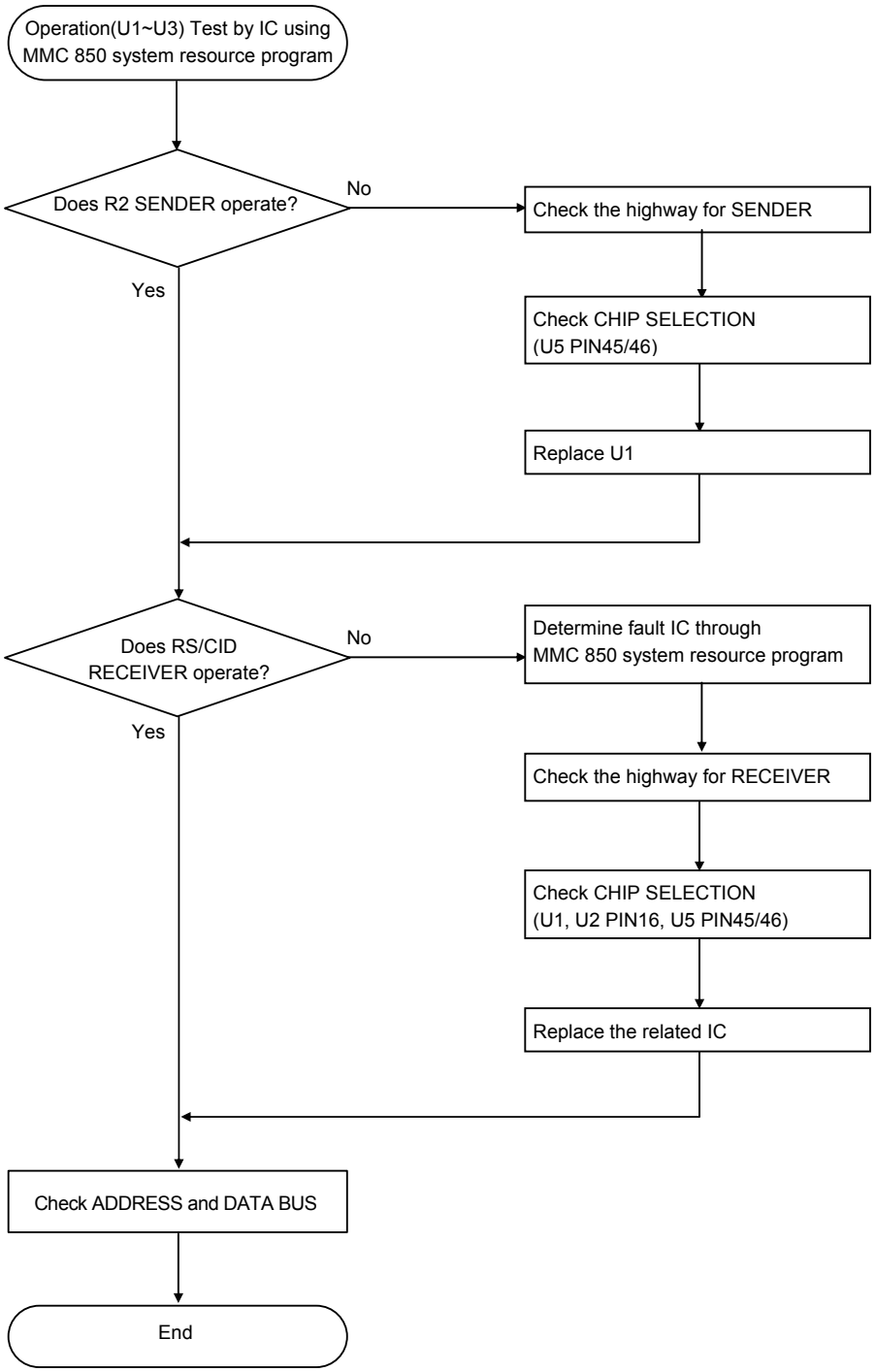
NOTE

A Part of DSP on the RCM board does not operate properly

If the DSP of the RCM board is still abnormal even though the above procedure is performed, refer to the '3.5.4.4. A Part of DSP on the RCM board does not operate properly(2)' on the next page.

3.5.4.4 A part of DSP on the RCM Board does not Operate (2)

If the DSP of the RCM board is still abnormal in spite of the troubleshooting procedure at '3.5.4.3 A Part of DSP on the RCM Board does not operate(1)', the troubleshooting sequence is as follows:

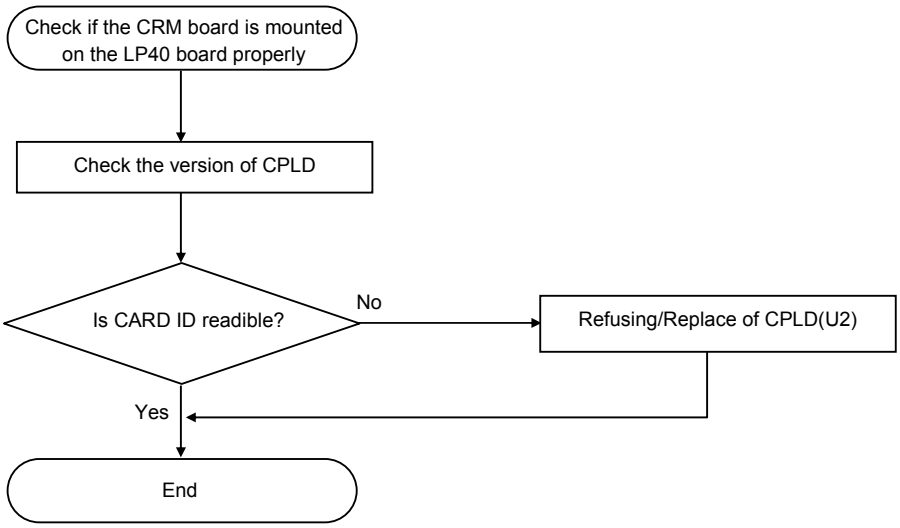


3.5.5 CRM Board

This subsection describes troubleshooting procedures when failures occur on the CRM board.

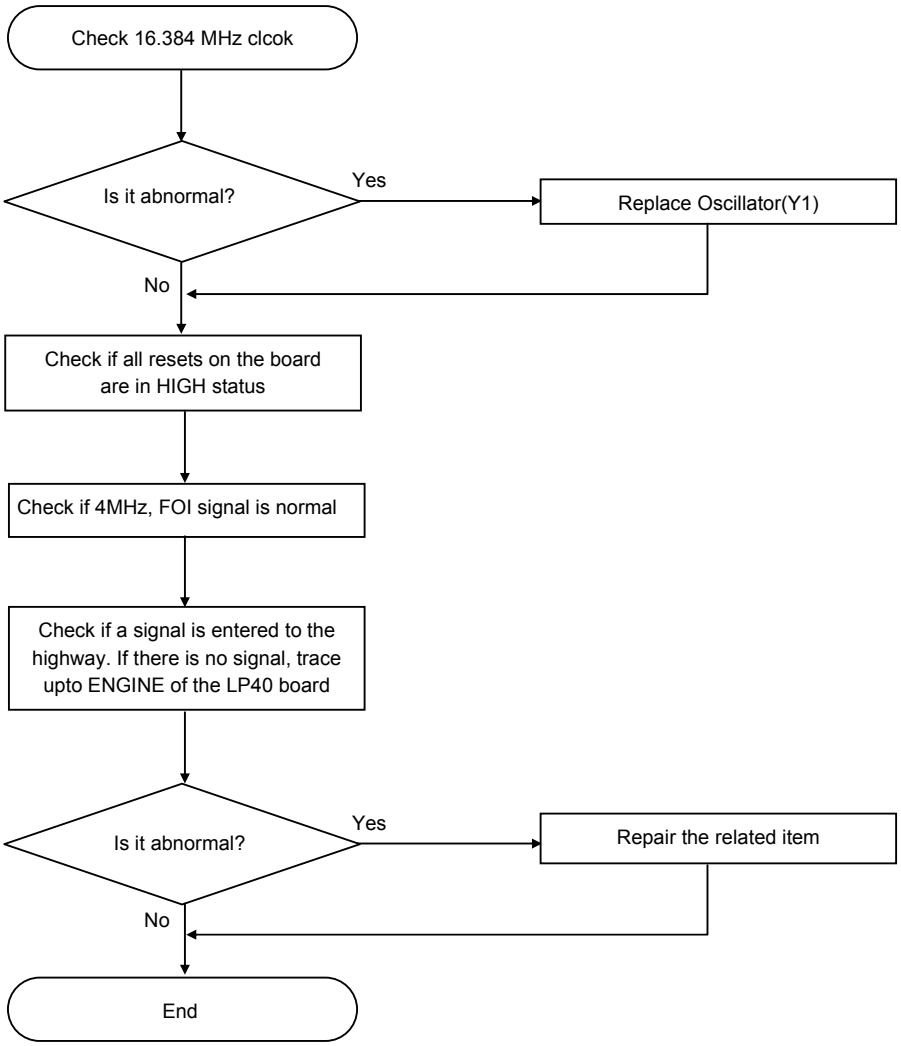
3.5.5.1 CRM Board is not Detected

When the CRM board is not detected, the troubleshooting sequence is as follows:



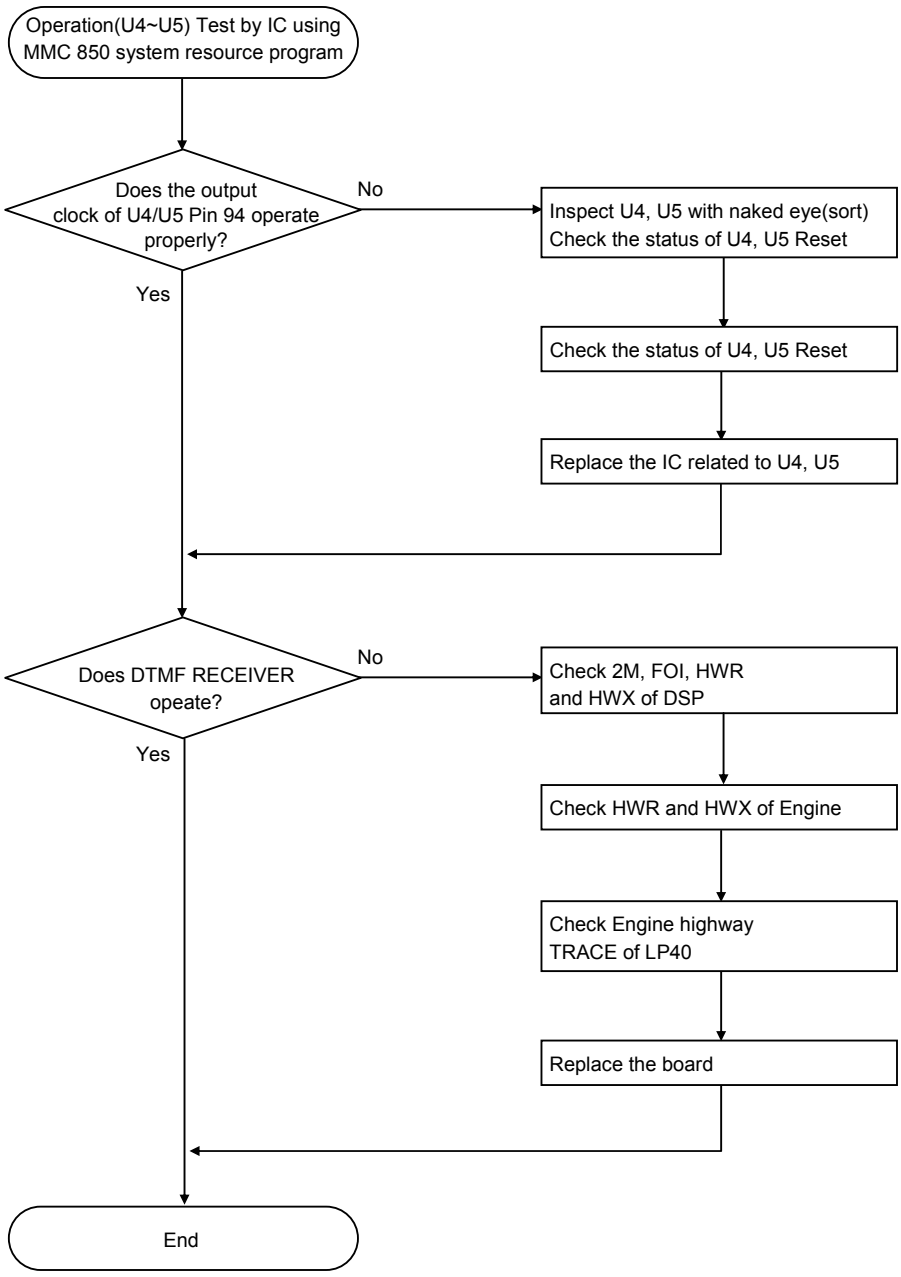
3.5.5.2 ENGINE of the CRM Board does not Operate Properly

When all ENGINEs of the CRM board does not operate properly, the troubleshooting sequence is as follows:



3.5.5.3 A part of DSP on the CRM Board does not Operate Properly

When a part of DSP on the CRM board, the troubleshooting sequence is as follows: (Checking Flow in DTMF Receiver)

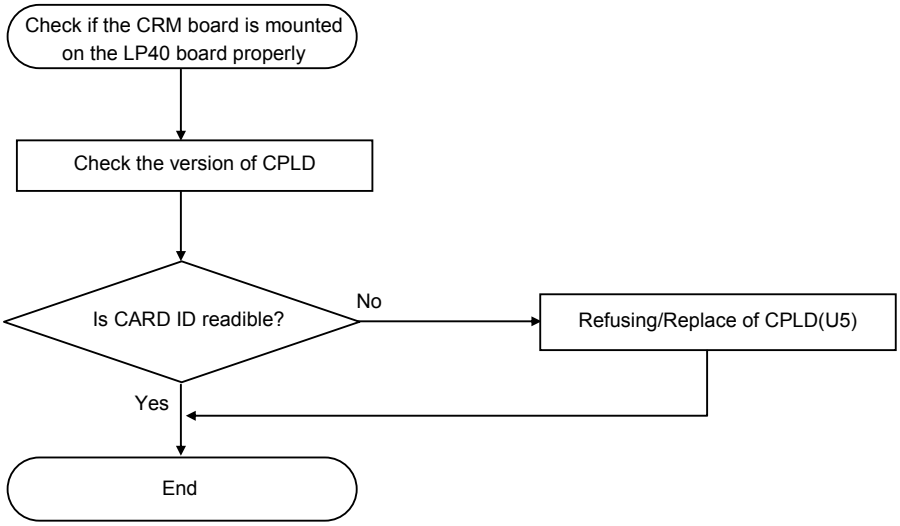


3.5.6 RCM2 Board

This subsection describes troubleshooting procedures when failures occur on the RCM2 board.

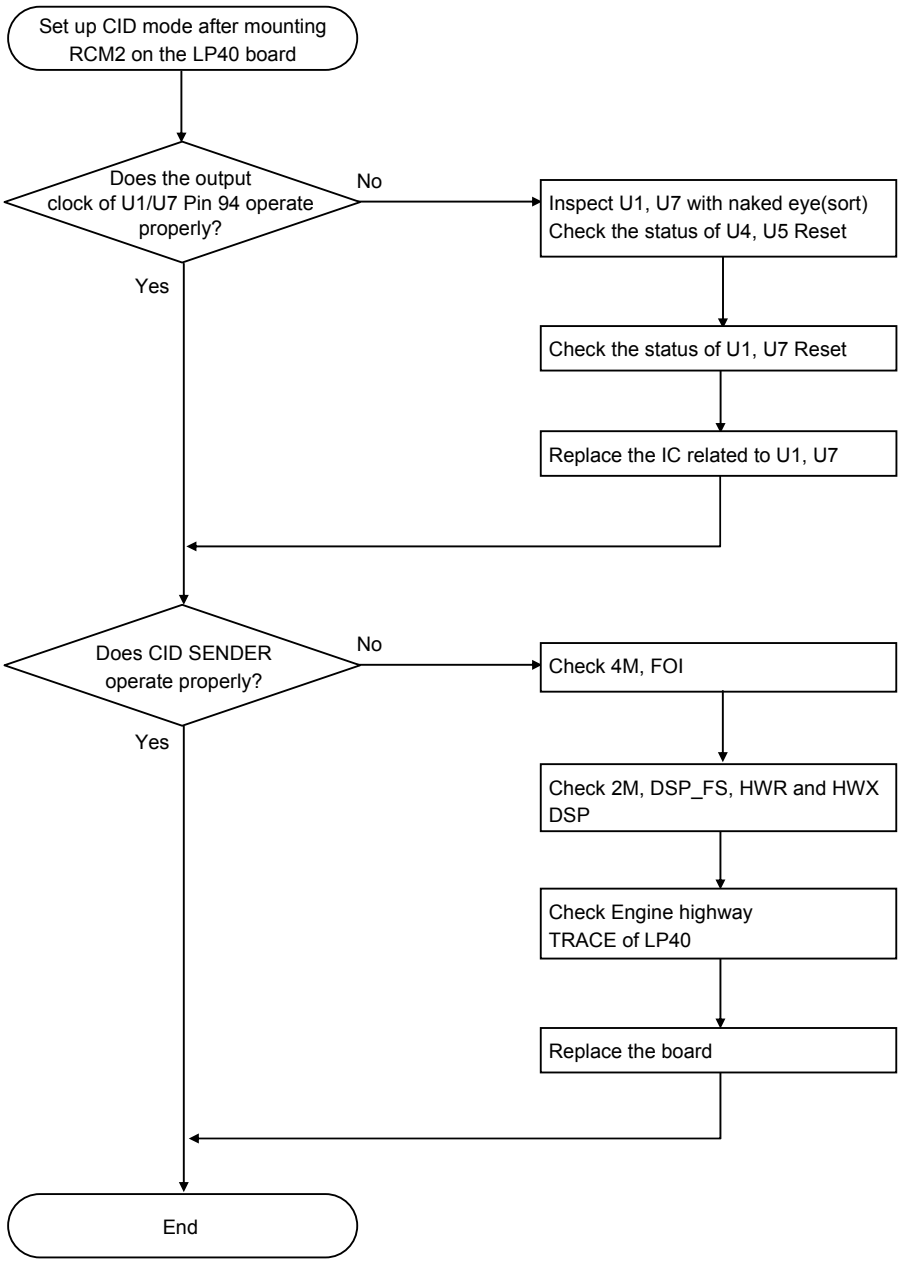
3.5.6.1 CRM Board is not Detected

When the CRM board is not detected, the troubleshooting sequence is as follows:



3.5.6.2 DSP of the RCM2 Board does not Operate Properly

When DSP of the RCM2 board does not operate properly, the troubleshooting sequence is as follows: (Checking Flow in CID SENDER)



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CHAPTER 4. Maintenance Programming

This chapter describes how to execute Smart Media, Complex Programmable Logic Devices(CPLD), off-line program.

4.1 Smart Media Programming

Smart Media, a NAND type flash memory, should be programmed via a program and database before installing into the system.
The installation procedure and the execution method of each function are as follows:

4.1.1 Installing

This paragraph describe the way to install the Smart Media program.

4.1.1.1 Preparing

The following items are required to install the Smart Media program:

- Smart Media writing board(SEC CODE: KP500DBSMW/EUS)
- Desktop PC(486 or higher)
- Smart Media Memory Card(SMC)
- Software(SM_NEW.EXE: Execution of DOS mode, Offered by Samsung Electronics)

4.1.1.2 Installation Procedure

Let's see how to install the Smart Media program.

1) Turn off a PC, and install Smart Media Writer(SMW) to an ISA slot of the PC. With PC screws, fix the SMW.

2) Turn on the PC and run **'SM_NEW.EXE'** in DOS mode or Windows mode. After then, insert a Smart Media Card(SMC) to the SMW. At this time, the program to be stored in SMC should exist in the directory where **'SM_NEW.EXE'** is located(i.e., C:\idcs500\smart).

3) Enter **'1'** and press the **[ENTER]** key on the following screen:

```
C:\idcs500\smart>SM_NEW
Choose ECC Methods (1. Software ECC  2. Hardware ECC)
(default is Software ECC)?
```

4) If the installation is successful, the following initial screen is displayed:

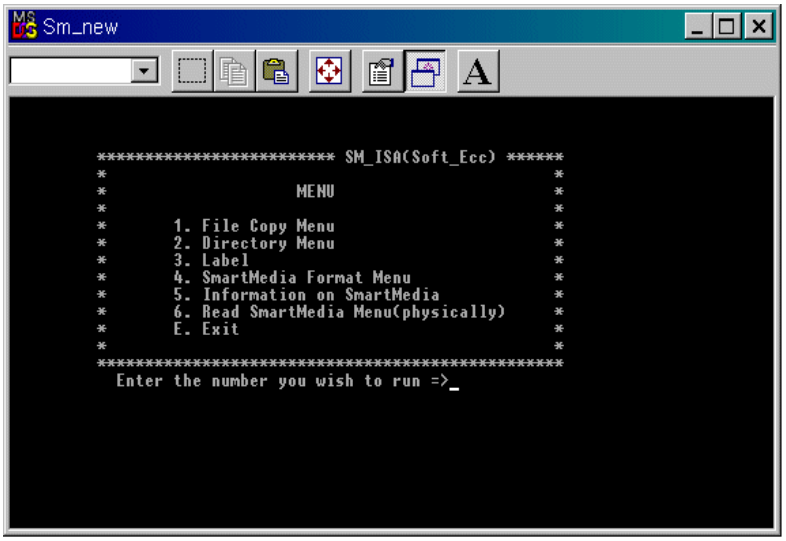


Figure 4.1 Initial Screen of Smart Media Program

4.1.2 Performing Functions

In the initial screen, the following five functions can be performed:

- Format
- File Copy(PC to SMC, SMC to PC)
- Directory View(same function as the DIR function of DOS mode)
- File Delete(partial delete)
- SMC Analysis

The above five functions are used for the creation of SMC to operate the OfficeServ 7400 system. These functions are used as follows:

4.1.2.1 Formatting

To use in the OfficeServ 7400 system, new SMC should be formatted.

1) Enter **'4'** and press the **[ENTER]** key in the initial screen to open the **<Format Menu>** screen. Enter **'1'** and press the **[ENTER]** key.

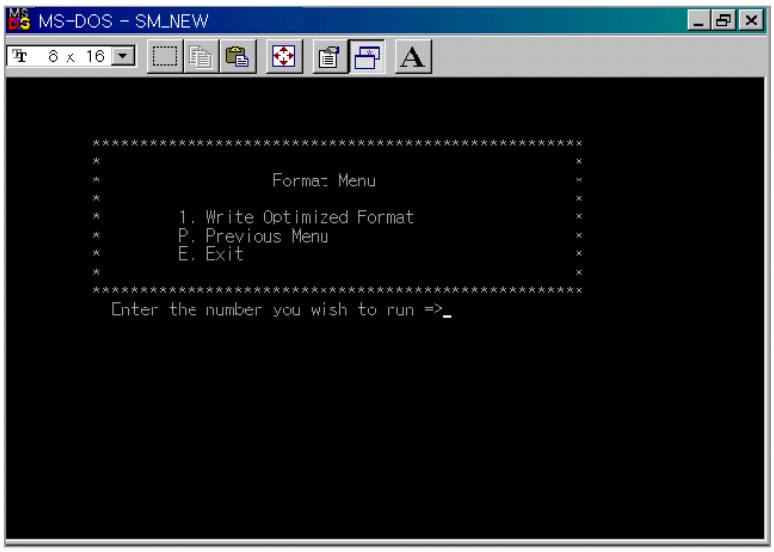


Figure 4.2 <Format Menu> Screen

2) If the following contents are displayed in the screen, enter **'Y'** and press the **[ENTER]** key.

```
Manufacturer's code is    ec
Device code is    73
UID code is    a5
Fourth code is    bb
SAMSUNG 16 MB Smart Media (3.3V)
Bad Block= 1(zone=0)
Do you want to re-test all block for recovering Smart Media(y/n)? y
```

3) Formatting is started. The progress of the format is displayed in the bottom of the screen. If the format is normally completed, the **<Format Menu>** screen is displayed again. Press the **[P]** key to return to the initial screen.

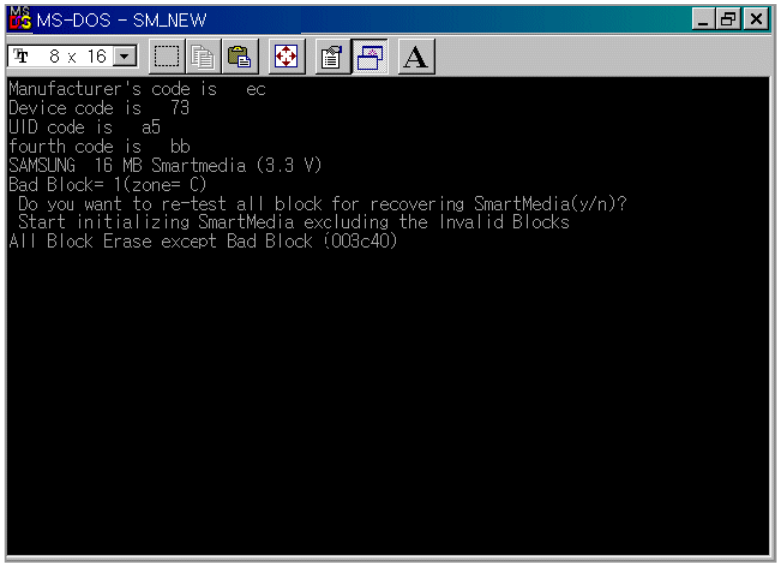


Figure 4.3 Formatting SMC

4.1.2.2 Copying

The Copy function is used to copy files in a PC to SMC or SMC to a PC.

1) Enter **'1'** and press the **[ENTER]** key in the initial screen to open the **<Copy Menu>** screen.

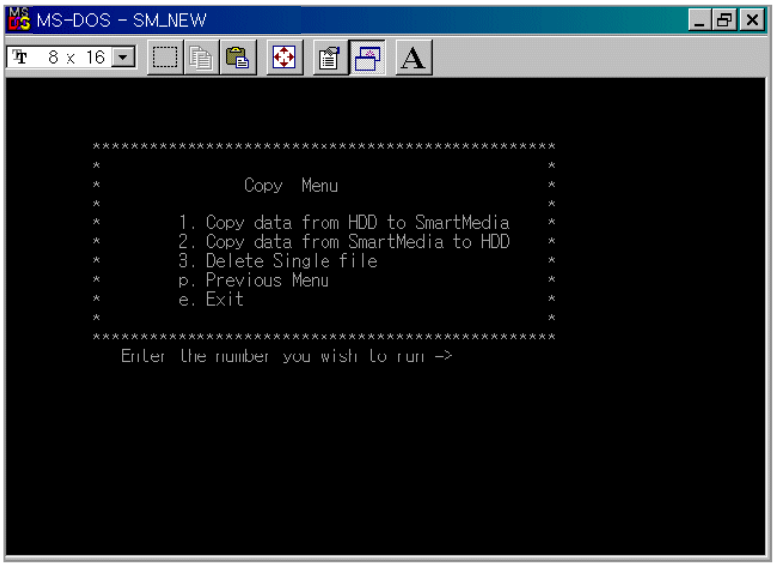


Figure 4.4 <Copy Menu> Screen

Copying files in a PC to SMC

Files in a PC are copied to SMC.

1) Enter **'1'** and press the [**ENTER**] key in the <**Copy Menu**> screen, the following screen will be open. Enter a source file name to be copied after **[:]** and press the **[ENTER]** key.

```
Enter the source file name ((ex)mcp_l.pgm) : startup.sys
Enter the Smart Media Path ((ex) temp\dsc) :  (just press "ENTER" key)
Enter the Smart Media file name ((ex)young.txt) : startup.sys
```


NOTE

For SMC Programming

The SMC programming of the OfficeServ 7400 system needs **'MCP_MV106.PGM'** and **'MCP_LV106.PGM'**, **'XXX.PGM' as well as 'startup.sys.'**

2) If the file is normally copied, the <**Copy Menu**> screen is opened. The above operation screen is repeated to copy files to all SMCs used in the OfficeServ 7400 system.

Copying Files in SMC to a PC

Files in SMC are copied to a PC.

1) Enter **'2'** and press the **[ENTER]** key on the <**Copy Menu**> screen:

2) The following screen is displayed. Enter a source file name to be copied after **[:]** and press the **[ENTER]** key. If the file name is incorrect, DOS mode will be closed. For the correct file names, refer to **'4.1.2.3 Displaying Directories'**.

```
Enter the source file name ((ex)mcp_l.pgm): just press "ENTER" key)
Enter the Smart Media Path ((ex) temp\dsc): startup.sys
Enter the Smart Media file name ((ex)young.txt):startup.sys
```

4.1.2.3 Displaying Directories

This function is used for the display of SMC file information. With this function, you can check the file names included in SMC and if files are correctly copied. In addition, this function is used to confirm file names when you overwrite the files from SMC to your PC and you can create a subdirectory in SMC.

1) Enter **'2'** and press the **[ENTER]** key in the initial screen to open the **<Directory Menu>** screen. Enter **'1'** and press the **[ENTER]** key.

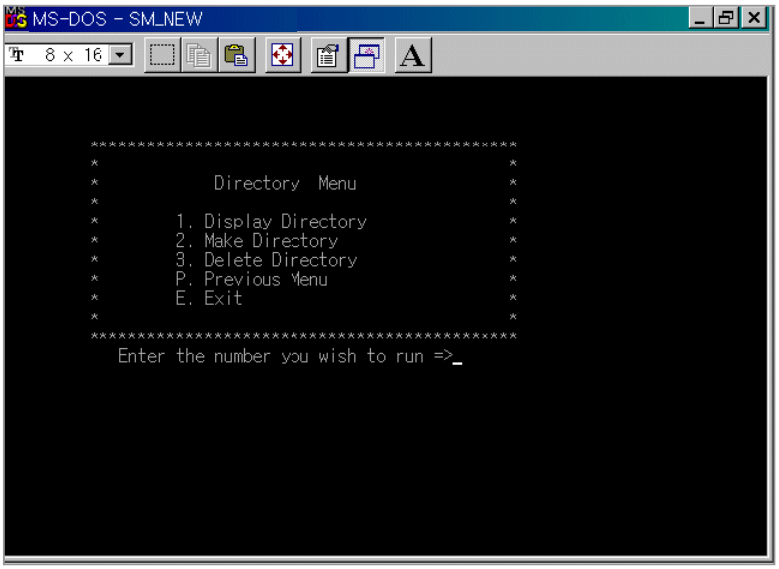


Figure 4.5 <Directory Menu> Screen

2) If a file list included in SMC is displayed, drag the cursor to the corresponding item and press the **[ENTER]** key to return to the screen concerned with the item. Enter **'P'** and press the **[ENTER]** key to return to the initial screen.

4.1.2.4 Deleting Files

This function is used for the deletion of the specified file in SMC.

1) Enter **'1'** and press the **[ENTER]** key in the initial screen to open the **<Copy Menu>** screen. Enter **'3'** and press the **[ENTER]** key.

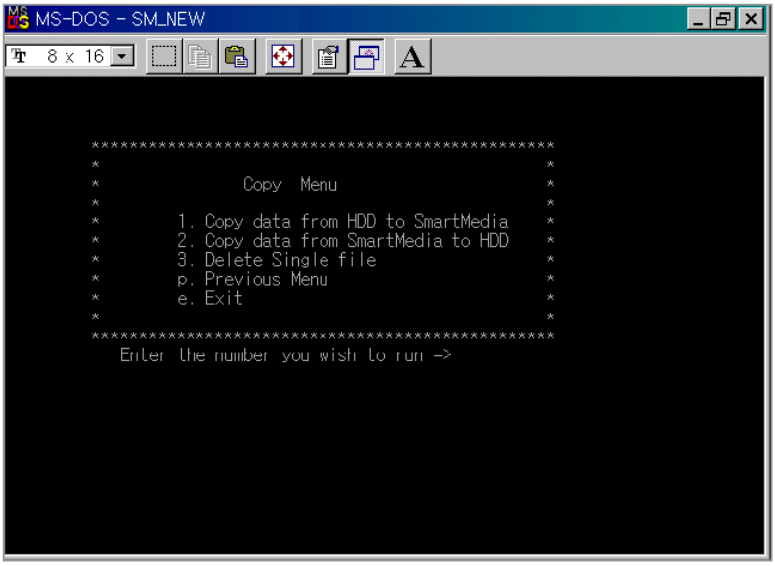


Figure 4.6 <Copy Menu> Screen

2) Enter the file name(i.e., 'STARTUP.SYS') to be deleted and press the **[ENTER]** key in the following screen:

```
Enter the Smart Media Path ((ex) temp\dsc): SKIP
Enter the Smart Media file name ((ex)young.txt): STARTUP.SYS
```

4.1.2.5 Analyzing SMC

After storing the program for SMC, press the **[E]** key to exit the SM_NEW program.

If the system uses the SMC that **'startup.sys'** is not installed, SM LED is blinks repetitively.

The SMC to use should include **'startup.sys'** and main program(MCP PGM).
If you want to upgrade PBA program to MMC 818, save the file to be upgraded to a SMC and insert it to MCP. After then, upgrade the program to the target PBA with MMC 818.

Enter as shown the figure below and check the file with the directory menu.

```
Enter the Smart Media Path ((ex) temp\dsc): SKIP
Enter the Smart Media file name ((ex)young.txt): STARTUP.SYS
```

4.2 CPLD Programming

Complex Programmable Logic Devices(CPLD) is programmed before OfficeServ 7400 leaves the factory. But the contents of the CPLD can be modified after the shipment.

Note that OfficeServ 7400 uses products of Lattice company(CPLD) or Altera company(EPLD) and the programming methods for each product are rather different.

- Lattice: Complex Programmable Logic Devices(CPLD)
- Altera: Erasable Programmable Logic Devices(EPLD)

4.2.1 Lattice CPLD Programming

The programming method for CPLD of Lattice company.

4.2.1.1 Preparing

The following items are required to install the CPLD program of Lattice company:

- Data to be programmed(*.JED file format)
- PC supporting parallel ports
- Target board to be programmed(connected by 10-pin connector)
- Cable kit for programming
- RJ-45 Connector cable for programming specially made

4.2.1.2 Connecting the Target CPLD to a PC

CPLD is connected in two ways according to the type of boards: A way to connect the SIO port in the front plate of the board to a parallel port(LPT1) of a PC with RJ-45 Connector and a programming cable kit specially made and the other way to directly connect to 10-pin connector on the PBA of the target board.
The figure below shows the direct connection with a 10-pin connector.

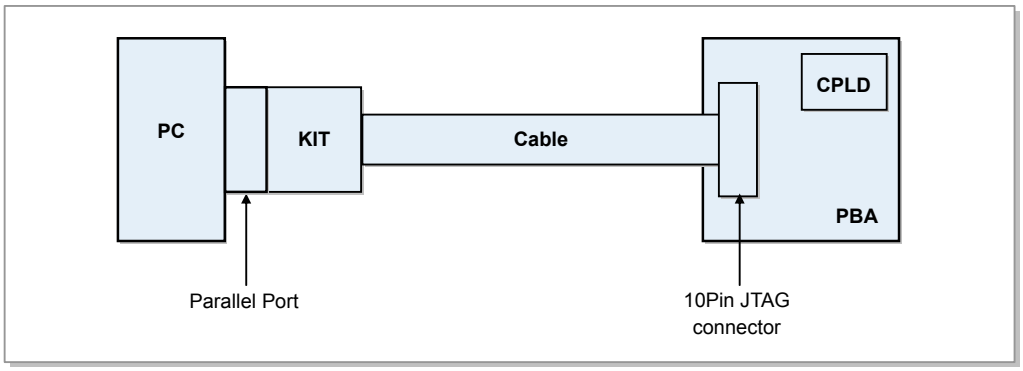


Figure 4.7 PC and Board Connection 1

The figure below shows the way to connect to the SIO port.
For this connection, a programming cable specially made with RJ-45 Connector is used.

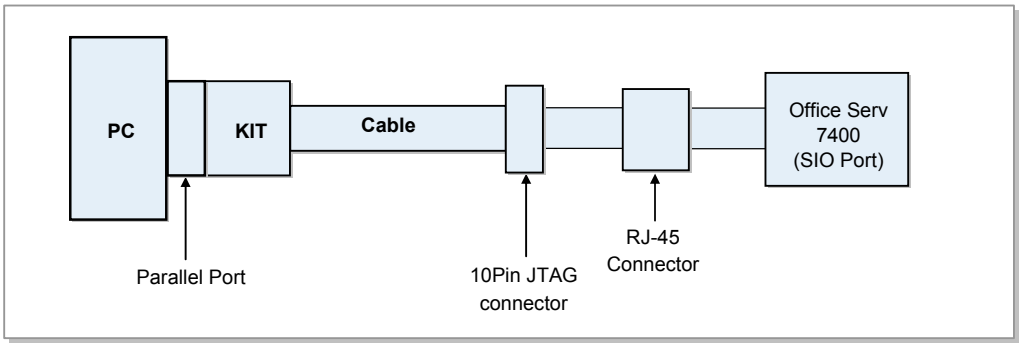


Figure 4.8 PC and Board Connection 2

NOTE

Boards using a SIO port

Boards to use the SIO port are MP40, LP40, TEPRI2, MGI64, GWIM, and GSIM.

CAUTION

Caution for the connection of a PC and a target board

A target board should be connected to a PC after turning off the PC power.
Otherwise, a parallel port of the PC or the target board may be damaged.

4.2.1.3 Running CPLD Programming Tools

A way to run a CPLD programming tool is as follows:

1) Run the **'ispVM'** program on the windows screen of a PC.
[Start] → [Program] → [Lattice Semiconductor] → [ispVM system]

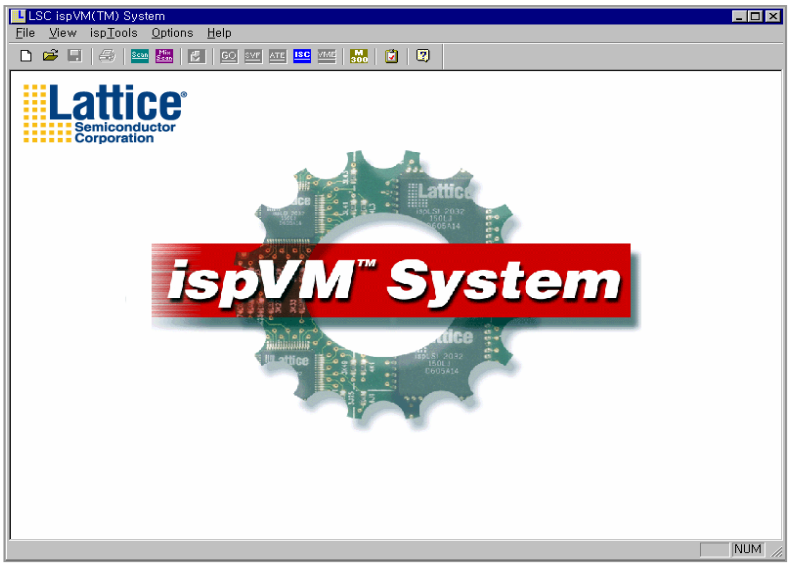


Figure 4.9 Initial Screen of ispVM Program

2) Click **[Options] → [Cable and I/O Port Setup].**

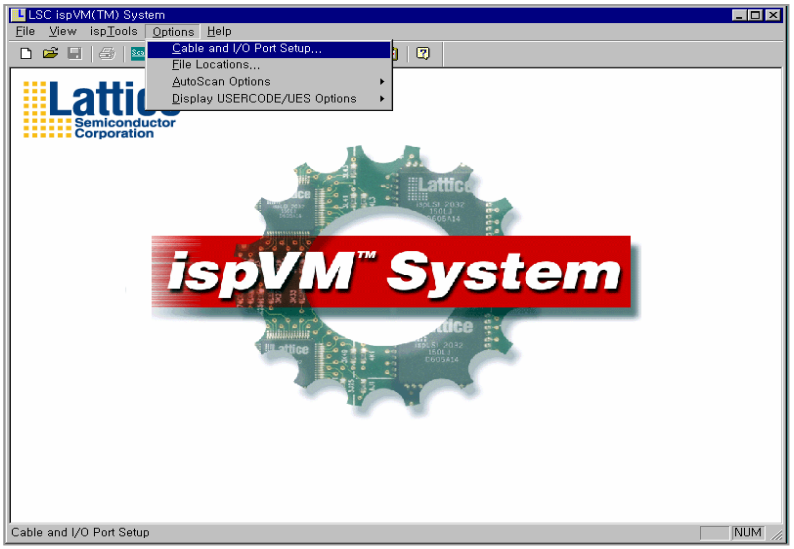


Figure 4.10 <Cable and Port Setup Selection> Screen

3) Select **'0x0378'** for **'Port Setting'** item and **'LATTIC'** for **'Cable Type'**, respectively. Click the **[OK]** button to apply the above selection.

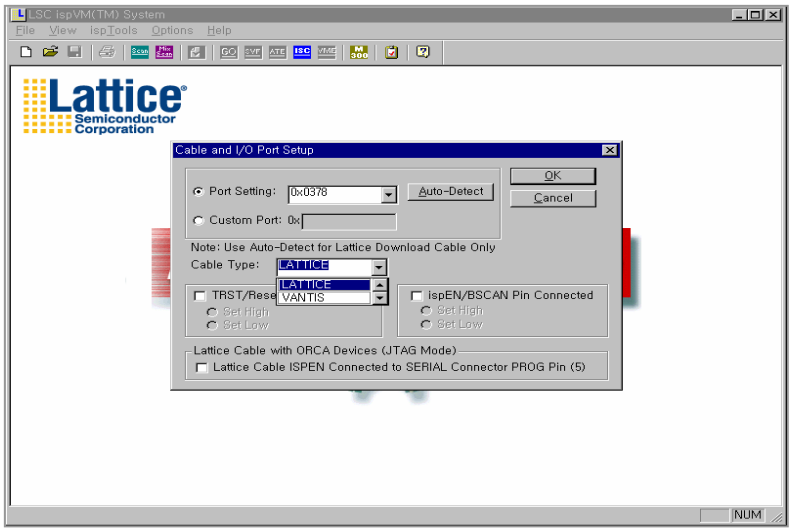


Figure 4.11 <Cable and I/O Port Setup> Screen

4) Click the **[Scan]** icon in the toolbar to import PLD of the target board.
At this time, check if the PLD name is displayed in **'Device List'** on the activated screen and equal to that of the used PLD. If the scan window is not displayed, reset the Option menu and click the scan icon again.
Double-click the **'FileName/IR-Length'** field next to the corresponding PLD to import a desire JED file on the Scan window.

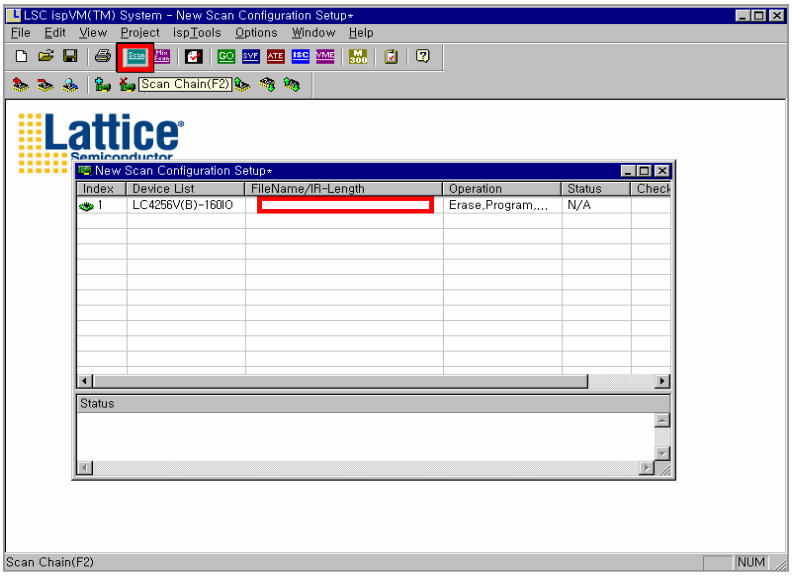


Figure 4.12 <Target Board Scanning> Screen

5) Click the **[Browse]** button to import the JED file for fusing. Select **'Erase, Program, Verify'** for the **'Operation'** item and click the **[OK]** button.

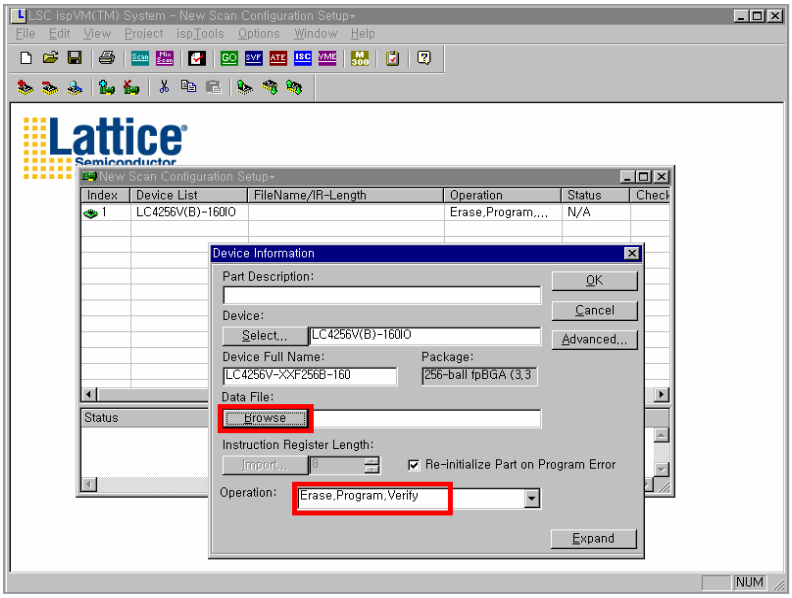


Figure 4.13 <Fusing File Selection> Screen

6) Check again if the value of the **'Checksum/CRC'** field is the corresponding JED file. Click the **[GO]** icon in the toolbar to open the <**On Fusing**> window as shown below:

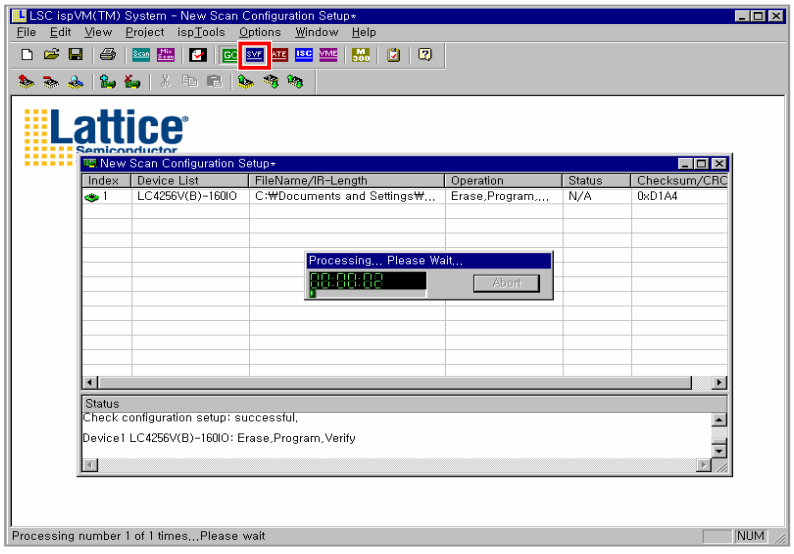


Figure 4.14 <On Fusing> Screen

4.2.1.5 Installing the 'ispVM' Program

ispVM is a CPLD program tool provided by Lattice company and installed to program CPLD.

1) Make access to **'http://www.gtmkorea.co.kr/htmls/vander_lattice.html'** with Internet Explorer.
2) Click as follows:
   [Tool] → [Programming Software] → [ispVM System] → [Download Software] → [ispVM System]
3) Download the program in a desired directory of your PC.

4.2.2 Altera EPLD Programming

Boards to program Altera EPLD are MGI and 4WLI boards. The configuration of Altera EPLD is the same as that of CPLD except the cable kit for connection.

1) The figure below show the initial screen(MAX + plus II Programmer Only PGM). Click the **[MAX + PLUS II]** menu.

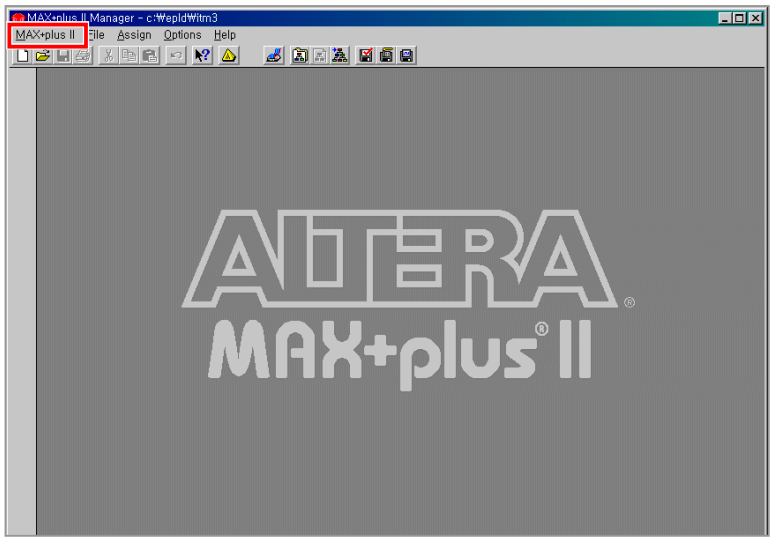


Figure 4.15 Initial Screen of Altera MAX + plus II Program

2) Click the **[File]** menu and select **[Select Programming File].**

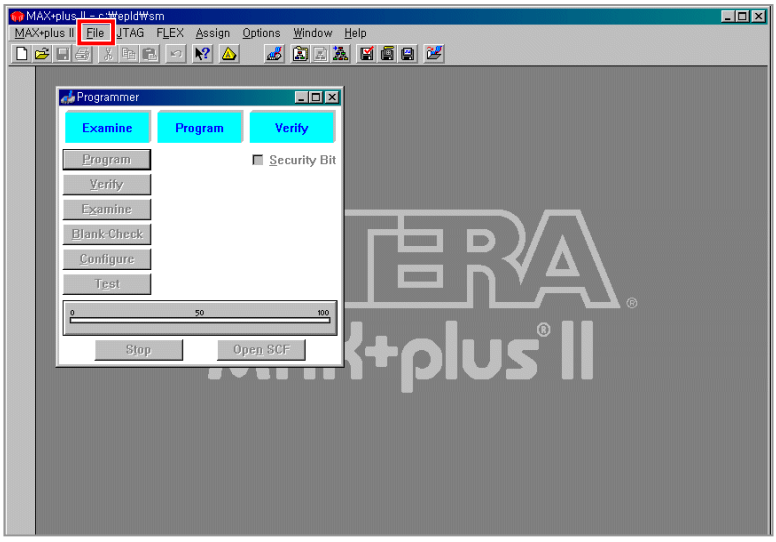


Figure 4.16 Selection of Program File

3) Select a *.POF' file to program and click the **[OK]** button. The POF files are data files for programming.

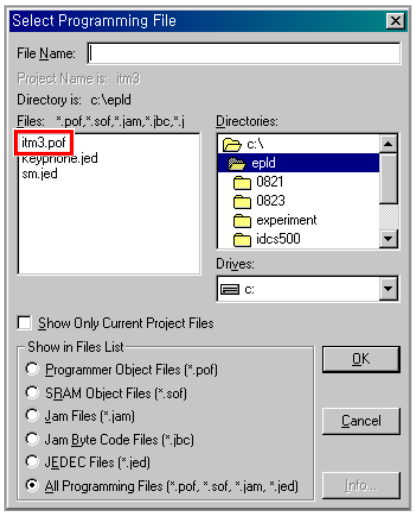


Figure 4.17 Selection of Data File for Programming

4) Click the **[Program]** button, EPLD will enter to programming mode and download the relevant POF files to EPLD.

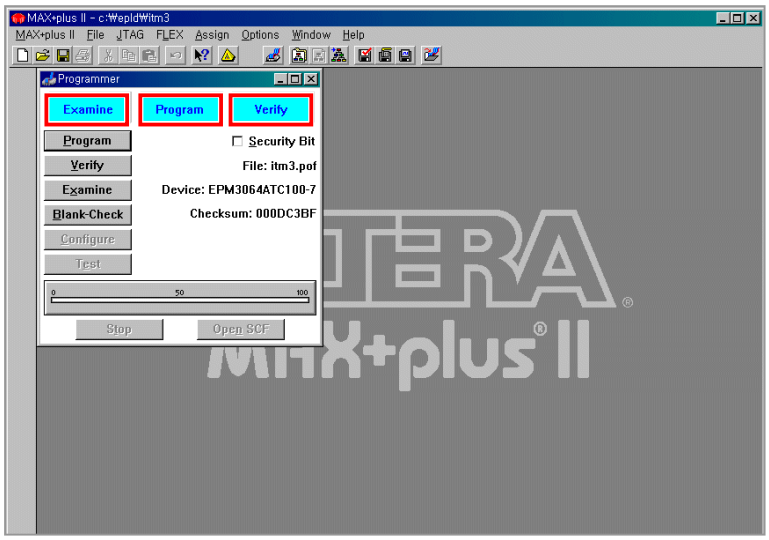


Figure 4.18 Download of Data File

5) Click the **[Examine]** button to store the device information.

6) Click the **[Verify]** button to check the checksum of the device.

4.3 Offline Programming

The Offline program is a program that insects the normal operation of the system.
The Offline program for system inspection is included in the main program within Smart Media. This program is used for the inspection of the system on the spot.

4.3.1 Preparing

For the use of the offline program, prepare the following items:

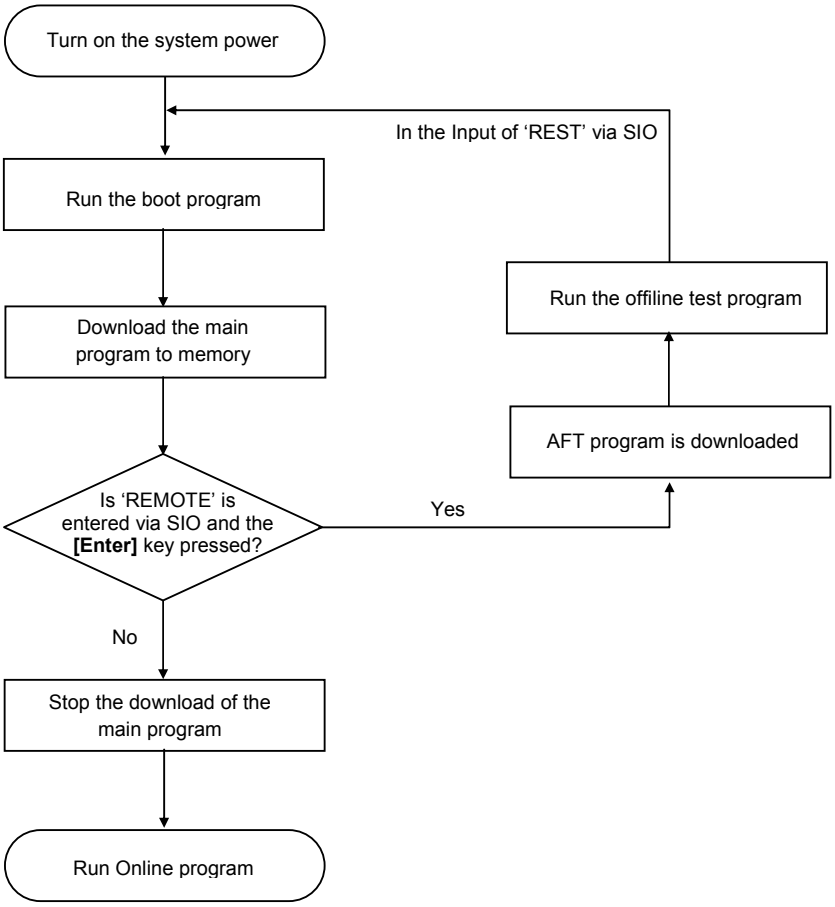
- A PC supporting serial communication
- Communication Program: QMODEM or something
- Smart Media card that the main program is stored(mpexxxxx.pgm)

4.3.2 Environment Configuration

1) Connect a PC and the OfficeServ 7400 system with a communication cable. The cable is connected to the SIO port of a MP 40 board.
2) Run a communication program in the PC.
3) Set the communication speed to 38,400 bps.
4) Insert the SMC storing the main program to the front side of the MP 40 board.

4.3.3 Starting to the Offline Test Mode

After preparing the above items, start the offline test by following the flow chart below:



4.3.3.1 Offline Program Commands

Offline program commands:

VERS

- Test Category: Display the version and the issued date of the offline program.
- Display of the Result
  - V100: 2005921: This result indicates that the version is v100 and the issued date is 09-21-2005.

REST

- Test Category: Test the start function of the system.
- Display of the Result
  - OK: The input command was normally progressed.

INIT

- Test Category: Initialize the command environment of the offline program.

  When the system has no response and the input of new command only creates 'BUSY' message while running a AFT command, this command is used for the initialization of the command environment.
- Display of the Result
  - OK: The input command was normally progressed.

BTSW

- Test Category: Test the time switch channel in a MP40 board.
- Display of the Result
  - PSS: The entire time switch channel of the MP40 board is normal.
  - FAIL: A time switch device of the MP40 board is abnormal.

BMEM

- Test Category: Inspect the basic memory(DRAM 128 Mbytes, SRAM 2 Mbytes) in a MP40 board.
- Display of the Result
  - PASS: The status of the inspected memory is normal.
  - DRAM: The DRAM area of the inspected memory is abnormal.
  - SRAM: The SRAM area of the inspected memory is abnormal.

IMOH

- Test Category: Test the internal sound source of the system.

  The internal sound source is provided in a MP40 board. Test the sound source after installing a MISC board to a LP40 board(cabinet1) and connecting a speaker to the PAGE port of the MISC board.

- Display of the Result
  - OK: If the internal sound source in a MP40 board is normally connected to the PAGE port of a MISC board, the internal sound source comes from the speaker.
  - Internal Sound Source Error: The internal sound source is not heard through the speaker.

MLED

- Test Category: Test the LED operation of a MP40 board.
- Display of the Result
  - OK: 3-LED(RUN, SM and MDM) blinks three time in orange at the interval of 500 ms. The Orange means that Red and Green LED are displayed as On together.
  - LED Blink Error: LED is not blinked.

MIPC

- Test Category: Test the IPC status among cabinet 1, 2 and 3.
- Display of the Result
  - PASS: The IPC status is normal.
  - FAIL/n/../..: The IPC status of cabinet n is abnormal(n = 1 to 3)

BLAN

- Test Category: Test the operation of the Ethernet port in a MP40 board.
- Display of the Result
  - PASS: The Ethernet port of the corresponding MP40 board is normally working.
  - FAIL: The Ethernet port of the corresponding MP40 board is not normally working.

LCPMx

- Test Category: Inspect the memory of a LP40 board. This test is used for the inspection of DRAM and FLASH of a LP40 board.

  1) x: Cabinet number(1~3)

- Display of the Result
  - PASS: The status of the inspected LP40 board memory is normal.
  - DRAM: The DRAM area of the inspected memory is abnormal.
  - FLASH: The FLASH memory area of the inspected memory is abnormal.

BMFRx

- Test Category: Test eight MFR channels basically provided to a LP40 board.
  - x: Cabinet number(1~3)
- Display of the Result
  - PASS: All of Eight DTMF Receivers are normal.
  - FAIL/n/../..: n channel is abnormal(n = 0 to 7)
  - For example, **'FAIL/1/3/'** indicates that the DTMF Receiver of channel 1/3 is abnormal.

BCNFx

- Test Category: Test Conference 5-party 6-group basically provided to a LP40 board.
  - x: Cabinet number(1~3)
- Display of the Result
  - PASS: All six groups of conference 5-party are normal.
  - FAIL/n/../..: n group is abnormal(n = 0 to 5)
  - For example, '**FAIL/1/3/**' indicates that Conference group 1/3 is abnormal.

LSIOx

- Test Category: Test the operation of the SIO port in a LP40 board.

  For the test, this command should be entered after a DB9 connector that Tx(Pin2) and Rx(Pin3) are connected each other is installed to the SIO port of a LP40 board to be tested.
  - x: Cabinet number(1~3)
- Display of the Result
  - PASS: The result of SIO Loop back test for the corresponding LP40 board is normal.
  - FAIL: The result of SIO Loop back test for the corresponding LP40 board is abnormal.

LFANx

- Test Category: Inspect the operations of pan1, 2, 3 and 4. If a problem occurs, the location of the pan with the problem is indicated as FAIL/1.
  - x: Cabinet number(1~3)
- Display of the Result
  - PASS: The status of the inspected pans is normal.
  - FAIL/n/../..: The status of the inspected pan n is abnormal(n = 1~4).

LLEDx

- Test Category: Test the LED operation of a LP40 board.
  - x: Cabinet number(1~3)
- Display of the Result
  - OK: 7-LED(excluding LAN) is blinked three times at the interval of 500 ms. Among them, RUN, FAN, POE1 and POE2 are blinked in orange color and Rx, Tx and DBD are blinked in green color, respectively. The Orange means that both red and green are displayed as On.
  - LED Blink Error: Any LED is not blinked.

LLANx

- Test Category: Test the operation of the Ethernet port in a LP40 board.
  - 1) x: Cabinet number(1~3)
- Display of the Result
  - PASS: The Ethernet port of the corresponding LP40 board is normally working.
  - FAIL: The Ethernet port of the corresponding LP40 board does not abnormally work.

LMISx

- Test Category: Test external sound source channels.
  - The test is performed by connecting a speaker to the PAGE port of a MISC board after installing a MISC board whose EMOH port connects an external sound source to the LP40 board of a cabinet that appoints the MISC board as x via the command.
  - x: Cabinet number(1~3)
- Display of the Result
  - OK: If an external sound source is normally connected to the PAGE port of the MISC board, the external sound source is heard through the speaker.
  - External Sound Source Error: The external sound source is not heard through the speaker.

DMFRxy

- Test Category: Inspect the status of DTMF Receivers in SCM board, MFM board and CRM board. SCM and MFM boards support 12 DTMF receiver channels per board and a CRM board supports 16 DTMF receiver channels per board.
  '**xy**' indicates the locations where the SCM, the MFM and the CRM boards are mounted.
  - x: Cabinet number(1~3)
  - y: LOC number(1~2)
- Display of the Result
  - PASS: All of 12 DTMF receivers in the MFM board are normal.
  - FAIL/n/../..: nn channel of the MFM board is abnormal(nn = 00~11),
  - and nn channel of the CRM board is abnormal(nn = 00~15).
  - For example, **'FAIL/01/03/10/'** indicates that the DTMF Receiver of channel 01/03/10 in the MFM board is abnormal.

SCNFxy

- Test Category: Test the status of conference group in SCM board, MFM board and CRM board. SCM and MFM board support 5-party 12-group per board and CRM boards support 5-party 6-group per board.
  'xy' indicates the locations where the SCM, the MFM and the CRM boards are mounted.
  - x: Cabinet number(1~3)
  - y: LOC number(1~2)
- Display of the Result
  - PASS: All conference groups are normal.
  - FAIL/n/../..: nn group of the MFM board is abnormal(nn = 00~11),
  - and nn group of the CRM board is abnormal(nn = 00~05).
  - For example, **'FAIL/01/03/10/'** indicates that conference group 01/03/10 of the MFM board is abnormal.

CCIDxy

- Test Category: Test the CID function of a CRM board.
  'xy' indicates the location that the CRM board is mounted.
  - x: Cabinet number(1~3)
  - y: LOC number(1~2)
- Display of the Result
  - PASS: The CID function of the CRM board is normal.
  - FAIL: The CID function of the CRM board is abnormal.

CCPLxy

- Test Category: Display the CPLD version of a CRM board.
  'xy' indicates the location that the CRM board is mounted.
  - x: Cabinet number(1~3)
  - y: LOC number(1~2)
- Display of the Result
  - Vnn: The CPLD version of the CRM board(nn = 01~) is displayed.
  - FAIL: The CPLD version of the CRM board is not displayed.

R2RVxy

- Test Category: Test the operation of R2 receiver in RCM boards and CRM boards. RCM boards and CRM boards support 8 R2 receiver channels per board and 16 R2 receiver channels per board, separately.
  '**xy**' indicates the location that RCM and CRM boards are mounted.
  - x: Cabinet number(1~3)
  - y: LOC number(1~2)
- Display of the Result
  - PASS: All of eight R2 receives in the RCM board are normal.
  - FAIL/n/../..: nn channel of the RCM board in abnormal(nn = 00 to 07), and nn channel of the CRM board is abnormal(nn = 00 to 15).
  - For example, **'FAIL/01/03/'** indicates that the R2 Receiver in channel 01/03 of the RCM board is abnormal.

BCPLx

- Test Category: Display the CPLD version of the system mother board.
  - x: Cabinet number(1~3)
- Display of the Result
  - Vnn: The CPLD version of the system mother board(nn = 01~) is displayed.
  - FAIL: The CPLD version of the system mother board is not displayed

PRIMxy

- Test Category: Test the memory of TEPRI/TEPRI2 board. This test is used for the test of DRAM and FLASH of a TEPRI board. This test should be progressed after checking the normal operation of the TEPRI CARD.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The status of the TEPRI board memory is normal.
  - DRAM: The DRAM area of the inspected memory is abnormal.
  - DPRAM: The DPRAM area of the inspected memory is abnormal.
  - FLASH: The FLASH area of the inspected memory is abnormal.

FALCxy

- Test Category: Test the operation of Framing and Line Interface Component for E1 or T1 element(FALC element) in TEPRI/TEPRI2 board.

  If this memory is entered, the MCP memory reports the result of the board test to the TEPRI board of the corresponding board. The corresponding board tests FALC element in the TEPRI board by it self and reports the test result to the MCP board. The MCP board displays the result.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The FALC in the corresponding TEPRI board is normally working.
  - Fail: The FALC in the corresponding TEPRI board is not normally working.
- Display of the Result
  - PASS: The FALC in the corresponding TEPRI board is normally working.
  - FAIL/n/../..: The n^{th} FALC element in the corresponding TEPRI board is abnormal(n = 1 and 2).

TSIOxy

- Test Category: Test the operation of the SIO port in a TEPRI2 board.

  For the test, this command should be entered after a DB9 connector that Tx(Pin2) and Rx(Pin3) are connected each other is installed to the SIO port of a TEPRI board to be tested.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - The result of SIO Loop back test for the corresponding TEPRI board is normal.
  - The result of SIO Loop back test for the corresponding TEPRI board is abnormal.

TLANxy

- Test Category: Test the operation of the Ethernet port in a TEPRI2 board.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The Ethernet port of the corresponding TEPRI board is normally working.
  - Fail: The Ethernet port of the corresponding TEPRI board does not is normally working.

TLEDxy

- Test Category: Test the operation of LED in a TEPRI2 board.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - OK: 12-LED blinks three times at the interval of 500 ms. RUN LED blinks in orange, and the remained 11-LED blinks in green. The Orange means that both red and green are displayed as On.
  - LED Blink Error: Any LED does not blink.

TEPDxy

- Test Category: Test if the ID of a TEPRI2 board is correctly read.
  That is, check if the type of the MGI board in the specified slot is equal to the ID actually read.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The ID for the corresponding TEPRI board is equal to the type of the specified board.
  - Fail: The ID for the corresponding TEPRI board is not equal to the type of the specified board.

TCPLxy

- Test Category: Display the CPLD version of a TEPRI2 board.

  'xy' indicates the location that the TEPRI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - Vnn: The CPLD version of a TEPRI board(nn = 01~) is displayed.
  - FAIL: The CPLD version of a TEPRI board is not displayed

MMEMxy

- Test Category: Inspect the memory of MGI/MGI64 board. This command is used for the test of DRAM and FLASH of a MGI board. This test should be progressed after checking the normal operation of the MGI CARD.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The status of the MGI board memory is normal.
  - DRAM: The DRAM area of the inspected memory is abnormal.
  - SRAM: The SRAM area of the inspected memories is abnormal.
  - FLASH: The FLASH area of the inspected memory is abnormal.

MDSPxy

- Test Category: Test the operation of DSP in MGI/MGI64 board.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The DSPs in the corresponding MGI board work normally.
  - PASS: The DSPs in the corresponding MGI board do not work normally.

MSIOxy

- Test Category: Test the operation of the SIO port in MGI/MGI64 board.
  For the test, this command should be entered after a DB9 connector that Tx(Pin2) and Rx(Pin3) are connected each other is installed to the SIO port of a MGI board to be tested.
  'xy' indicates the location that the MGI board is mounted.
- Display of the Result
  - PASS: The result of the SIO Loop back test for the corresponding MGI board is normal.
  - FAIL: The result of the SIO Loop back test for the corresponding MGI board is abnormal.

MLANxy

- Test Category: Test the operation of the Ethernet port in MGI/MGI64 board.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The Ethernet port of the corresponding MGI board is normally working.
  - Fail: The Ethernet port of the corresponding MGI board is not normally working.

GLEDxy

- Test Category: Test the operation of LED in a MGI64 board.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - OK: All 5-LED(RUN, SVC, DSP, RTPT and RTPR) blinks three time in green at the interval of 500 ms.
  - LED Blink Error: LED does not blink.

GCPLxy

- Test Category: Display the CPLD version of a MGI64 board.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - Vnn: The CPLD version of a MGI board(nn = 01~) is displayed.
  - FAIL: The CPLD version of a MGI board is not displayed

MGIDxy

- Test Category: Test if the ID of MGI/MGI64 board is correctly read.

  That is, check if the type of the MGI board in the specified slot is equal to the ID actually read.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The ID for the corresponding MGI board is equal to the type of the specified board.
  - Fail: The ID for the corresponding MGI board is not equal to the type of the specified board.

MPTOxy

- Test Category: Test the conversion function for Codec in MGI/MGI64 board is normally operated.

  'xy' indicates the location that the MGI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The Codec of the specified board is normally working.
  - FAIL: The Codec of the specified board is not normally working.

WTSTxyz

- Test Category: A command to enter/release the test mode for the test of 4WLI boards. For the execution of 4WLI related commands, WMEMx, WDMCx, WTCMx and WRSWxy, this command(WTSTxyz) is used for the start/release the test mode.
  'xyz' indicates the position where the 4WLI board is mounted and the information on test mode start control.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
  - z: Information on the start and the release of the test mode
    - For the start of the test mode: 1
    - For the release of the test mode: 0
- Display of the Result
  - PASS: With the command, the test for the corresponding 4WLI board is normally performed.
  - FAIL: The execution of the command is not normally performed.

WMEMxy

- Test Category: Inspect the memories(DPRAM, SRAM, Flash Memory) of the 4WLI board.

  'xy' indicates the location that the 4WLI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The status of the memories in the corresponding 4WLI is normal.
  - DRAM: The status of DRAM in the corresponding 4WLI is abnormal.
  - SRAM: The status of SRAM in the corresponding 4WLI is abnormal.
  - FLASH: The status of Flash memory in the corresponding 4WLI is abnormal.

WDMCxy

- Test Category: Test 2-DMC(STL 7052 ASIC) in a 4WLI board.

  'xy' indicates the location that the 4WLI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: DMC in the corresponding 4WLI board is normally working.
  - FAIL: DMC in the corresponding 4WLI board is not normally working.

WTCMx

- Test Category: Test 16-DASL built-in the specified 4WLI board.
  'xy' indicates the location that the 4WLI board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: DASL in the corresponding 4WLI board is normally working.
  - FAIL: DASL in the corresponding 4WLI board is not normally working.

WRSWxyz

- Test Category: Inspect the operation of the relay in a 4WLI board.

  '**xyz**' indicates the position where the 4WLI board is mounted and the information on Relay On/Off.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
  - z: Relay On/Off information
    - Cut-off of the Relay: 0
    - Connection of the Relay: 1
- Display of the Result
  - PASS: The connection/cut-off of the relay in the corresponding 4WLI board is normally performed.
  - FAIL: The connection/cut-off of the relay in the corresponding 4WLI board is abnormally performed.

MACRxy

- Test Category: Read and Display the MAC address of a board supporting LAN.
  'xy' indicates the positions where the boards that need the MAC address information are mounted.
- Target Boards: MP40, LP40, TEPRI2, MGI, MGI64, GWIM, GSIM, GPLIM
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - x…x: 12-digit MAC address for the specified board is displayed.
  - FAIL: LAN support port does not exist or is not normally working in the corresponding port.

WIMMxy

- Test Category: Inspect the memory in a GWIM board. This command is used for the test of DRAM and FLASH in a GWIM board. This test should be progressed after checking the normal operation of the GWIM CARD.

  'xy' indicates the location that the GWIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The status of the GWIM board memory is normal.
  - DPRAM: The DPRAM area of the inspected memory is abnormal.
  - FLASH: The FLASH area of the inspected memory is abnormal.

WIMOxy

- Test Category: Test the operation of the SIO port in a GWIM board.

  For the test, this command should be entered after a DB9 connector that Tx(Pin2) and Rx(Pin3) are connected each other is installed to the SIO port of a GWIM board to be tested.

  'xy' indicates the location that the GWIM board is mounted.
- Display of the Result
  - PASS: The result of the SIO Loop back test for the corresponding GWIM board is normal.
  - FAIL: The result of the SIO Loop back test for the corresponding GWIM is abnormal.

WIMIxy

- Test Category: Test if the ID of a GWIM board is correctly read.

  That is, check if the type of the GWIM board in the specified slot is equal to the ID actually read.

  'xy' indicates the location that the GWIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The ID for the corresponding GWIM board is equal to the type of the specified board.
  - FAIL: The ID for the corresponding GWIM board is not equal to the type of the specified board.

WIMPxy

- Test Category: Test the operation of Ethernet, V.35 and HSSI ports in a GWIM board. For the test, this command should be entered after a loopback connector is connected to each port of a GWIM board to be tested.
  - Ethernet port loopback connector: Connect an optical cable, which is cut in half.
  - V.35 port loopback connector:
    Install the connector after connecting pins of DB26 1 connector each other, referring to the table below:

DTE SIDE(GWIM 26POS MALE)		DTE SIDE(GWIM 26POS MALE)	
Pin Description	**Pin No**	**Pin No**	**Pin Description**
TXD_A TXD_B	2 14	3 16	RXD_A RXD_B
RXD_A RXD_B	3 16	2 14	TXD_A TXD_B
RTS_A	4	5	CTS_A
CTS_A	5	4	RTS_A
DSR_A	6	8 + 20	DCD_A + DTR_A
DCD_A + DTR_A	8 + 20	6	DSR_A
SGND	7	7	SGND
RXC_B + TXCO_B	9 + 11	12	TXC_B
RXC_A + TXCO_A	17 + 24	15	TXC_A
TXC_B	12	9 + 11	RXC_B +TXCO_B
TXC_A	15	17 + 24	RXC_A +TXCO_A
LL	18	-	-
TM	25	-	-

– HSSI port loopback connector :
Install the connector after connecting pins of 50P-CHAMP 1 connector each other, referring to the table below:

DTE SIDE(GWIM)		DTE SIDE(GWIM)	
Pin Description	**Pin No**	**Pin No**	**Pin Description**
Signal Ground(SG)	1	1	Signal Ground(SG)
Don't Care	26	26	
Receive Timing(RT)	2	9	Terminal Timing(TT)
	27	34	
DCE Available(CA)	3	8	DTE Available(TA)
	28	33	
Receive Data(RD)	4	11	Send Data(SD)
	29	36	
Send Timing(ST)	6	6	Send Timing(ST)
Don't Care	31	31	
Signal Ground(SG)	7	7	Signal Ground(SG)
Don't Care	32	32	
DTE Available(TA)	8	3	DCE Available(CA)
	33	28	
Terminal Timing(TT)	9	2	Receive Timing(RT)
	34	27	
Send Data(SD)	11	4	Receive Data(RD)
	36	29	
Signal Ground(SG)	13	13	Signal Ground(SG)
Don't Care	38	38	
Signal Ground(SG)	19	19	Signal Ground(SG)
Don't Care	44	44	
Signal Ground(SG)	25	25	Signal Ground(SG)
Don't Care	50	50	

'xy' indicates the location that the GWIM board is mounted.
– x: Cabinet number(1~3)
– y: Slot number(0~B)

- Display of the Result
  – PASS: Ethernet, V.35 and HSSI ports in the corresponding TEPRI board are normally working.
  – FAIL/n/../..: The Ethernet port, Pn(n = 1~3), in the corresponding GWIM port is not normally working.
  – FAIL/V.35: V.35 port in the corresponding GWIM board is not normally working.
  – FAIL/HSSI: HSSI port in the corresponding GWIM board is not normally working.

WIMExy

- Test Category: Test the operation of the VPN accelerator port in a GWIM board.
  For the test, this command should be entered after a VPN board(WIMS board) is mounted on the GWIM board.
  'xy' indicates the location that the GWIM board is mounted.
- Display of the Result
  - PASS: The result of the VPN accelerator test for the corresponding GWIM board is normal.
  - FAIL: The result of the VPN accelerator test for the corresponding GWIM board is abnormal.

LIMMxy

- Test Category: Inspect the memory in a GPLIM board. This command is used for the test of DRAM and FLASH in a GPLIM board. This test should be progressed after checking the normal operation of the GPLIM CARD.

  'xy' indicates the location that the GPLIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The status of the GPLIM board memory is normal.
  - DPRAM: The DPRAM area of the inspected memory is abnormal.
  - FLASH: The FLASH area of the inspected memory is abnormal.

LIMOxy

- Test Category: Test the operation of the SIO port in a GPLIM board.
  For the test, this command should be entered after a DB9 connector that Pin5 and Pin6 are connected each other is installed to the P14 port of a GPLIM board to be tested.
  '**xy**' indicates the location that the GPLIM board is mounted.
- Display of the Result
  - PASS: The result of the SIO Loop back test for the corresponding GPLIM board is normal.
  - FAIL: The result of the SIO Loop back test for the corresponding GPLIM board is abnormal.

LIMIxy

- Test Category: Test if the ID of a GPLIM board is correctly read.
  That is, check if the type of the GPLIM board in a specified slot is equal to the ID actually read.

  'xy' indicates the location that the GPLIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The ID for the corresponding GPLIM board is equal to the type of a specified board.
  - Fail: The ID for the corresponding GPLIM board is not equal to the type of the specified board.

LIMLxy

- Test Category: Test the operation of register in the L2 Switching chip of a GPLIM board.

  'xy' indicates the location that the GPLIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The register in the L2 Switching chip of the corresponding GPLIM board is normally working.
  - FAIL: The register in the L2 Switching chip of the corresponding GPLIM board is not normally working.

LIMXxyz

- Test Category: Test if the Auto MDI/MDIX function of Viatech VT6108 chipset, which is used as 10/100 Mbps Octal PHY of a GPLIM board, is normally operated.

  '**xyz**' indicates the location that the GPLIM board is mounted and the information to enable/disable the Auto MDI/MDIX function.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
  - z: Information to enable/disable the Auto MDI/MDIX function
    - Disable: 0
    - Enable: 1
- Display of the Result
  - PASS: The Auto MDI/MDIX function of the Viatech VT6108 chipset in the corresponding GPLIM board is normally working.
  - FAIL: The Auto MDI/MDIX function of the Viatech VT6108 chipset in the corresponding GPLIM board is normally working.

SIMMxy

- Test Category: Inspect the memory in a GSIM board. This command is used for the test of DRAM and FLASH in a GSIM board. This test should be progressed after checking the normal operation of the GSIM CARD.

  'xy' indicates the location that the GSIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  - PASS: The status of the GSIM board memory is normal.
    DPRAM: The DPRAM area of the inspected memory is abnormal.
    FLASH: The FLASH area of the inspected memory is abnormal.

SIMOxy

- Test Category: Test the operation of the SIO port in a GSIM board.
  For the test, this command should be entered after a DB9 connector that Tx(Pin2) and Rx(Pin3) are connected each other is installed to the SIO port of a GSIM board to be tested.
  'xy' indicates the location that the GSIM board is mounted.
- Display of the Result
  PASS: The result of the SIO Loop back test for the corresponding GSIM board is normal.
  FAIL: The result of the SIO Loop back test for the corresponding GSIM board is abnormal.

SIMIxy

- Test Category: Test if the ID of a GSIM board is correctly read.
  That is, check if the type of the GSIM board in a specified slot is equal to the ID actually read.

  'xy' indicates the location that the GSIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result
  PASS: The ID for the corresponding GSIM board is equal to the type of a specified board.
  FAIL: The ID for the corresponding GPLIM board is not equal to the type of the specified board.

SIMLxy

- Test Category: Test the operation of register in the L3 Switching chip of a GSIM board.

  'xy' indicates the location that the GSIM board is mounted.
  - x: Cabinet number(1~3)
  - y: Slot number(0~B)
- Display of the Result

  PASS: The register in the L3 Switching chip of the corresponding GSIM board is normally working.

  FAIL: The register in the L3 Switching chip of the corresponding GSIM board is not normally working.

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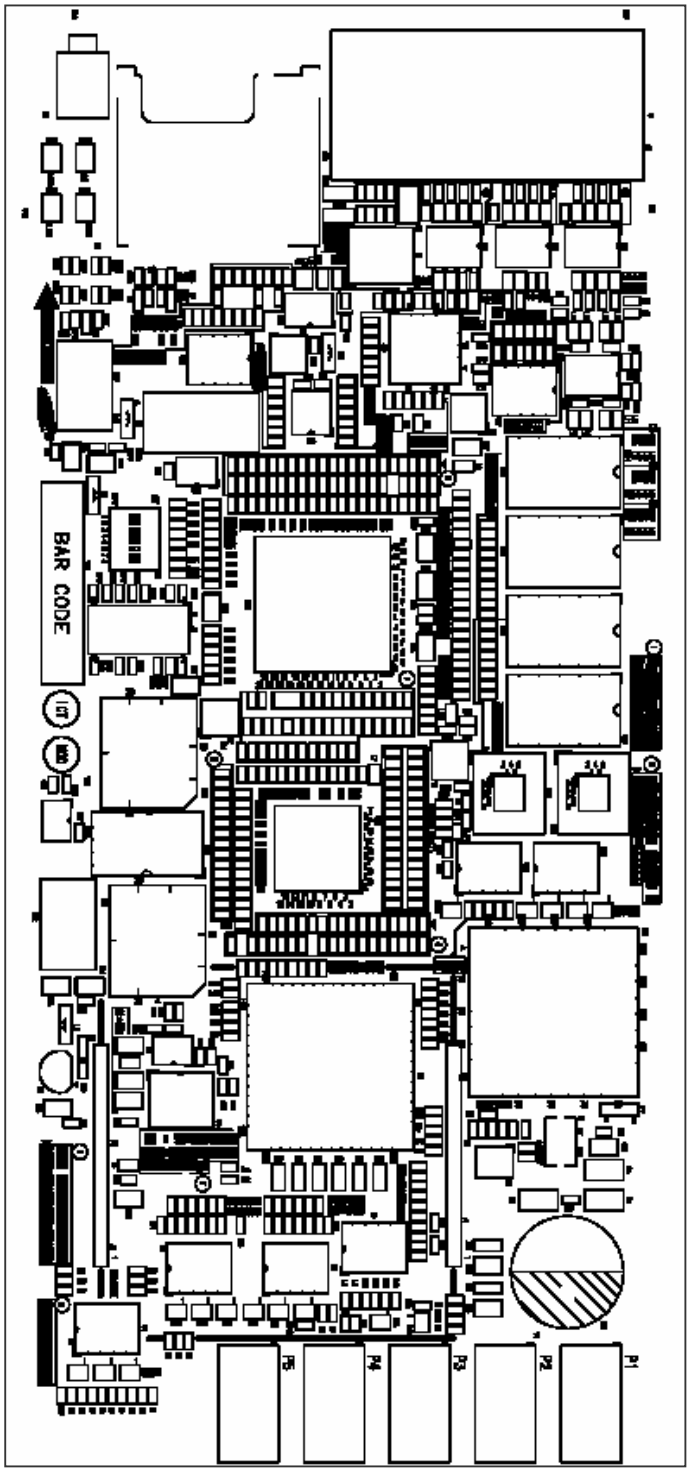
CHAPTER 5. Parts Layout

This chapter provides part layouts for each board in the OfficeServ 7400 system.

5.1 MP40 Board

Parts Side



Soldering Side

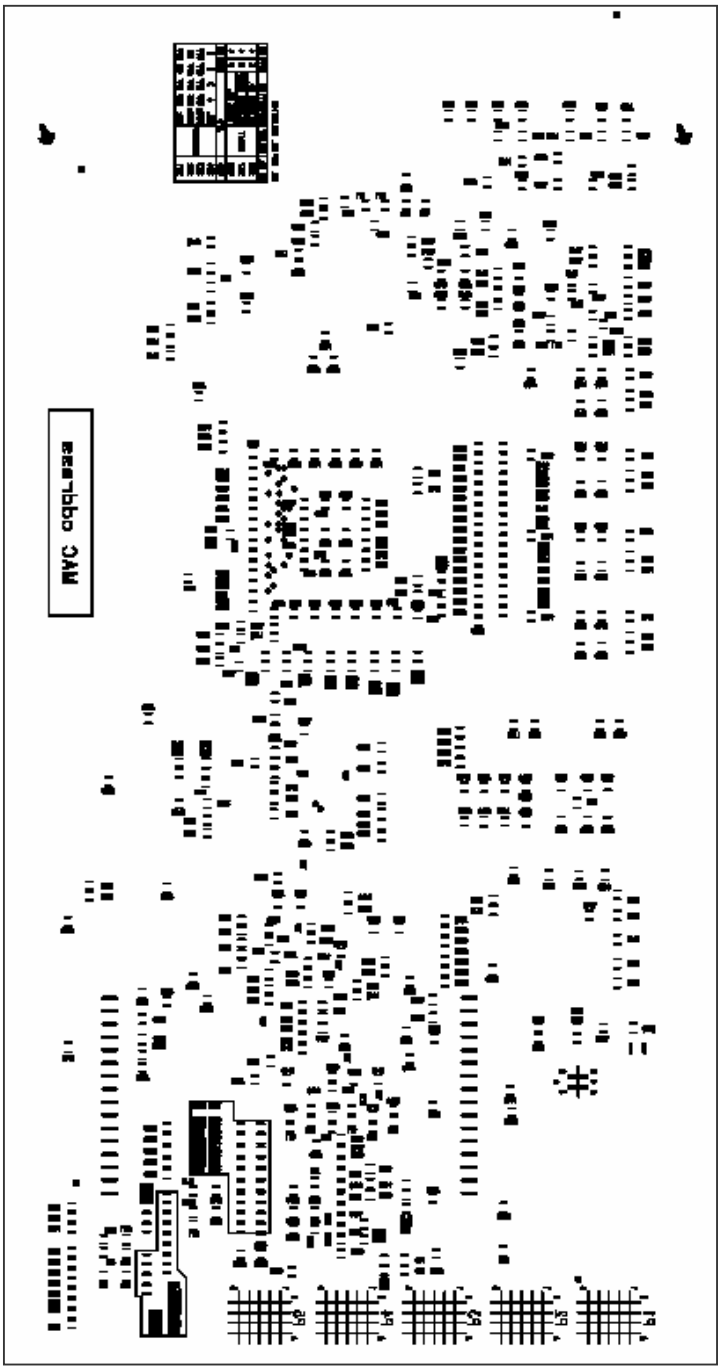


Figure 5.1 MP40 Board Layout

5.2 LP40 Board

Parts Side

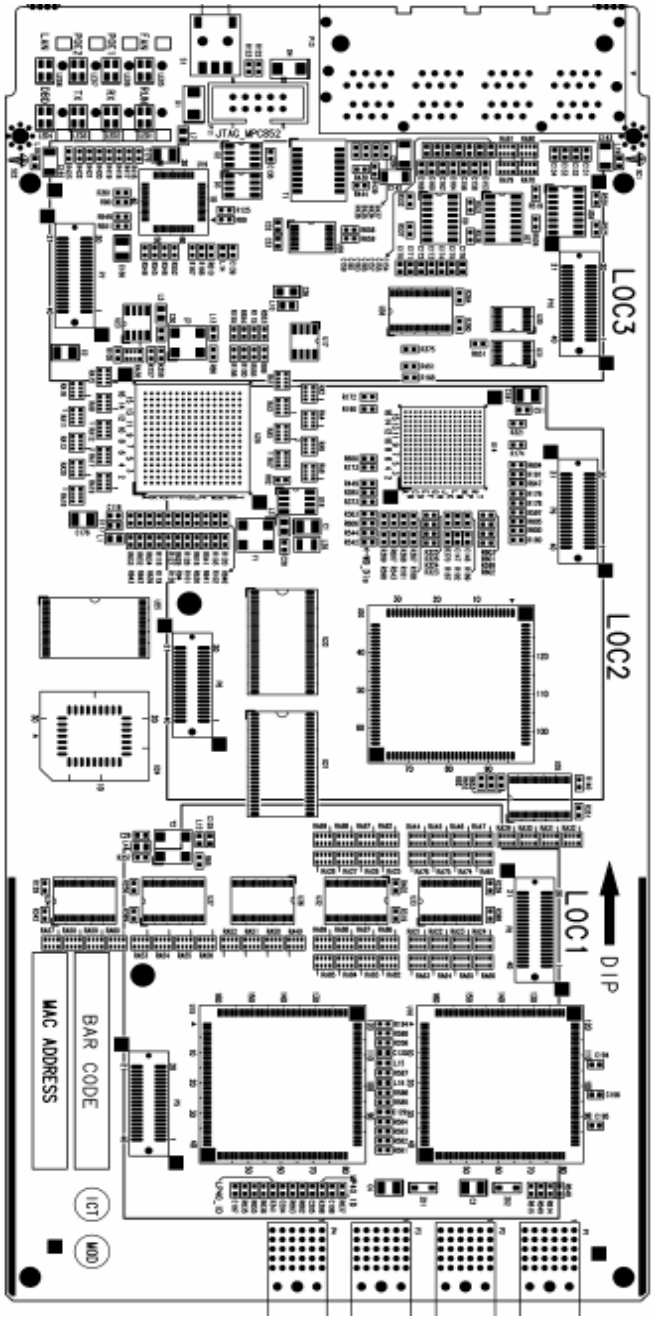
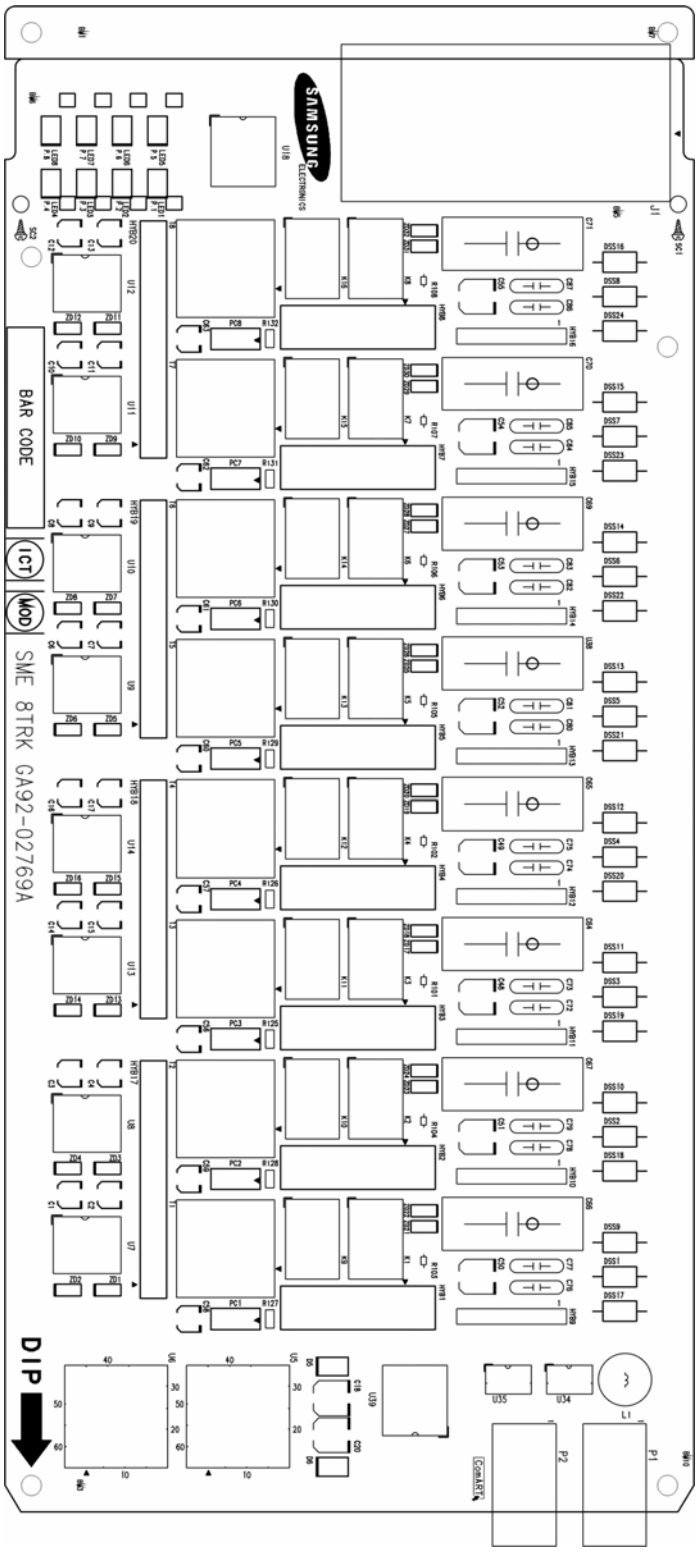


Figure 5.2 LP40 Board Layout

5.3 8TRK Board

Parts Side



Soldering Side

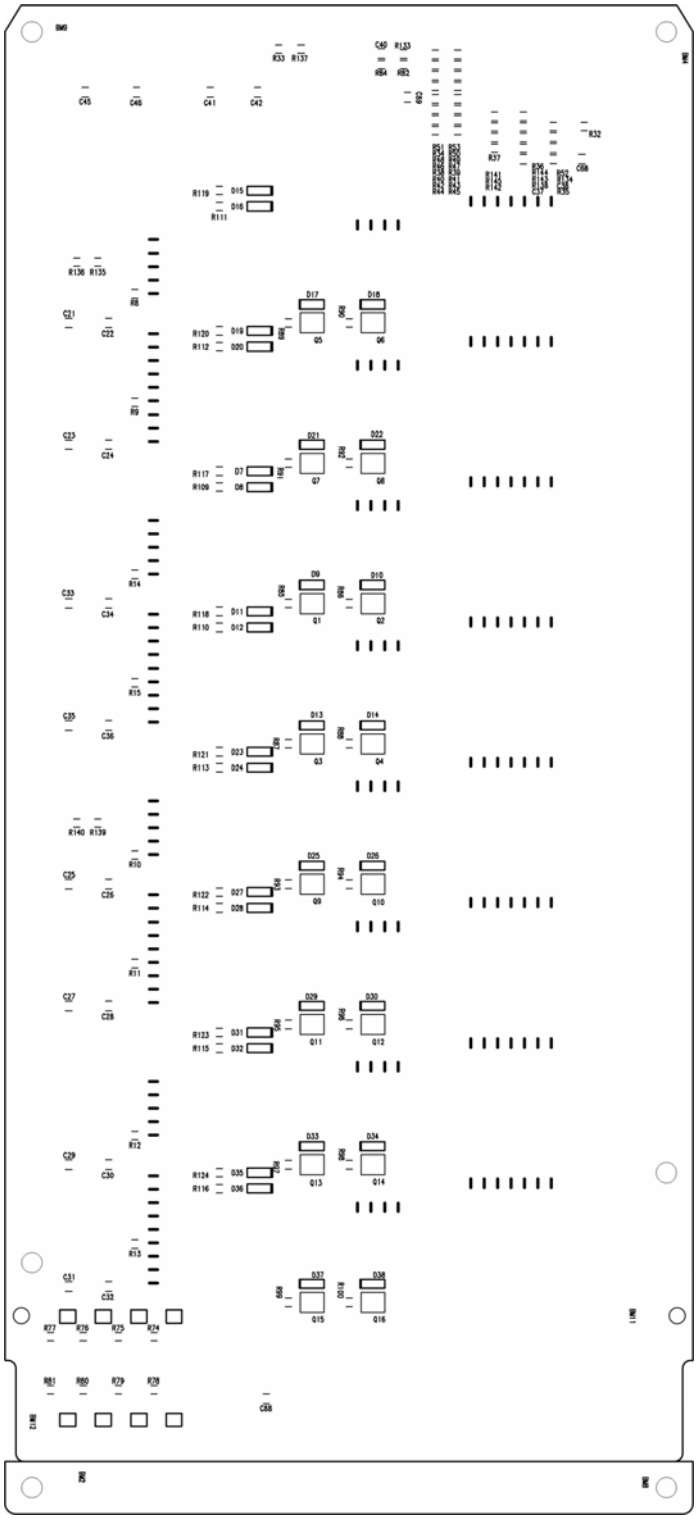
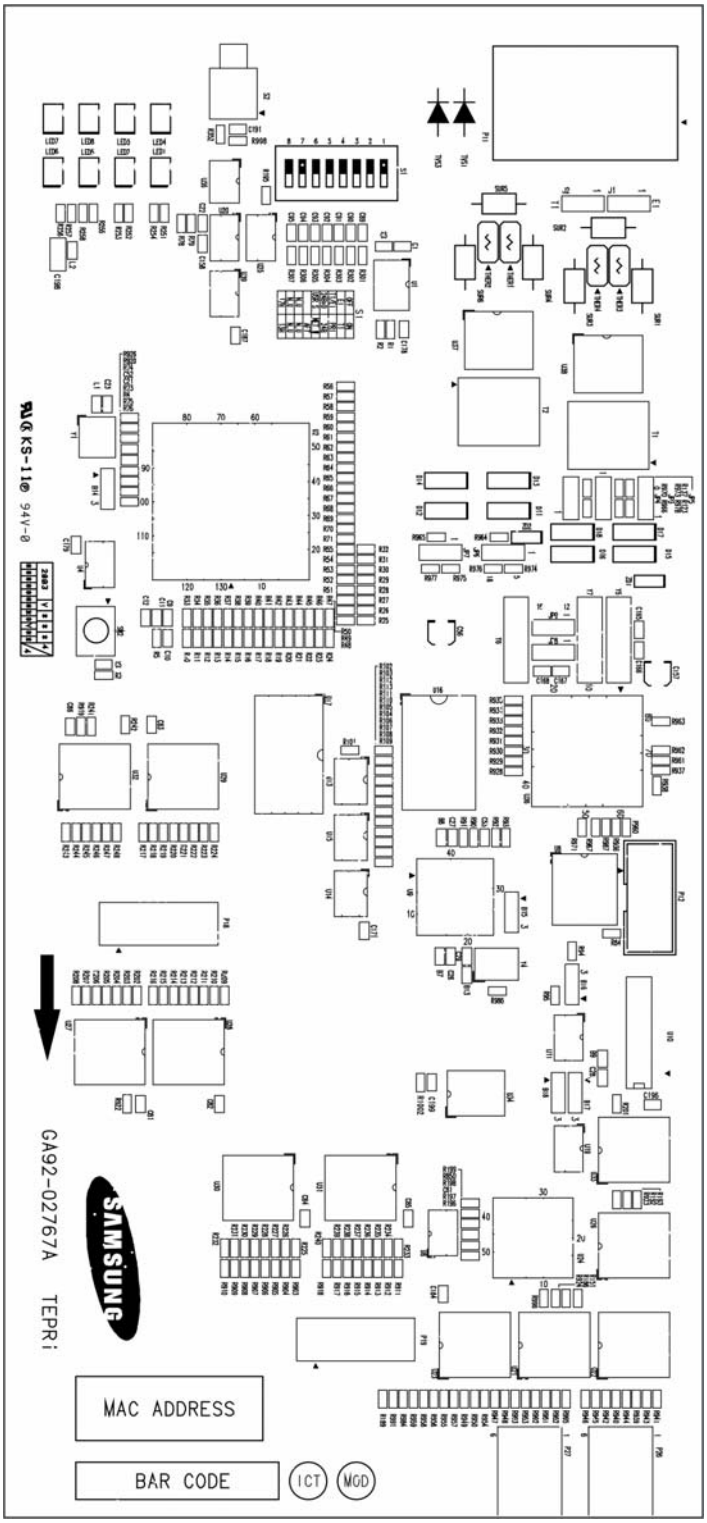


Figure 5.3 8TRK Board Layout

5.4 TEPRI Board

Parts Side



Soldering Side

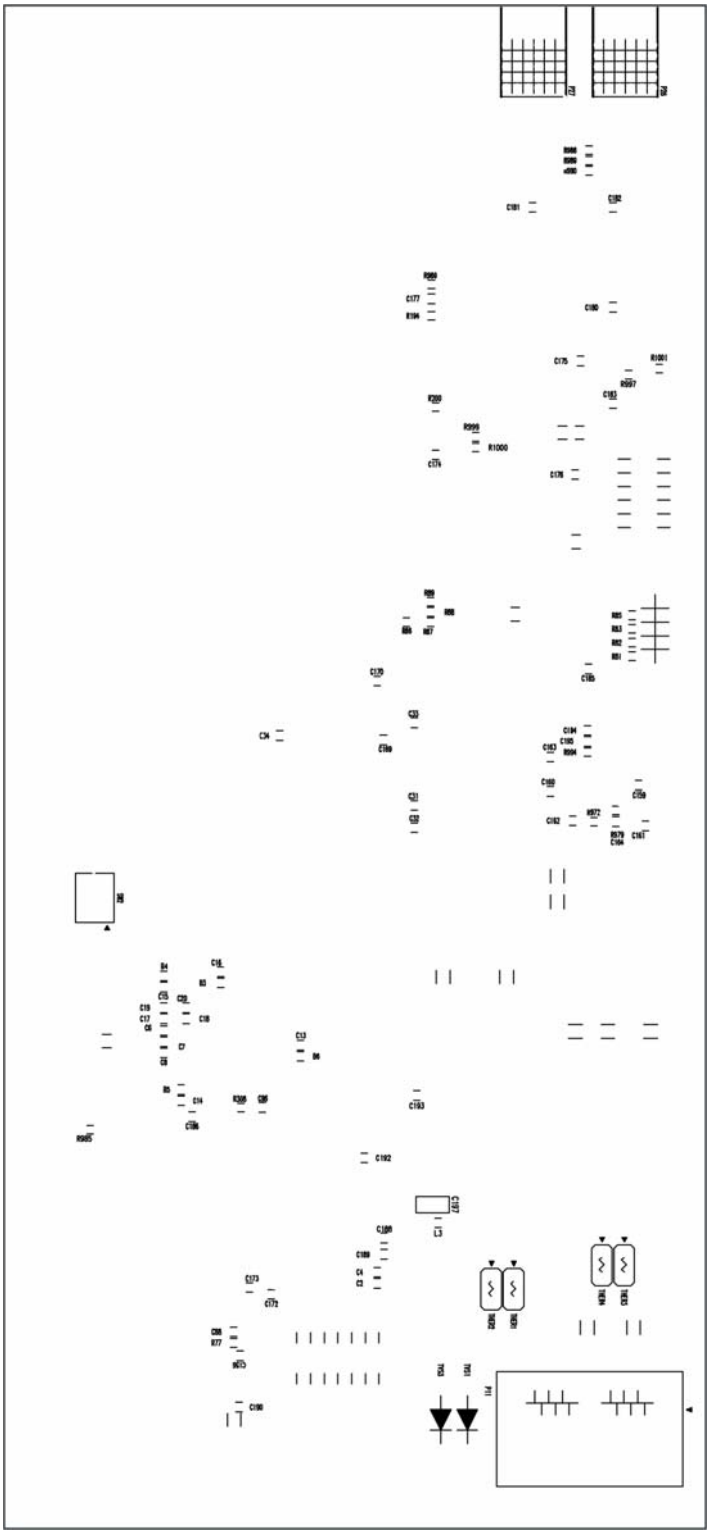
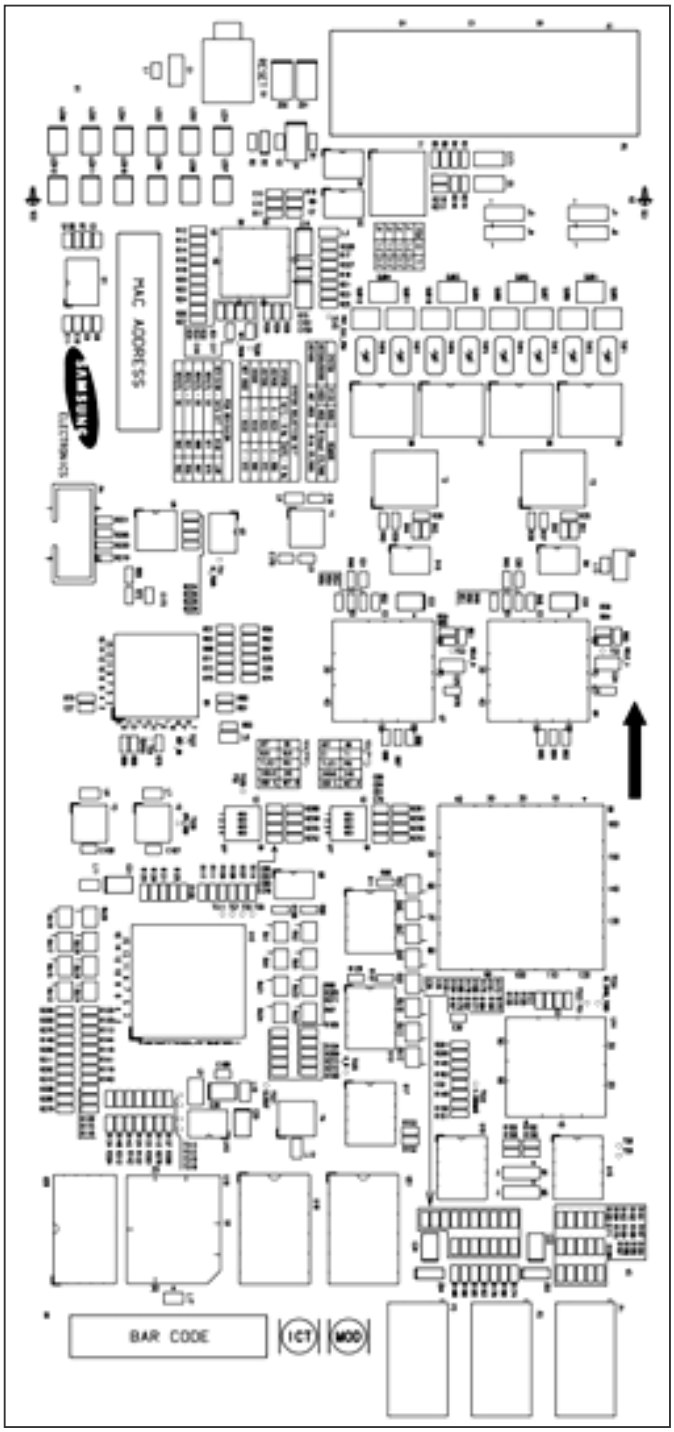


Figure 5.4 TEPRI Board Layout

5.5 TEPRI2 Board

Parts Side

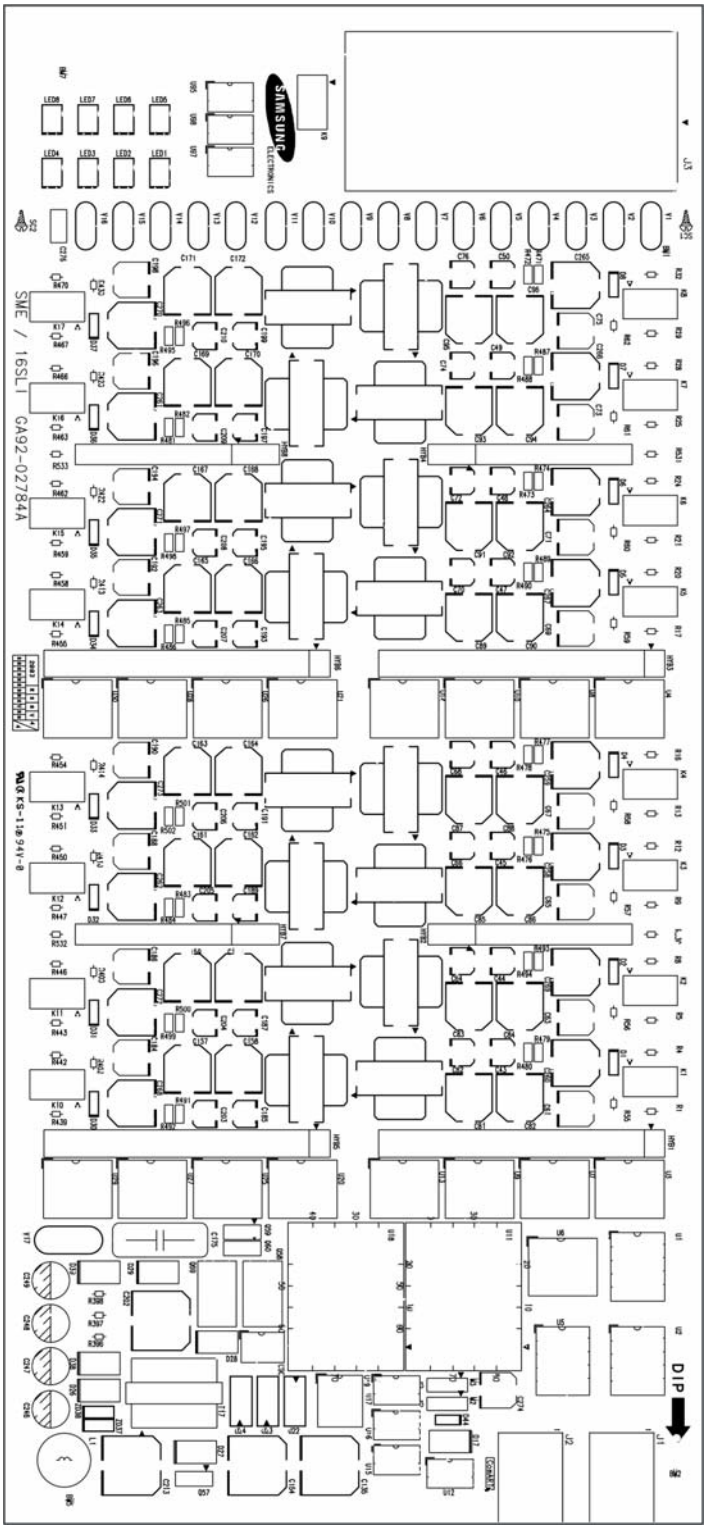


Soldering Side

Figure 5.5 TEPRI2 Board Layout

5.6 16SLI Board

Parts Side



Soldering Side

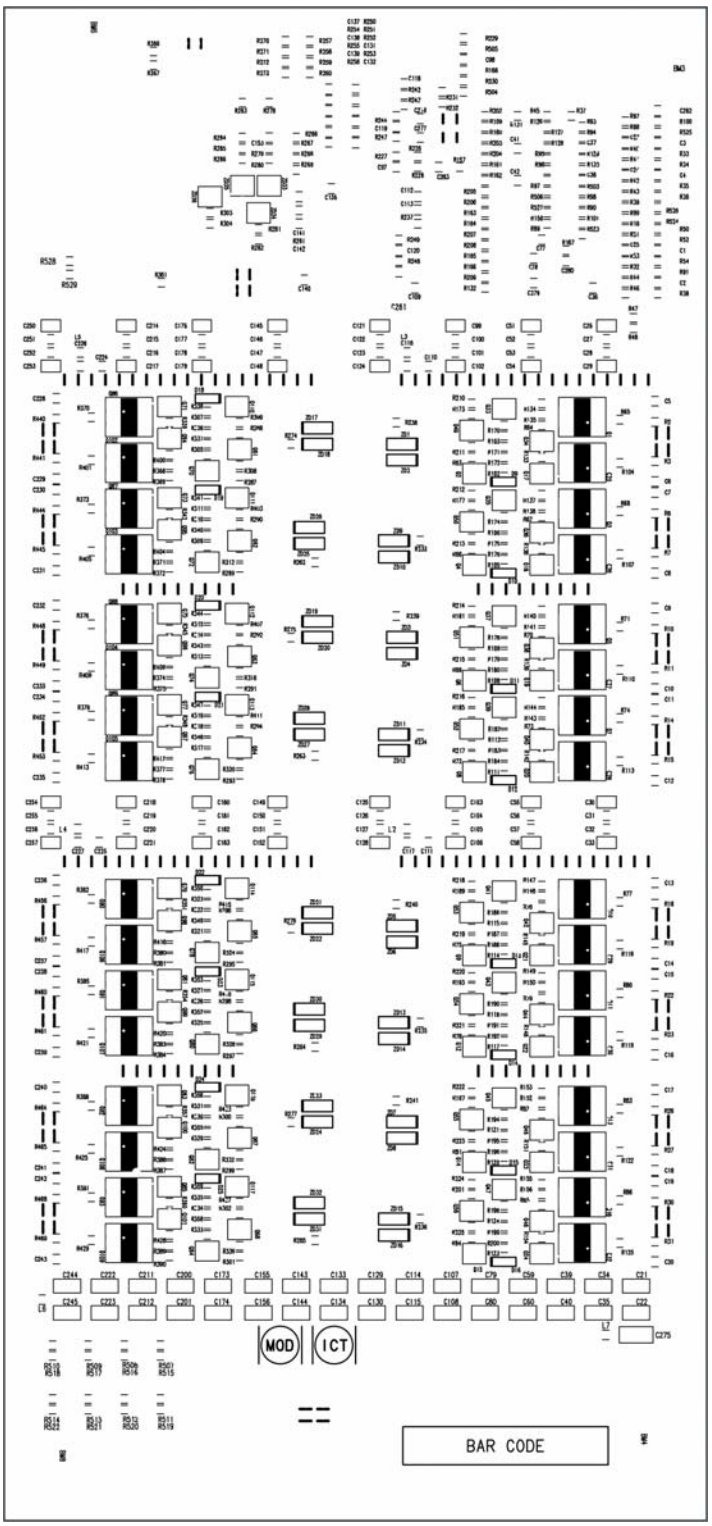
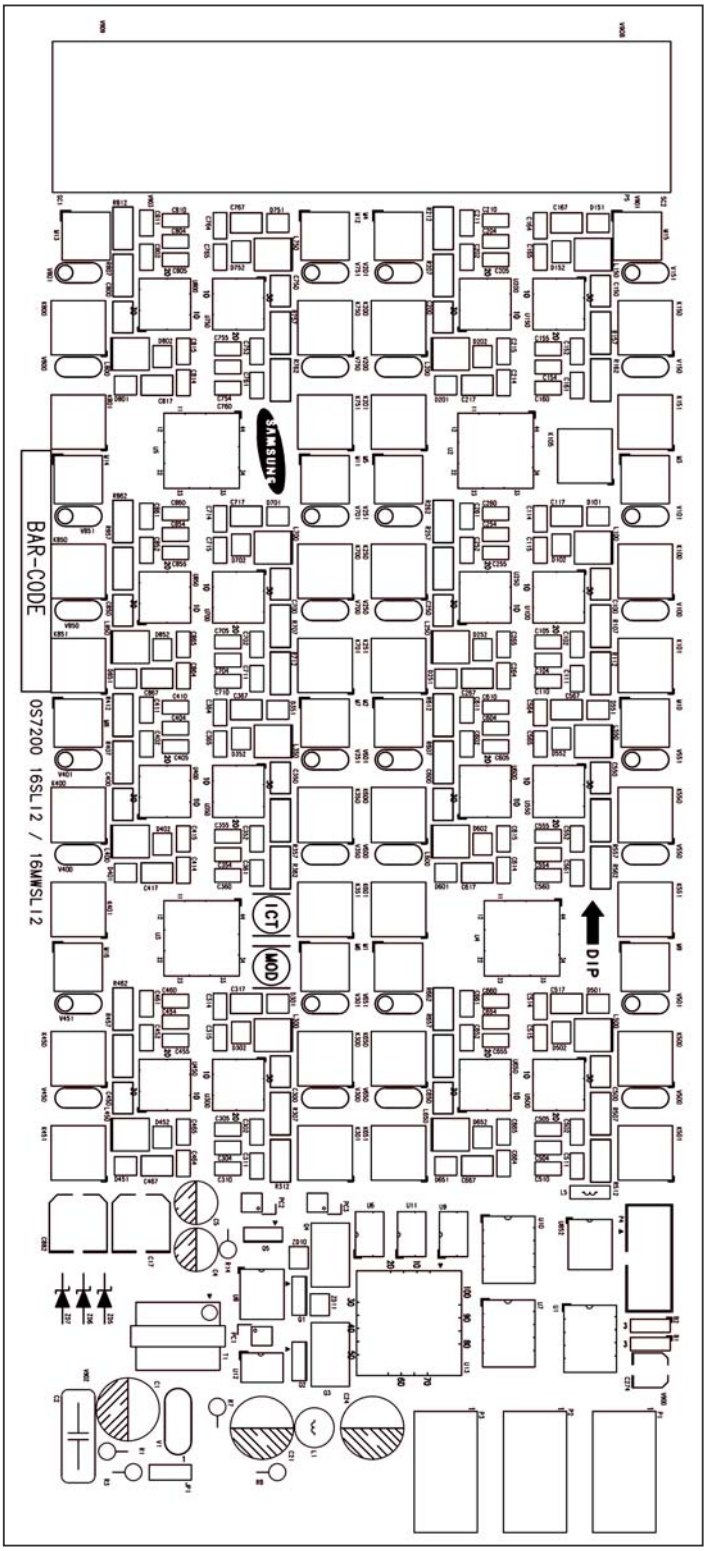


Figure 5.6 16SLI Board Layout

5.7 16SLI2/16MWSLI Board

Parts Side



Soldering Side

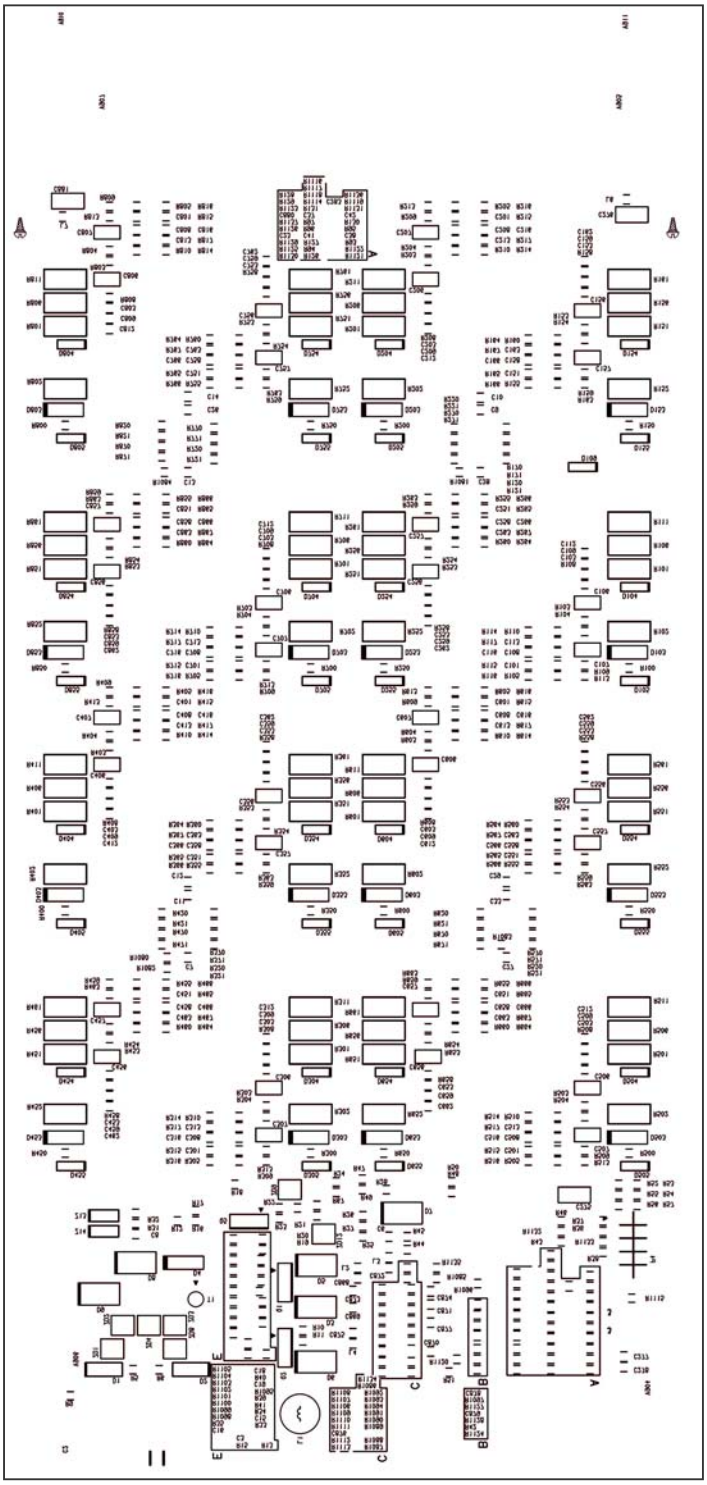
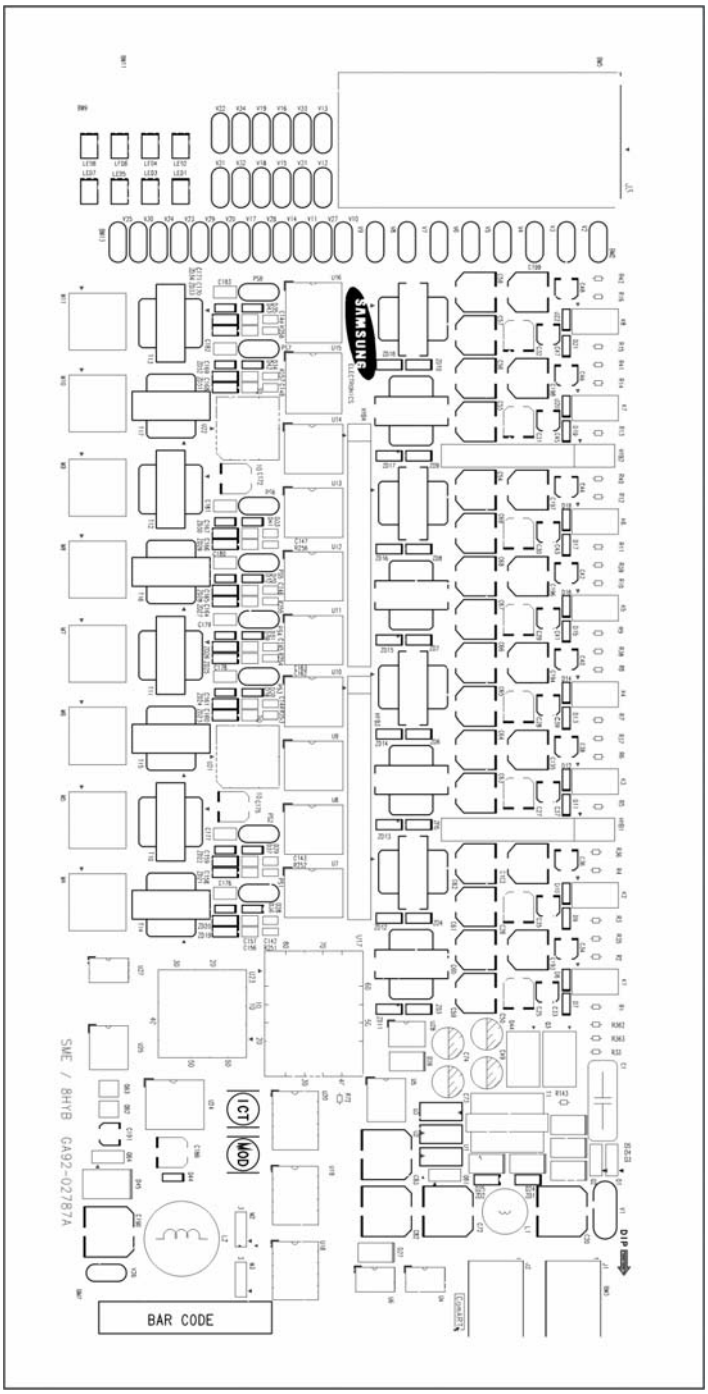


Figure 5.7 16SLI2/16MWSLI Board Layout

5.8 8HYB Board

Parts Side



Soldering Side

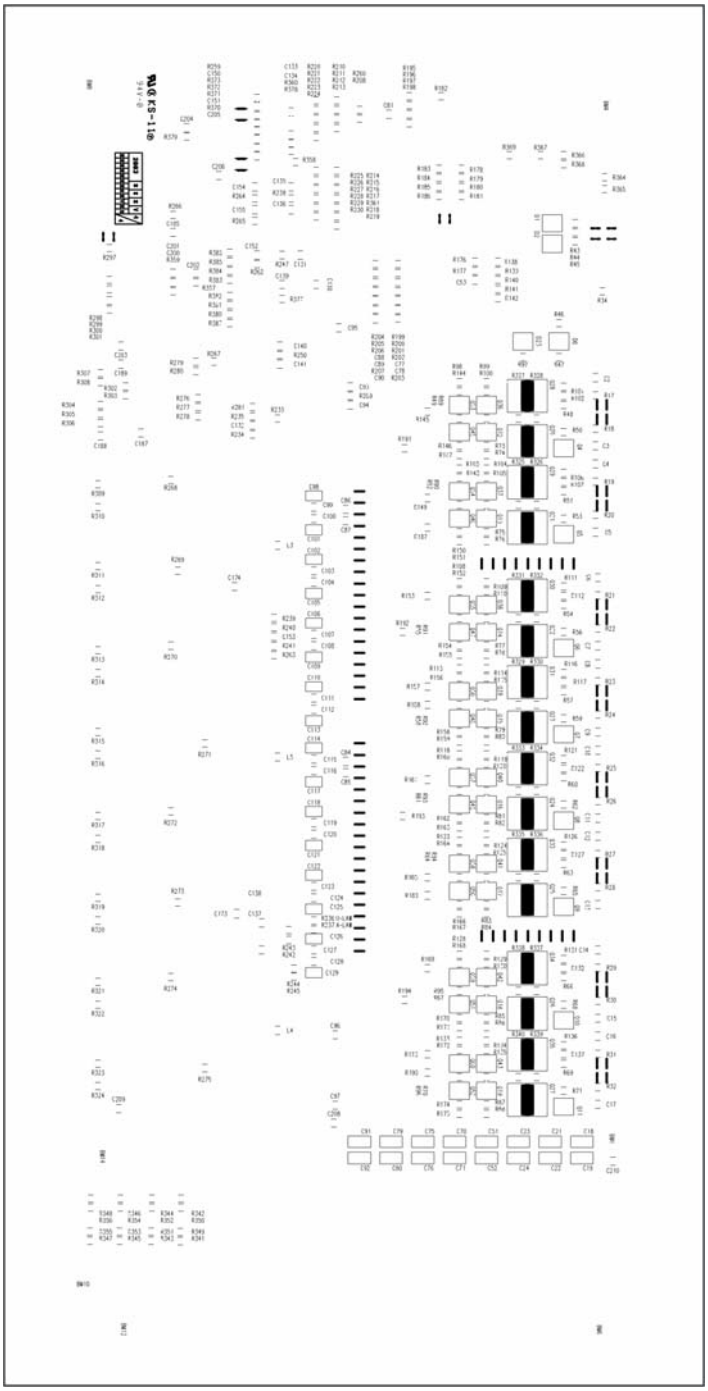
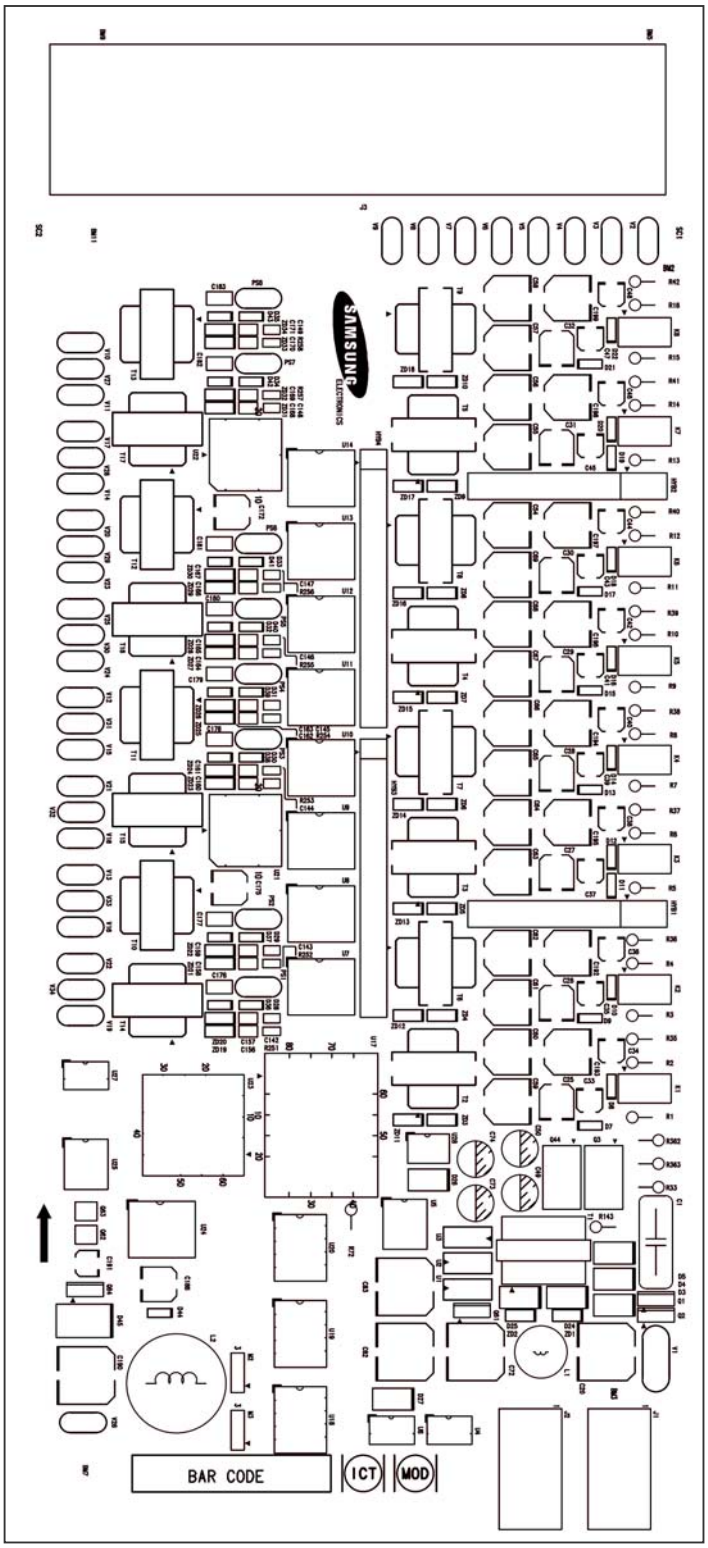


Figure 5.8 8HYB Board Layout

5.9 8HYB2 Board

Parts Side



Soldering Side

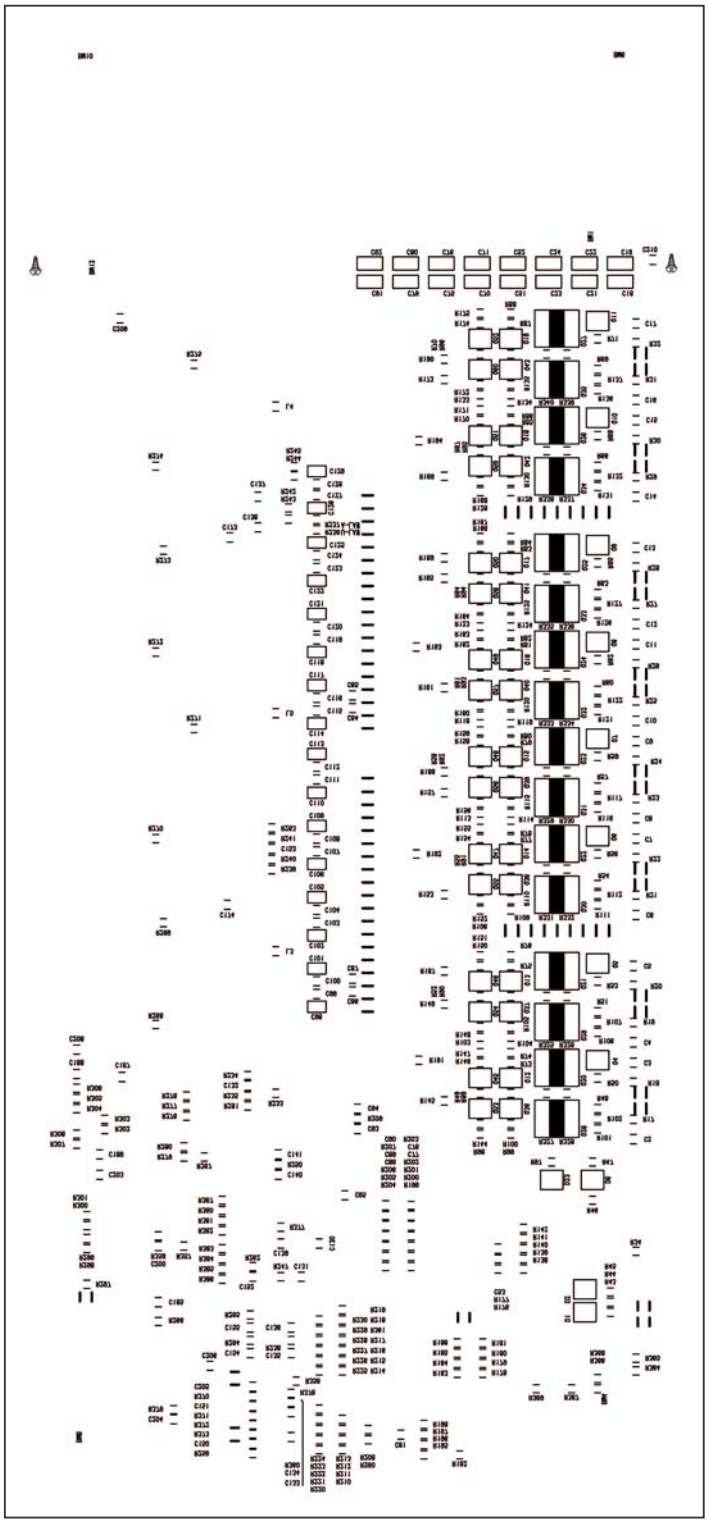
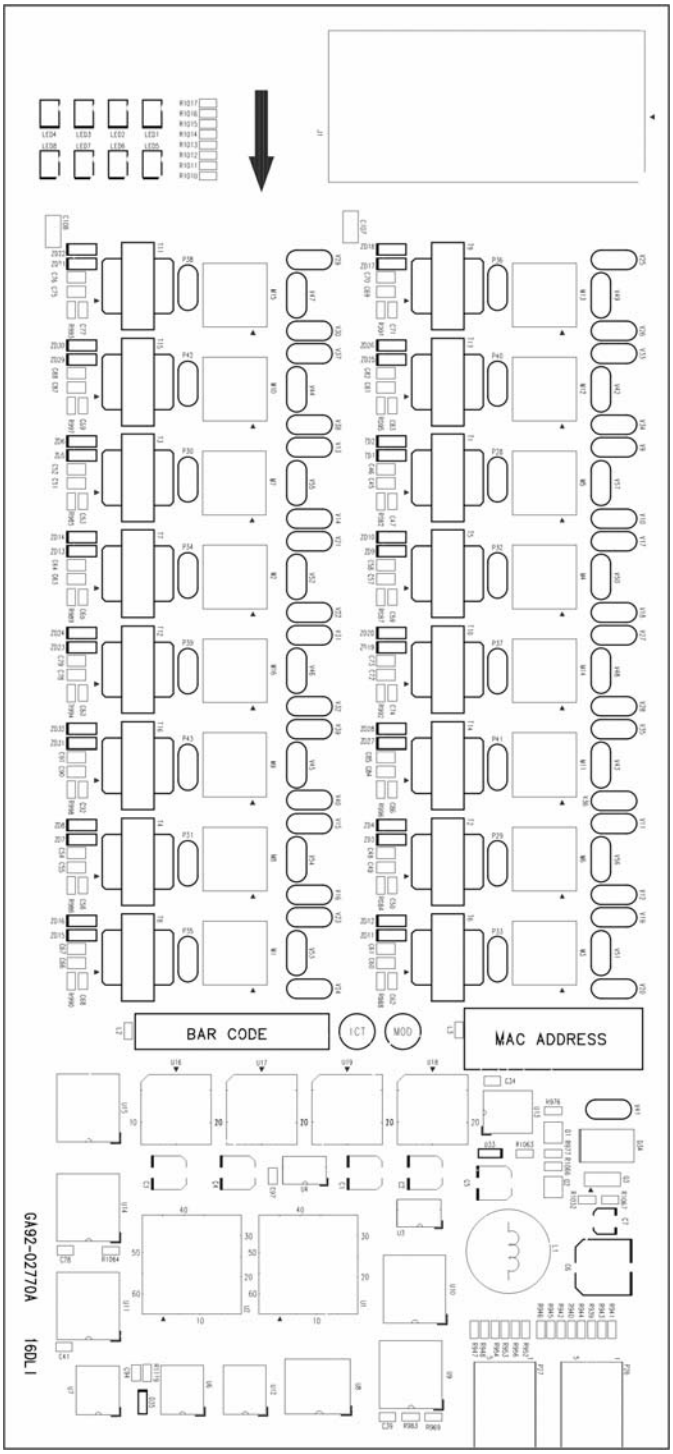


Figure 5.9 8HYB2 Board Layout

5.10 16DLI Board

Parts Side



Soldering Side

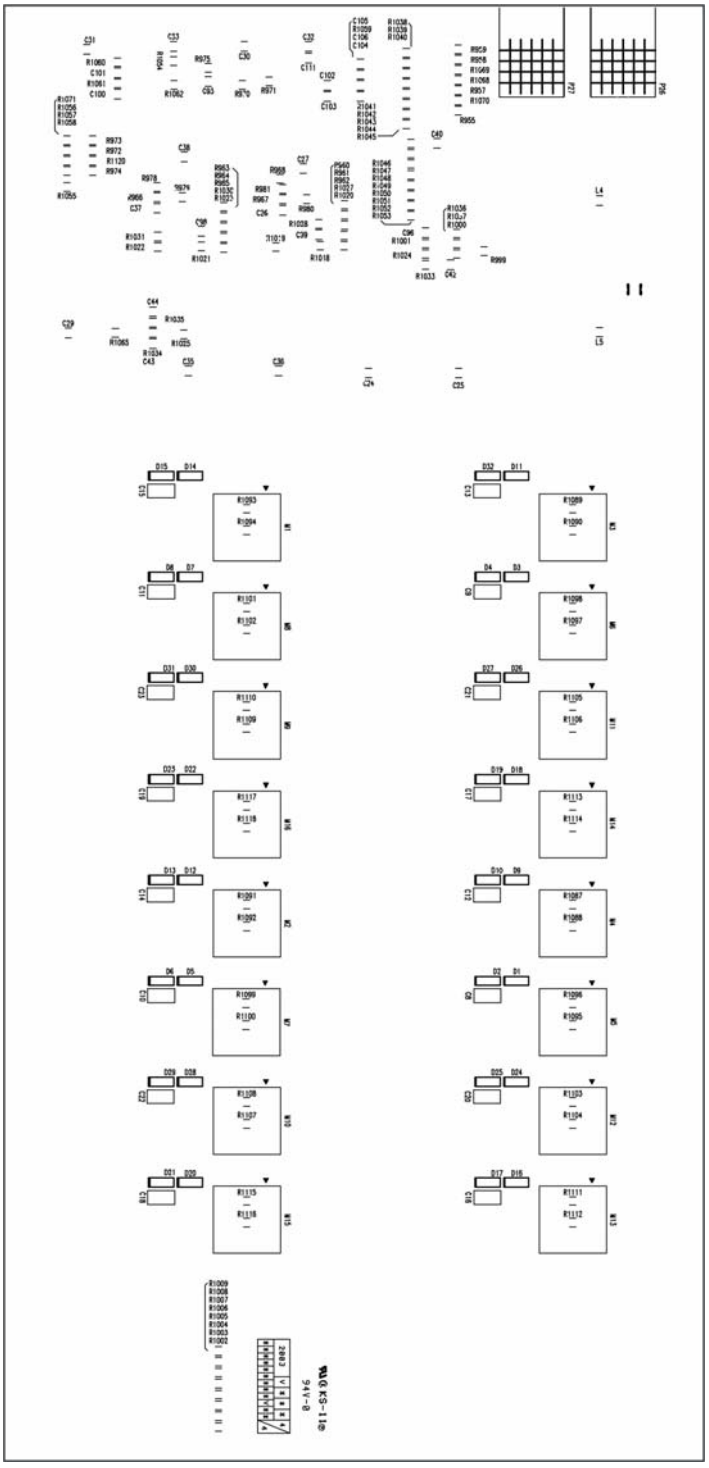
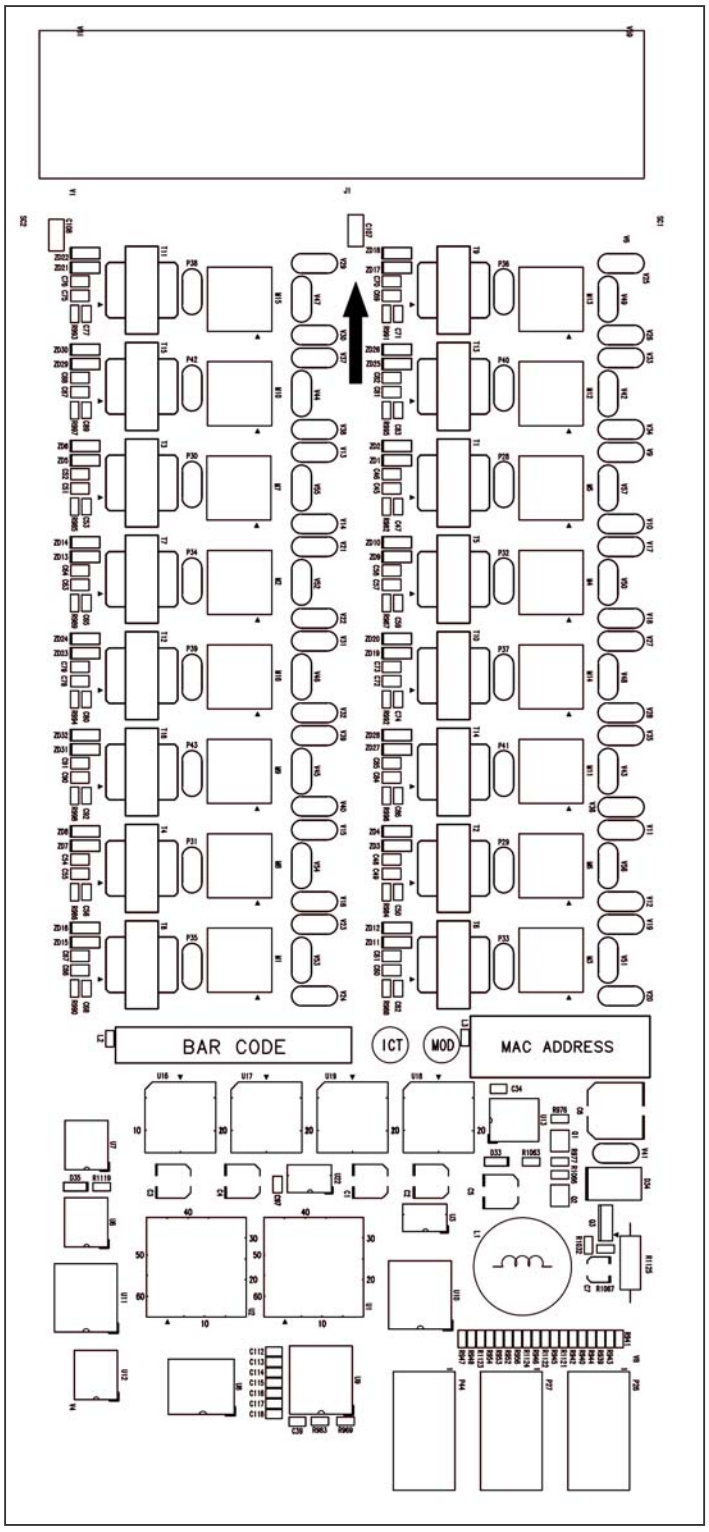


Figure 5.10 16DLI Board Layout

5.11 16DLI2 Board

Parts Side



Soldering Side

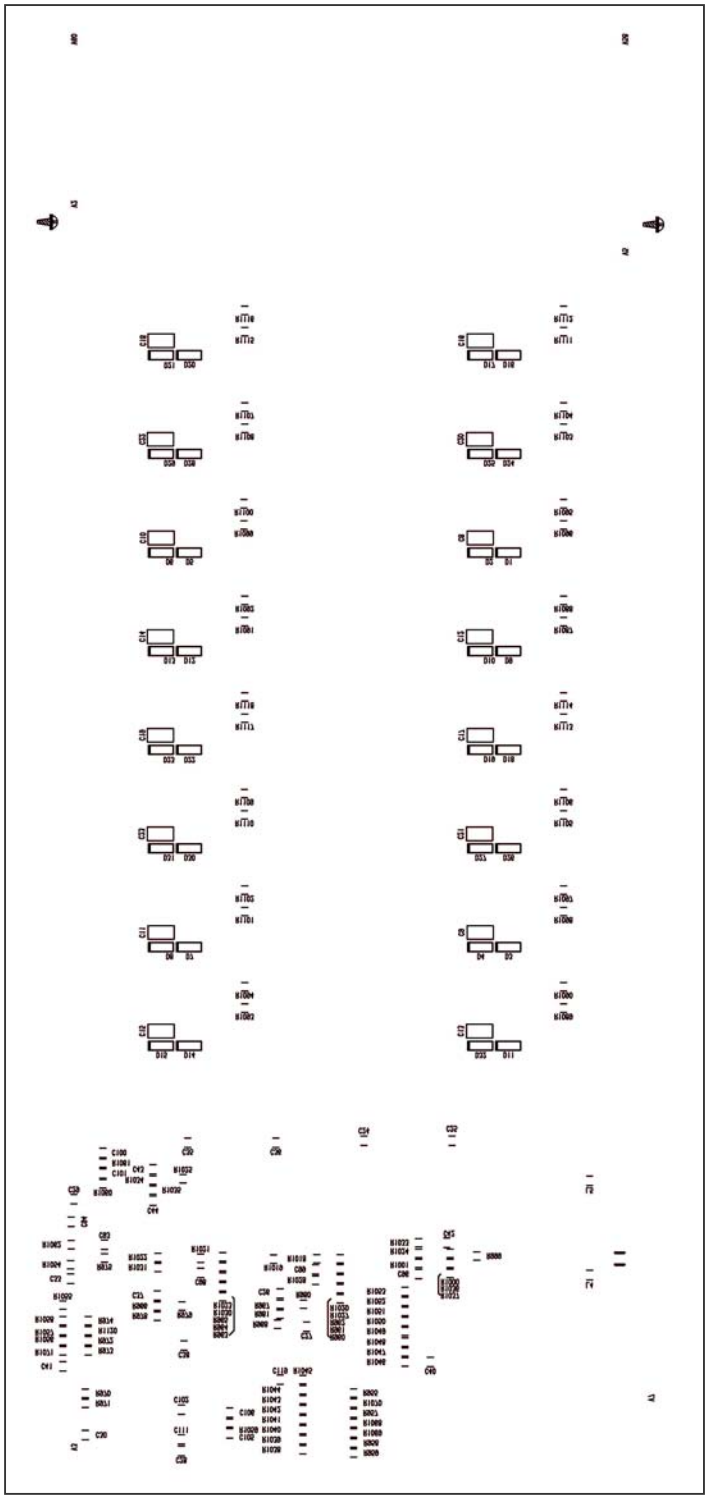
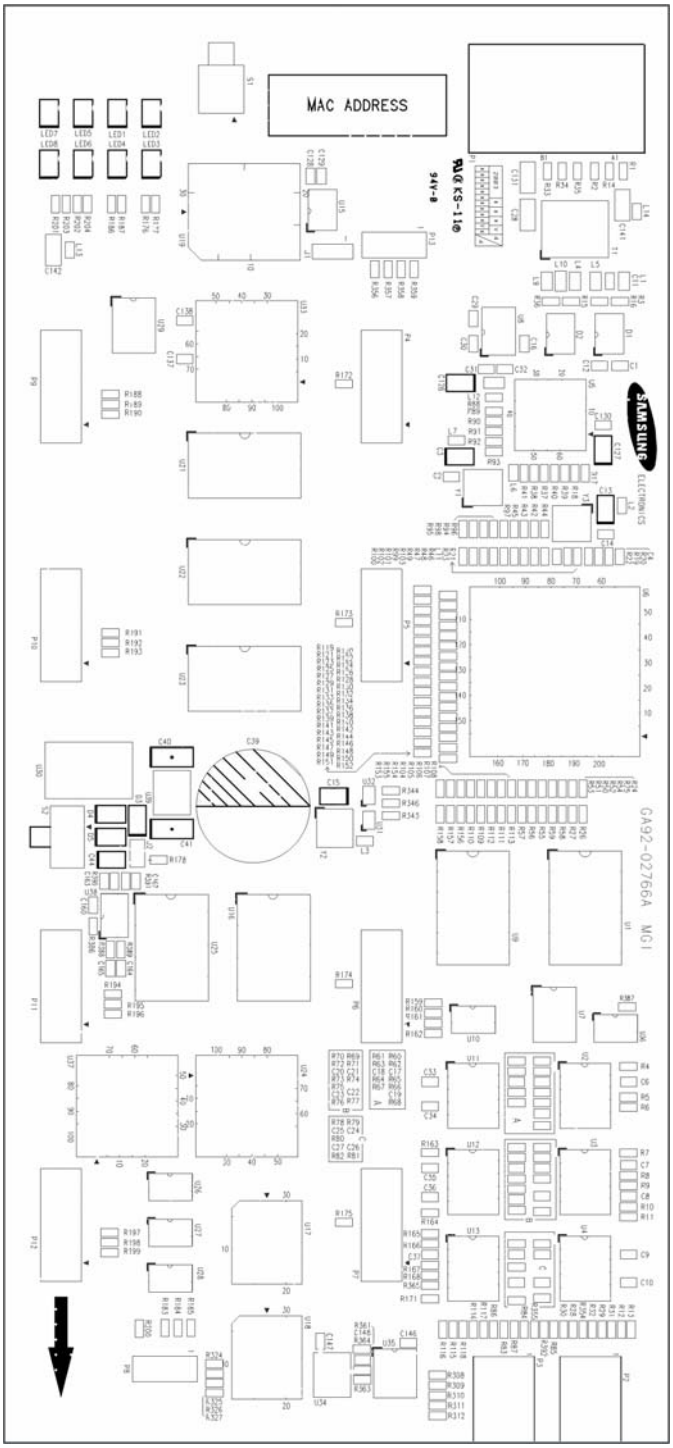


Figure 5.11 16DLI2 Board Layout

5.12 MGI Board

Parts Side



Soldering Side

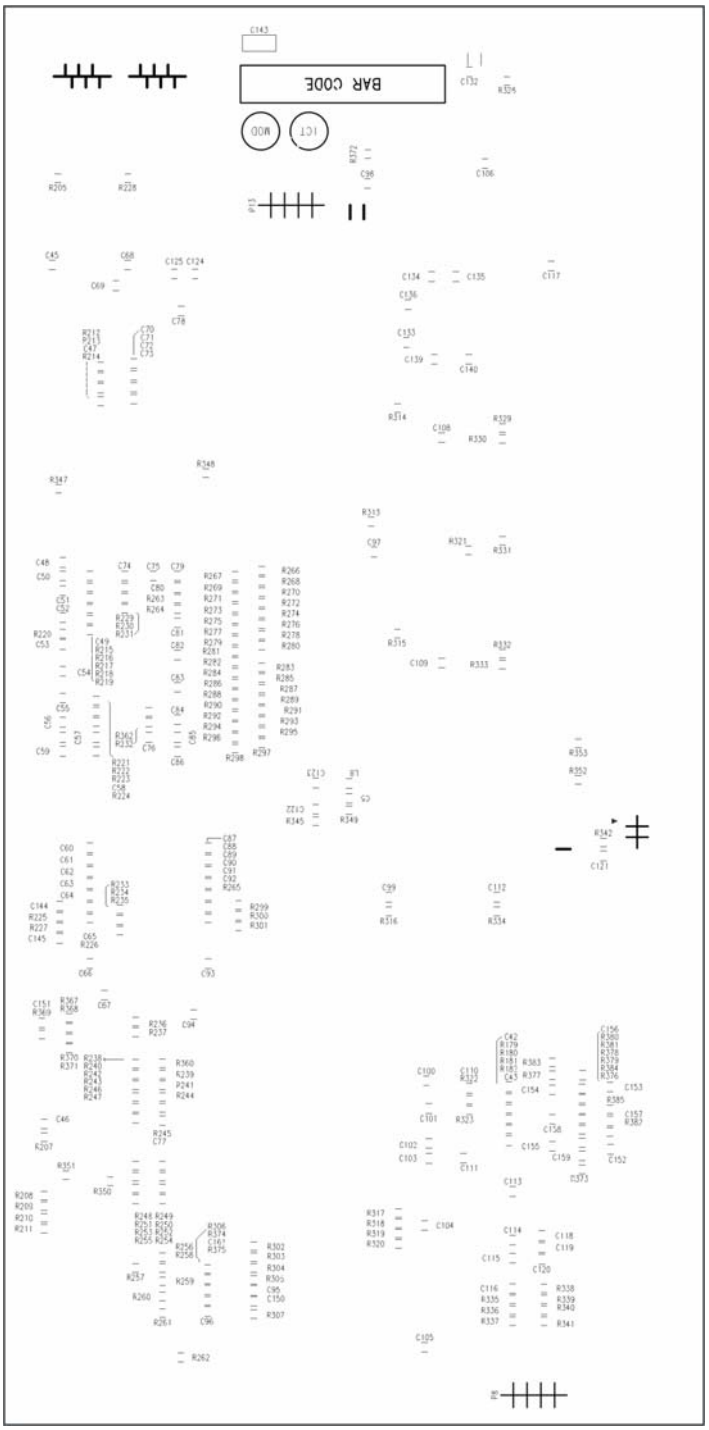


Figure 5.12 MGI Board Layout

5.13 MGI64 Board

Parts Side

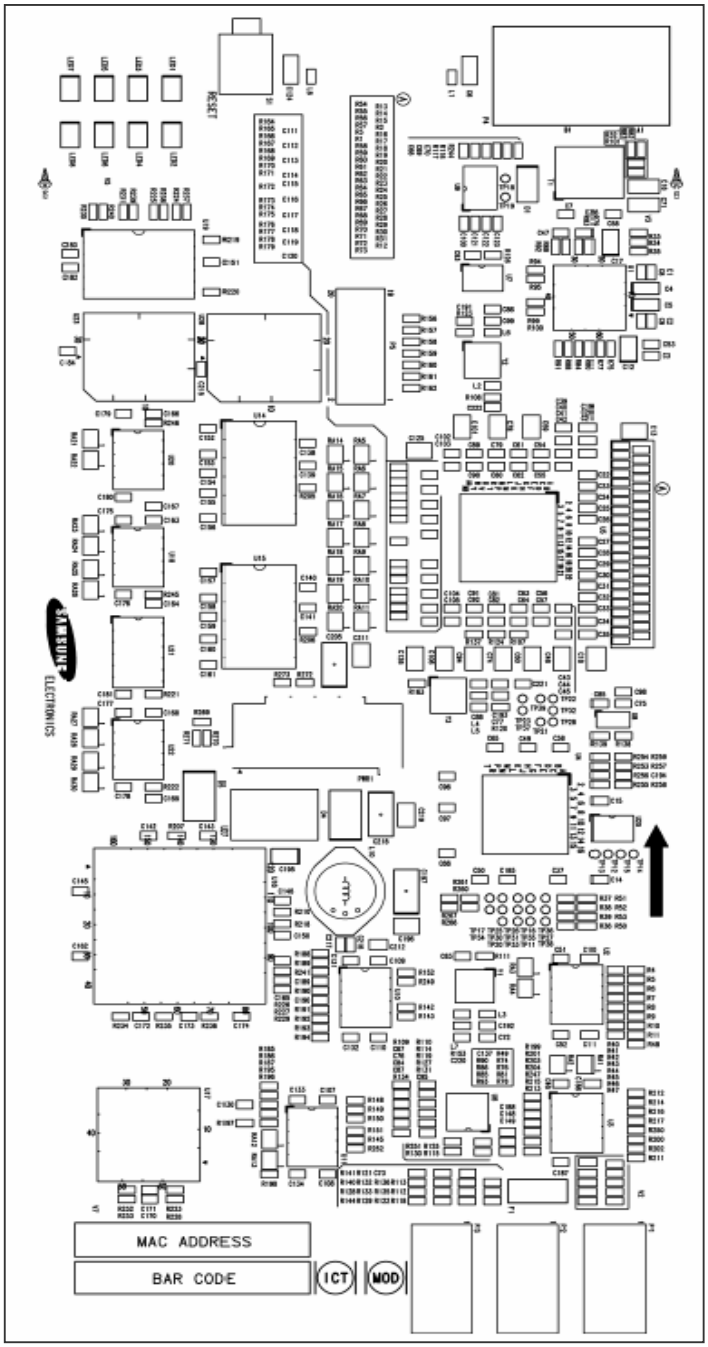
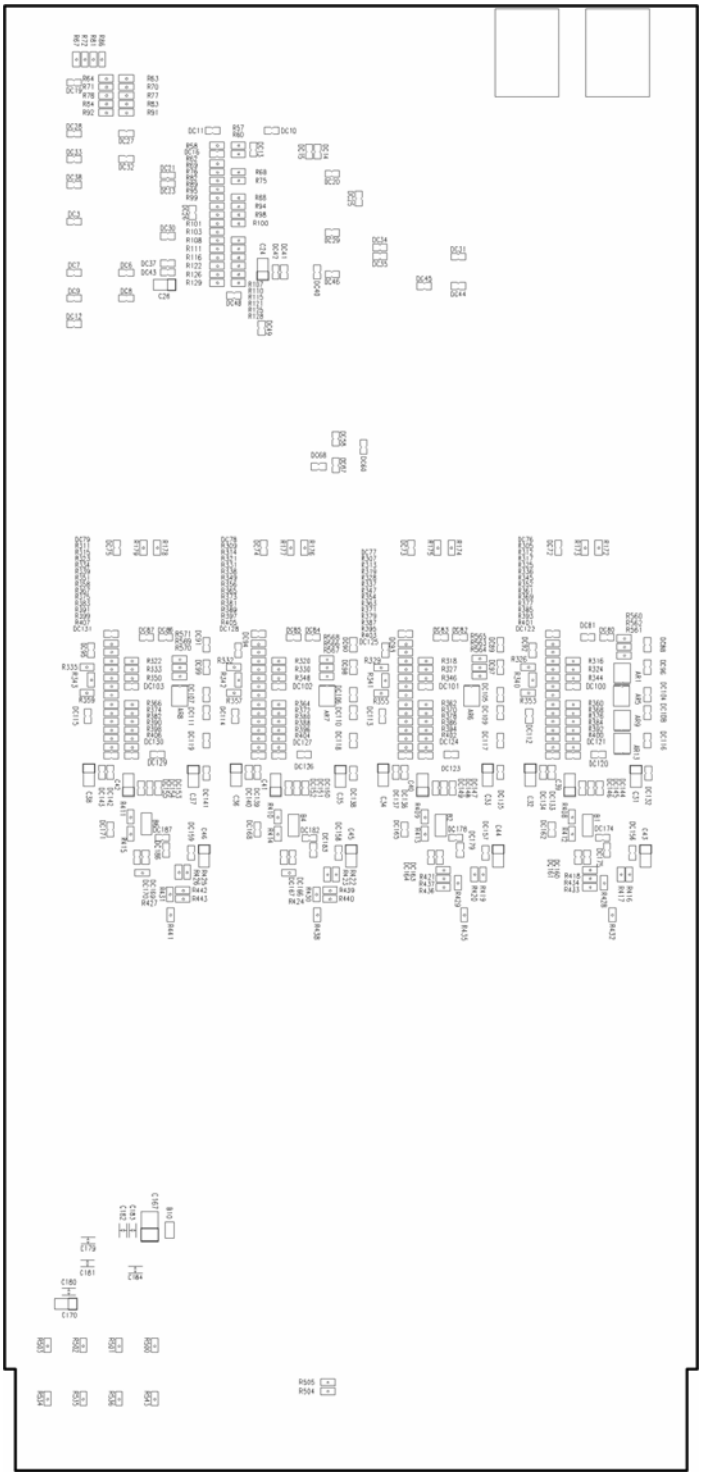


Figure 5.13 MGI64 Board Layout

5.14 4DSL Board

Soldering Side



Parts Side

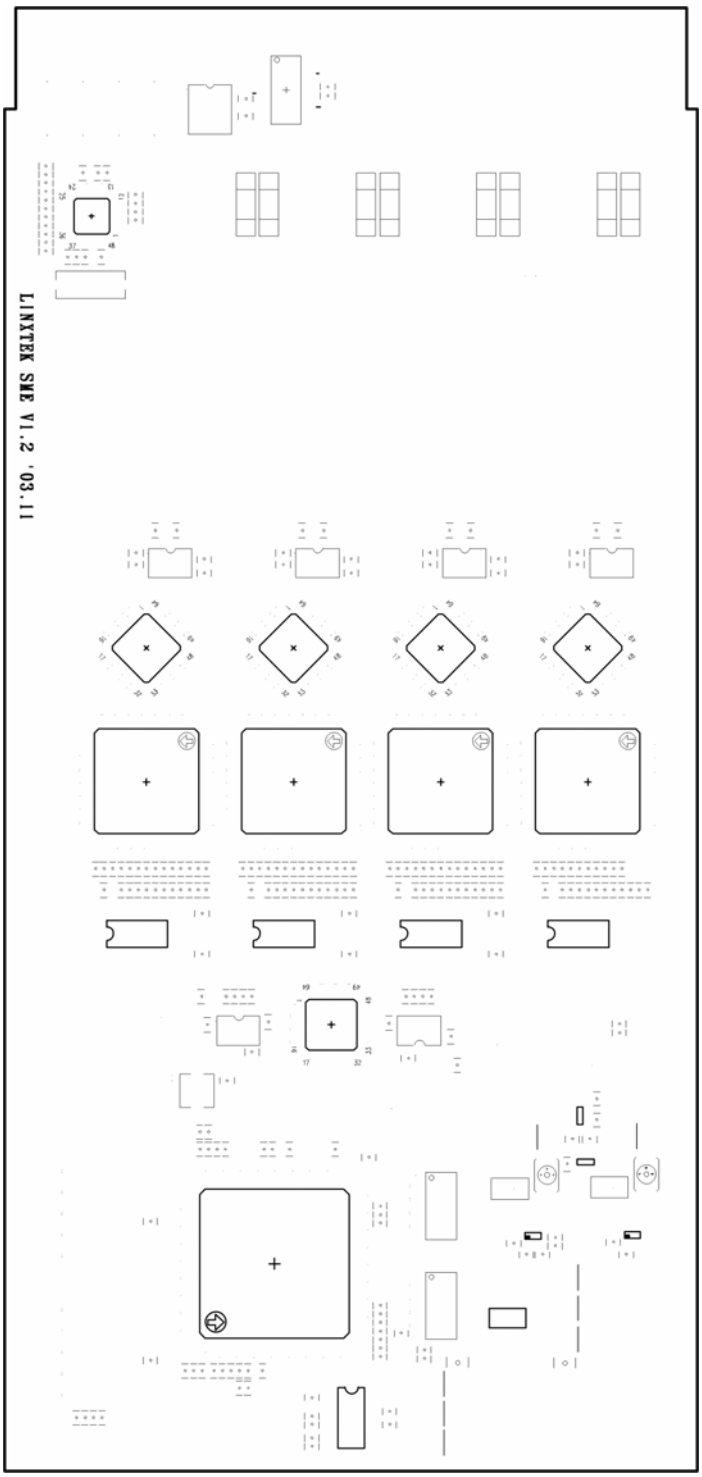


Figure 5.14 4DSL Board Layout

5.15 4WLI Board

Parts Side

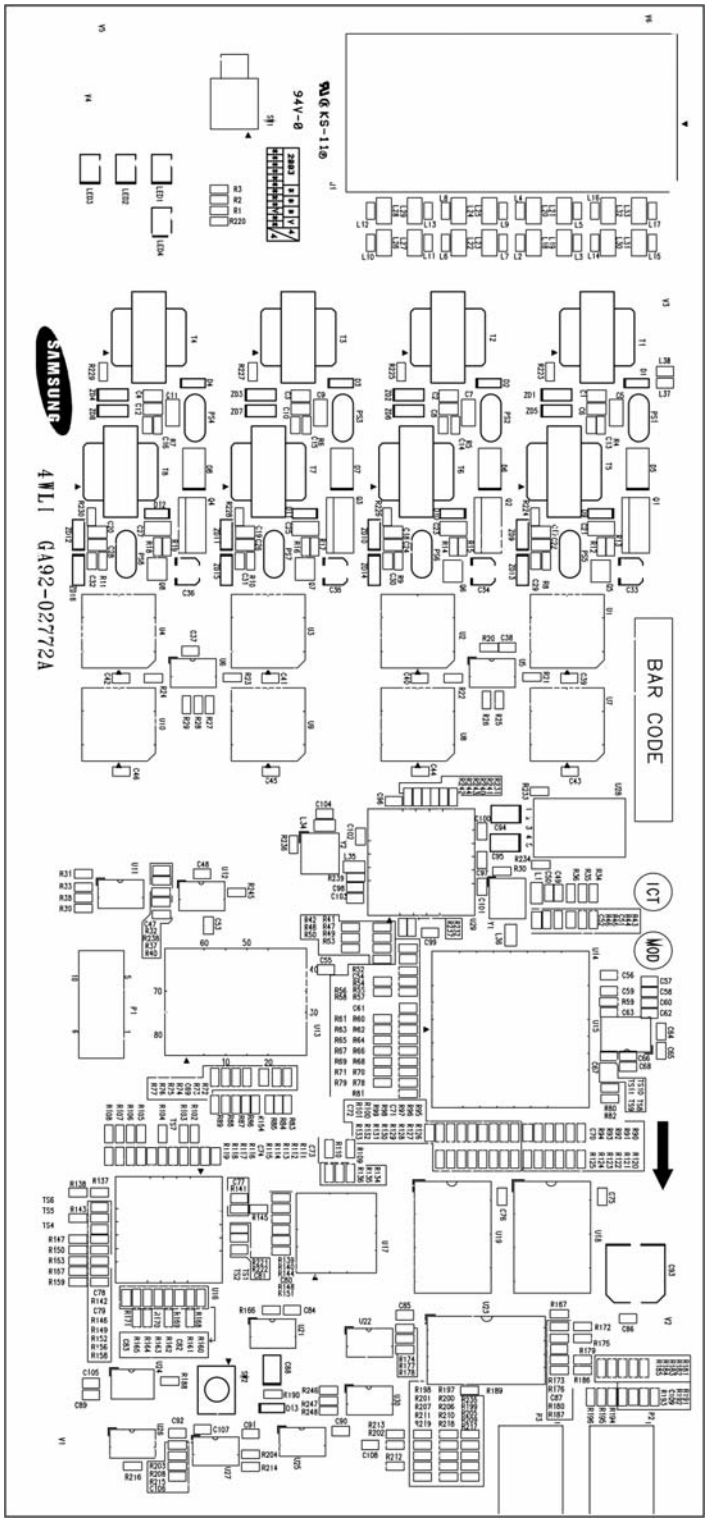
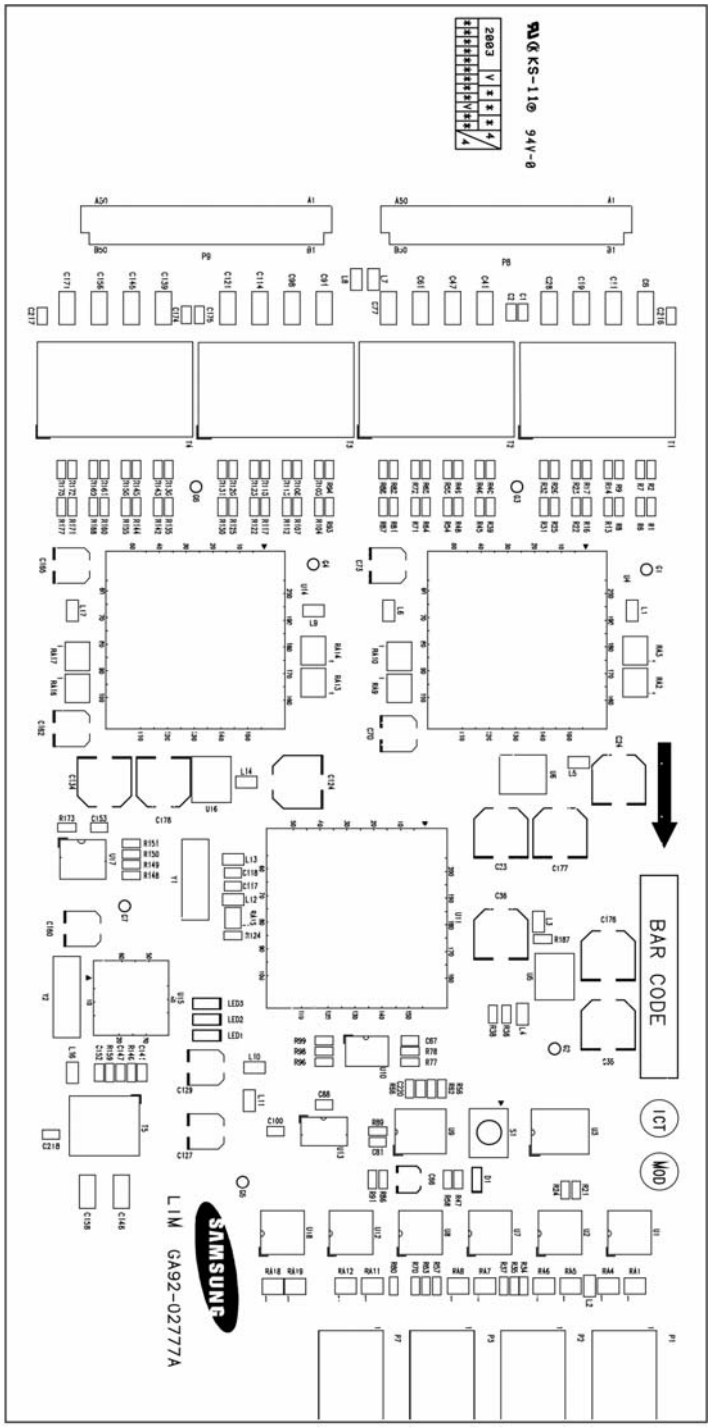


Figure 5.15 4WLI Board Layout

5.16 LIM Board

Parts Side



Soldering Side

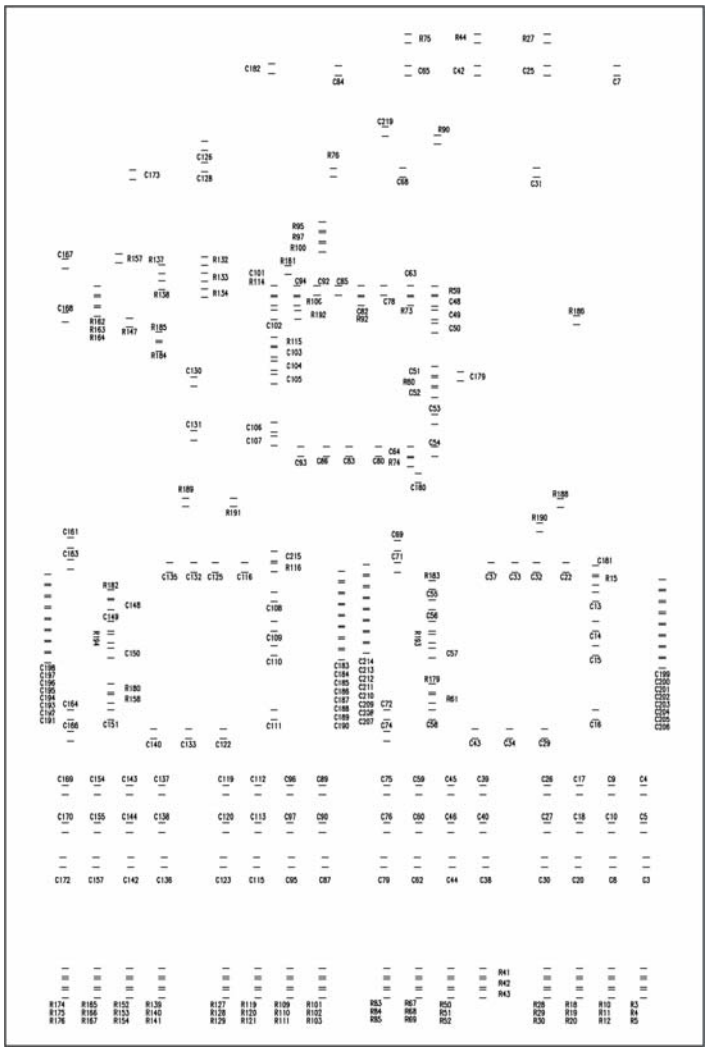
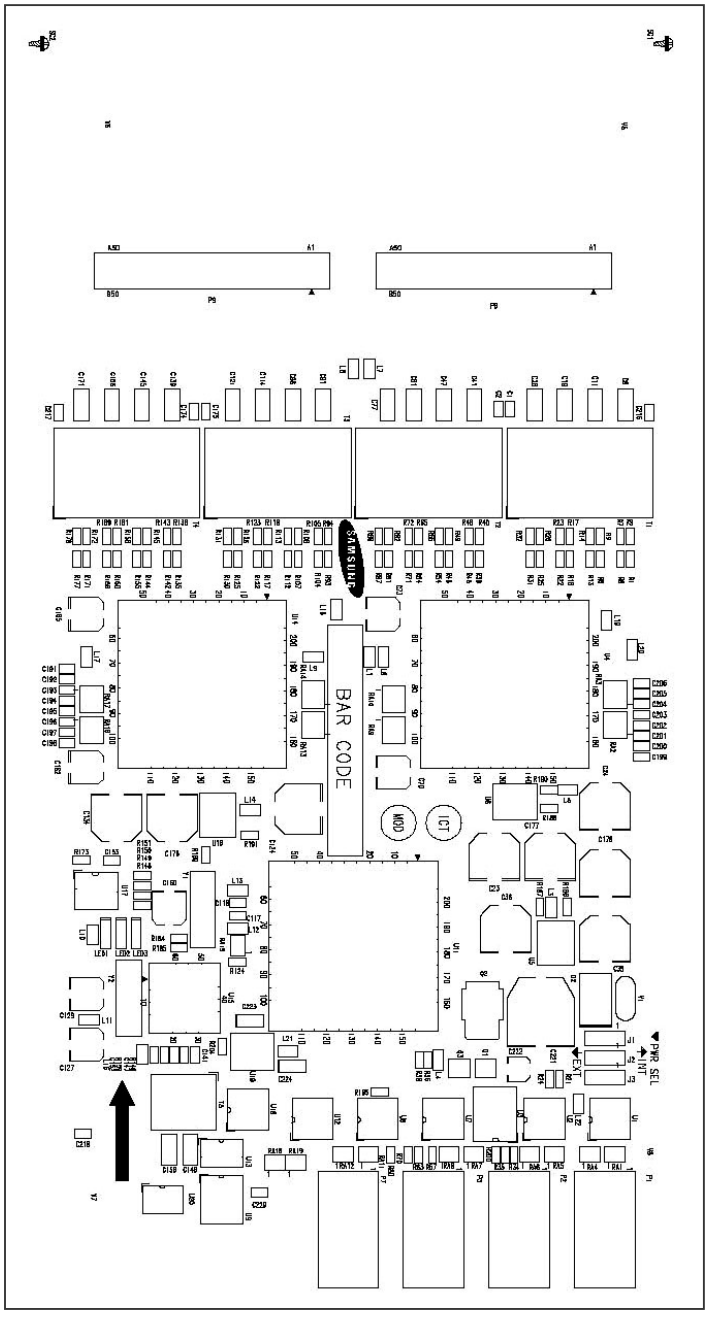


Figure 5.16 LIM Board Layout

5.17 PLIM Board

Parts Side



Soldering Side

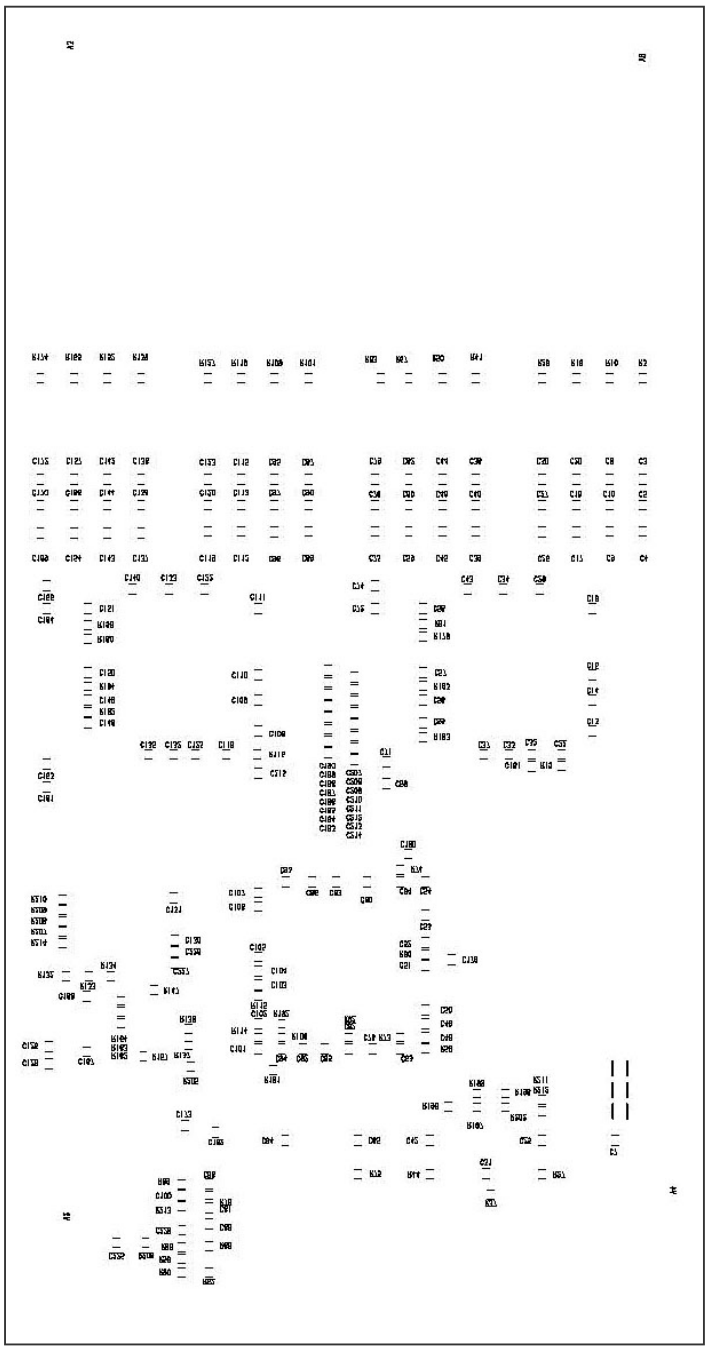
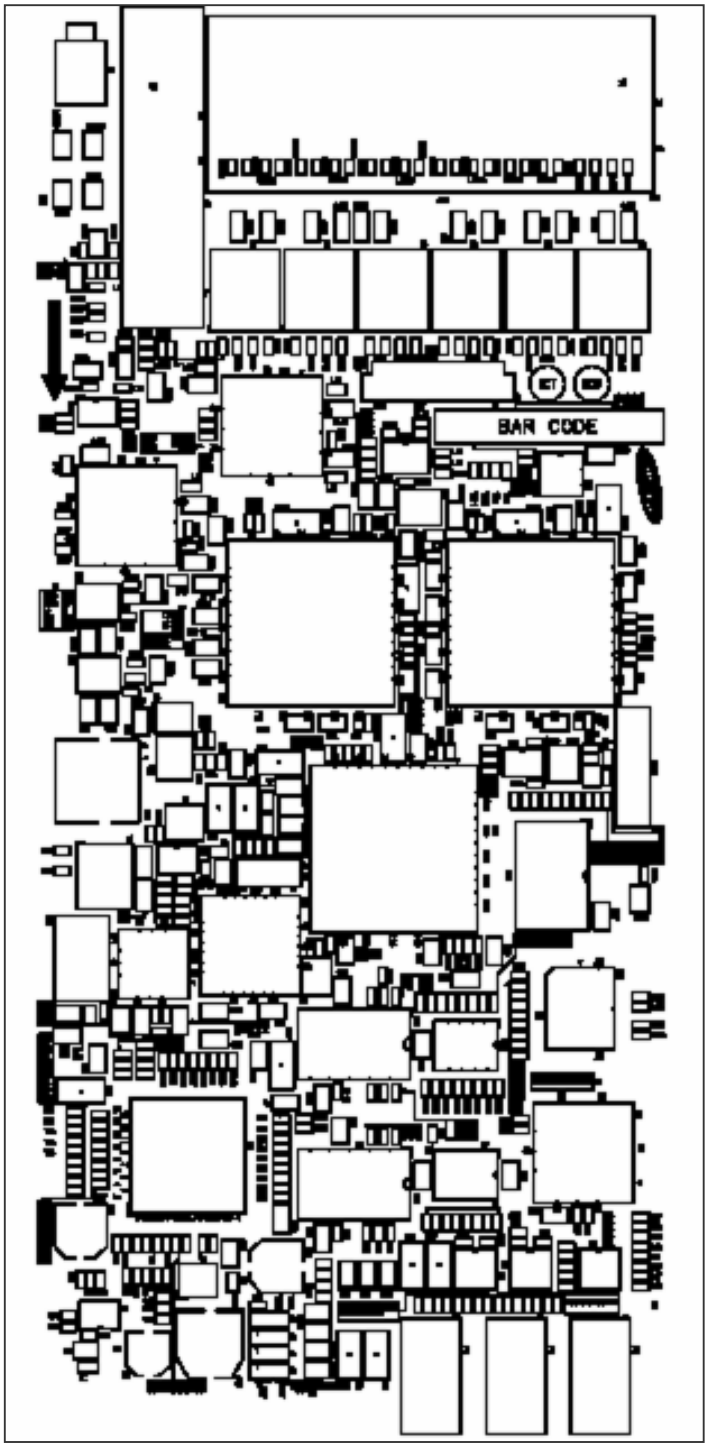


Figure 5.17 PLIM Board Layout

5.18 GPLIM Board

Parts Side



Soldering Side

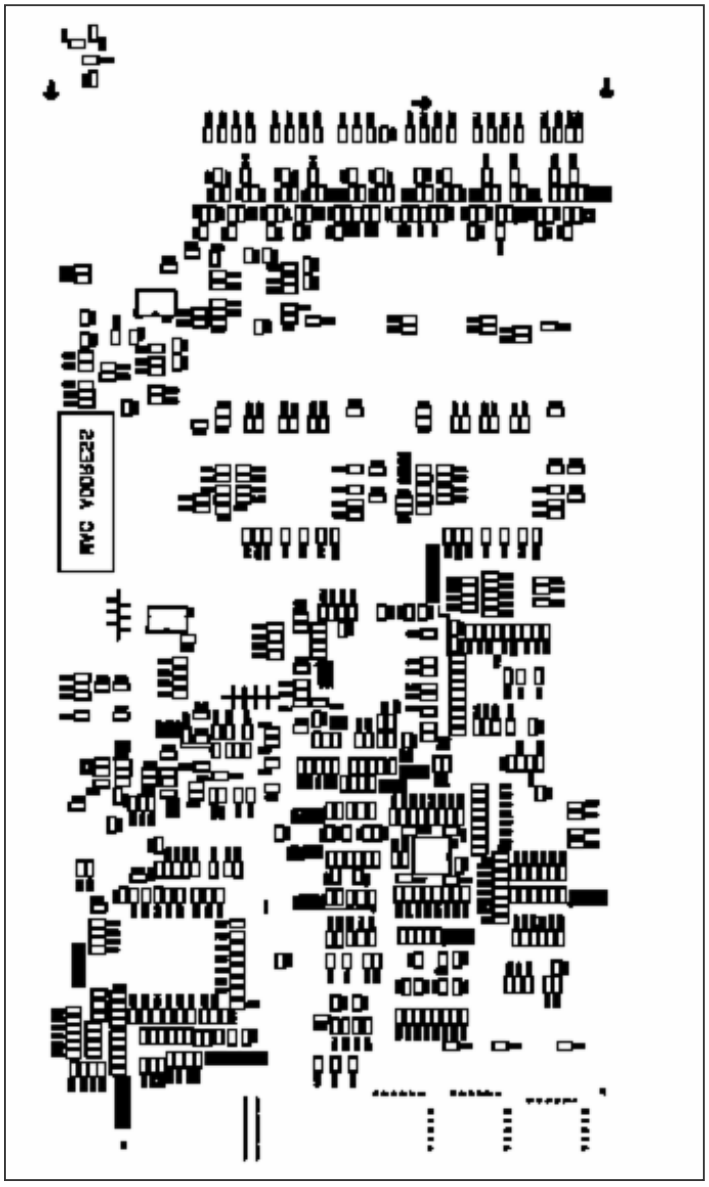
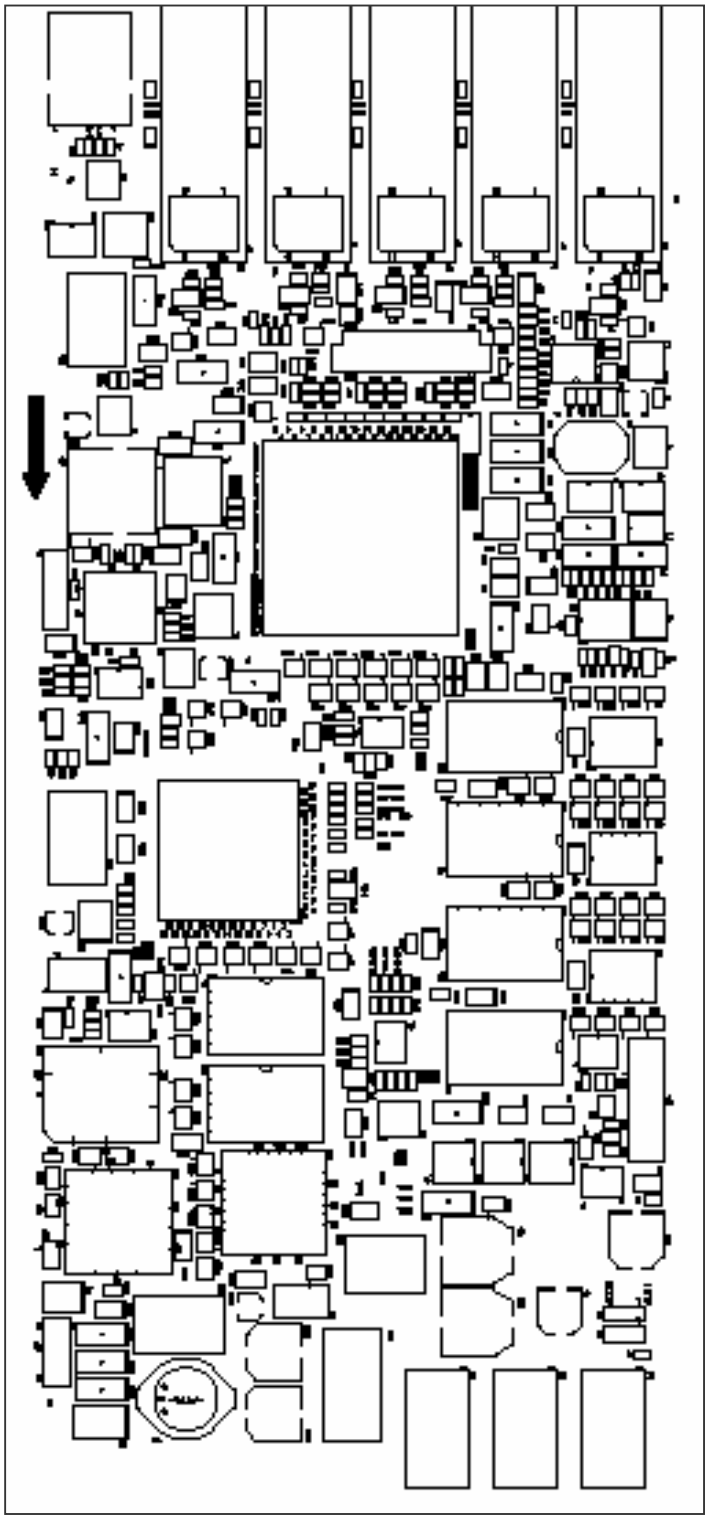


Figure 5.18 GLMP Board Layout

5.19 GSIM Board

Parts Side



Soldering Side

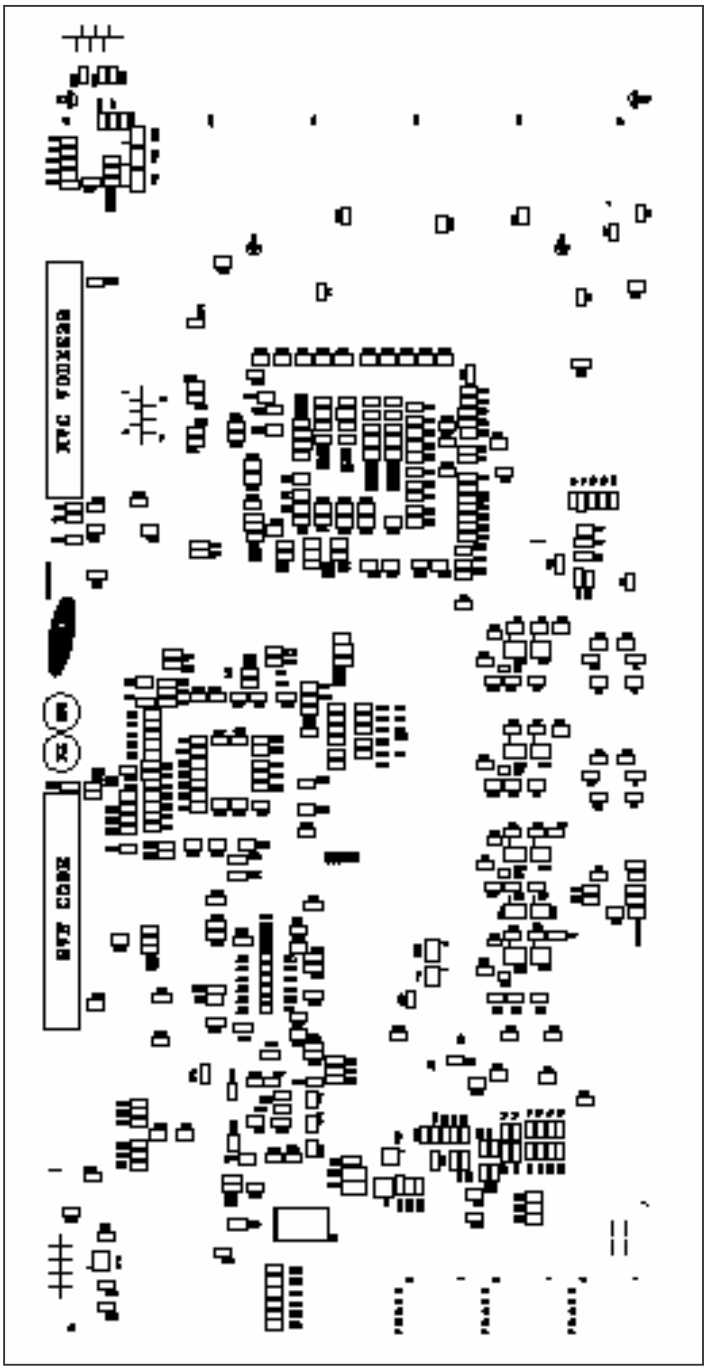
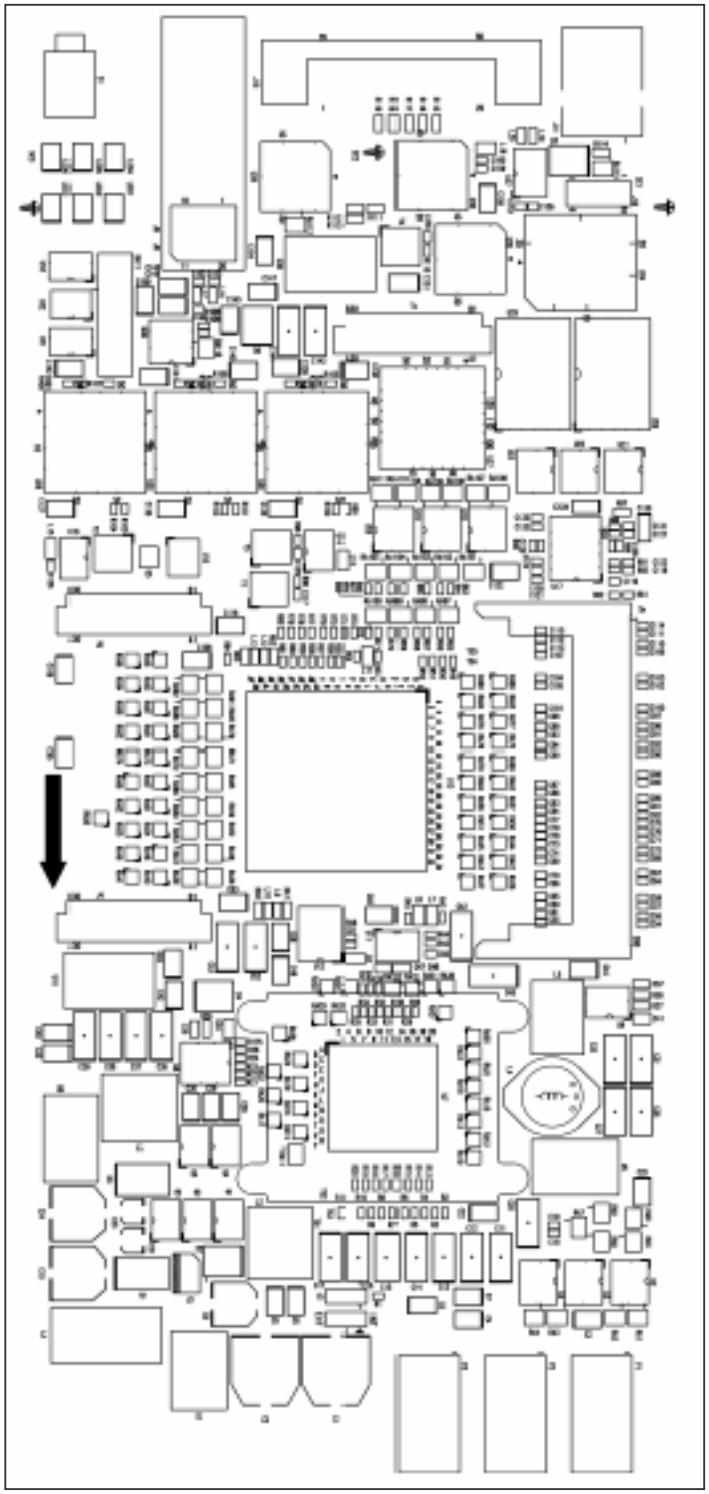


Figure 5.19 GSIM Board Layout

5.20 GWIM Board

Parts Side



Soldering Side

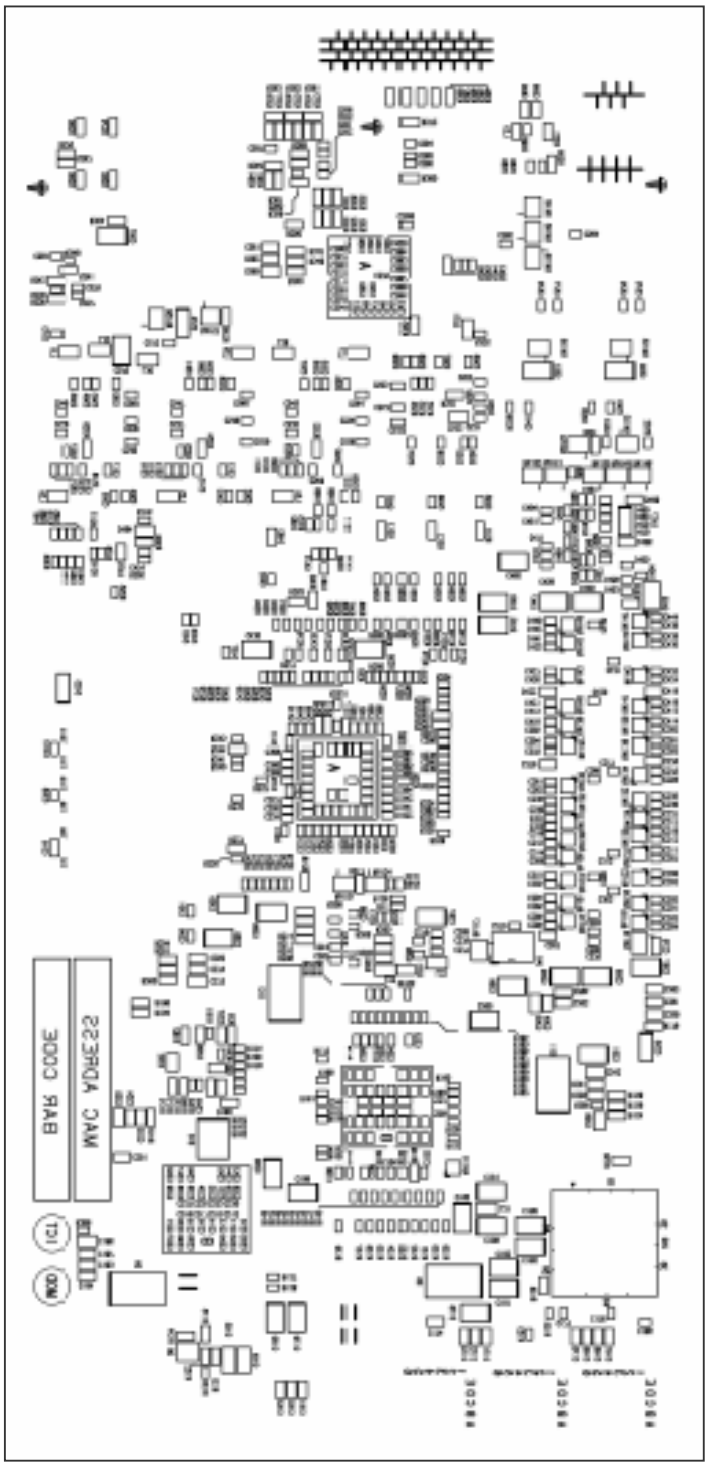
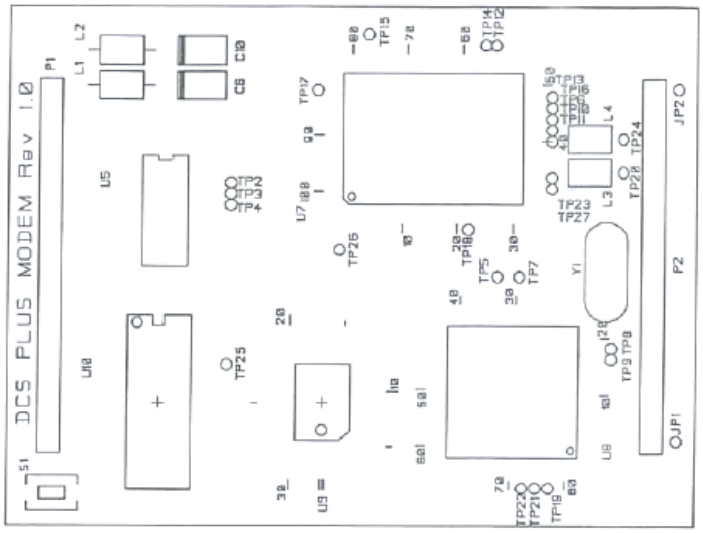


Figure 5.20 GWIM Board Layout

5.21 MODEM Board

Parts Side



Soldering Side

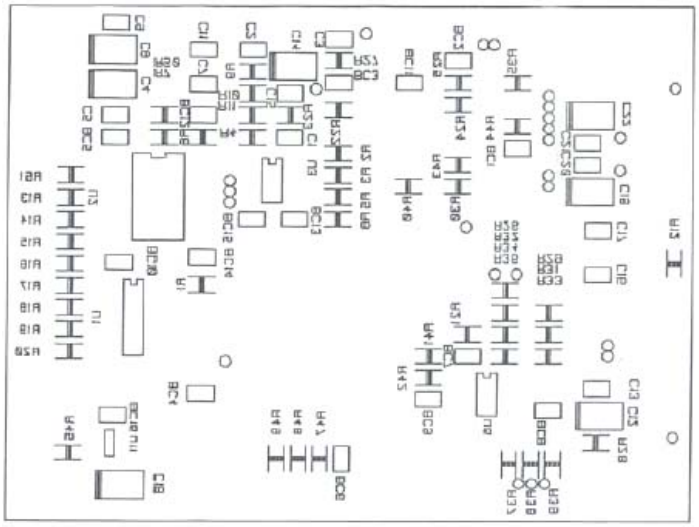


Figure 5.21 MODEM Board Layout

5.22 MIS Board

Parts Side

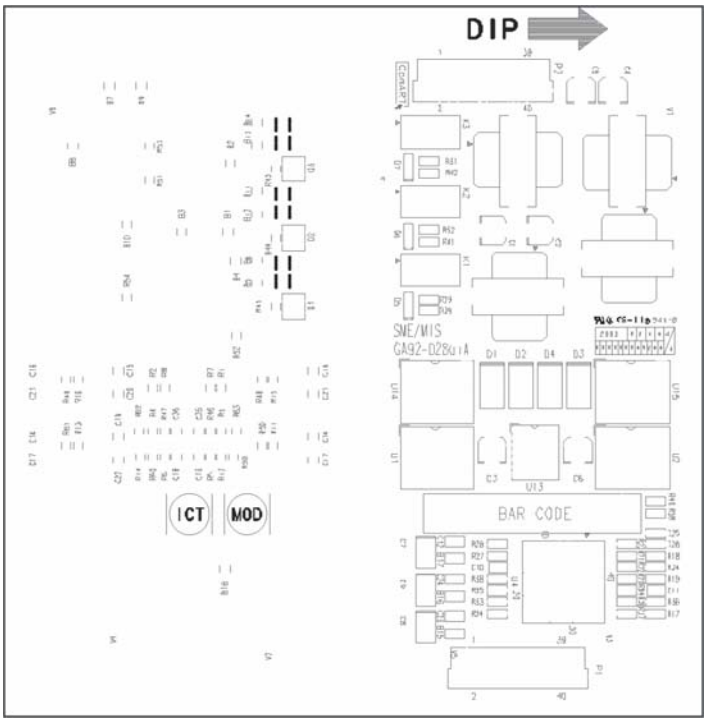


Figure 5.22 MIS Board Layout

5.23 MFM/SCM Board

Parts Side

Soldering Side

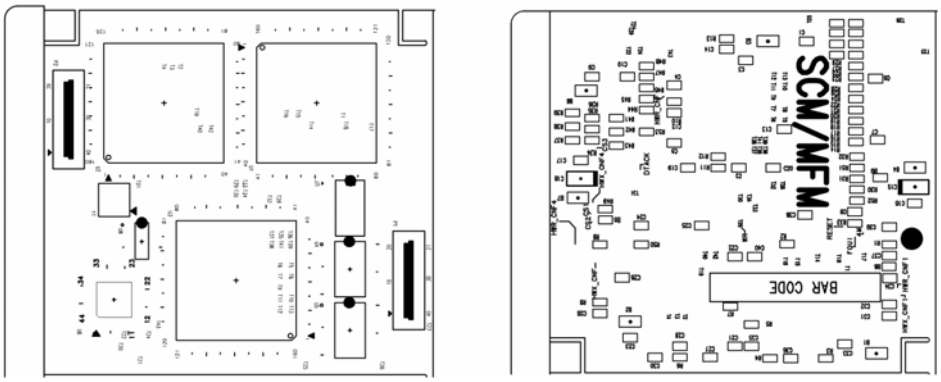


Figure 5.23 MFM Board Layout

5.24 RCM Board

Parts Side

Soldering Side

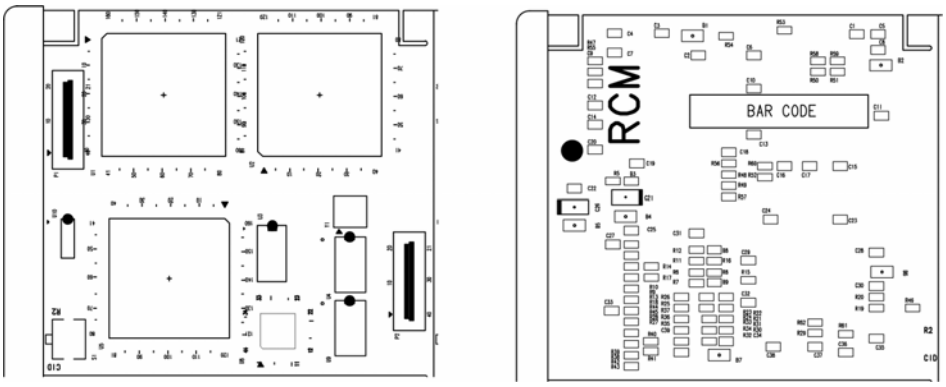


Figure 5.24 RCM Board Layout

5.25 CRM Board

Parts Side

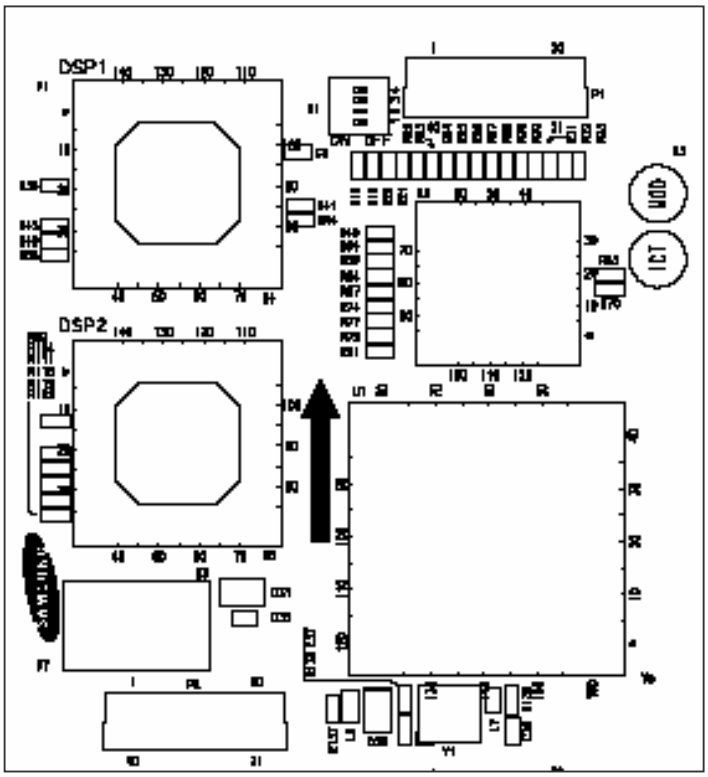


Figure 5.25 CRM Board Layout

5.26 RCM2 Board

Parts Side

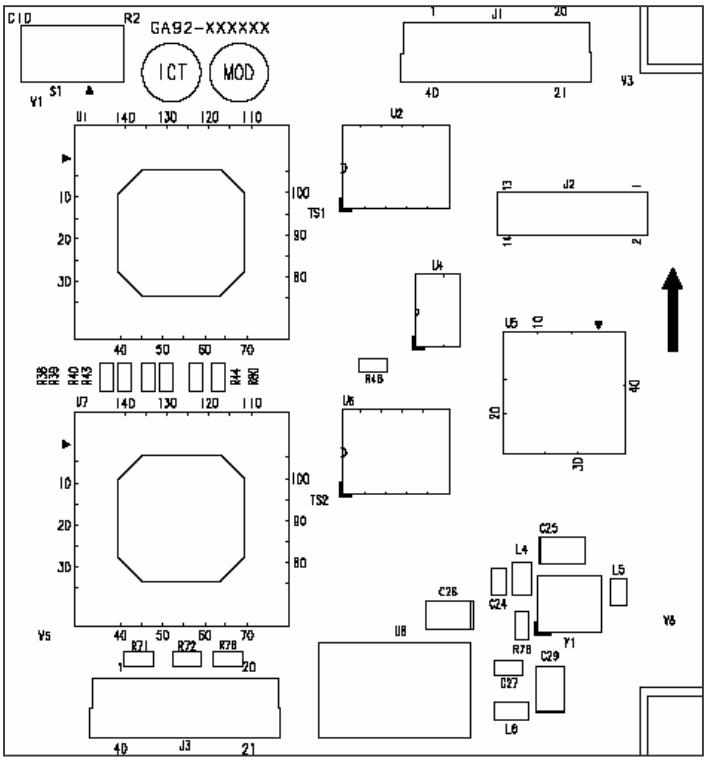


Figure 5.26 RCM2 Board Layout

5.27 MGI2D Board

Parts Side

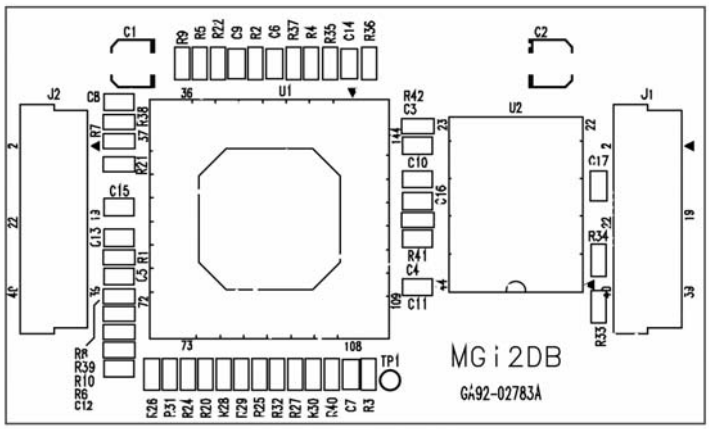


Figure 5.27 MGI2D Board Layout

5.28 LIMD Board

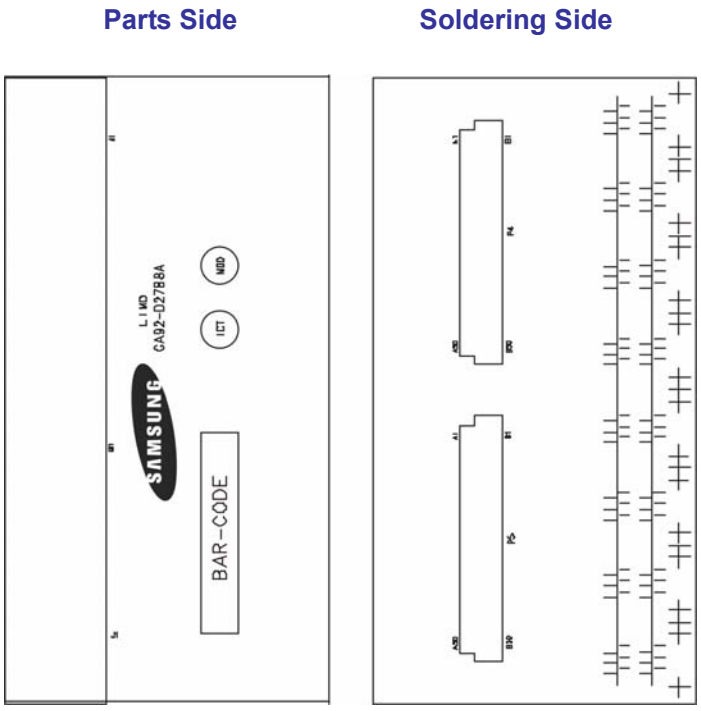
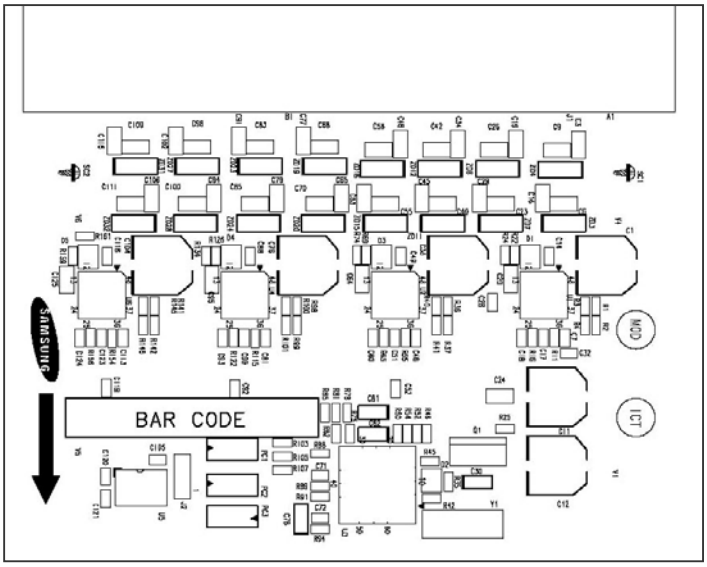


Figure 5.28 LIMD Board Layout

5.29 PLIMD Board

Parts Side



Soldering Side

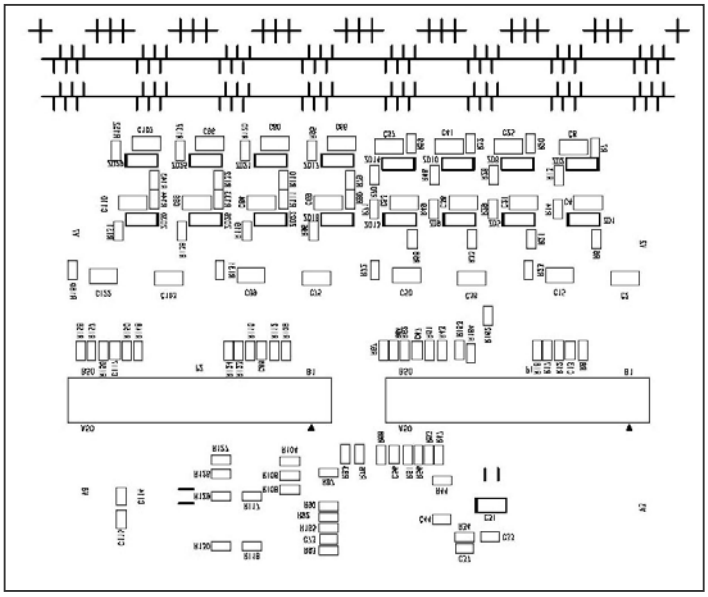
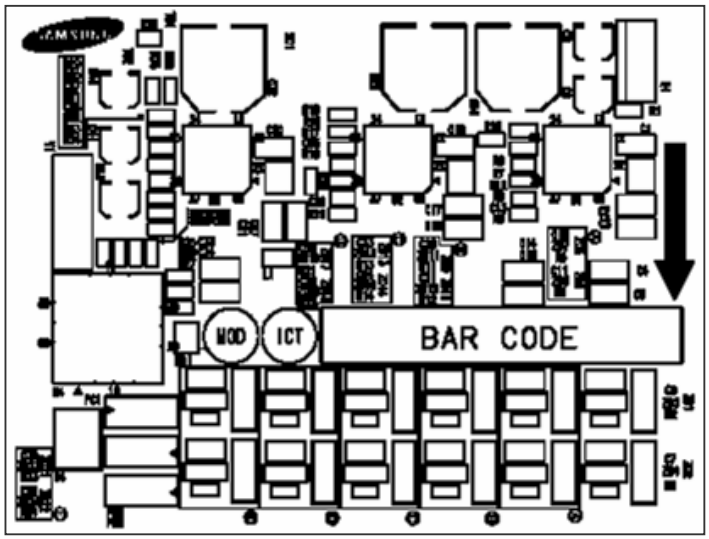


Figure 5.29 PLIMD Board Layout

5.30 GLIMD Board

Parts Side



Soldering Side

Figure 5.30 GLIMD Board Layout

5.31 GSIMD Board

Parts Side

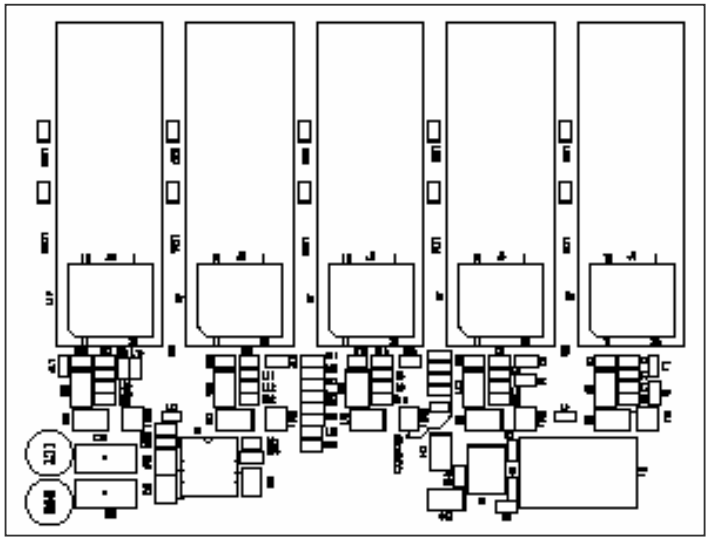


Figure 5.31 GSIMD Board Layout

5.32 GWIMD Board

Parts Side

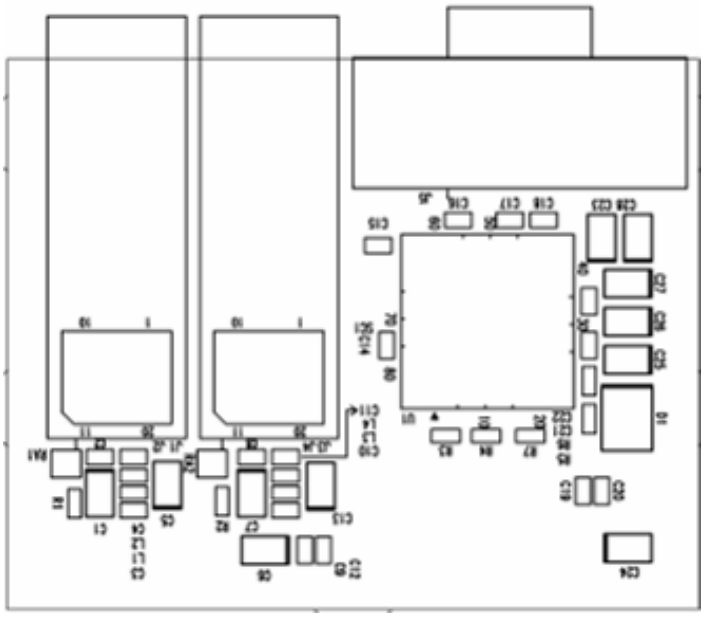


Figure 5.32 GWIMD Board Layout

5.33 GWIMS Board

Parts Side

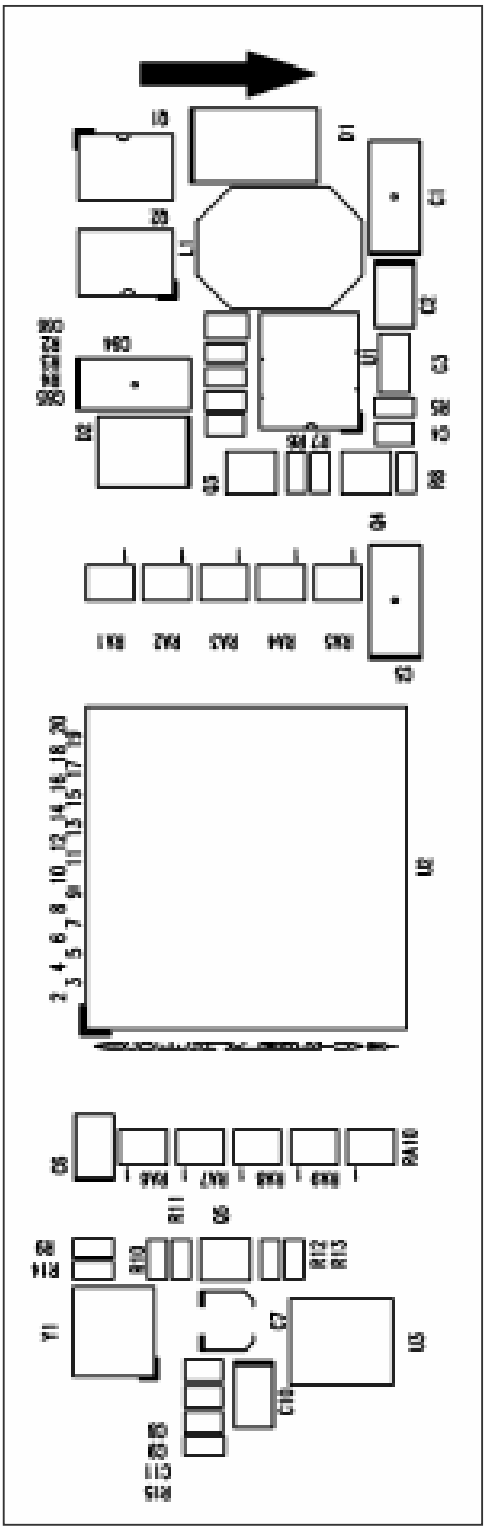


Figure 5.33 GWIMS Board Layout

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CHAPTER 6. Parts Lists

This chapter proveds the parts lists for the OfficeServ 7400 system.

6.1 MP40 Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0401-001099	D4, D5, D6, D7	4	DIODE-SWITCHING	DIODE-SWITCHING;1N4148WS, 75 V, 1
2	0402-001056	D1, D2, D3, D8	4	DIODE-RECTIFIER	DIODE-RECTIFIER;MBRS140, 40 V, 1 A
3	0403-001164	ZD1	1	DIODE-ZENER	DIODE-ZENER;MMSZ5232B, 5.32-5.8
4	0403-001416	ZD2	1	DIODE-ZENER	DIODE-ZENER;MMSZ5227B, 3.42-3.7
5	0501-000476	Q1	1	TR-SMALL SIGNAL	TR-SMALL SIGNAL;KST5401TA, PNP,
6	0601-001064	LED1~LED4	4	LED	LED;SMD, RED/Y-GRN, 1.7 x 2.5 mm, 66
7	0801-002127	U1, U4, U13, U14	4	IC-CMOS, LOGIC	IC-CMOS, LOGIC;74FCT16245, TRANS
8	0801-002128	U27	1	IC-CMOS, LOGIC	74FCT16244, BUFFE
9	0801-002367	U26	1	IDT49FCT3805AQ	IC-CMOS, LOGIC;49FCT3805, BUFFER
10	0802-001029	U2, U3, U30	3	74LVT16245DGGR	IC-BICMOS, LOGIC;74LVTH16245, TR
11	1006-000281	U33, U34, U35	3	IC-LINE DRIVER;	MC3487DR2, SOP, 16P
12	1006-000288	U29	1	IC-LINE RECEIVER	MC3486DR2, SOP, 16P
13	1006-001140	U32	1	IC-LINE TRANSCEIVER	MAX3232ECAE, SSOP
14	1026130(new)	U22	1	CPU	MPC8271VRMIBA, Pbga516
15	1053661(new)	U5	1	RTC	RTC8564NB, son20_w500
16	1103-001289	U25	1	IC-EEPROM	AT93C46-10SI-.7;93C46, 128 x 8/64 x 16, SO
17	1105-001548	U20, U21, U23, U24	4	IC-DRAM	K4S561632D-TC60;4X4MX16BIT, T
18	1106-001428	U18, U19	2	IC-SRAM	K6F8016U6A-EF7, 512KX16BIT, T
19	1107-001473	U16	1	IC-FLASH MEMORY	K9F2808U0C-PCB0, 16Mx
20	1107-001534	U11, U36	2	IC-FLASH MEMORY	SST39VF040-70-4C-NH;39VF040, 512K×
21	1201-000197	U9	1	IC-OP AMP	;MC34072, SOP, TP, 8P, 15
22	1203-001643	U17	1	IC-RESET	DS1706RESA, SOIC, 8P, 150MIL
23	1203-001691	U12, U28	2	IC-POSI.ADJUST REG	MIC29152BU/T&R.;29152, TO-2

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
24	1204-002075	U7	1	IC-MELODY;	M994T-05L, TO-92, 3P, 4
25	1205-000394	U6	1	IC-CODEC FILTER	TP3057WM, SOP, 1
26	1205-001864	U31	1	IC-TRANSCEIVER	LXT972LC;DJLXT972ALC, LQF
27	1205-002626	U8	1	IC-DIGITAL SWITCH	ZL50018QCC, L
28	1301-001647	U15	1	IC-CPLD	LC4256V-75F256BC, FPBGA
29	2007-000052	R448, R452, R535, R558, R587, R588, R590, R591, R594, R595, R629, R630, R634, R636~R638, R669, R659~R661, R663, R667, R3, R23, R24, R72, R96, R671, R672, R674, R681, R143, R145, R260~R263, R715, R719, R727, R684, R729, R760, R761, R153, R764, R765, R163, R175, R281, R285, R326, R275, R124, R126~R128, R278,	90	R-CHIP:	R-CHIP;10 Kohm, 1%, 1/10 W, TP, 1608
29	2007-000052	R185, R196, R207, R211, R374, R375, R438, R446, R226, R232, R233, R214, R235, R243, R257, R215, R486, R494, R496, R330, R334, R338, R342, R346~R348, R350, R356, R481, R483, R502, R514,	-	R-CHIP:	R-CHIP;10 Kohm, 1%, 1/10 W, TP, 1608
30	2007-000060	R600, R457, R487, R488	4	R-CHIP	100 Kohm, 1%, 1/10 W, TP, R1608_RES

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
31	2007-000070	R180, R186, R192, R763, R197, R282, R288~, R291, R313, R314, R316~, R319, R420~R422, R424, R426, R430, R439, R455, R456, R471, R472, R525, R526, R739, R743, R755, R762, R756, R645, R648~R650	38	R-CHIP	R-CHIP;0 ohm, 5%, 1/10 W, TP, 1608
32	2007-000208	R585, R592, R604, R606, R608, R610~R614, R68, R80, R108, R110, R616, R617, R619, R620, R622~R624, R627, R628, R750	24	R-CHIP	MCR03EZPFX, 1.1 kohm, 5%, 1/10 W, TP, 1608
33	2007-001164	R511, R512	2	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
34	2007-002899	R79, R256, R306, R527	4	R-CHIP	;10 ohm, 1%, 1/10 W, TP, 1608
35	2007-002906	R95	1	R-CHIP	200 Kohm, 1%, 1/10 W, TP, 160
36	2007-002987	R87, R274, R286, R287, R294, R315, R357, R358, R359, R360~R372, R615, R639, R641, R668, R643, R646, R651, R757, R589, R599, R601~R603	72	R-CHIP	;4.75 Kohm, 1%, 1/10 W, TP, 16
37	2007-002991	R85	1	R-CHIP	61.9 Kohm, 1%, 1/10 W, TP, 16
38	2007-007049	R90, R473, R632	3	R-CHIP	22.1 Kohm, 1%, 1/10 W, TP, 16

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
39	2007-007226	R1, R5, R7, R8, R10, R17, R22R25, R27, R34, R42, R57, R66, R69~R71, R73, R76~R78, R81, R82, R144, R86, R88, R91~R94, R141, R97~R105, R107, R109, R129~R139, R157, R158, R147~R151, R154, R161, R162, R165~R167, R169, R170, R172~R174, R176, R178, R179, R182, R183, R188, R189, R191, R194, R195, R199~R201, R209, R213, R218~R223, R225, R203~R206, R210, R212, R280, R283, R284, R292, R293, R295~R305, R307~R312, R327, R328, R320~R325, R339, R340, R229, R244, R245~R255, R259, R264~R273, R276, R331, R332, R335~R337, R352~R355, R343, R344, R376~R379, R386, R396, R432~R437, R440, R441, R442, R444, R445, R447, R449, R453, R458~R470, R454, R503~R505, R474, R475, R477, R478, R493, R495, R497~R501, R510, R513, R515~R524, R528~R531, R556, R566, R578, R582~R584, R586, R593, R596~R598, R607, R609, R621, R625, R626, R631, R633, R635, R640, R642, R644, R647, R652~R658, R664~R666, R673, R676, R677, R679, R680, R682, R683, R685, R686, R688, R689, R691~R714, R717, R556, R566, R578, R724~R726, R728, R730, R734, R735, R741, R749 R758, R759, R662	309	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 160 3

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
40	2007-007237	R83	1	R-CHIP	;24.3 Kohm, 1%, 1/10 W, TP, 16
41	2007-007445	R418	1	R-CHIP	;9.09 Kohm, 1%, 1/10 W, TP, 16
42	2007-007454	R489, R490,R492, R506~R509	7	R-CHIP	;332 ohm, 1%, 1/10 W, TP, 1608
43	2007-007507	R532~R534, R536~R555, R559~R577, R557, R579~R581, R752, R754, R670, R675, R678, R687, R690, R707, R712, R716, R718, R731~R733, R738, R740, R742, R744, R751, R2, R4, R6, R9, R11~R15, R28~R33, R35~R41,R45~R56, R62, R65, R67, R74, R75, R106, R753, R111~R123, R140, R142, R146, R152, R155, R156, R159, R160, R164, R168, R187, R190, R193, R198, R202, R208, R216, R217, R171, R177, R181, R184, R224, R227, R228, R230, R234, R236~R242, R258, R329, R333, R341, R345, R349, R351, R373, R423, R425, R427, R431, R443	159	R-CHIP	;2.74 Kohm, 1%, 1/10 W, TP, 16 2
44	2007-007610	R428, R429, R450, R451, R720~R723, R745~R748	12	R-CHIP	;301 ohm, 1%, 1/10 W, TP, 1608
45	2007-008081	R419	1	R-CHIP	R-CHIP;1.91 kohm, 1%, 1/10 W, TP, 16

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
46	2007-008223	R84	1	R-CHIP	R-CHIP;39.2 Kohm, 1%, 1/10 W, TP, 16
47	2007-008225	R89	1	R-CHIP	R-CHIP;226 Kohm, 1%, 1/10 W, TP, 160
48	2011-000585	RA1~RA16	16	R-NET	R-NET;47 ohm, 5%, 1/16 W, L, CHIP, 8P
49	2203-000257	C30, C80, C337	3	C-CER	C-CER, CHIP;10 nF, 10%, 50 V, X7R, 16
50	2203-000626	C39, C40, C61, C62, C196	5	C-CER	C-CER, CHIP;0.022 nF, 5%, 50 V, C0G,
51	2203-000998	C92~C95, C104, C112, C113, C115~C134, C145, C148, C154, C157, C158, C162, C172, C173, C175, C176, C178, C203, C305, C314, C330, C333, C335, C338, C340, C1~C12, C58~C60, C87	70	C-CER	C-CER, CHIP;0.047 nF, 5%, 50 V, C0G,
52	2203-000998	C64~C70, C68, C69, C88	-	C-CER	C-CER, CHIP;0.047 nF, 5%, 50 V, C0G,
53	2203-001408	C78, C79	2	C-CER	C-CER, CHIP;0.27 nF, 5%, 50 V, NP0, 1
54	2203-002099	C359	1	C-CER	C-CER, CHIP;0.0068 nF, 5%, 50 V, NP0, 1
55	2203-003027	C28, C31	2	C-CER	C-CER, CHIP;0.82 nF, 5%, 50 V, NP0, T
56	2203-005249	C17, C25, C33, C36, C37, C38, C41~C44, C49, C53, C56, C72, C73, C81, C84, C85, C86, C90, C91, C96~C111, C114, C135~C144, C146, C147, C149~C153, C155, C156, C159~C161, C163~C171, C174, C77, C179~C195, C197~C202, C204~C213, C215, C216, C217, C218, C220~C297, C357, C299~C304, C306, C326, C332, C334, C336, C308~C312, C316~C323	211	C-CER	C-CER, CHIP;100 nF, 10%, 50 V, X7R, 1 2
57	2203-005457	C89, C358	2	C-CER	C-CER, CHIP;1 NF, 10%, 2 KV, X7R, TP,
58	2203-005565	C45, C63, C214, C298, C313	2	C-CER	C-CER, CHIP;1 nF, 5%, 50 V, NP0, TP, 1

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
59	2404-001037	C13, C14, C16, C24, C26, C27, C29, C32, C34, C35	12	C-TA, CHIP	C-TA, CHIP;10, UF, 10%, 16 V, TP, 35
60	2404-001051	C54	1	C-TA, CHIP	C-TA, CHIP;22, UF, 10%, 10 V, GP, TP, 3
61	2404-001288	C18~C23	6	C-TA, CHIP	C-TA, CHIP;2.2UF, 10%, 16 V, WT, TP,
62	2404-001307	C46, C47, C48, C50~C52	6	C-TA, CHIP	C-TA, CHIP;47UF, 10%, 10 V, LR, TP, 3
63	2409-001034	C15	1	C-EDL	;1300000UF, 5.5 V, BK, 21
64	2601-001056	T1	1	TRANS-SMD,	PULSE;350UH, 1:1, 1:
65	2702-001112	L5, L8, L14, L22	4	INDUCTOR-RADIAL	SBT-0260T;60, UH, 35%, 7.5x8
66	2804-001239	Y2	1	SCO-100DS(1.8432 MHZ)	OSCILLATOR-CLOCK;1.8432 MHZ, 50P
67	2804-001247	Y4	1	SCO-10350D-25M	OSCILLATOR-CLOCK;25 MHz, 50, Ppm, 1
68	2804-001302	Y5	1	SCO-10325DSR-66M	OSCILLATOR-CLOCK;66 MHz, 25, Ppm, 1
69	2804-001496	Y1	1	SCO-10350SR-16.384	OSCILLATOR-CLOCK;16.384 MHz, 50p
70	2805-001052	Y3	1	TCXO-STB(20 MHZ)	OSCILLATOR-TCXO;20 MHZ, 4, PPM, 10T
71	2901-000188	M1	1	FILTER-EMI	CFI06B1H470MF ON BOARD;50 V, 1 A, 4
72	3301-000317	L10~L13, L23~L26, L28~L35, L38~L49	28	BEAD-SMD	BLM21AF121SN1D;120 ohm, 2012, TP
73	3301-001120	L3, L4, L7, L9, L27, L36, L37, L63	8	BEAD-SMD	BLM21P300SPT;30 OHM, 2012, 3000, TP
74	3301-001308	L50~L56, L58~L61 L65~L71, L6, L15, L64	21	BEAD-SMD	BLM11B100SB;10 OHM, 1608, 500, TP
75	3301-001463	L1, L2, L16~L21	8	BEAD-SMD	BLM11B121SB;120 OHM, 1608, 200, TP
76	3403-001144	S3	1	SWITCH-PUSH	SP-12FH-S;28 V, 100MA, SPDT, ON-
77	3407-001052	S2	1	SWITCH-DIP	TD08HOSK1;50 V, 100MA, SLIDE, STA
78	3408-000308	S1	1	SWITCH-SLIDE	JSS2207;30 V, 200 mA, DPDT
79	3703-001252	P1, P2, P3, P4, P5	5	CONNECTOR-BACK	89047-102PANEL;30P, 5R, FE

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
80	3709-001139	SM1	1	CONNECTOR-CARD EDGE	CN015R-3123-0;26P, 1.1MM,
81	3710-001432	J1, J2	2	CONNECTOR-SOCKET	HBB-17AS-2.54D;17P, 1R, 2.54MM
82	3722-002045	J4	1	JACK-MODULAR	DEK657PCB8-ST4;8P/8C, INVERTED, Y,
83	GA13-10064A	U10	1	IC ASIC;DCS	STL7065C, QFP, 160P,
84	GA41-00182A	-	1	PCB	MAIN-MP40;OFFICESERV 7400,

6.2 LP40 Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
1	GA92-02927A	-	-	PBA MAIN-LP40	OFFICESERV 7400, MULTIPLE, MULTIPLE, MAIN, CONTROL B'D, ENGINE, EUS, 130 X 275 MM
2	0202-000108	-	0.001	SOLDER-CREAM	RMA-20-21L, 20~38 μm, 62.8SN/36.8PB/0.4AG, 10%
2	0202-001091	-	0.001	SOLDER-BAR	HI-FLO, 20 X 356 X 11, 63SN/37PB
2	0402-001056	D1, D4	2	DIODE-RECTIFIER	MBRS140, 40 V, 1A, CASE403A, TP
2	0403-001164	ZD1	1	DIODE-ZENER	MMSZ5232B, 5.32-5.88 V, 500MW, SOD-123, TP
2	0403-001416	ZD2	1	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500MW, SOD-123, TP
2	0406-001070	D2, D3	2	DIODE-TVS	LC03-6, 6.8/-/-V, 750 W, SO-8
2	0601-001064	LED1, LED2, LED3 LED4, LED5, LED6 LED7, LED8	8	LED	SMD, RED/Y-GRN, 1.7 x 2.5 mm, 660/560 nm, 3 x 2.5 x 1.5 mm
2	0801-002127	U33, U34, U35, U36, U37, U38	6	IC-CMOS, LOGIC	74FCT16245, TRANSCEIVER, TSSOP, 48, 240MIL, DUAL, ST, 4.5/5.5 V
2	0801-002446	U30	1	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173MIL, HEX, TP, 2.0/3.6 V
2	0802-001029	U32	1	IC-BICMOS, LOGIC	74LVTH16245, TRANSCEIVER, TSSOP, 48, 240MIL, DUAL, TP, 2.7/3.6 V
2	0802-001099	U31	1	IC-BICMOS, LOGIC	74LVTH125, BUFFER, TSSOP, 14, 173MIL, QUAD, TP, 2.7/3.6 V
2	0902-001747	U29	1	IC-MICROPROCESSOR	MPC852T, 50MHZ, 32BIT, BGA, 256P, TR, PLSATIC, 1.8 V, 140MW, 0TO+95C, 4/4/8KB, 32BIT, ATM/100
2	1006-000281	U27	1	IC-LINE DRIVER	DS3487, SOP, 16P, 157MIL, QUAD, ST, PLASTIC, 5.25V, 0to+70C, 1051 mW, 4, 0

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	1006-000288	U9, U28	2	IC-LINE, RECEIVER	3486, SOP, 16P, 155MIL, QUAD, ST, PLASTIC, 5.25 V, 0to+70C, 1002 mW, 4
2	1006-001140	U26	1	IC-LINE TRANSCEIVER	3232, SSOP, 16P, 212MIL, DUAL, TP, PLASTIC, 5.5 V, 0to+70C, 571 mW, 2, 2
2	1103-001289	U23	1	IC-EEPROM	93C46, 128 x 8/64 x 16, SOP, 8P, 5 x 4 mm, 2.7/5.5 V, -40to+85C
2	1105-001390	U21, U22	2	IC-DRAM	K4S641632, 1M x 16 x 4BIT, TSOP(II), 54P, 400MIL, 7.5NS, 3.3 V, 10%, 0TO+70C, 30 MA, CMOS, TR
2	1107-001459	U25	1	IC-FLASH MEMORY	29LV320D, 32MBIT, 4M x 8/2M x 16BIT, TSOP, 48P, 18.4 x 12 MM, 90NS, 2.7/3.6 V, -40TO+85C, 0.2UA
2	1107-001534	U24	1	IC-FLASH MEMORY	39VF040, 512K × 8BIT, PLCC, 32P, 13.97 x 11.43 MM, 70NS, 2.7/3.6 V, 15UA, 0TO+70C, 15UA, TP
2	1203-001643	U18	1	IC-RESET	DS1706, SOIC, 8P, 150MIL, PLASTIC, -40TO+85C, TP
2	1203-002046	U17	1	IC-POSI.FIXED, REG.	5209, SOP, 8P, 150MIL, PLASTIC, 1.782/1.818, 0to+125C, 500mA, TP
2	1205-001864	U19	1	IC-TRANSCEIVER	DJLXT972ALC, LQFP, 64P, 393MIL, PLASTIC, 4 V, 0TO+70C, TR
2	1205-002004	U20	1	IC-DIGITAL SWITCH	MT90863, MQFP, 128P, PLASTIC, 3.3 V, 2 W, -40TO+85C, TR
2	1301-001647	U14	1	IC-CPLD	LC4256V-75F256BC, FPBGA, 256P, 17 x 17 MM, 7.5NS, 3.3 V, 10%, 12.5 MA, 0TO+90C, 160, 160, 16
2	2007-000043	R116, R117, R121 R124, R118, R119, R120, R122, R123, R125, R126, R127, R128, R541	14	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2007-000052	R343, R344, R345, R346, R347, R352, R353, R354, R355, R356, R359, R360, R362, R364, R365, R366, R371, R372, R374, R376, R377, R378, R379, R380,R381, R382, R383, R384, R385, R386, R387, R399, R405, R406, R407, R408, R409, R410, R411, R412, R413, R414, R415, R611, R612, R613, R342, R351, R357, R358, R361, R363, R367, R368, R369, R370, R373, R375, R388, R389, R390	67	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R398, R402, R543, R610, R614, R615	-	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000060	R433	1	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000070	R82, R666	2	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
2	2007-001164	R444, R445	2	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
2	2007-002899	R609	1	R-CHIP	10 ohm, 1%, 1/10 W, TP, 1608
2	2007-002987	R93, R95, R96, R97, R98, R104, R113, R400, R401, R403, R404, R593, R594, R595, R596, R616, R617, R619, R627, R628, R631, R92, R94, R99, R100, R101, R102, R103, R105, R115, R618, R629, R630, R632, R633, R634, R664, R665	38	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007049	R446	1	R-CHIP	22.1 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2007-007226	R1, R83, R84, R88, R138, R139, R193, R195, R196, R205, R207, R216, R217, R218, R320, R322, R327, R328, R329, R330, R331, R332, R440, R443, R450, R452, R547, R550, R572, R573, R574, R575, R576, R577, R578, R579, R580, R589, R590, R591, R592, R608, R638, R644, R645, R646, R654, R656, R657, R660, R661, R85, R86, R89, R90, R129, R140, R155, R156, R157, R166, R167, R168, R172, R173, R174, R178, R179, R180, R181, R187, R188, R189, R190, R191, R192, R194, R206, R239, R256, R264, R285, R319, R321, R324, R325, R326, R341, R434, R435, R436, R437, R438, R439, R449, R451, R544, R545, R546, R548, R549, R551, R552, R553, R554, R555, R581, R582, R583, R584, R585, R586, R587, R588, R597, R598, R599, R600, R601, R602, R603, R604, R605, R606, R607, R635, R636, R637, R639, R640, R641, R642, R643, R647, R648, R649, R650, R651, R652, R653, R658, R659, R662, R663	145	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007454	R424, R425, R426, R427, R428, R429, R430, R114, R416, R417, R418, R419, R420, R421, R422, R423	16	R-CHIP	332 ohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R348, R349, R350, R556, R557, R558, R559, R560, R561, R562, R563, R564, R565, R566, R567, R568, R569, R570, R571, R655	20	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007610	R519, R520, R525, R526, R531, R532, R537, R538, R535, R536, R539, R540	12	R-CHIP	301 ohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2011-000585	RA1, RA2, RA3, RA4, RA5, RA6, RA7, RA8, RA9, RA11, RA12, RA13, RA15, RA16, RA17, RA18, RA19, RA20, RA21, RA22, RA23, RA24, RA25, RA26, RA27, RA28, RA29, RA30, RA31, RA32, RA36, RA44, RA45, RA46, RA47, RA49, RA50, RA51, RA52, RA53, RA54, RA55, RA56, RA57, RA58, RA59, RA60, RA80, RA81, RA82, RA83, RA84, RA85	53	R-NET	47 ohm, 5%, 1/16 W, L, CHIP, 8P, TP, 3.2 x 1.6 x 0.5 mm
2	2011-000664	RA61, RA62, RA63, RA64, RA65, RA66, RA67, RA68, RA69, RA74, RA75, RA76, RA78, RA79, RA86, RA87, RA88, RA89	18	R-NET	2.7 Kohm, 5%, 1/16 W, L, CHIP, 8P, TP, 3.2 x 1.6 x 0.5 mm
2	2203-000257	C118, C120, C122, C185, C186	5	C-CER, CHIP	10 nF, 10%, 50 V, X7R, 1608
2	2203-000426	C137, C138, C139	3	C-CER, CHIP	0.018 nF, 5%, 50 V, C0G, 1608
2	2203-000998	C125, C129, C130, C131, C132, C133, C134, C146, C147, C204, C205, C124, C126, C127, C128, C145, C200, C201, C202	19	C-CER, CHIP	0.047 nF, 5%, 50 V, C0G, 1608
2	2203-001408	C140, C141	2	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, 1608
2	2203-002099	C136	1	C-CER, CHIP	0.0068 nF, 0.25pF, 50 V, C0G, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2203-005249	C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C31, C34, C35, C37, C43, C44, C45, C46, C47, C48, C49, C50, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100, C101, C102, C103, C104, C105, C106, C108, C109, C113, C119, C167, C168, C169, C177, C187, C188, C189, C190, C191, C192, C193, C28, C29, C30, C32, C33, C51, C116, C117, C170, C171, C172, C173, C174, C175, C176, C194, C195, C196, C207-C212	129	C-CER, CHIP	100 nF, 10%, 50 V, X7R, 1608
2	2203-005457	C142, C143, C144, C206	4	C-CER, CHIP	1 NF, 10%, 2KV, X7R, TP, 4520
2	2203-005565	C182, C183, C184, C153, C154, C155, C156, C157, C158, C159, C160, C161, C162, C163, C164, C165, C166	17	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
2	2404-001037	C1, C2, C3, C4, C178, C179 C180, C181	8	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528
2	2404-001288	C36	1	C-TA, CHIP	2.2, UF, 10%, 16 V, WT, TP, 3216
2	2601-001056	T1	1	TRANS-SMD, PULSE	350, UH, 1:1, 1:1, 12.7 X 6.73 X 5.97 MM, TP

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2703-000388	L20	1	INDUCTOR-SMD	470, UH, 5%, 3225
2	2804-001239	Y3	1	OSCILLATOR-CLOCK	1.8432 MHZ, 50, PPM, 15PF, TP, 3.3 V, 16 MA
2	2804-001325	Y1	1	OSCILLATOR-CLOCK	50 MHz, 50, Ppm, 10TTL, 15pF, TP, 3.3 V, 40 mA
2	2804-001496	Y2	1	OSCILLATOR-CLOCK	16.384 MHz, 50, Ppm, 10TTL, 15pF, TP, 3.3 V, 40 mA
2	3301-001120	L1, L2, L3, L4, L5, L6, L7, L8, L9, L10	10	BEAD-SMD	30O HM, 2012, 3000, TP, 0.015
2	3301-001308	L12, L13, L14, L15, L16, L18, L19 L11, L17, L21, L22, L23, L24 L25-L31	20	BEAD-SMD	10O HM, 1608, 500, TP, 0.15
2	3403-001144	S1	1	SWITCH-PUSH	28 V, 100MA, SPDT, ON-OFF
2	3703-001252	P1, P2, P3, P4	4	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U
2	3704-000249	U24	1	SOCKET-IC	32P, PLCC, SN, 1.27 mm
2	3710-001659	P5, P6, P7, P8, P9, P10	6	SOCKET-BOARD TO BOARD	40P, 2R, 0.8 MM, SMD-S, AUF, NTR
2	3711-003272	P11	1	HEADER-BOARD TO CABLE	BOX, 10P, 2R, 2.54 mm, STRAIGHT, AUF, BLK
2	3722-002045	P13	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U
2	6002-000154	-	2	SCREW-TAPPING	PH, +, 2, M3, L8, ZPC(YEL), SWRCH18A, P1.35
2	GA13-10064A	U15, U16	2	-	DCS, STL7065C, QFP, 160P
2	GA41-00183A	-	1	PCB MAIN-LP40	OFFICESERV 7400, FR4, 6L, 01, 1.6T, 130 X 275 MM
2	GA68-00289A	-	1	LABEL(P)-BAR, CODE	KEY, PHONE, POLYESTER, T0.05, W6.5, L37.5, WHT, WHT
2	GA72-00242A	-	4	PMO-LEN, LENS-2	SME, PMMA, TRP, T2.0, HI-855M, UL94-HB

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA97-01931A	-	1	MEA-LP40 STIFF ASSY	OFFICESERV 7400, STA, USA, LP40 STIFFENER, LP40 SHIELD, EJECTOR
3	6003-000264	-	1	SCREW-TAPTITE	PWH, +, B, M3, L6, ZPC(YEL), SWRCH18
3	GA70-00075A	-	1	IPR-SHIELD, PLATE, LP40	OFFICESERV7400, STS304, T0.25, W39.4, PASS, L126.4
3	GA72-00240A	-	1	PMO-EJECTOR	SME, PC/ABS, BLANK K2571, T2.5, NH-1000T, UL94-V0
3	GA72-00362A	-	1	PMO-STIFFENER, LP40	OFFICESERV7400, PC/ABS, SIL, 132 X 45 X 33.5, NH-1000T, UL94-V0

6.3 8TRK Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02769A	-	1	PBA MAIN-8PORTA NALOGTRUNK	OFFICESERV 7400, DOM/EXP, KOREA, 8PORTANALOGTRUNK, FR-4, 4, L, 130*275*1.6T, 8 TRK
3	0401-001099	D7-D38	31	DIODE-SWITCHING	1N4148WS, 75 V, 150MA, SOD-323, TP
3	0402-001207	D5, D6	2	DIODE-SCHOTTKY	UPS5819, 40 V, 1000 MA, DO-216AA, TP
3	0403-000549	ZD17-ZD32	16	DIODE-ZENER	RLZJ24B, 23.61-24.92 V, 500 MW, LL-34, TP
3	0403-001416	ZD1-ZD16	16	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
3	0501-000477	Q1-Q16	16	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7X2.5 MM, 660/560 NM, 3X2.5X1.5 MM
3	0604-001002	PC1-PC8	8	PHOTO-COUPLER	TR, 100-600 %, 200 mW, SOP-4, TP
3	0802-000111	U18, U39	2	IC-BICMOS, LOGIC	74FCT245, BUS TRANSCEIVER, SOP, 20, 300 MIL, OCTAL, ST, 4.75/5.25 V
3	0802-001084	U34, U35	2	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	1205-000394	U7-U14	8	IC-CODEC FILTER	TP3057 WM, SOP, 16P, PLASTIC, 5.2
3	2003-000293	R101-R108	8	R-METAL OXIDE	4.7 Kohm, 5%, 2 W, AA, TP, 6x16 mm
3	2007-000043	R85-R100	16	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R109-R116	8	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R82	1	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000063	R117-R124	8	R-CHIP	150 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R8-R15	8	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000287	R133, R134, R32, R34-R53, R74-R81	31	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R84	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007277	R125-R132	8	R-CHIP	392 ohm, 1%, 1/10 W, TP, 1608
3	2007-007547	R135-R145	11	R-CHIP	2.43 Kohm, 1%, 1/10 W, TP, 1608
3	2203-000236	C38	1	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000257	C40-C42, C45, C46	5	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C21-C37, C68, C88, C89	20	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2305-001053	C64-C67, C69-C71, U38	8	C-FILM, LEAD-PEF	2200 nF, 10%, 250 V, TP, 18x8.5x14.5
3	2402-000120	C18, C20, C48-C55	10	C-AL, SMD	10, UF, 2 %, 50 V, GP, TP, 6.6X6.6X5.4 MM
3	2402-000170	C1-C4, C6-C17, C56-C63	24	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3x4.3x5.4
3	3501-001035	K1-K16	16	RELAY-MINIATURE	5 VDC, 140 MW, 2000 MA, 2FORMC, 4 MS, 4 MS
3	3703-001252	P1, P2	2	CONNECTOR-BACK, PANEL	30, P, 5, R, FEMALE, ANGLE-F, AU30U
3	3722-002045	J1	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U
3	4715-000127	DSS1-DSS24	24	SURGE ABSORBER	300 V, 15%, 500 A
3	EC27-30514A	L1	1	COIL, RF	INFOREX, 35, UH, 40 T
3	EC39-00002A	C72-C87	16	CBF HARNESS-BH39 -40305U	COREX-L, AWG22(0.6PI), 52 MM, AWG22(0.6, PI)
3	GA13-00004A	U5, U6	2	IC ASIC-TMC	STL7053E, IDCS500, PREMIUM, 60, PIN, 5 V, QFP, TR
3	GA13-10002A	HYB9-HYB16	8	IC ASIC	DCS/COMPACT EURO, KP-PRS, SIP, 8
3	GA13-10068A	HYB1-HYB8	8	IC HYBRID	STA-1224, DANA/KP-0039SA-T, DIP
3	GA13-10577A	HYB17-HYB20	4	IC HYBRID	COMPACT2, KP0054SA, DIP, 17, 45 mm
3	GA26-50068A	T1-T8	8	TRANS MATCHING-DCS	MATCHING TRANS, 2000 VAC, 600/600
3	GA41-00137A	-	1	PCB-8TRK	OFFICESERV 7400, FR-4, 4, L, 00, 1.6T, 130X275 MM

6.4 TEPRI Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02767A	-	1	PBA MAIN-T1, E1, PRI INTERFACE	OFFICESERV 7400, DOM/EXP, WORLD, T1, E1, PRI INTERFACE, FR-4, 6L, 130*275*1.6T, TEPRI
3	0402-001081	D11-D18	8	DIODE-RECTIFIER	RGF1D, 200V, 1A, DO-214BA, TP
3	0403-001164	ZD1, ZD2	2	DIODE-ZENER	MMSZ5232B, 5.32-5.88 V, 500 MW, SOD-123, TP
3	0406-000127	TVS1, TVS3	2	DIODE-TVS	P6KE18CA, 17.1/18/18.9 V, 600 W, DO
3	0406-001073	U37, U38	2	DIODE-TVS	LC01-6, 8/-/-V, 1500 W, SO-16
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7X2.5 MM, 660/560 NM, 3X2.5X1.5 MM
3	0801-000547	U33	1	IC-CMOS, LOGIC	74ACT273, D FLIP-FLOP, SOP, 20, 300 MIL, OCTAL, ST, 4.5/5.5 V
3	0801-002325	U6	1	IC-CMOS, LOGIC	74LCX04, INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
3	0801-002326	U4, U25	2	IC-CMOS, LOGIC	74LCX32, OR GATE, TSSOP, 14, 173 MIL, QUAD, TP, 2.0/3.6 V
3	0801-002381	U34	1	IC-CMOS, LOGIC	74LCX138, DECODER/DEMULTIPLEXE, SOP, 16, 150 MIL, SINGLE, TP, 2.0/3.6 V
3	0801-002446	U19, U20	2	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
3	0801-002518	U13-U15	3	IC-CMOS, LOGIC	74LCX157, 2-INPUT MULTIPLEXER, TSSOP, 16P, 173 MIL, QUAD, TP, PLASTIC, 0.55 V40to+85
3	0801-002711	U11	1	IC-CMOS, LOGIC	74LCX86, XOR GATE, TSSOP, 14, 173MIL, QUAD, TP, 2.0/3.6 V
3	0802-000111	U21-U23, U26-U32, U8	11	IC-BICMOS, LOGIC	74FCT245, BUS TRANSCEIVER, SOP, 20, 300 MIL, OCTAL, ST, 4.75/5.25 V
3	0802-001084	U39	1	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	0902-000231	U2	1	IC-MICROPROCESSOR	68302, 16.67 MHZ, 16BIT, QFP, 132P, A6, TR, PLASTIC, 5 V, 525 MW, 0TO+70C, 1152 x 8 BIT, 24 BIT,
3	1006-001140	U1	1	IC-LINE TRANSCEIVER	3232, SSOP, 16P, 212 MIL, DUAL, TP, PLASTIC, 5.5 V, 0to+70C, 571 mW, 2, 2

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1105-001114	U16	1	IC-DRAM	4F151611, 1 M x 16 BIT, TSOP, 44P, 400 MIL, 60NS, 5 V, 10%, PLASTIC, 0TO+70C, 1MA, CMOS, ST
3	1106-001136	U24	1	IC-SRAM	7C136, 2 K x 8 BIT, QFP, 52P, 10 x 10 MM, 55NS, 5 V, 10%, PLASTIC, 0TO+70C, 15MA, CMOS, TR
3	1107-001079	U17	1	IC-FLASH MEMORY	29F800, 1 M x 8/512 K x 16, TSOP, 48P, 18.4 x 12 mm, 4.5/5.5 V, 0to+70C
3	1203-001643	U35	1	IC-RESET	DS1706, SOIC, 8P, 150 MIL, PLASTIC40TO+85C, TP
3	1205-001191	U36	1	IC-FRAMER	PEB2254H, QFP, 80P, 300 MIL, PLASTI
3	1301-001499	U9	1	IC-CPLD	4A5, TQFP, 44P, 10 x 10 mm, 10 nS, 5, 5 %
3	1404-001115	THER1-THER4	4	THERMISTOR-PTC	0.1 ohm, 30%, 30 Vac, 40A, 2.2A, BK
3	2007-000052	R10-R19, R1000, R186, R189, R192	14	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R194-R199, R20-R30, R201, R3	18	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R301-R308, R31, R32, R352, R4	12	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R73-R75, R77, R79, R81-R84, R87	10	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R88, R89, R903-R920, R91, R92	22	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R922-R924, R926, R967, R969, R971	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R972, R984, R994-R999	8	R-CHIP	10Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R123, R76, R964-R966	5	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000287	R1, R101, R151, R193, R2, R200, R242	7	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R5, R78, R850, R928-R938, R95	15	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R985-R987	3	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000536	R973	1	R-CHIP	200 ohm, 1%, 1/10 W, TP, 1608
3	2007-000969	R974, R975	2	R-CHIP	5.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-002901	R979	1	R-CHIP	12.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007302	R137, R970	2	R-CHIP	24.9 ohm, 1%, 1/10 W, TP, 1608
3	2007-007454	R251-R258	8	R-CHIP	332 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R202-R241, R243-R248, R33-R71	85	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R86, R90, R93, R94, R939-R960, R962	27	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R988-R993	6	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-008105	R976, R977	2	R-CHIP	18.2 ohm, 1%, 1/10 W, TP, 1608
3	2007-008111	R978	1	R-CHIP	191 ohm, 1%, 1/10 W, TP, 1608
3	2007-008122	R102-R113, R85	13	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2203-000041	C165, C166	2	C-CER, CHIP	0.01 NF, 0.25PF, 50 V, C0G, TP, 1608
3	2203-000236	C10-C12, C158, C17-C22, C52, C53	12	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000236	C6-C9, C88-C96	13	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000257	C190	1	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
3	2203-001408	C188, C189, C191-C193	5	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-003027	C164	1	C-CER, CHIP	0.82 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005009	C167, C168	2	C-CER, CHIP	0.0056 nF, 0.25, PF, 50 V, NP0, TP, 1608
3	2203-005249	C1, C13-C16, C156, C159-C163	11	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C169-C187, C194, C195, C2, C23	23	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C26-C29, C3-C5, C31-C34, C61, C81	13	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C82-C86	5	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005457	C197, C198	2	C-CER, CHIP	1 NF, 10%, 2 KV, X7R, TP, 4520
3	2402-000204	C157, C56	2	C-AL, SMD	10, UF, 20%, 16 V, WT, TP, 4.3 x 4.3 x 5.4
3	2602-000054	T1, T2	2	TRANS-PULSE	4 MH, 1:1.41, 14 x 12.5 x 13 MM, TR
3	2801-004043	Y7	1	CRYSTAL-SMD	12.352 MHZ, 15, PPM, 28-ABX, 18PF, 50 OHM, TP
3	2801-004044	Y5, Y6	2	CRYSTAL-SMD	16.384 MHZ, 20, PPM, 28-ABX, 18PF, 50 OHM, TP
3	2804-001453	Y4	1	OSCILLATOR-CLOCK	32.768 MHZ, 50, PPM, TTL, TP, 3.3 V, 40MA
3	2804-001496	Y1	1	OSCILLATOR-CLOCK	16.384 MHZ, 50, PPM, 10 TTL, 15PF, TP, 3.3V, 16MA
3	2901-000188	B14-B18	5	FILTER-EMI ON BOARD	50 V, 1 A, 47pF, 7.5 x 2.5 x 6.2 mm, TP
3	3301-001308	B13, B3-B9, L1	9	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
3	3403-001104	S2	1	SWITCH-PUSH	28 V, 0.4A, 1P, MOMENTARY, D2.8(Plunger)
3	3404-001008	SW2	1	SWITCH-TACT	15 V, 50MA, 160GF, 6 x 6 x 5 MM, SPST
3	3407-000131	S1	1	SWITCH-DIP	24 V, 300mA, SLIDE, STANDARD
3	3703-001252	P26, P27	2	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U
3	3710-000001	J1, J2, JP3-JP9	9	CONNECTOR-SHUNT	2P, 1R, STRAIGHT, AUF

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3710-001659	P18, P19	2	CONNECTOR-SOCKET	40P, 2R, 0.8 MM, SMD-S, AUF, NTR
3	3711-001465	J1, J2, JP3-JP9	9	CONNECTOR-HEADER	NOWALL, 3P, 1R, 2.54 mm, STRAIGHT, A
3	3711-003272	P12	1	CONNECTOR-HEADER	BOX, 10P, 2R, 2.54 mm, STRAIGHT, AU
3	3722-001050	P11	1	JACK-MODULAR	8P/8C 2, STANDARD, Y, ANGLE, STANDARD, N, BLK, AU50U
3	4711-000162	U10	1	DELAY, LINE	200ns, 8.1 x 19.8 x 6.4 mm, ST
3	4715-000127	SUR1-SUR6	6	SURGE ABSORBER	300 V, 15%, 500A
3	GA41-00135A	-	1	PCB-TEPRI	OFFICESERV 7400, FR -4, 4L, 00, 1.6T, 130 x 275 MM

6.5 TEPRI2 Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
1	GA92-02935A	-	1	PBA MAIN-TEPRI2	OFFICESERV 7400, DOM/EXP, WORLD, T1, E1, PRI INTERFACE, FR-4, 130 x 275 MM
2	0401-001099	D2	1	DIODE-SWITCHING	1N4148WS, 75 V, 150MA, SOD-323, TP
2	0402-001056	D1	1	DIODE-RECTIFIER	MBRS140, 40 V, 1 A, CASE403A, TP
2	0403-001164	ZD4	1	DIODE-ZENER	MMSZ5232B, 5.32-5.88 V, 500MW, SOD-123, TP
2	0403-001416	ZD3	1	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500MW, SOD-123, TP
2	0406-001070	D3, D4	2	DIODE-TVS	LC03-6, 6.8/-/-V, 750 W, SO-8
2	0406-001073	D5-D8	4	DIODE-TVS	LC01-6, 8/-/-V, 1500 W, SO-16
2	0406-001074	D9, D10	2	DIODE-TVS	SRDA3.3-4, 3.5/-/-V, 500W, SO-8
2	0406-001230	ZD1, ZD2	2	DIODE-TVS	P6SMB18CAT3G, 17.1/18/18.9 V, 600W, SMB
2	0601-001064	LED1-LED12	12	LED	SMD, RED/Y-GRN, 1.7 x 2.5 MM, 660/560 NM, 3 x 2.5 x 1.5 MM
2	0801-002127	U15, U16, U17	3	IC-CMOS, LOGIC	74FCT16245, TRANSCEIVER, TSSOP, 48, 240MIL, DUAL, ST, 4.5/5.5 V
2	0802-001029	U11, U13	2	IC-BICMOS, LOGIC	74LVTH16245, TRANSCEIVER, TSSOP, 48, 240MIL, DUAL, TP, 2.7/3.6 V
2	0802-001037	U4	1	IC-BICMOS, LOGIC	74LVT245, BUS TRANSCEIVER, TSSOP, 20, 173MIL, OCTAL, TP, 2.7/3.6 V
2	1006-001140	U1	1	IC-LINE TRANSCEIVER	3232, SSOP, 16P, 212MIL, DUAL, TP, PLASTIC, 5.5 V, 0to+70C571 mW, 2, 2
2	1103-001289	U8	1	IC-EEPROM	93C46, 128 x 8/64 x 16, SOP, 8P, 5 x 4 mm, 2.7/5.5 V, -40to+85C
2	1105-001390	U18, U21	2	IC-DRAM	K4S641632, 1M x 16 x 4 BIT, TSOP(II), 54P, 400 MIL, 7.5NS, 3.3 V, 10%, 0TO + 70C, 30MA, CMOS, TR
2	1106-001058	U14	1	IC-SRAM	71321, 2KX8BIT, TQFP, 64P, 10 x 10 MM, 35NS, 5 V, 10%

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	1107-001459	U20	1	IC-FLASH MEMORY	29LV320D, 4M x 8/2M x 16, TSOP, 48P, 18.4 x 12 mm, 2.7/3.6 V, -40 to + 85C
2	1107-001534	U19	1	IC-FLASH MEMORY	39VF040, 512Kx8BIT, PLCC, 32P, 13.97 X 11.43MM, 70NS, 2.7/ 3.6 V, 15UA
2	1203-001643	U3	1	IC-RESET	DS1706, SOIC, 8P, 150MIL, PLASTIC, -40TO+85C, TP
2	1203-002046	U10	1	IC-POSI.FIXED REG.	5209, SOP, 8P, 150MIL, PLASTIC, 1.782/1.818, 0to+125C, 500
2	1205-001864	U2	1	IC-TRANSCEIVER	DJLXT972ALC, LQFP, 64P, 393MIL, PLASTIC, 4 V, 0TO+70C, TR
2	1205-002786	U6, U7	2	IC-FRAMER	PEF2256H, QFP, 80P, 14 x 14 mm, PLASTIC
2	1301-001647	U5	1	IC-CPLD	LC4256V-75F256BC, FPBGA, 256P, 17 x 17 MM, 7.5NS, 3.3 V, 10%, 12.5MA, 0TO+90C, 160, 160, 16
2	1404-001115	THY1-THY5	8	THERMISTOR-PTC	0.1 ohm, 30%, 30Vac, 40 A, 2.2A, BK
2	2007-000052	R12-R14, R21, R28, R48, R49	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R52, R53, R63, R73, R74, R76	6	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R79, R81, R82, R84, R85, R87	6	R-CHIP	10 Kohm, 1%, 1/10W, TP, 1608
2	2007-002987	R45, R46, R50, R51, R54, R55	6	R-CHIP	4.75 Kohm, 1%, 1/10W, TP, 1608
2	2007-002987	R60, R61, R90, R91, R93, R94	6	R-CHIP	4.75 Kohm, 1%, 1/10W, TP, 1608
2	2007-002987	R95-R97, R101, R102	5	R-CHIP	4.75 Kohm, 1%, 1/10W, TP, 1608
2	2007-002987	R103-R106, R114	5	R-CHIP	4.75 Kohm, 1%, 1/10W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2007-002987	R120, R131, R224, R226, R228	5	R-CHIP	4.75 Kohm, 1%, 1/10W, TP, 1608
2	2007-002987	R286, R299-R301	4	R-CHIP	4.75 Kohm, 1%, 1/10W, TP, 1608
2	2007-007049	R11	1	R-CHIP	22.1 Kohm, 1%, 1/10W, TP, 1608
2	2007-007226	R3-R10, R15, R16, R18, R20	12	R-CHIP	49.9 ohm, 1%, 1/10W, TP, 1608
2	2007-007226	R22-R27, R29-R34, R56	13	R-CHIP	49.9 ohm, 1%, 1/10W, TP, 1608
2	2007-007226	R64-R67, R69, R70, R75	7	R-CHIP	49.9 ohm, 1%, 1/10W, TP, 1608
2	2007-007226	R77, R78, R80, R107-R113	10	R-CHIP	49.9 ohm, 1%, 1/10W, TP, 1608
2	2007-007226	R115-R119, R121, R124-R130	13	R-CHIP	49.9 ohm, 1%, 1/10W, TP, 1608
2	2007-007226	R133-R141, R143, R144, R148	12	R-CHIP	49.9 ohm, 1%, 1/10W, TP, 1608
2	2007-007226	R152-R154, R161-R165	8	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007226	R167-R181, R184-R199	31	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007226	R215, R216, R219, R222, R227	5	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007226	R229-R231, R233-R236	7	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2007-007226	R238-R249, R254, R257, R262	15	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007226	R275, R277, R281, R287, R290	5	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007226	R291, R297, R309, R314, R315	5	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007226	R318, R322-R324, R327, R328	6	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007454	R202-R214	13	R-CHIP	332 ohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R89, R92, R99, R100, R122	35	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R142, R145, R146, R149-R151	6	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R155-R160, R265, R266	8	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R269-R274, R278, R280	8	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R283, R288, R293, R295	4	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R298, R302, R305, R307	4	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2007-007776	R296	1	R-CHIP	604 ohm, 1%, 1/10 W, TP, 1608
2	2011-000585	RA1-RA24	24	R-NET	47 OHM, 5%, 1/16 W, L, CHIP, 8P, TP
2	2203-000236	C30, C32	2	C-CER, CHIP	0.1n F, 5%, 50 V, C0G, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2203-000257	C7, C27, C37, C107, C160, C161	6	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
2	2203-000998	C17, C18, C26, C44, C78-C81	8	C-CER, CHIP	0.047 NF, 5%, 50 V, C0G, TP, 1608
2	2203-000998	C83-C86, C167-C170, C179	9	C-CER, CHIP	0.047 NF, 5%, 50 V, C0G, TP, 1608
2	2203-001408	C3, C4, C12, C13, C20.C21	6	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
2	2203-001656	C96	1	C-CER, CHIP	0.47 nF, 5%, 50 V, NP0, TP, 1608
2	2203-002099	C38	1	C-CER, CHIP	0.0068 NF, 0.25, PF, 50 V, C0G, TP, 1608
2	2203-005218	C24, C25	2	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
2	2203-005249	C2, C8-C11, C19, C35, C36	8	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
2	2203-005249	C43, C45-C71, C73	29	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
2	2203-005249	C75-C77, C82, C87-C95	13	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
2	2203-005249	C97-C106, C108-C136	39	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
2	2203-005249	C138-C158, C163-C166	25	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
2	2203-005249	C172-C178	7	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
2	2203-005457	C1, C5, C6, C171	4	C-CER, CHIP	1 NF, 10%, 2KV, X7R, TP, 4520
2	2203-005565	C42, C72, C74, C137	4	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
2	2404-001037	C14, C22, C23, C28, C29	5	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528
2	2404-001037	C31, C33, C34, C159	4	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2601-001056	T1	1	TRANS-SMD, PULSE	350, UH, 1:1, 1:1, 12.7 X 6.73 X 5.97 MM, TP
2	2601-001139	T2, T3	2	TRANS-SMD, PULSE	1 MH, 0.85 OHM, 12.83 X 9.53 X 6.22 MM, TAPE & REEL
2	2703-000388	L9	1	INDUCTOR-SMD	470, UH, 5%, 3225
2	2804-001239	Y3	1	OSCILLATOR-CLOCK	1.8432 MHZ, 50, PPM, 3.3 V
2	2804-001325	Y2	1	OSCILLATOR-CLOCK	50 MHZ, 50, PPM, 10 TTL &, CMOS, TP, 3.3 V, 40 MA
2	2804-001602	Y1, Y4	2	OSCILLATOR-CLOCK	16.384 MHZ, 25, PPM, 10 TTL 15, PF, TP, 3.3 V, 16 MA
2	2901-000188	M1, M2	2	FILTER-EMI ON BOARD	50 V, 1 A, 47, PF, 7.5 x 2.5 x 6.2 mm, TP
2	3301-001120	L2-L4, L6-L8, L10-L12, L17	10	BEAD-SMD	30 ohm, 2 x 1.25 x 0.85 mm, 3000 mA, TP, 0.015 ohm
2	3301-001308	L1, L5, L13-L16	6	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
2	3403-001144	S1	1	SWITCH-PUSH	28 V, 100 MA, SPDT, ON-OFF,
2	3407-001067	S2, S3	2	SWITCH-DIP	5 V, 100 MA, SLIDE, STANDARD
2	3703-001252	P1-P3	3	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U
2	3704-000249	U19	1	SOCKET-IC	32P, PLCC, SN, 1.27 mm
2	3710-000001	J1-J4	4	CONNECTOR-SHUNT	2P, 1R, STRAIGHT, AUF
2	3711-001465	J1-J4	4	CONNECTOR-HEADER	NOWALL, 3P, 1R, 2.54mm, STRAIGHT, A
2	3722-001049	P5	1	JACK-MODULAR	8P/8C 4, STANDARD, Y, ANGLE, INVERTED, N, BLK, AU50U
2	4715-001082	SUR1-SUR12	12	SURGE ABSORBER	300 V, 15%, 1500 A, SMD
2	6002-000154	-	2	SCREW-TAPPING	PH, +, 2, M3, L8, ZPC(YEL), SWRCH18A, P1.35
2	GA13-10064A	U9	1	IC ASIC	DCS, STL7065C, QFP, 160P,

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA41-00179A	01	1	PCB-TEPRI2	OFFICESERV 7400, ROH, 6, 01, 1.6T, 130 X 275 MM
2	GA68-00289A	XX	1	LABEL(P)-BAR, CODE	KEY, PHONE, POLYESTER, T0.05, W6.5, L37.5, WHT, WHT
2	GA72-00241A	-	6	PMO-LEN, LENS-2	SME, PMMA, TRP, T1.0, IF-830, UL94-HB
2	GA97-01930A	-	1	MEA-TEPRI2 STIFF ASSY	OFFICESERV 7400, STA, USA, TEPRI2 STIFFENER, TEPRI2 SHIELD, EJECTOR
3	6003-000264	-	1	SCREW-TAPTITE	PWH, +, B, M3, L6, ZPC(YEL), SWRCH18
3	GA70-00076A	-	1	IPR-SHIELD, PLATE TEPRI2	OFFICESERV SME, STS304, T0.3, W126.4, PASS, L39.4
3	GA72-00240A	-	1	PMO-EJECTOR	SME, PC-ABS, BLACK, T2.5, NH-1000T, ULU94-V0
3	GA72-00361A	-	1	PMO-STIFFENER TEPRI	OFFICESERV SME, PC-ABS, SILVER, 132X45X33.6, NH-1000T, UL94-V0

6.6 8SLI Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
0	KP-OSDB8S	-	-	-	-
2	GA92-02768A	-	1	PBA MAIN-8PORTAN ALOGSUBSCRIBE	OFFICESERV 7200, DOM/EXP, KOR, 8PORTANALOGSUBSCRIBE, FR-4, 4L, 130*275*1.6 T, 8 SLI
3	0401-001099	D1-D16, D44	17	DIODE-SWITCHING	1N4148 WS, 75 V, 150 MA, SOD-323, TP
3	0402-001049	D38	1	DIODE-RECTIFIER	MURS160, 600 V, 1 A, DO-20, TP
3	0402-001216	D17, D26-D29, D39	6	DIODE-RECTIFIER	MURS120, 200 V, 1 A, TO-220 F, TP
3	0403-000283	ZD33-ZD36	4	DIODE-ZENER	MMBZ5234B, 5.78-6.44 V, 225 MW, SOT-23, TP
3	0403-001396	ZD37, ZD38	2	DIODE-ZENER	MMSZ5263B, 5%, 500 MW, SOD-123, TP
3	0403-001416	ZD1-ZD16	16	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
3	0501-000476	Q33, Q35, Q37, Q39, Q41, Q43, Q45, Q47	8	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000477	Q12, Q14, Q15, Q17-Q24, Q2, Q34, Q36	14	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0501-000477	Q38, Q4, Q40, Q42, Q44, Q46, Q48-Q56	15	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0501-000477	Q6, Q8, Q9	3	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0502-001066	Q1, Q3, Q5, Q7, Q10, Q11, Q13, Q16	8	TR-POWER	PZTA42, NPN, 1000 mW, SOT-223, TP, 25-
3	0502-001067	Q25-Q32	8	TR-POWER	FZT957, PNP, 3 W, SOT-223, TP, 100-3
3	0505-001477	Q58, Q69	2	FET-SILICON	SFR9220, P, 200 V, 3.1A, 1.5 ohm, 30 W, D-PAK
3	0505-001478	Q57, Q59, Q60	3	FET-SILICON	FQU5N40, N, 400 V, 3.4 A, 1.6 ohm, 45 W, I-PAK
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7 x 2.5 MM, 660/560 NM, 3 x 2.5 x 1.5 MM
3	0604-001002	U22-U24	3	PHOTO-COUPLER	TR, 100-600%, 200 mW, SOP-4, TP

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0801-002215	U6	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300 MIL, SINGLE, TP, 4.5/5.5 V
3	0801-002403	U16	1	IC-CMOS, LOGIC	74LC x 08, AND GATE, TSSOP, 14, 173 MIL, QUAD, TP, 2.0/3.6 V
3	0801-002446	U15, U17, U95, U97	4	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
3	0802-001026	U1, U2, U5	3	IC-BICMOS, LOGIC	74ABT16245, BUS TRANSCEIVER, TSSOP, 48, 380 MIL, QUAD, TP, 4.5/5.5 V
3	0802-001084	U12	1	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	1203-000302	U19	1	IC-PWM, CONTROLLER	3842B, SOP, 14P, 150 MIL, PLASTIC, 3
3	1203-001213	U96	1	IC-POSI.ADJUST REG.	431A, SOP, 8P, 150 MIL, PLASTIC, 37 V
3	1205-000394	U10, U13, U14, U3, U4, U7-U9	8	IC-CODEC FILTER	TP3057 WM, SOP, 16, P, PLASTIC, 5.2
3	1405-000125	V17	1	VARISTOR	220 V, 4500 A, 17 x 4.2 mm, TP
3	1405-000130	V1-V8	8	VARISTOR	270 V, 1200 A, 9 x 4.6 mm, TP
3	2003-000144	R396-R398	3	R-METAL OXIDE	100 ohm, 2%, 2 W, AA, TP, 6 x 16 mm
3	2003-001032	R1, R12, R13, R16, R17, R20, R21, R24	8	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-001032	R25, R28, R29, R32, R4, R5, R8, R9	8	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-002037	R530, R531, R55-R62	10	R-METAL OXIDE(S)	270 ohm, 5%, 2 W, AF, TP, 3.9 x 10 mm
3	2007-000040	R10, R11, R14, R15, R18, R19, R2, R22	8	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608
3	2007-000040	R23, R26, R27, R3, R30, R31, R6, R7	8	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000041	R515-R522	8	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R171, R175, R179, R183, R187, R191, R195	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R199, R230, R231, R254, R278, R283, 48	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R63, R66, R69, R72, R75, R78, R81, R84	8	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000045	R286	1	R-CHIP	3.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R101, R102, R105, R108, R111, R114, R117	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R120, R123, R131, R168, R210-R225, R237	21	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R242, R244, R249-R251, R299, R46, R523	8	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R524-R527, R87, R89, R90	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R228, R256, R266, R267, R279, R280, R282	7	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R285, R303, R361, R103, R106, R109, R112	7	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R115, R118, R121, R124, R134, R135, R137	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R138, R140, R141, R143, R144, R146, R147	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R149, R150, R152, R153, R155, R156, R269	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R281, R284, R304	3	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R529	1	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000287	R100, R126-R130, R132, R157, R158, R167	10	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R202-R209, R226, R232, R33-R45, R49, R50	25	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R503-R506, R51-R54, R88, R91-R98	17	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R227	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R170, R174, R178, R182, R186, R190, R194	7	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R198	1	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-001139	R243	1	R-CHIP	7.5 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002901	R253	1	R-CHIP	12.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R172, R173, R176, R177, R180, R181, R184	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R185, R188, R189, R192, R193, R196, R197	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R200, R201, R233-R236, R238-R241, R366	11	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R367	1	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002912	R268	1	R-CHIP	33.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R133, R136, R139, R142, R145, R148, R151	7	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R154, R159-R166, R64, R67, R70, R73, R76	14	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R79, R82, R85	3	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007226	R252	1	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
3	2007-007443	R255	1	R-CHIP	3.01 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007613	R471-R480, R487-R490, R493, R494	16	R-CHIP	121 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R507-R514	8	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R104, R107, R110, R113, R116, R119, R122	7	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R125, R65, R68, R71 R74, R77, R80, R83	8	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R86	1	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008150	R257-R260, R270-R273	8	R-CHIP	12.1 ohm, 1%, 1/10 W, TP, 1608
3	2011-001099	HYB2, HYB4	2	R-NET	300 ohm, 5%, 2 W, X, ARRAY, 10P, BK
3	2203-000426	C283	1	C-CER, CHIP	0.018 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000888	C137, C139	2	C-CER, CHIP	4.7 nF, 10%, 50 V, X7R, TP, 1608
3	2203-001408	C279, C281, C282	3	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
3	2203-001656	C138	1	C-CER, CHIP	0.47 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005144	C102, C103, C106, C121, C124, C125, C128	7	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C26, C29, C30, C33, C51, C54, C55, C58, C99	9	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005249	C1, C10, C100, C101, C104, C105, C109, C11	8	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C110-C113, C116-C118, C12, C122, C123	10	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C126, C127, C13-C20, C131, C132, C153, C2	14	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005249	C23-C25, C27, C28, C3, C31, C32, C36-C38	11	C-CER, CHIP	100 nF, 10 %, 50 V, X7R, TP, 1608
3	2203-005249	C4-C9, C41, C42, C52, C53, C56, C57, C78	13	C-CER, CHIP	100 nF, 10 %, 50 V, X7R, TP, 1608
3	2203-005249	C98	1	C-CER, CHIP	100 nF, 10 %, 50 V, X7R, TP, 1608
3	2203-005457	C275, C276	2	C-CER, CHIP	1 NF, 10 %, 2 KV, X7R, TP, 4520
3	2203-005565	C97	1	C-CER, CHIP	1 nF, 5 %, 50 V, NP0, TP, 1608
3	2305-000385	C175	1	C-FILM, LEAD-PEF	470 nF, 10 %, 250 V, BK, 18 x 6 x 12, 15
3	2401-001216	C246-C249	4	C-AL	4.7, UF, 20 %, 100 V, GP, TP, 5 x 11, 5
3	2402-000120	C274, C61, C63, C65 C67, C69, C71, C73	8	C-AL, SMD	10, UF, 20 %, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000120	C75	1	C-AL, SMD	10, UF, 20 %, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000130	C62, C64, C66, C68, C70, C72, C74, C76	8	C-AL, SMD	2.2, UF, 20 %, 50 V, GP, TP, 4.3 x 4.3 x 5.
3	2402-000170	C43-C50	8	C-AL, SMD	1, UF, 20 %, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
3	2402-001083	C135, C154, C202, C213	4	C-AL, SMD	100, UF, 20 %, 50 V, GP, TP, 10 x 10.3 x 10
3	2402-001224	C258-C260, C264-C267, C269, C81-C96	24	C-AL, SMD	10, UF, ±20 %, 100 V, GP, TP, 8.0 x 10.0 MM
3	2901-000188	M2, M3	2	FILTER-EMI ON BOARD	50 V, 1A, 47pF, 7.5 x 2.5 x 6.2 mm, TP
3	3301-001308	L2, L3, L6, L7	4	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
3	3501-001139	K1-K9	9	RELAY-MINIATURE	4.5 VDC, 140 MW, 1000 MA, 2FORMC, 4 MS, 4 MS
3	3703-001252	J1, J2	2	CONNECTOR-BACK, PANEL	30, P, 5R, FEMALE, ANGLE-F, AU30U
3	3722-002045	J3	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	EC26-20501A	T1-T8	8	TRANS AF	INFOREX, 800 mH
3	EC27-30514A	L1	1	COIL RF	INFOREX, 35UH, 40T
3	GA13-10066A	U11	1	IC ASIC	DCS, SBS-9401, QFP, 80P
3	GA13-10576A	HYB1, HYB3	2	IC HYBRID-BALANCE	DCS-KOR, KP0078SA, SIP, 20, 2000
3	GA26-30073A	T17	1	TRANS, POWER	DCS48 V//13 V/85 V, 877, UH//100, UH
3	GA41-00136A	-	1	PCB-8SLI	OFFICESERV 7200, FR-4, 4, L, 00, 1.6T, 130 x 275 MM

6.7 16SLI Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02784A	-	1	PBA MAIN-16PORTANALOGSUBSCIBE	OFFICESERV 7200, DOM/EXP, KOREA, 16PORTANALOGSUBSCIBE, FR-4, 6, L, 130*275*1.6 T, 16 SLI
3	0401-001099	D1-D16, D18-D25, D30-D37, D44	33	DIODE-SWITCHING	1N4148WS, 75 V, 150 MA, SOD-323, TP
3	0402-001049	D38	1	DIODE-RECTIFIER	MURS160, 600 V, 1 A, DO-20, TP
3	0402-001216	D17, D26-D29, D39	6	DIODE-RECTIFIER	MURS120, 200 V, 1 A, TO-220F, TP
3	0403-000283	ZD33-ZD36	4	DIODE-ZENER	MMBZ5234B, 5.78-6.44 V, 225 MW, SOT-23, TP
3	0403-001396	ZD37, ZD38	2	DIODE-ZENER	MMSZ5263B, 5%, 500 MW, SOD-123, TP
3	0403-001416	ZD1-ZD32	32	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
3	0501-000476	Q33, Q35, Q37, Q39, Q41, Q43, Q45	7	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000476	Q47, Q70, Q72, Q74, Q76, Q78, Q80	7	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000476	Q82, Q84	2	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000477	Q100, Q101, Q110-117, Q12, Q14	12	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0501-000477	Q15, Q17-Q24, Q2, Q34, Q36, Q38, Q4	14	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0501-000477	Q40, Q42, Q44, Q46, Q48-Q56, Q6	14	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0501-000477	Q61-Q68, Q71, Q73, Q75, Q77, Q79	13	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0501-000477	Q8, Q9, Q81, Q83, Q85, Q94-Q99	11	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0502-001066	Q1, Q10, Q11, Q13, Q16, Q102-Q109	13	TR-POWER	PZTA42, NPN, 1000 mW, SOT-223, TP, 25-

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0502-001066	Q3, Q5, Q7	3	TR-POWER	PZTA42, NPN, 1000 mW, SOT-223, TP, 25-
3	0502-001067	Q25-Q32, Q86-Q93	16	TR-POWER	FZT957, PNP, 3 W, SOT-223, TP, 100-3
3	0505-001477	Q58, Q69	2	FET-SILICON	SFR9220, P, 200 V, 3.1 A, 1.5 ohm, 30 W, D-PAK
3	0505-001478	Q57, Q59, Q60	3	FET-SILICON	FQU5N40, N, 400 V, 3.4 A, 1.6 ohm, 45 W, I-PAK
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7X2.5 MM, 660/560 NM, 3X2.5X1.5 MM
3	0604-001002	U22-U24	3	PHOTO-COUPLER	TR, 100-600%, 200 mW, SOP-4, TP
3	0801-002215	U6	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300 MIL, SINGLE, TP, 4.5/5.5 V
3	0801-002403	U16	1	IC-CMOS, LOGIC	74LCX08, AND GATE, TSSOP, 14, 173 MIL, QUAD, TP, 2.0/3.6 V
3	0801-002446	U15, U17, U95, U97, U98	5	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
3	0802-001026	U1, U2, U5	3	IC-BICMOS, LOGIC	74ABT16245, BUS TRANSCEIVER, TSSOP, 48, 380 MIL, QUAD, TP, 4.5/5.5 V
3	0802-001084	U12	1	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	1203-000302	U19	1	IC-PWM, CONTROLLER	3842B, SOP, 14P, 150 MIL, PLASTIC, 3
3	1203-001213	U96	1	IC-POSI.ADJUST REG.	431A, SOP, 8P, 150 MIL, PLASTIC, 37 V
3	1205-000394	U3, U4, U7-U10, U13, U14, U20, U21	10	IC-CODEC FILTER	TP3057WM, SOP, 16, P, PLASTIC, 5.2
3	1205-000394	U25-U30	6	IC-CODEC FILTER	TP3057WM, SOP, 16, P, PLASTIC, 5.2
3	1405-000125	V1-V17	17	VARISTOR	220 V, 4500 A, 17 x 4.2 mm, TP
3	2003-000144	R396-U398	3	R-METAL OXIDE	100 ohm, 2%, 2 W, AA, TP, 6 x 16 mm
3	2003-001032	R1, R12, R13, R16, R17, R20, R21, R24	8	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-001032	R25, R28, R29, R32, R4, R439, R442	7	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2003-001032	R443, R446, R447, R450, R451, R454, R455	7	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-001032	R458, R459, R462, R463, R466, R467, R470	7	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-001032	R5, R8, R9	3	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-002037	R402, R406, R410, R414, R418, R422, R426	7	R-METAL OXIDE(S)	270 ohm, 5%, 2 W, AF, TP, 3.9 x 10 mm
3	2003-002037	R430, R530-R533, R55-R62	13	R-METAL OXIDE(S)	270 ohm, 5%, 2 W, AF, TP, 3.9 x 10 mm
3	2007-000040	R10, R11, R14, R15, R18, R19, R2, R22, R23	9	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608
3	2007-000040	R26, R27, R3, R30, R31, R440, R441, R444	8	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608
3	2007-000040	R445, R448, R449, R452, R453, R456, R457	7	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608
3	2007-000040	R460, R461, R464, R465, R468, R469, R6, R7	8	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608
3	2007-000041	R515-R522	8	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R171, R175, R179, R183, R187, R191, R195	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R199, R230, R231, R254, R278, R283, R306	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R310, R314, R318, R322, R326, R330, R334	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R399, R403, R407, R411, R415, R419, R423	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000043	R427, R48, R63, R66 R69, R72, R75, R78	8	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R81, R84	2	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000045	R286	1	R-CHIP	3.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R101, R102, R105, R108, R111, R114, R117	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R120, R123, R131, R168, R210-R225, R229	21	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R237, R242, R244, R249-R251, R261, R287	8	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R288-R302, R338, R341, R344, R347, R350	20	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
	2007-000052	R353, R356, R359, R46, R523-R527, R87	10	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R89, R90	2	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R228, R256, R266, R267, R279, R280, R282	7	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R285, R303, R361	3	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R103, R106, R109, R112, R115, R118, R121	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R124, R134, R135, R137, R138, R140, R141	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R143, R144, R146, R147, R149, R150, R152	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R153, R155, R156, R269, R281, R284, R304	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000066	R337, R340, R343, R346, R349, R352, R355	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R358, R368, R369, R371, R372, R374, R375	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R377, R378, R380, R381, R383, R384, R386	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R387, R389, R390	3	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R529	1	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000287	R126-R130, R132, R157, R158, R167, R202	10	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R203-R209, R226, R232, R247, R248, R33	12	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R34-R45, R49-R54, R503-R506	22	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R88, R91-R99	10	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R227	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R170, R174, R178, R182, R186, R190, R194	7	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R198, R305, R309, R313, R317, R321, R325	7	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R329, R333	2	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-001139	R243	1	R-CHIP	7.5 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002901	R253	1	R-CHIP	12.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R172, R173, R176, R177, R180, R181, R184	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-002910	R185, R188, R189, R192, R193, R196, R197	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R200, R201, R233-R236, R238-R241, R262	11	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R263-R265, R274-R277, R307, R308, R311	10	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R312, R315, R316, R319, R320, R323, R324	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R327, R328, R331, R332, R335, R336, R366	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R367	1	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002912	R268	1	R-CHIP	33.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R133, R136, R139, R142, R145, R148, R151	7	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R154, R159-R166, R339, R342, R345, R348	13	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R351, R354, R357, R360, R400, R404, R408	7	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R412, R416, R420, R424, R428, R64, R67, R70	8	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R73, R76, R79, R82, R85	5	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007226	R252	1	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
3	2007-007443	R255	1	R-CHIP	3.01 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007613	R471-R502	32	R-CHIP	121 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R507-R514	8	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-008133	R104, R107, R110, R113, R116, R119, R122	7	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R125, R370, R373, R376, R379, R382, R385	7	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R388, R391, R401, R405, R409, R413, R417	7	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R421, R425, R429, R65, R68, R71, R74, R77	8	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R80, R83, R86	3	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008150	R257-R260, R270, R271-R273	8	R-CHIP	12.1 ohm, 1%, 1/10 W, TP, 1608
3	2011-001099	HYB2, HYB4, HYB7, HYB8	4	R-NET	300 ohm, 5%, 2 W, X, ARRAY, 10, P, BK
3	2203-000426	C283	1	C-CER, CHIP	0.018 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000888	C137, C139	2	C-CER, CHIP	4.7 nF, 10%, 50 V, X7R, TP, 1608
3	2203-001408	C279, C282	2	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
3	2203-001656	C138	1	C-CER, CHIP	0.47 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005144	C102, C103, C106, C121, C124, C125, C128	7	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C145, C148, C149, C152, C176, C179, C180	7	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005144	C183, C214, C217, C218, C221, C250, C253	7	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C254, C257, C26, C29, C30, C33, C51, C54	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C55, C58, C99	3	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005249	C1, C10, C100, C101C104, C105, C109-C113	12	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C116-C119, C12, C13, C122, C123, C126, C127	9	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C13, C131, C132, C136, C14, C140-C142, C146	9	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C147, C15-C17, C150, C151, C153, C177, C178	9	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C18-C20, C181, C182, C2, C215, C216, C219	9	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C220, C224-C243, C23-C25, C251, C252, C255	27	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C256, C27, C28, C3, C31, C32, C36-C38, C4	10	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C41, C42, C5, C52, C53, C56, C57, C6-C9, C78	12	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C98	1	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005457	C275, C276	2	C-CER, CHIP	1 NF, 10%, 2 KV, X7R, TP, 4520

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005565	C97	1	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
3	2305-000385	C175	1	C-FILM, LEAD-PEF	470 nF, 10%, 250 V, BK, 18x6x12, 15
3	2401-001216	C246-C249	4	C-AL	4.7, UF, 20%, 100 V, GP, TP, 5x11, 5
3	2402-000120	C184, C186, C188, C190, C192, C194, C196	7	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000120	C198, C274, C61, C63, C65, C67, C69, C71, C73, C75	10	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 mm
3	2402-000130	C185, C187, C189, C191, C193, C195, C197, C199	8	C-AL, SMD	2.2, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.
3	2402-000130	C62, C64, C66, C68, C70, C72, C74, C76	8	C-AL, SMD	2.2, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.
3	2402-000170	C203-C210, C43-C50	16	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
3	2402-001083	C135, C154, C202, C213	4	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
3	2402-001224	C157-C172, C258-C273, C81-C96	48	C-AL, SMD	10, UF, ±20%, 100 V, GP, TP, 8.0 x 10.0 mm
3	2901-000188	M2, M3	2	FILTER-EMI ON BOARD	50 V, 1A, 47pF, 7.5 x 2.5 x 6.2 mm, TP
3	3301-001308	L2-L7	6	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
3	3501-001139	K1-K17	17	RELAY-MINIATURE	4.5 VDC, 440 MW, 1000 MA, 2FORMC, 4 MS, 4 MS
3	3703-001252	J1, J2	2	CONNECTOR-BACK, PANEL	30, P, 5R, FEMALE, ANGLE-F, AU30U
3	3722-002045	J3	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U
3	EC26-20501A	T1-T16	16	TRANS AF	INFOREX, 800 mH
3	EC27-30514A	L1	1	COIL RF	INFOREX, 35, UH, 40T

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	GA13-10066A	U11, U18	2	IC ASIC	DCS, SBS-9401, QFP, 80P
3	GA13-10576A	HYB1, HYB3, HYB5, HYB6	4	IC HYBRID-BALANCE	DCS-KOR, KP0078SA, SIP, 20, 2000
3	GA26-30073A	T17	1	TRANS, POWER	DCS48 V/13 V/85 V, 877, UH/100, UH
3	GA41-00136A	-	1	PCB-8SLI	OFFICESERV 7200, FR-4, 4, L, 00, 1.6 T, 130 x 275 MM

6.8 16MWSLI Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0401-001099	D109	1	DIODE-SWITCHING	1N4148WS, 75 V, 150 mA, SOD-323, TP
2	0401-001134	D101, D102, D151, D152, D201, D202, D251, D252, D301, D302, D351, D352, D401, D402, D451, D452, D501, D502, D551, D552, D601, D602, D651, D652, D701, D702, D751, D752, D801, D802, D851, D852	32	DIODE-SWITCHING	BAV23C, 250 V, 400 MA, SOT-23, TP
3	0402-000197	D4, D103, D153, D203, D253, D303, D353, D403	8	DIODE-RECTIFIER	D1FL40-4063, 400 V, 0.6 A, 1F, TP
4	0402-000197	D4, D103, D153, D203, D253, D303, D353, D403, D453, D503, D553, D603, D653, D703, D753, D803, D853	17	DIODE-RECTIFIER	D1FL40-4063, 400 V, 0.6 A, 1F, TP
5	0402-000309	D1, D2	2	DIODE-RECTIFIER	1SR154-400, 400 V, 1 A, SOD-106, TP
6	0402-001216	D3, D5-D9	6	DIODE-RECTIFIER	MURS120, 200 V, 1 A, TO-220F, TP
7	0403-000141	ZD5-ZD7	3	DIODE-ZENER	1N4735A, 5%, 1000 MW, DO-41, TP
8	0403-000283	ZD1-ZD4, ZD8-ZD12	9	DIODE-ZENER	MMBZ5234B, 5.78-6.44 V, 225 MW, SOT-23, TP

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No	Part Code	Assembly Position	Qtty.	Part Name	Description
9	0403-001396	Z13, Z14	2	DIODE-ZENER	MMSZ5263B, 5%, 500 MW, SOD-123, TP
10	0505-001477	Q3, Q4	2	FET-SILICON	SFR9220, P, 200 V, 3.1A, 1.5 ohm, 30W, D-PAK
11	0505-001478	Q1, Q2, Q5	3	FET-SILICON	FQU5N40, N, 400 V, 3.4A, 1.6 ohm, 45W, I-PAK
12	0604-001002	PC1-PC3	3	PHOTO-COUPLER	TR, 100-600%, 200 mW, SOP-4, TP
13	0801-002127	U1, U7, U10	3	IC-CMOS, LOGIC	74FCT16245, TRANSCEIVER, TSSOP, 48, 240MIL, DUAL, ST, 4.5/5.5 V
14	0801-002171	U852	1	IC-CMOS, LOGIC	74LCX125, BUS BUFFER, SOP, 14, 150MIL, QUAD, TP, 2.0/3.6 V
15	0801-002403	U6	1	IC-CMOS, LOGIC	74LCX08, AND GATE, TSSOP, 14, 173MIL, QUAD, TP, 2.0/3.6 V
16	0801-002446	U9, U11	2	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173MIL, HEX, TP, 2.0/3.6 V
17	1203-000302	U8	1	IC-PWM, CONTROLLER	3842B, SOP, 14P, 150MIL, PLASTIC, 3
18	1203-001213	U12	1	IC-VOL. REFERANCE	431A, SOP, 8P, 150MIL, PLASTIC, 37 V
19	1205-002314	U100, U150, U200, U250, U300, U350, U400, U450, U500, U550, U600, U650, U700, U750, U800, U850	16	IC-SLIC	LE7955-2FQC, QFN, 32P, 8 x 8 mm, PLASTIC, 5 V, 860 MW, 0TO+70C, TR
20	1205-002345	U2-U5	4	IC-SLIC	LE58QL021BVC, TQFP, 44P, 10x10 mm, PLASTIC, 3.3 V, 170 MW40TO+85C, TR, QLSLAC
21	1301-001680	U13	1	IC-CPLD	LC4064V-75T100C, TQFP, 100P, 16x16 mm, 7.5 NS, 3.3 V, 10%, 12 MA, 0TO+90C, 64, 64, 4, -0.5/5
22	1405-000125	V1	1	VARISTOR	220 V, 4500 A, 17 x 4.2 mm, TP

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No	Part Code	Assembly Position	Qtty.	Part Name	Description
23	1405-000130	V101, V151, V201, V251, V301, V351, V401, V451, V501, V551, V601, V651, V701, V751, V801, V851	16	VARISTOR	270 V, 1200 A, 9 x 4.6 mm, TP
24	1405-000171	V100, V150, V200, V250, V300, V350, V400, V450, V500, V550, V600, V650, V700, V750, V800, V850	16	VARISTOR	82 V, 1200 A, 9 x 6 mm, TP
25	2003-000458	R1, R3, R7, R8, R14	5	R-METAL OXIDE(S)	100 ohm, 5%, 2 W, AF, TP, 4 x 12 mm
26	2007-000043	R26-R28, R35, R43, R46	6	R-CHIP	1K ohm, 1%, 1/10 W, TP, 1608
27	2007-000052	R1095~R1097, R1134, R220, R221, R270, R271, R320, R321, R370, R371, R24, R36~R38, R40, R44, R45, R47~R50, R53, R420, R421, R470, R471, R520, R521, R570, R571, R54, R57, R67, R120, R121, R131, R170, R171, R620, R621, R670, R671, R720, R721, R770, R771, R820, R821, R870, R871, R1080~R1084, R1086	49	R-CHIP	10 kohm, 1%, 1/10 W, TP, 1608
28	2007-000060	R5, R6, R9, R11, R15-R18, R20, R23, R34	11	R-CHIP	100 kohm, 1%, 1/10 W, TP, 1608
29	2007-000066	R10, R19, R21, R22	4	R-CHIP	20 kohm, 1%, 1/10 W, TP, 1608
30	2007-000231	R108, R158, R208, R258, R308, R358, R408, R458, R508, R558, R608, R658, R708, R758, R808, R858	16	R-CHIP	1.3 kohm, 1%, 1/10 W, TP, 1608

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No	Part Code	Assembly Position	Qtty.	Part Name	Description
31	2007-000497	R104, R113, R154, R163, R204, R213, R254, R263, R304, R313, R354, R363, R404, R413, R454, R463, R504, R513, R554, R563, R604, R613, R654, R663, R704, R713, R754, R763, R804, R813, R854, R863	32	R-CHIP	2.2 Mohm, 1%, 1/10 W, TP, 1608
32	2007-000954	R107, R112, R157, R162, R207, R212, R257, R262, R307, R312, R357, R362, R407, R412, R457, R462, R507, R512,	18	R-CHIP	49.9 ohm, 1%, 1 W, TP, 6432
33	2007-000954	R557, R562, R607, R612, R657, R662, R707, R712, R757, R762, R807, R812, R857, R862	14	R-CHIP	49.9 ohm, 1%, 1 W, TP, 6432
34	2007-001139	R25	1	R-CHIP	7.5 kohm, 1%, 1/10 W, TP, 1608
35	2007-001342	R103, R109, R153, R159, R203, R209, R253, R259, R303, R309, R353, R359, R403, R409, R453, R459, R503, R509, R553, R559, R603, R609, R653, R659, R703, R709, R753, R759, R803, R809, R853, R859	32	R-CHIP	2 Mohm, 5%, 1/10 W, TP, 1608
36	2007-002901	R39	1	R-CHIP	12.1 kohm, 1%, 1/10 W, TP, 1608
37	2007-002910	R12, R31, R32, R105, R155, R205, R255, R305, R355, R405, R455, R505, R555, R605, R655, R705, R755, R805, R855	18	R-CHIP	30.1 kohm, 1%, 1/10 W, TP, 1608
38	2007-002987	R1087-R1094	8	R-CHIP	4.75 kohm, 1%, 1/10 W, TP, 1608
39	2007-007331	R117, R167, R217, R267, R317, R367, R417, R467, R517, R567, R617, R667, R717, R767, R817, R867	16	R-CHIP	90.9 kohm, 1%, 1/10 W, TP, 1608

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No	Part Code	Assembly Position	Qtty.	Part Name	Description
40	2007-007443	R13	1	R-CHIP	3.01 kohm, 1%, 1/10 W, TP, 1608
41	2007-007443	R33	1	R-CHIP	3.01 kohm, 1%, 1/10 W, TP, 1608
42	2007-007519	R110, R114, R160, R164, R210, R214, R260, R264, R310, R314, R360, R364, R410, R414, R460, R464, R510, R514, R560, R564, R610, R614, R660, R664, R710, R714, R760, R764, R810, R814, R860, R864	32	R-CHIP	80.6 kohm, 1%, 1/10 W, TP, 1608
43	2007-007637	R102, R152, R202, R252, R302, R352, R402, R452, R502, R552, R602, R652, R702, R752, R802, R852	16	R-CHIP	15 KOHM, 5%, 1 W, TP, 6432
44	2007-007645	R1136, R1137, R41, R42, R93~R97, R126~R130, R1106~R1133	51	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
45	2007-007768	R115, R116, R165, R166, R215, R216, R265, R266, R315, R316, R365, R366, R415, R416, R465, R466, R515, R516, R565, R566, R615, R616, R665, R666, R715, R716, R765, R766, R815, R816, R865, R866	32	R-CHIP	13 kohm, 1%, 1/10 W, TP, 1608
46	2007-008122	R51, R52, R55, R56, R1135	5	R-CHIP	22.1 ohm, 1%, 1/10 W, TP, 1608
47	2007-008150	R1098-R1105	8	R-CHIP	12.1 ohm, 1%, 1/10 W, TP, 1608
48	2007-008681	R101, R106, R111, R151, R156, R161, R201, R206, R211, R251, R256, R261, R301, R306, R311, R351, R356, R361, R401, R406, R411, R451, R456, R461, R501, R506, R511, R551, R556, R561, R601, R606, R611, R651, R656, R661, R701, R706, R711, R751, R756, R761, R801, R806, R811, R851, R856, R861	48	R-CHIP	1.2 KOHM, 5%, 1 W, TP, 6432

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
49	2203-000426	C277, C278, C283	3	C-CER, CHIP	0.018 nF, 5%, 50 V, C0G, 1608
50	2203-000576	C110, C160, C210, C260, C310, C360, C410, C460, C510, C560, C610, C660, C710, C760, C810, C860	16	C-CER, CHIP	220 nF, 10%, 50 V, X7R, 3216
51	2203-000888	C15, C19	2	C-CER, CHIP	4.7 nF, 10%, 50 V, X7R, TP, 1608
52	2203-001386	C102, C104, C105, C111, C114, C115, C152, C154, C155, C161, C164, C165, C202, C204, C205, C211, C214, C215, C252, C254, C255, C261, C264, C265, C302, C304, C305, C311, C314, C315, C352, C354, C355, C361, C364, C365, C402, C404, C405, C411, C414, C415, C452, C454, C455, C461, C464, C465, C502, C504, C505, C511, C514, C515, C552, C554, C555, C561, C564, C565, C602, C604, C605, C611, C614, C615, C652, C654, C655, C661, C664, C665, C702, C704, C705, C711, C714, C715, C752, C754, C755, C761, C764, C765, C802, C804, C805, C811, C814, C815, C852, C854, C855, C861, C864, C865	96	C-CER, CHIP	100 nF, 10%, 100 V, X7R, TP, 3216, 3.2
53	2203-001656	C16	1	C-CER, CHIP	0.47 nF, 5%, 50 V, NP0, TP, 1608
54	2203-001697	C113, C163, C213, C263, C313, C363, C413, C463, C513, C563, C613, C663, C713, C763, C813, C863	16	C-CER, CHIP	0.082 nF, 5%, 50 V, NP0, 1608

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No	Part Code	Assembly Position	Qtty.	Part Name	Description
55	2203-002080	C112, C162, C212, C262, C312, C362, C412, C462, C512, C562, C612, C662, C712, C762, C812, C862	16	C-CER, CHIP	0.56 nF, 5%, 50 V, C0G, TP, 1608
56	2203-005221	C101, C109, C151, C159, C201, C209, C251, C259, C301, C309, C351, C359, C401, C409, C451, C459, C501, C509, C551, C559, C601, C609, C651, C659, C701, C709, C751, C759, C801, C809, C851, C859	32	C-CER, CHIP	15 nF, 10%, 50 V, X7R, TP, 1608
57	2203-005249	C203, C208, C216, C253, C258, C266, C303, C308, C3, C6~C14, C18, C23, C26~C29, C33, C37, C38, C316, C353, C358, C366, C403, C408, C416, C453, C41, C42, C108, C116, C153, C158, C166, C458, C466, C503, C508, C516, C553, C558, C566, C603, C608, C616, C653, C658, C666, C703, C708, C716, C753, C758, C766, C803, C808, C816, C853, C858, C866, C868~C880	70	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
58	2203-005457	C275, C276, C881	3	C-CER, CHIP	1 nF, 10%, 2 KV, X7R, TP, 4520
59	2203-005687	C106, C107, C156, C157, C206, C207, C256, C257, C306, C307, C356, C357, C406, C407, C456, C457, C506, C507, C556, C557, C606, C607, C656, C657, C706, C707, C756, C757, C806, C807, C856, C857	32	C-CER, CHIP	2.2 nF, 10%, 500 V, X7R, TP, 3216
60	2203-006115	C100, C117, C150, C167, C200, C217, C250, C267, C300, C317, C350, C367, C400, C417, C450, C467, C500, C517, 550, C567, C600, C617, C650, C667, C700, C717, C750, C767, C800, C817, C850, C867	32	C-CER, CHIP	470 nF, 20%, 250 V, X7R, TP, 4532

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
61	2305-000385	C2	1	C-FILM, LEAD-PEF	470 nF, 10%, 250 V, BK, 18 x 6 x 1 2, 15
62	2401-000625	C4, C5	2	C-AL	2.2, UF, 20%, 160 V, GP, TP, 6.3 x 11, 5
63	2401-003291	C1	1	C-AL	22, UF, 20%, 200 V, WT, TP, 10 x 16, 5
64	2401-003298	C21, C24	2	C-AL	100, UF, 20%, 63 V, GP, TP, 8 x 11.5, 5
65	2402-000120	C274	1	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 mm
66	2402-001083	C17, C882	2	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
67	2702-001112	L5	1	INDUCTOR-RADIAL	60, UH, 35%, 7.5 x 8.0 mm
68	2703-002639	L100, L150, L200, L250, L300, L350, L400, L450, L500, L550, L600, L650, L700, L750, L800, L850	16	INDUCTOR-SMD	1000, UH, 20%, 5.2 x 5.2 x 1.8 mm
69	2901-000188	B1, B2	2	FILTER-EMI	50 V, 1 A, 47, PF, 7.5 x 2.5 x 6.2 mm, TP
70	3301-001308	L2-L4, L6, L7	5	BEAD-SMD	10O HM, 1608, 500, TP, 0.15
71	3501-001258	K100, K250, K105, K150, K400, K200, K300, K550, K350, K450, K700, K500, K600, K850, K650, K750, K451, K501, K551, K601, K651, K701, K751, K801, K800, K101, K151, K201, K251, K301, K351, K401	32	RELAY-MINIATURE	5 V, 100 MW, 1000 MA, 2FORMC, 3 MS, 3 MS
72	3501-001258	K851	1	RELAY-MINIATURE	5 V, 100 MW, 1000 MA, 2FORMC, 3 MS, 3 MS
73	3703-001252	P1-P3	3	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U
74	3710-000001	JP1	1	CONNECTOR-SHUNT	2P, 1R, 2.54 mm, AUF

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No	Part Code	Assembly Position	Qtty.	Part Name	Description
75	3711-001465	JP1	1	CONNECTOR-HEADER	NOWALL, 3P, 1R, 2.54 mm, STRAIGHT, AUF, BLK
76	3711-003272	P4	1	CONNECTOR-HEADER	BOX, 10P, 2R, 2.54 mm, STRAIGHT, AUF, BLK
77	3722-001302	P5	1	JACK-MODULAR	8P, ANGLE, BLK, AU50U
78	EC27-30514A	L1	1	COIL RF	INFOREX, 35uH, 40T
79	GA26-30073A	T1	1	TRANS, POWER	DCS, -48 V//13 V/85 V, 877, UH//100, UH
80	GA41-00177A	PCS.01	1	PCB MAIN-OS7200 16SLI2	OFFICESERV 7200, FR4, 4L, 00, 1.6T, 130 x 275 mm

6.9 8HYB Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02787A	-	1	PBA MAIN-8PORT A/D SUBSCIBER	OFFICESERV 7400, DOM/EXP, WORLD, 8PORT A/D SUBSCIBER, FR-4, 4, L, 130*275, 8 HYB
3	0401-001099	D7-D22, D44	17	DIODE-SWITCHING	1N4148WS, 75 V, 150 MA, SOD-323, TP
3	0402-001049	D26	1	DIODE-RECTIFIER	MURS160, 600 V, 1 A, DO-20, TP
3	0402-001211	D45	1	DIODE-RECTIFIER	MURS320, 200 V, 3 A, MSR, TP
3	0402-001216	D24, D25, D27, D3, D4, D5	6	DIODE-RECTIFIER	MURS120, 200 V, 1 A, TO-220F, TP
3	0403-000283	D1, D2, D23, D6	4	DIODE-ZENER	MMBZ5234B, 5.78-6.44 V, 225 MW, SOT-23, TP
3	0403-001396	ZD1, ZD2	2	DIODE-ZENER	MMSZ5263B, 5%, 500 MW, SOD-123, TP
3	0403-001416	ZD3-ZD34	29	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
3	0501-000476	Q45-Q52, Q62	9	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000477	Q4-Q19, Q36-Q43, Q53-Q60, Q63	33	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0502-001066	Q20-Q35	16	TR-POWER	PZTA42, NPN, 1000 mW, SOT-223, TP, 25-
3	0505-001477	Q3, Q44	2	FET-SILICON	SFR9220, P, 200 V, 3.1 A, 1.5 ohm, 30 W, D-PAK
3	0505-001478	Q1, Q2, Q61	3	FET-SILICON	FQU5N40, N, 400 V, 3.4 A, 1.6 ohm, 45 W, I-PAK
3	0505-001769	Q64	1	FET-SILICON	FQU12N20, N, 200 V, 9.0 A, 0.28 OHM, 55 W, TO-251
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7 x 2.5 MM, 660/560 NM, 3 x 2.5 x 1.5 MM
3	0604-001002	U1-U3	3	PHOTO-COUPLER	TR, 100-600%, 200 mW, SOP-4, TP
3	0801-001073	U25	1	IC-CMOS, LOGIC	74ACT74, D FLIP-FLOP, SOP, 14, 150 MIL, DUAL, TP, 4.5/5.5 V
3	0801-002055	U15, U16	2	IC-CMOS, LOGIC	74FCT374, D REGISTER, SOP, 20, 300 MIL, OCTAL, TP, 4.5/5.5 V
3	0801-002215	U24	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300 MIL, SINGLE, TP, 4.5/5.5 V

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0801-002403	U4	1	IC-CMOS, LOGIC	74LCX08, AND GATE, TSSOP, 14, 173 MIL, QUAD, TP, 2.0/3.6 V
3	0801-002446	U6	1	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173MIL, HEX, TP, 2.0/3.6 V
3	0802-001026	U18-U20	3	IC-BICMOS, LOGIC	74ABT16245, BUS TRANSCEIVER, TSSOP, 48, 380 MIL, QUAD, TP, 4.5/5.5 V
3	0802-001084	U27	1	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	1203-000302	U5	1	IC-PWM, CONTROLLER	3842B, SOP, 14P, 150 MIL, PLASTIC, 3
3	1203-001213	U28	1	IC-POSI.ADJUST REG.	431A, SOP, 8P, 150 MIL, PLASTIC, 37 V
3	1205-000394	U7-U14	8	IC-CODEC FILTER	TP3057WM, SOP, 16P, PLASTIC, 5.2
3	1404-000126	PS1-PS8	8	THERMISTOR-PTC	4.85 ohm, 60 V, 5 mm
3	1405-000125	V1	1	VARISTOR	220 V, 4500 A, 17 x 4.2 mm, TP
3	1405-000130	V2-V9	8	VARISTOR	270 V, 1200 A, 9 x 4.6 mm, TP
3	1405-000171	V10-V34	25	VARISTOR	82 V, 1200 A, 9 x 6 mm, TP
3	2003-000144	R143, R33, R72	3	R-METAL OXIDE	100 ohm, 2%, 2 W, AA, TP, 6 x 16 mm
3	2003-001032	R1-R16	16	R-METAL OXIDE(S)	220 ohm, 5%, 1 W, AF, TP, 2.5 x 6.5 mm
3	2003-002037	R35-R42, R362, R363	10	R-METAL OXIDE(S)	270 ohm, 5%, 2 W, AF, TP, 3.9 x 10 mm
4	2005-001199	R388	1	R-WIRE WOUND(S), NON	0.8 OHM, 1%, 3 W, AA, TP, 6 x 16 MM
3	2007-000040	R17-R32	16	R-CHIP	150 ohm, 1%, 1/10 W, TP, 1608
3	2007-000041	R341-R348	8	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000043	R104, R109, R114, R119, R124, R134, R182	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R196, R198, R204, R237, R308, R49, R52	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R55, R58, R61, R64, R67, R70, R99	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000045	R142	1	R-CHIP	3.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R100, R105, R110, R115, R120, R125, R130	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R135, R145, R146, R149, R150, R153, R154	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R157, R158, R161, R162, R165, R166, R169	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R170, R173, R174, R195, R199, R203, R208	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R209, R259, R260, R262, R265, R276, R277	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R278, R279, R281, R300, R301-R304, R357	9	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000052	R358-R360, R377-R387	14	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R138-R141, R176, R207, R233, R241, R245	9	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R298, R34, R45, R46	4	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R101, R106, R111, R116, R121, R126, R131	7	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R136, R297, R43, R44, R47, R73-R88, R97	22	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R268-R275, R307, R309-R324, R365	26	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000287	R210-R230, R235, R238, R247, R250-R258	33	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R264, R267, R280, R305, R306, R366-R369	9	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R234	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R147, R151, R155, R159, R163, R167, R171	7	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000669	R175	1	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-001139	R197	1	R-CHIP	7.5 Kohm, 1%, 1/10 W, TP, 1608

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-002901	R205	1	R-CHIP	12.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R103, R108, R113, R118, R123, R128, R133	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R144, R148, R152, R156, R160, R164, R168	7	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002910	R172, R187-R194, R201, R202, R98	12	R-CHIP	30.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002912	R177	1	R-CHIP	33.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R102, R107, R112, R117, R122, R127, R132	7	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R137, R239, R240, R244, R263, R89-R96	13	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007226	R200	1	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
3	2007-007443	R206, R266	2	R-CHIP	3.01 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007613	R325-R340	16	R-CHIP	121 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R370-R373	4	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R242, R243, R349-R356	10	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008091	R299	1	R-CHIP	4.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008133	R48, R50, R51, R53, R54, R56, R57, R59, R60	9	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-008133	R62, R63, R65, R66, R68, R69, R71	7	R-CHIP	56.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008150	R178-R181, R183-R186	8	R-CHIP	12.1 ohm, 1%, 1/10 W, TP, 1608
3	2011-001099	HYB1, HYB2	2	R-NET	300 ohm, 5%, 2 W, X, ARRAY, 10, P, BK
3	2203-000236	C208-C210	3	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000426	C205	1	C-CER, CHIP	0.018 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000888	C89, C90	2	C-CER, CHIP	4.7 nF, 10%, 50 V, X7R, TP, 1608
3	2203-000998	C137, C138, C188	3	C-CER, CHIP	0.047 NF, 5%, 50 V, C0G, TP, 1608
3	2203-001408	C200	1	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
3	2203-001656	C88	1	C-CER, CHIP	0.47 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005144	C101, C102, C105, C106, C109, C110, C113	7	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C114, C117, C118, C121, C122, C125, C126	7	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C129, C156-C171, C98	18	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005218	C176-C183	8	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
3	2203-005249	C10, C100, C103, C104, C107, C108, C11	7	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005249	C111, C112, C115, C116, C119, C12, C120	7	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C123, C124, C127, C128, C13, C130-C136	12	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C139, C14-C17, C140, C142-C155, C173	21	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C174, C185, C187, C189, C2-C7, C53, C77	12	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C78, C8, C81, C84-C87, C9, C93-C97, C99	14	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005565	C201-C204	4	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
3	2305-000385	C1	1	C-FILM, LEAD-PEF	470 nF, 10%, 250 V, BK, 18 x 6 x 12, 15
3	2401-001216	C49, C50, C73, C74	4	C-AL	4.7, UF, 20%, 100 V, GP, TP, 5 x 11, 5
3	2402-000120	C172, C175, C186, C25-C33, C35, C37, C39	15	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000130	C41, C43, C45, C47	4	C-AL, SMD	2.2, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.
3	2402-000170	C191, C34, C36, C38, C40, C42, C44, C46, C48	9	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
3	2402-001083	C190, C20, C72, C82, C83	5	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
3	2402-001224	C192-C199, C54-C69	24	C-AL, SMD	10, UF, ±20%, 100 V, GP, TP, 8.0 x 10.0 MM
3	2901-000188	M2, M3	2	FILTER-EMI ON BOARD	50 V, 1 A, 47, PF, 7.5 x 2.5 x 6.2 mm, TP
3	3301-001308	L3-L5	3	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
3	3501-001139	K1-K8	8	RELAY-MINIATURE	4.5 VDC, 140 MW, 1000 MA, 2FORMC, 4 MS, 4 MS

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3703-001252	J1, J2	2	CONNECTOR-BACK, PANEL	30, P, 5 R, FEMALE, ANGLE-F, AU30U
3	3722-002045	J3	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U
3	EC26-20501A	T2-T9	8	TRANS AF	INFOREX, 800 mH
3	EC27-30514A	L1	1	COIL RF	INFOREX, 35, UH, 40T
3	EN13-10502A	U21, U22	2	IC ASIC	DECT, TP3404, PLCC, 28P
3	EN13-10503A	U23	1	IC ASIC	DECT, STI-9511, QFP, 60P
3	GA13-10066A	U17	1	IC ASIC	DCS, SBS-9401, QFP, 80P
3	GA13-10576A	HYB3, HYB4	2	IC HYBRID-BALANCE	DCS-KOR, KP0078SA, SIP, 20, 2000
3	GA26-10053A	T10-T17	8	TRANS, PULSE	DGP 360, 144//72.5/72T, 5 mH
3	GA26-30073A	T1	1	TRANS, POWER	DCS48V//13V/85 V, 877, UH//100, UH
3	GA27-30057A	L2	1	COIL RF	PRO-56EX/120 MX, 72, UH
3	GA41-00149A	-	1	PCB-8HYB	OFFICESERV 7400, FR-4, 4, L, 00, 1.6 T, 130 x 275 MM

6.10 8HYB2 Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0401-001099	D10~D22, D44, D7~D9	17	DIODE-SWITCHING	1N4148WS, 75 V, 150 mA, SOD-323, TP
2	0402-001049	D26	1	DIODE-RECTIFIER	MURS160, 600 V, 1 A, DO-214 AA
3	0402-001211	D45	1	DIODE-RECTIFIER	MURS320, 200 V, 3 A, MSR, TP
4	0402-001216	D24, D25, D27, D3, D4, D5	6	DIODE-RECTIFIER	MURS120, 200 V, 1 A, TO-220F, TP
5	0403-000283	D1, D2, D23, D6	4	DIODE-ZENER	MMBZ5234B, 5.78-6.44 V, 225 MW, SOT-23, TP
6	0403-001396	ZD1, ZD2	2	DIODE-ZENER	MMSZ5263B, 5%, 500 MW, SOD-123, TP
7	0403-001416	ZD10~D29, ZD3, ZD30~ZD34, ZD4~ZD9	32	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
8	0501-000476	Q45~Q52, Q62	9	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
9	0501-000477	Q10~Q19, Q36~Q39, Q4, Q40~Q43, Q5, Q53~Q59, Q6, Q60, Q63, Q7~Q9	33	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
10	0502-001066	Q20~Q27	8	TR-POWER	PZTA42, NPN, 1000 mW, SOT-223, TP, 25-
11	0502-001067	Q28~Q35	8	TR-POWER	FZT957, PNP, 3 W, SOT-223, TP, 100-3
12	0505-001477	Q3, Q44	2	FET-SILICON	SFR9220, P, 200 V, 3.1 A, 1.5 ohm, 30 W, D-PAK
13	0505-001478	Q1, Q2, Q61	3	FET-SILICON	FQU5N40, N, 400 V, 3.4 A, 1.6 ohm, 45 W, I-PAK
14	0505-001769	Q64	1	FET-SILICON	FQU12N20, N, 200 V, 9.0A, 0.28OHM, 55W, TO-251
15	0604-001002	U1~U3	3	PHOTO-COUPLER	TR, 100-600%, 200 mW, SOP-4, TP
16	0801-001073	U25	1	IC-CMOS, LOGIC	74ACT74, D FLIP-FLOP, SOP, 14, 150MIL, DUAL, TP, 4.5/5.5 V

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
17	0801-002215	U24	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300MIL, SINGLE, TP, 4.5/5.5 V
18	0801-002403	U4	1	IC-CMOS, LOGIC	74LCX08, AND GATE, TSSOP, 14, 173MIL, QUAD, TP, 2.0/3.6 V
19	0801-002446	U6	1	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173MIL, HEX, TP, 2.0/3.6 V
20	0802-001026	U18~U20	3	IC-BICMOS, LOGIC	74ABT16245, BUS TRANSCEIVER, TSSOP, 48, 380MIL, QUAD, TP, 4.5/5.5 V
21	0802-001084	U27	1	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173MIL, QUAD, TP, 4.5/5.5 V
22	1203-000302	U5	1	IC-PWM, CONTROLLER	3842B, SOP, 14P, 150MIL, PLASTIC, 3
23	1203-001213	U28	1	IC-VOL. REFERANCE	431 A, SOP, 8P, 150MIL, PLASTIC, 37V
24	1205-000120	U9~U14	6	IC-CODEC	TP3054WMX, SOP, 16P, 300MIL, PLASTIC, 5.25 V, 60 MW, -25TO+125C, TP
25	1404-000126	PS1~PS8	8	THERMISTOR-PTC	4.85 ohm, 60 V, 5 mm
26	1405-000125	V1	1	VARISTOR	220 V, 4500A, 17 x 4.2 mm, TP
27	1405-000130	V2~V9	8	VARISTOR	270 V, 1200A, 9 x 4.6 mm, TP
28	1405-000171	V10~V34	25	VARISTOR	82 V, 1200A, 9 x 6 mm, TP
29	2003-000458	R143, R33, R72	3	R-METAL OXIDE(S)	100 ohm, 5%, 2W, AF, TP, 4 x 12 mm
30	2003-001032	R1~R16	16	R-METAL OXIDE(S)	220 ohm, 5%, 1W, AF, TP, 2.5 x 6.5 mm
31	2003-002037	R35, R36, R362, R363, R37~R42	10	R-METAL OXIDE(S)	270 ohm, 5%, 2 W, AF, TP, 3.9 x 10 mm
32	2007-000040	R17~R32	16	R-CHIP	150 ohm, 1%, 1/10W, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
33	2007-000043	R104, R109, R114, R119, R124, R129, R134, R182, R196, R198, R204, R308, R49, R52, R55, R58, R61, R64, R67, R70, R99	19	R-CHIP	1 kohm, 1%, 1/10W, TP, 1608
34	2007-000045	R142	1	R-CHIP	3.32 kohm, 1%, 1/10W, TP, 1608
35	2007-000052	R100, R105, R110, R115, R120, R125, R130, R135, R145, R146, R149, R150, R153, R154, R157, R158, R161, R162, R165, R166, R169, R170,	22	R-CHIP	10 kohm, 1%, 1/10W, TP, 1608
36	2007-000052	R173, R174, R195, R199, R203, R208, R209, R259, R260, R262, R265~R279, R281, R300~R304, R357, R358~R360,	29	R-CHIP	10 kohm, 1%, 1/10W, TP, 1608
36	2007-000052	R377~R387	-	R-CHIP	10 kohm, 1%, 1/10W, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
37	2007-000060	R138~R141, R176, R207, R233, R241, R245, R298, R34, R45, R46	13	R-CHIP	100 kohm, 1%, 1/10 W, TP, 1608
38	2007-000066	R101, R106, R111, R116, R121, R126, R131, R136, R297, R43, R44, R47, R73~R88, R97	29	R-CHIP	20 kohm, 1%, 1/10 W, TP, 1608
39	2007-000070	R187~R194, R268, R269, R270~R275, R307, R365	18	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
40	2007-000287	R210~R230, R235, R236, R238, R247, R250~R258, R264, R267, R280, R305, R306, R366~R369	44	R-CHIP	100 ohm, 1%, 1/10 W, TP, 1608
41	2007-000475	R234	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608
42	2007-000669	R147, R151, R155, R159, R163, R167, R171, R175	8	R-CHIP	2 kohm, 1%, 1/10 W, TP, 1608
43	2007-001139	R197	1	R-CHIP	7.5 kohm, 1%, 1/10 W, TP, 1608
44	2007-002901	R205	1	R-CHIP	12.1 kohm, 1%, 1/10 W, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
45	2007-002910	R103, R108, R113, R118, R123, R128, R133, R144, R148, R152, R156, R160, R164, R168, R172, R201, R202, R98	18	R-CHIP	30.1 kohm, 1%, 1/10 W, TP, 1608
46	2007-002912	R177	1	R-CHIP	33.2 kohm, 1%, 1/10 W, TP, 1608
47	2007-002987	R102, R107, R112, R117, R122, R127, R132, R137, R239, R240, R244, R263, R89~R96	20	R-CHIP	4.75 kohm, 1%, 1/10 W, TP, 1608
48	2007-007226	R200	1	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
49	2007-007443	R206, R266	2	R-CHIP	3.01 kohm, 1%, 1/10 W, TP, 1608
50	2007-007613	R325~R340	16	R-CHIP	121 ohm, 1%, 1/10 W, TP, 1608
51	2007-007645	R370~R373	4	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
52	2007-007796	R242, R243	2	R-CHIP	2.21 kohm, 1%, 1/10 W, TP, 1608
53	2007-008091	R299	1	R-CHIP	4.32 kohm, 1%, 1/10 W, TP, 1608
54	2007-008133	R48, R50, R51, R53, R54, R56, R57, R59, R60, R62, R63, R65, R66, R68, R69, R71	12	R-CHIP	56.2 kohm, 1%, 1/10 W, TP, 1608
55	2007-008150	R178~R186	9	R-CHIP	12.1 ohm, 1%, 1/10 W, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
56	2011-001099	HYB1, HYB2	2	R-NET	300 ohm, 5%, 2W, X, ARRAY, 10P, BK
57	2203-000236	C200, C208~C210	4	C-CER, CHIP	0.1 nF, 5%, 50 V, C0G, 1608
58	2203-000426	C205	1	C-CER, CHIP	0.018 nF, 5%, 50 V, C0G, 1608
59	2203-000888	C89, C90	2	C-CER, CHIP	4.7 nF, 10%, 50 V, X7R, TP, 1608
60	2203-000998	C137, C138, C188	3	C-CER, CHIP	0.047 nF, 5%, 50 V, C0G, TP, 1608
61	2203-001656	C88	1	C-CER, CHIP	0.47 nF, 5%, 50 V, NP0, TP, 1608
62	2203-005144	C101, C102, C105, C106, C109, C110, C113, C114, C117, C118, C121, C122, C125, C126, C129, C156, C157, C158, C159, C160~C171, C98	22	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
63	2203-005218	C176~C183	8	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
64	2203-005249	C10, C100, C103, C104, C107, C108, C11, C111, C112, C115, C116, C119, C12, C120, C123, C124, C127, C128, C13, C130, C131, C132~C136, C139, C14, C140, C142~C149, C15, C150~C155, C16, C17, C173, C174, C185, C187, C189, C2~C4, C5, C53, C6, C7, C77, C78, C8, C81, C84~C87, C9, C93, C94, C95, C99	-	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
65	2203-005565	C203, C204	2	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
66	2305-000385	C1	1	C-FILM, LEAD-PEF	470 nF, 10%, 250 V, BK, 18 x 6 x 12, 15
67	2401-001216	C49, C50, C73, C74	4	C-AL	4.7, UF, 20%, 100 V, GP, TP, 5 x1 1, 5
68	2402-000120	C172, C175, C186, C25~C32	10	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 mm
69	2402-000130	C33, C35, C37, C39, C41, C43, C45, C47	8	C-AL, SMD	2.2, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.
70	2402-000170	C191, C34, C36, C38, C40, C42, C44, C46, C48	9	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.4
71	2402-001083	C190, C20, C72, C82, C83	5	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
72	2402-001224	C192~C199, C54~C69	-	C-AL, SMD	10, UF, ±20%, 100 V, GP, TP, 8.0 x 10.0mm
73	2901-000188	M2, M3	2	FILTER-EMI ON BOARD	50 V, 1 A, 47pF, 7.5 x 2.5 x 6.2 mm, TP
74	3301-001308	L3~L5	3	BEAD-SMD	10 OHM, 1608, 500, TP, 0.15
75	3501-001139	K1~K8	8	RELAY-MINIATURE	4.5 VDC, 140 MW, 1000 MA, 2FORMC, 4 MS, 4 MS
76	3703-001252	J1, J2	2	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U
77	3722-001302	J3	1	JACK-MODULAR	8P, ANGLE, BLK, AU50U
78	EC26-20501A	T2~T9	8	TRANS AF	INFOREX, 800 mH
79	EC27-30514A	L1	1	COIL RF	INFOREX, 35uH, 40T
80	EN13-10502A	U21, U22	2	IC ASIC	DECT, TP3404, PLCC, 28P

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
81	EN13-10503A	U23	1	IC ASIC	DECT, STI-9511, QFP, 60P
82	GA13-10066A	U17	1	IC ASIC	DCS, SBS-9401, QFP, 80P
83	GA13-10576A	HYB3, HYB4	2	IC HYBRID-BALANCE	DCS-KOR, KP0078SA, SIP, 20, 2000
84	GA26-10053A	T10~T13	4	TRANS, PULSE	DGP 360, 144//72.5/72T, 5 mH
85	GA26-10053A	T14	1	TRANS, PULSE	DGP 360, 144//72.5/72T, 5 mH
86	GA26-10053A	T15, T16	2	TRANS, PULSE	DGP 360, 144//72.5/72T, 5 mH
87	GA26-10053A	T17	1	TRANS, PULSE	DGP 360, 144//72.5/72T, 5 mH
88	GA26-30073A	T1	1	TRANS, POWER	DCS, -48 V//13 V/85 V, 877, UH//100, UH
89	GA27-30057A	L2	1	COIL RF	PRO-56EX/120MX, 72uH
90	GA41-00191A	PCS.01	1	PCB-8HYB2	OFFICESERV 7200, FR4, 4L, 1.6, 130 x 275 mm, 8HYB2

6.11 8DLI Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02771A	-	1	PBA MAIN-8PORTDI GITALSUBSCRIB	OFFICESERV 7400, DOM/EXP, WORLD, 8PORTDIGITALSUBSCRIB, 2PCB, 130*275*1.6T, 8 DLI
3	0401-001099	D33, D35	2	DIODE-SWITCHING	1N4148WS, 75 V, 150 MA, SOD-323, TP
3	0402-001211	D34	1	DIODE-RECTIFIER	MURS320, 200 V, 3 A, MSR, TP
3	0403-001416	ZD1-ZD16	16	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
3	0501-000476	Q2	1	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000477	Q1	1	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0505-001769	Q3	1	FET-SILICON	FQU12N20, N, 200 V, 9.0 A, 0.28 OHM, 55 W, TO-251
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7 x 2.5 MM, 660/560 NM, 3 x 2.5 x 1.5 MM
3	0801-000379	U7	1	IC-CMOS, LOGIC	74HC00, NAND GATE, SOP, 14, 150 MIL, QUAD, TP, 2.0/6.0 V
3	0801-000841	U6	1	IC-CMOS, LOGIC	74ACT14, INVERTER, SOP, 14, 150 MIL, HEX, ST, 4.5/5.5 V
3	0801-001071	U12	1	IC-CMOS, LOGIC	74ACT08, AND GATE, SOP, 14, 150 MIL, QUAD, TP, 4.5/5.5 V
3	0801-001073	U13	1	IC-CMOS, LOGIC	74ACT74, D FLIP-FLOP, SOP, 14, 150 MIL, DUAL, TP, 4.5/5.5 V
3	0801-002055	U14	1	IC-CMOS, LOGIC	74FCT374, D REGISTER, SOP, 20, 300 MIL, OCTAL, TP, 4.5/5.5 V
3	0801-002215	U8	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300 MIL, SINGLE, TP, 4.5/5.5 V
3	0802-000111	U9-U11	3	IC-BICMOS, LOGIC	74FCT245, BUS TRANSCEIVER, SOP, 20, 300 MIL, OCTAL, ST, 4.75/5.25 V
3	0802-001084	U3, U4	2	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	1404-000126	P28-P35	8	THERMISTOR-PTC	4.85 ohm, 60 V, 5 mm
3	1405-000171	V9-V24, V41, V50-V57	25	VARISTOR	82 V, 1200 A, 9 x 6 mm, TP

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2005-001199	R1121	1	R-WIRE WOUND(S), NON	0.8 OHM, 1%, 3 W, AA, TP, 6 x 16 MM
3	2007-000041	R1002, R1004, R1006, R1008, R1010	5	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608
3	2007-000041	R1012, R1014, R1016,	3	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R1119, R1120, R960-R966, R969	10	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R970, R971, R975-R977	5	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R1030-R1032	3	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R1067	1	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R1036, R1037, R1087-R1102	18	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000287	R978-R979, R982-R990, R999-R1001	14	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R1062	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R1019-R1025	7	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007443	R1063	1	R-CHIP	3.01 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R1038-R1056, R1058-R1061, R1068	24	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R1069-R1071, R939-R948, R952-R959	21	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R1033-R1035	3	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008091	R1066	1	R-CHIP	4.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008122	R1064	1	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-000236	C93, C106	2	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000257	C102	1	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
3	2203-000998	C100, C101, C42-C44, C98	6	C-CER, CHIP	0.047 NF, 5%, 50 V, C0G, TP, 1608
3	2203-005144	C45, C46, C48, C49, C51, C52, C54, C55	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C57, C58, C60, C61, C63, C64, C66, C67	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005218	C8-C15	8	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
3	2203-005249	C28-C41, C47, C50, C53, C56, C59, C62	20	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C65, C68, C94, C96, C97	5	C-CER, CHIP	100 nF, 10%, 50V, X7R, TP, 1608
3	2203-005457	C107, C108	2	C-CER, CHIP	1 NF, 10%, 2 KV, X7R, TP, 4520
3	2203-005565	C103, C104, C111	3	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
3	2402-000120	C3-C5	3	C-AL, SMD	10, UF, 20 %, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000170	C7	1	C-AL, SMD	1, UF, 20 %, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
3	2402-001083	C6	1	C-AL, SMD	100, UF, 20 %, 50 V, GP, TP, 10 x 10.3 x 10
3	3301-001463	L2-L5	4	BEAD-SMD	120 ohm, 1.6 x 0.8 x 0.8 mm, 200 mA, TP, 0.5 ohm
3	3703-001252	P26, P27	2	CONNECTOR-BACK, PANEL	30, P, 5 R, FEMALE, ANGLE-F, AU30U
3	3722-002045	J1	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	EN13-10502A	U16, U17	2	IC ASIC	DECT, TP3404, PLCC, 28, P
3	EN13-10503A	U2	1	IC ASIC	DECT, STI-9511, QFP, 60, P
3	GA26-10053A	T1-T8	8	TRANS, PULSE	DGP 360, 144//72.5/72 T, 5 mH
3	GA27-30057A	L1	1	COIL RF	PRO-56EX/120 MX, 72, UH
3	GA41-00138A	-	1	PCB-16DLI	OFFICESERV 7400, FR-4, 4, L, 00, 1.6 T, 130 x 275 MM

6.12 16DLI Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02770A	-	1	PBA MAIN-16PORTDIGITALSUBSCRI	OFFICESERV 7400, DOM/EXP, WORLD, 16PORTDIGITALSUBSCRI, FR-4, 4, L, 130 x 275 x 1.6T, 16 DLI
3	0401-001099	D33, D35	2	DIODE-SWITCHING	1N4148WS, 75 V, 150 MA, SOD-323, TP
3	0402-001211	D34	1	DIODE-RECTIFIER	MURS320, 200 V, 3A, MSR, TP
3	0403-001416	ZD1-ZD32	32	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
3	0501-000476	Q2	1	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
3	0501-000477	Q1	1	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	0505-001769	Q3	1	FET-SILICON	FQU12N20, N, 200 V, 9.0A, 0.28 OHM, 55 W, TO-251
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7 x 2.5 MM, 660/560 NM, 3 x 2.5 x 1.5 MM
3	0801-000379	U7	1	IC-CMOS, LOGIC	74HC00, NAND GATE, SOP, 14, 150 MIL, QUAD, TP, 2.0/6.0 V
3	0801-000841	U6	1	IC-CMOS, LOGIC	74ACT14, INVERTER, SOP, 14, 150 MIL, HEX, ST, 4.5/5.5 V
3	0801-001071	U12	1	IC-CMOS, LOGIC	74ACT08, AND GATE, SOP, 14, 150 MIL, QUAD, TP, 4.5/5.5 V
3	0801-001073	U13	1	IC-CMOS, LOGIC	74ACT74, D FLIP-FLOP, SOP, 14, 150 MIL, DUAL, TP, 4.5/5.5 V
3	0801-002055	U14, U15	2	IC-CMOS, LOGIC	74FCT374, D REGISTER, SOP, 20, 300 MIL, OCTAL, TP, 4.5/5.5 V
3	0801-002215	U8	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300 MIL, SINGLE, TP, 4.5/5.5 V
3	0802-000111	U9-U11	3	IC-BICMOS, LOGIC	74FCT245, BUS TRANSCEIVER, SOP, 20, 300 MIL, OCTAL, ST, 4.75/5.25 V
3	0802-001084	U3, U4	2	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
3	1404-000126	P28-P43	16	THERMISTOR-PTC	4.85 ohm, 60 V, 5 mm
3	1405-000171	V9-V57	59	VARISTOR	82 V, 1200 A, 9 x 6 mm, TP
3	2005-001199	R1200	1	R-WIRE WOUND(S), NON	0.8 OHM, 1%, 3W, AA, TP, 6 x 16 MM

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000041	R1002, R1004, R1006, R1008	4	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608
3	2007-000041	R1010, R1012, R1014, R1016	4	R-CHIP	475 ohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R960-R971, R973-R977, R1119	18	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R1027, R1028, R1030-R1032	5	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000066	R1067	1	R-CHIP	20 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R1036, R1037, R1087-R1118	34	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000287	R978-R1001	24	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R1062	1	R-CHIP	1 Mohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R1018-R1025	8	1	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007443	R1063	1	R-CHIP	3.01 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R1038-R1057, R1059-R1061, R1068	24	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R1069, R1070, R939-R948, R952-R959	20	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R1003, R1005, R1007 R1009, R1011	5	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R1013, R1015, R1017 R1033-R1035	6	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008091	R1066	1	R-CHIP	4.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008122	R1064, R1065	2	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2203-000236	C93, C106	2	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-000257	C102	1	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
3	2203-000998	C100, C101, C42-C44, C98, C99	7	C-CER, CHIP	0.047 NF, 5%, 50 V, C0G, TP, 1608
3	2203-005144	C45, C46, C48, C49, C51, C52, C54, C55	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C57, C58, C60, C61, C63, C64, C66, C67	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C69, C70, C72, C73, C75, C76, C78, C79	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005144	C81, C82, C84, C85, C87, C88, C90, C91	8	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
3	2203-005218	C8-C23	16	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
3	2203-005249	C24-C41, C47, C50, C53, C56, C59, C62	24	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C65, C68, C71, C74, C77, C80, C83, C86	8	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C89, C92, C94, C96, C97	5	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005457	C107, C108	2	C-CER, CHIP	1 NF, 10%, 2 KV, X7R, TP, 4520
3	2203-005565	C103, C104, C111	3	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
3	2402-000120	C1-C5	5	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000170	C7	1	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
3	2402-001083	C6	1	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
3	3301-001463	L2-L5	4	BEAD-SMD	120 ohm, 1.6 x 0.8 x 0.8 mm, 200 mA, TP, 0.5 ohm
3	3703-001252	P26, P27	2	CONNECTOR-BACK, PANEL	30, P, 5 R, FEMALE, ANGLE-F, AU30U

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3722-002045	J1	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U
3	EN13-10502A	U16-U19	4	IC ASIC	DECT, TP3404, PLCC, 28P
3	EN13-10503A	U1, U2	2	IC ASIC	DECT, STI-9511, QFP, 60P
3	GA26-10053A	T1-T16	16	TRANS, PULSE	DGP 360, 144//72.5/72T, 5 mH
3	GA27-30057A	L1	1	COIL RF	PRO-56EX/120 MX, 72, UH
3	GA41-00138A	-	1	PCB-16DLI	OFFICESERV 7400, FR-4, 4, L, 00, 1.6T, 130 x 275 MM

6.13 16DLI2 Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0401-001099	D33, D35	2	DIODE-SWITCHING	1N4148WS, 75V, 150 mA, SOD-323, TP
2	0402-001211	D34	1	DIODE-RECTIFIER	MURS320, 200 V, 3 A, MSR, TP
3	0403-001416	ZD1, ZD10~ZD19, ZD2, ZD20~ZD29, ZD3, ZD30~ZD32, ZD4~ZD9	32	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500 MW, SOD-123, TP
4	0501-000476	Q2	1	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
5	0501-000477	Q1	1	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
6	0505-001769	Q3	1	FET-SILICON	FQU12N20, N, 200V, 9.0A, 0.28 ohm, 55W, TO-251
7	0801-000379	U7	1	IC-CMOS, LOGIC	74HC00, NAND GATE, SOP, 14, 150MIL, QUAD, TP, 2.0/6.0 V
8	0801-000841	U6	1	IC-CMOS, LOGIC	74ACT14, INVERTER, SOP, 14, 150MIL, HEX, ST, 4.5/5.5 V
9	0801-001071	U12	1	IC-CMOS, LOGIC	74ACT08, AND GATE, SOP, 14, 150MIL, QUAD, TP, 4.5/5.5 V
10	0801-001073	U13	1	IC-CMOS, LOGIC	74ACT74, D FLIP-FLOP, SOP, 14, 150MIL, DUAL, TP, 4.5/5.5 V
11	0801-002215	U8	1	IC-CMOS, LOGIC	74FCT138, 1-OF-8 DECODER, SOP, 16, 300MIL, SINGLE, TP, 4.5/5.5 V
12	0802-000111	U9~U11	3	IC-CMOS, LOGIC	74FCT245, BUS TRANSCEIVER, SOP, 20P, 12.8 x 7.5 mm, OCTAL, ST, 0to+70C
13	0802-001084	U3, U22	2	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173MIL, QUAD, TP, 4.5/5.5 V
14	1404-000126	P28~P43	16	THERMISTOR-PTC	4.85 ohm, 60V, 5 mm
15	1405-000171	V10~V57, V9	58	VARISTOR	82 V, 1200A, 9 x 6 mm, TP

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
16	2005-001199	R1125	1	R-WIRE WOUND(S), NON	0.8 ohm, 1%, 3W, AA, TP, 6 x 16 mm
17	2007-000052	R1119, R960~R977	19	R-CHIP	10 kohm, 1%, 1/10W, TP, 1608
18	2007-000060	R1027, R1028, R1030~R1032	5	R-CHIP	100 kohm, 1%, 1/10W, TP, 1608
19	2007-000066	R1067	1	R-CHIP	20 kohm, 1%, 1/10W, TP, 1608
20	2007-000070	R1036, R1037, R1087~R1118	34	R-CHIP	0 ohm, 5%, 1/10W, TP, 1608
21	2007-000287	R1000, R1001, R1060, R1061, R978~R999	26	R-CHIP	100 ohm, 1%, 1/10W, TP, 1608
22	2007-000475	R1062	1	R-CHIP	1 Mohm, 1%, 1/10W, TP, 1608
23	2007-002987	R1018~R1025	8	R-CHIP	4.75 kohm, 1%, 1/10W, TP, 1608
24	2007-007443	R1063	1	R-CHIP	3.01 kohm, 1%, 1/10W, TP, 1608
25	2007-007645	R1038~R1070, R1121~R1124, R939~R948, R952~R959	-	R-CHIP	51.1 ohm, 1%, 1/10W, TP, 1608
26	2007-007796	R1033~R1035	3	R-CHIP	2.21 kohm, 1%, 1/10W, TP, 1608
27	2007-008091	R1066	1	R-CHIP	4.32 kohm, 1%, 1/10W, TP, 1608
28	2203-000236	C93, C106	2	C-CER, CHIP	0.1nF, 5%, 50 V, C0G, 1608
29	2203-000257	C102	1	C-CER, CHIP	10nF, 10%, 50 V, X7R, 1608
30	2203-000626	C100, C101	2	C-CER, CHIP	0.022nF, 5%, 50 V, C0G, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
31	2203-000815	C112~C119	8	C-CER, CHIP	0.033 nF, 5%, 50 V, C0G, TP, 1608
32	2203-000998	C42~C44, C98, C99	5	C-CER, CHIP	0.047 nF, 5%, 50 V, C0G, TP, 1608
33	2203-005144	C45, C46, C48, C49, C51, C52, C54, C55, C57, C58, C60, C61, C63, C64, C66, C67, C69, C70, C72, C73, C75, C76, C78, C79, C81, C82, C84, C85, C87, C88, C90, C91	32	C-CER, CHIP	1000 nF, 10%, 10 V, X7R, TP, 2012
34	2203-005218	C9~C23	15	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
35	2203-005249	C24~C30, C33~C41, C47, C50, C53, C56, C59, C62, C65, C68, C71, C74, C77, C80, C83, C86, C89, C92, C94, C96, C97	33	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
36	2203-005457	C107, C108	2	C-CER, CHIP	1 nF, 10%, 2 KV, X7R, TP, 4520
37	2203-005565	C111	1	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1608
38	2402-000120	C1~C5	5	C-AL, SMD	10, UF, 20%, 50 V, GP, TP, 6.6 x 6.6 x 5.4 mm
39	2402-000170	C7	1	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
40	2402-001083	C6	1	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
41	3301-001463	L2~L5	4	BEAD-SMD	120 ohm, 1608, 200, TP, 0.5

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
42	3703-001252	P26, P27, P44	3	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U
43	3722-001302	J1	1	JACK-MODULAR	8P/16PORT, AU50U, BLK, NO
44	EN13-10502A	U16~U19, U1, U2	6	IC ASIC	DECT, TP3404, PLCC, 28P
45	GA26-10053A	T1, T10~T16, T2~T9	16	TRANS, PULSE	DGP 360, 144//72.5/72T, 5mH
46	GA27-30057A	L1	1	COIL RF	PRO-56EX/120MX, 72uH
47	GA41-00186A	PCS.01	1	PCB	OFFICESERV 7200, FR4, 4L, 1.6 T, 130 x 275 mm

6.14 MGI Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02766A	-	1	PBA MAIN-MEDIAGAT EWAYINTERFAC	OFFICESERV 7400, DOM/EXP, WORLD, MEDIAGATEWAYINTERFAC, FR-4, 4, L, 130*275*1.6T, MGI
3	0402-001207	D3-D5	3	DIODE-SCHOTTKY	UPS5819, 40 V, 1000 MA, DO-216 AA, TP
3	0406-001070	D1, D2	2	DIODE-TVS	LC03-6, 6.8/-/-V, 750 W, SO-8
3	0601-001064	LED1-LED8	8	LED	SMD, RED/Y-GRN, 1.7 x 2.5 MM, 660/560 NM, 3 x 2.5 x 1.5 MM
3	0801-000906	U35	1	IC-CMOS, LOGIC	74HCT74, D FLIP-FLOP, SOP, 14, 150 MIL, DUAL, TP, 4.5/5.5 V
3	0801-002295	U29	1	IC-CMOS, LOGIC	74HCT259, 8BIT, LATCH, SOP, 16P, 39
3	0801-002381	U7	1	IC-CMOS, LOGIC	74LCX138, DECODER/DEMULTIPLEXE, SOP, 16, 150 MIL, SINGLE, TP, 2.0/3.6 V
3	0801-002403	U10	1	IC-CMOS, LOGIC	74LCX08, AND GATE, TSSOP, 14, 173 MIL, QUAD, TP, 2.0/3.6 V
3	0801-002446	U27	1	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
3	0801-002625	U31, U32	2	IC-CMOS, LOGIC	74ALVC1G125, BUS BUFFER, SOP, 5, 49 MIL, SINGLE, TP, 2.7/3.6 V
3	0802-001029	U11-U13, U2-U4	6	IC-BICMOS, LOGIC	74LVTH16245, TRANSCEIVER, TSSOP, 48, 240 MIL, DUAL, TP, 2.7/3.6 V
3	0802-001099	U26, U28, U36, U38	4	IC-BICMOS, LOGIC	74LVTH125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 2.7/3.6 V
3	0903-001151	U6	1	IC-MICROCONTROLLER	32C50100, QFP, 208P, 40 MHZ, TR, CMOS, 3.3 V, 0TO+70C, 32 BIT
3	1006-001140	U8	1	IC-LINE TRANSCEIVER	3232, SSOP, 16P, 212 MIL, DUAL, TP, PLASTIC, 5.5 V, 0to+70C, 571 mW, 2, 2
3	1105-001103	U1, U9	2	IC-DRAM	4S641632, 1M x 16 x 4 BIT, TSOP, 54, P, 400 MIL, 10NS, 3.3 V, 10%, PLASTIC, 0TO+70C, 30 MA, CMOS, TR

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1106-001354	U16, U25	2	IC-SRAM	6X4008, 512KX8 BIT, TSOP2, 32, P, 400 MIL, 70NS, 3.3 V, 10%, PLASTIC, 0TO+70C, 15UA, CMOS, ST
3	1107-001118	U19	1	IC-FLASH MEMORY	29LV040, 512K x 8, PLCC, 32, P, 11.4 x 13.9 mm, 2.7/3.6 V, 0to+70C
3	1107-001367	U21-U23	3	IC-FLASH MEMORY	29LV160, 2Mx8/1Mx16, TSOP, 48P, 18.4x12 mm, 2.7/3.6 V, -40to+85, C
3	1109-000126	U17, U18	2	IC-FIFO	7201, 512 x 9 BIT, PLCC, 32, P, 13.9 x 11.4 MM, 50 NS, 5 V, 0.1, PLASTIC, 0TO+70, C, 5 MA, CMOS, TR
3	1203-001227	U34	1	IC-RESET	DS1233D, SOT-223, 4, P, 6.3X3.3 MM, PLASTIC40TO+85C, 8 MA, TP
3	1203-001643	U15	1	IC-RESET	DS1706, SOIC, 8P, 150 MIL, PLASTIC40TO+85C, TP
3	1203-002267	U30	1	IC-POSI.FIXED REG.	TO-263-5, 5P, 400 MIL, PLASTIC, 1.782/1.818 V, 3W, -40TO+125C, 1.5 A, TP
3	1205-001864	U5	1	IC-TRANSCEIVER	DJLXT972ALC, LQFP, 64P, 393 MIL, PLASTIC, 4 V, 0TO+70C, TR
3	1301-001473	U24	1	IC-CPLD	3064, TQFP, 100P, 16 x 16 MM, 10NS, 3.3 V, 0.1, 0TO+85C, PLASTIC, 66, 66, 2, 222.2 MHZ0.5/5.7
3	2007-000029	L1, L4, L5, L9	4	R-CHIP	0 ohm, 5%, 1/8 W, TP, 2012
3	2007-000043	R183-R185, R200, R337, R342	6	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R356-R359, R364	5	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R10, R11, R100-R108, R119-R155	48	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R160, R162-R168, R17, R171, R188	11	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R189-R199, R208-R211, R21, R216	17	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000052	R217-R219, R231, R237-R248, R24	16	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R25, R251, R253-R255, R262, R263	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R280, R281, R302-R307, R313-R315	11	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R321-R323, R328, R330, R333, R335	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R336, R340, R350, R352, R353, R360	6	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R361-R363, R372, R387, R42-R45	9	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R47-R54, R5, R6, R60-R69, R71, R74	22	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R76, R77, R8, R9, R80, R81, R88	7	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R94-R99	6	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R179-R182, R258, R329, R331, R332	8	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000070	R339, R341, R345, R354, R370, R384	6	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000070	R385, R386, R78	3	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-000287	R178, R261, R347-R349, R367-R369, R86	9	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-001164	R205, R228	2	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-002987	R159, R215, R221-R224, R232, R247, R264	9	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R317-R320, R324-R327	8	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007049	R212	1	R-CHIP	22.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007226	R1-R3, R14, R16, R33-R35, R355	9	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
3	2007-007228	R351	1	R-CHIP	681 ohm, 1%, 1/10 W, TP, 1608
3	2007-007454	R161, R176, R177, R186, R187, R20, R201	7	R-CHIP	332 ohm, 1%, 1/10 W, TP, 1608
3	2007-007454	R202-R204, R22, R23, R220, R229, R230	8	R-CHIP	332 ohm, 1%, 1/10 W, TP, 1608
3	2007-007454	R46	1	R-CHIP	332 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R114-R118, R12, R13, R28-R32, R308-R312	17	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R365, R374, R388-R391, R83-R85, R87	10	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-008122	R109-R113, R156-R158, R172-R175, R18	13	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008122	R207, R213, R214, R226, R227, R233-R236	9	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008122	R249, R250, R252, R256, R26, R265-R279, R27	21	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008122	R282-R301, R334, R338, R343, R344, R37	25	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-008122	R38-R41, R4, R55-R59, R7, R70, R72, R73, R75	15	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008122	R82, R89-R93	6	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008166	R225	1	R-CHIP	182 OHM, 1%, 1/10 W, DA, TP, 1608
3	2203-000236	C95	1	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000257	C11, C45	2	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
3	2203-000405	C128-C130	3	C-CER, CHIP	0.18 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000998	C115, C118-C120, C150, C162-C165	9	C-CER, CHIP	0.047 NF, 5%, 50 V, C0G, TP, 1608
3	2203-001408	C1, C12, C124, C125	4	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
3	2203-003027	C4	1	C-CER, CHIP	0.82 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005249	C10, C100-C114, C116, C117, C121-C123	20	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C132-C140, C14, C146-C148, C151, C16, C160	16	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C17-C27, C2, C29-C37, C42, C43, C46-C59, C5	38	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C6-C9, C60-C67, C70-C94, C96-C99	41	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005457	C131, C28	2	C-CER, CHIP	1 NF, 10%, 2 KV, X7R, TP, 4520

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2404-001037	C126, C127, C13, C15, C3, C44	6	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528
3	2404-001096	C40, C41	2	C-TA, CHIP	33, UF, 10%, 16 V, GP, TP, 6032
3	2409-001034	C39	1	C-EDL	1000000, UF, 5.5 V, BK, 21.6 x 9 MM, 5
3	2601-001056	T1	1	TRANS-SMD, PULSE	350, UH, 1:1, 1:1, 12.7 x 6.73 x 5.97 MM, TP
3	2804-001245	Y3	1	OSCILLATOR-CLOCK	10 MHz, 50, PPM, 10TTL &, CMOS, TP, 3
3	2804-001246	Y2	1	OSCILLATOR-CLOCK	20 MHZ, 50, PPM, 10TTL&CMOS, TP, 3.3 V
3	2804-001247	Y1	1	OSCILLATOR-CLOCK	25 MHZ, 50, PPM, 10TTL &, CMOS, TP, 3.3 V
3	3301-001120	L10, L12	2	BEAD-SMD	30 ohm, 2x1.25x0.85 mm, 3000 mA, TP, 0.015 ohm
3	3301-001308	L11, L13, L14, L2, L3, L6-L8	8	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
3	3403-001104	S1	1	SWITCH-PUSH	28 V, 0.4 A, 1P, MOMENTARY, D2.8(Plunger)
3	3408-000230	S2	1	SWITCH-SLIDE	30 V DC, 200 mA, DPDT, ANGLE SHAPE
3	3703-001252	P2, P3	2	CONNECTOR-BACK, PANEL	30, P, 5 R, FEMALE, ANGLE-F, AU30U
3	3704-000249	U19	1	SOCKET-IC	32, P, PLCC, SN, 1.27 mm
3	3710-000001	J1, J2	2	CONNECTOR-SHUNT	2, P, 1 R, STRAIGHT, AUF
3	3710-001659	P10-P12, P4-P7, P9	8	CONNECTOR-SOCKET	40, P, 2 R, 0.8 mm, SMD-S, AUF, NTR
3	3711-001465	J1	1	CONNECTOR-HEADER	NOWALL, 3, P, 1 R, 2.54 mm, STRAIGHT, A
3	3711-002630	P13, P8	2	CONNECTOR-HEADER	NOWALL, 10, P, 2 R, 2.54 mm, STRAIGHT,
3	3711-002633	J2	1	CONNECTOR-HEADER	NOWALL, 2, P, 1 R, 2.54 mm, STRAIGHT, A
3	3722-001050	P1	1	JACK-MODULAR	8P/8C 2, STANDARD, Y, ANGLE, STANDARD, N, BLK, AU50U
3	GA41-00134A	-	1	PCB-MGI	OFFICESERV 7400, FR-4, 4, L, 00, 1.6 T, 130 x 275 mm

6.15 MGI64 Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0202-001091	-	0.001	Subsidiary Materials(raw/subsidiary materials)	SOLDER-BAR;HI-FLO, 20 x 356 x 11,
1	3703-001252	P1-P3	3	Connectors(electric field)	CONNECTOR-BACK, PANEL;30P, 5R, FE
1	3722-001050	P4	1	Connectors(electric field)	JACK-MODULAR;8P/8C, STANDARD, Y,
1	6002-000154	-	2	Locking, Unit, Part (material available)	SCREW-TAPPING;PH, +, 2, M3, L8, ZPC
1	GA68-00289A	-	1	Print, Part(print, Packing)	LABEL(P)-BAR, CODE;KEY, PHONE
1	GA72-00242A	-	4	Plastics(injection)	PMO-LEN, LENS-2;SME, PMMA, TRP, T2
1	GA94-01936A	-	1	EF-89R(security device)	PHANTOM AU GA92-02924A
2	GA94-01937A	-	1	EF-89R(security device)	PHANTOM SM GA92-02924A
3	0202-000108	-	0.001	Packing, Part(print, Packing)	SOLDER-CREAM;RMA-20-21L, 20~3
3	0402-001056	D1	1	DIODES(electron)	DIODE-RECTIFIER;MBRS140, 40 V, 1 A
3	0404-001116	D4, D5	2	DIODES(electron)	DIODE-SCHOTTKY;B540C, 40 V, 5000 M
3	0601-001064	LED1-LED8	8	Optical Elements(electron)	LED;SMD, RED/Y-GRN, 1.7 x 2.5 mm, 66
3	0801-002127	U10, U11, U2, U22, U3	5	LOGIC IC(electron)	IC-CMOS, LOGIC;74FCT16245, TRANS
3	0802-001029	U18, U20	2	LOGIC IC(electron)	IC-BICMOS, LOGIC;74LVTH16245, TR
3	0802-001037	U6	1	LOGIC IC(electron)	IC-BICMOS, LOGIC;74LVT245, BUS T
3	0902-001802	U5	1	MPU/MCU(electron)	IC-MICROPROCESSOR;M82530, 250MH
3	1001-001111	U21	1	INTERFACE IC(electron)	IC-BUS SWITCH; TSSOP, 56P, 240M
3	1006-001140	U9	1	INTERFACE IC(electron)	IC-LINE TRANSCEIVER;3232, SSOP,
3	1103-001289	U25	1	MEMORY IC(electron)	IC-EEPROM;93C46, 128 x 8/64 x 16, SO
3	1105-001548	U14, U15	2	MEMORY IC(electron)	IC-DRAM;K4S561632, 4 x 4 M x 16 BIT, T

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1106-001058	U17	1	MEMORY IC(electron)	IC-SRAM;71321, 2K x 8BIT, TQFP, 64P
3	1107-001228	U19	1	MEMORY IC(electron)	IC-FLASH MEMORY;28F640, 8M x 8/4M
3	1107-001534	U23, U28	1	MEMORY IC(electron)	IC-FLASH MEMORY;39VF040, 512K×
3	1203-001447	U27	1	LINEAR IC(electron)	IC-SWITCH VOL.REG;2596, TO-263,
3	1203-001643	U7	1	LINEAR IC(electron)	IC-RESET;DS1706, SOIC, 8P, 150MIL
3	1205-002129	U1	1	LINEAR IC(electron)	IC-TRANSCEIVER;BCM5221A4KPT, TQ
3	1301-001647	U4	1	ASICs(electron)	IC-CPLD;LC4256V-75F256BC, FPBGA
3	2007-000052	R4, R10, R48, R52, R99, R100, R126, R130, R138, R139, R145, R148-R150, R156, R159-R162, R185-R187, R189, R197, R200, R202, R205-R207, R218, R223, R228, R232-R236, R249-R252, R260, R261	43	Fixed Registers(electron)	R-CHIP;10 Kohm, 1%, 1/10W, TP, 1608
3	2007-000057	R273	1	Fixed Registers(electron)	R-CHIP;40.2 Kohm, 1%, 1/10W, TP, 16
3	2007-000070	R2, R241, R35, R75, R77, R94, R95	7	Fixed Registers(electron)	R-CHIP;0 ohm, 5%, 1/10W, TP, 1608
3	2007-000287	R13-R31, R34, R54-R73, R151, R164, R179	43	Fixed Registers(electron)	R-CHIP;100 ohm, 1%, 1/10W, TP, 1608
3	2007-007226	R36, R37, R39, R41-R45, R47, R49, R74, R76, R78-R81, R83-R86, R88-R93, R108, R112-R119, R121, R122, R125, R127-R129, R131-R136, R140, R141, R144, R153, R157, R188, R190-R196, R213, R215, R247, R253-R256, R266, R267	69	Fixed Registers(electron)	R-CHIP;49.9 ohm, 1%, 1/10W, TP, 160

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007342	R272	1	Fixed Registers(electron)	R-CHIP;1.82 Kohm, 1%, 1/10 W, TP, 16
3	2007-007454	R224, R225, R230, R231, R237-R240	8	Fixed Registers(electron)	R-CHIP;332 ohm, 1%, 1/10 W, TP, 1608
3	2007-007507	R109, R110, R142, R143, R158, R199, R201, R203, R204, R210, R212, R214, R216, R217, R219, R220, R226, R227, R229, R3	20	Fixed Registers(electron)	R-CHIP;2.74 Kohm, 1%, 1/10 W, TP, 16
3	2007-007669	R111, R123, R163, R33	4	Fixed Registers(electron)	R-CHIP;1.27 Kohm, 1%, 1/10 W, TP, 16
3	2007-008122	R120, R165-R177	14	Fixed Registers(electron)	R-CHIP;22.1 OHM, 1%, 1/10 W, TP, 160
3	2011-000002	RA5-RA11, RA14-RA20	14	Fixed Registers(electron)	R-NET;22 OHM, 5%, 1/16 W, L, CHIP, 8P
3	2011-000585	RA1-RA4, RA12, RA13, RA21-RA30	16	Fixed Registers(electron)	R-NET;47 ohm, 5%, 1/16 W, L, CHIP, 8P
3	2203-000236	C148, C149	2	Ceramic, Capacitor (electron)	C-CER, CHIP;0.1 nF, 5%, 50 V, C0G, 16
3	2203-000257	C7-C9, C19-C21, C27-C35, C39-C45, C54-C58, C61-C63, C79, C80, C82, C92, C114-C118	39	Ceramic, Capacitor(electron)	C-CER, CHIP;10 nF, 10%, 50 V, X7R, 16
3	2203-000998	C67, C73, C76, C84, C87, C130, C188-C190, C194	11	Ceramic, Capacitor(electron)	C-CER, CHIP;0.047 nF, 5%, 50 V, C0G,
3	2203-001408	C69, C70	2	Ceramic, Capacitor(electron)	C-CER, CHIP;0.27 nF, 5%, 50 V, NP0, 1
3	2203-005171	C212	1	Ceramic, Capacitor(electron)	C-CER, CHIP;1000 nF, 10%, 16 V, X7R,

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005249	C1-C3, C10, C11, C14, C15, C22-C26, C36-C38, C46, C47, C49-C53, C64-C66, C68, C72, C75, C77, C81, C83, C85, C86, C88-C91, C93, C95-C100, C102-C105, C107-C113, C119-C123, C131-C134, C137-C143, C145-C187, C215-C217	114	Ceramic, Capacitor(electron)	C-CER, CHIP;100 nF, 10%, 50 V, X7R, 1
3	2203-005457	C124, C16, C6, C71	4	Ceramic, Capacitor(electron)	C-CER, CHIP;1 NF, 10%, 2KV, X7R, TP,
3	2203-005565	C191-C193	3	Ceramic, Capacitor(electron)	C-CER, CHIP;1 nF, 5%, 50 V, NP0, TP, 1
3	2203-005929	C101, C106, C125, C126, C13, C18, C196, C211, C219, C48, C59, C60, C74, C78, C94	15	Ceramic, Capacitor(electron)	C-CER, CHIP;10000 nF, ±10%, 16 V, X
3	2404-001037	C12, C17, C195	3	Eletrolytic, Capacitor(electron)	C-TA, CHIP;10, UF, 10%, 16V, TP, 35
3	2404-001097	C197, C205, C218	3	Eletrolytic, Capacitor(electron)	C-TA, CHIP;220, UF, 10%, 10 V, GP, TP,
3	2404-001288	C4, C5	2	Eletrolytic, Capacitor(electron)	C-TA, CHIP;2.2, UF, 10%, 16 V, WT, TP,
3	2601-001056	T1	1	TRANSFORMER(electricity)	TRANS-SMD, PULSE;350UH, 1:1, 1:
3	2703-001795	L10	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD;15UH, 20%, 18.54X15
3	2804-001245	Y3	1	Oscillator(electron)	OSCILLATOR-CLOCK;10 MHz, 50, Ppm, 1
3	2804-001325	Y2	1	Oscillator(electron)	OSCILLATOR-CLOCK;50 MHz, 50, Ppm, 1
3	2804-001496	Y1	1	Oscillator(electron)	OSCILLATOR-CLOCK;16.384 MHz, 50p
3	3301-000373	L3, L4, L6	3	Magnetic, Parts(electricity)	BEAD-SMD;220 OHM, 1608, 200, TP,

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3301-001308	L1, L2, L5, L7, L8	5	Magnetic, Parts(electricity)	BEAD-SMD;10 OHM, 1608, 500, TP
3	3403-001144	S1	1	Switches(electric field)	SWITCH-PUSH;28 V, 100 MA, SPDT, ON
3	3704-000249	U23, U28	2	Connectors(electric field)	SOCKET-IC;32P, PLCC, SN, 1.27 mm
3	4401-001294	PWR1	1	POWER SUPPLY(electricity)	CONVERTER-DC/DC;3.3 V, 1.2 V, 16
3	GA13-10064A	U16	1	ASICs(electron)	IC ASIC;DCS, STL7065C, QFP, 160P,
3	GA41-00181A	PCS01	1	PCB(electricity)	PCB MAIN-MGI64;OFFICESERV 7400
1	GA97-01933A	-	1	Appliance ASS'Y	MEA-MGI64 STIFF ASSY;OFFICESER
2	6003-000264	-	1	Locking, Unit, Part(material available)	SCREW-TAPTITE;, PWH, +, B, M3, L6, ZP
2	GA70-00066A	-	1	Ferous Metal, Processing, Part(PRESS)	IPR-SHIELD MGI;OFFICESERV SME,
2	GA72-00238E	-	1	Plastics(injection)	PMO-STIFFENER MGI64;OFFICESERV
2	GA72-00240A	-	1	Plastics(injection)	PMO-EJECTOR;SME, PC/ABS, BLANK K

6.16 4DSL Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0401-001099	D1~D4, D9~D13	9	DIODE-SWITCHING	1N4148WS, 75 V, 150 mA, SOD-323, TP
2	0402-001216	D5~D8	4	DIODE-RECTIFIER	MURS120, 200 V, 1 A, TO-220F, TP
3	0403-001416	ZD1~ZD16	16	DIODE-ZENER	MMSZ5227B, 3.42-3.78 V, 500MW, SOD-123, TP
4	0406-001053	L19, L21, L23, L25, L27, L29, L31, L33	8	DIODE-TVS	SMBJ30CA, 33.3/35.8/38.3 V, 600W, DO-214AA
5	0501-000476	Q5~Q8	4	TR-SMALL SIGNAL	KST5401TA, PNP, 350 MW, SOT-23, TP, 60-240
6	0505-001031	Q1~Q4	4	FET-SILICON	IRF540, N, 100 V, 28 A, 0.077 ohm, 125
7	0601-001064	LED1~LED4	4	LED	SMD, RED/Y-GRN, 1.7 x 2.5 mm, 660/560 NM, 3 x 2.5 x 1.5 mm
8	0801-001090	U12, U25	2	IC-CMOS, LOGIC	74HC14, SCHMITT INVERTER, SOP, 14, 150 MIL, HEX, TP, 2.0/6.0 V
9	0801-002325	U21	1	IC-CMOS, LOGIC	74LCX04, INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
10	0801-002403	U26	1	IC-CMOS, LOGIC	74LCX08, AND GATE, TSSOP, 14, 173 MIL, QUAD, TP, 2.0/3.6 V
11	0801-002446	U31	1	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173MIL, HEX, TP, 2.0/3.6 V
12	0802-001084	U11, U27, U30, U5, U6	5	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 4.5/5.5 V
13	0802-001099	U22	1	IC-BICMOS, LOGIC	74LVTH125, BUFFER, TSSOP, 14, 173 MIL, QUAD, TP, 2.7/3.6 V
14	0902-000231	U14	1	IC-MICROPROCESSOR	MC68302, 16.67 MHz, 16 bit, QFP, 132P, TR, PLASTIC, 5 V, 525 MW, TO + 70C, 1.152 KB, 24 bit
15	1006-001140	U15	1	IC-LINE TRANSCEIVER	3232, SSOP, 16P, 212MIL, DUAL, TP, PLASTIC, 5.5 V, 0to + 70C, 571 mW, 2, 2
16	1106-000353	U18, U19	2	IC-SRAM	6X4008, 512 K x 8 bit, TSOP(II), 32P, 400 MIL, 70 NS, 5 V, 10%, PLASTIC, 0TO+70C, 20UA, CMOS, ST
17	1106-001136	U17	1	IC-SRAM	7C136, 2K x 8 bit, QFP, 52P, 10 x 10 mm, 55 NS, 5 V, 10%, PLASTIC, 0TO + 70C, 15 MA, CMOS, TR

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
18	1107-001079	U23	1	IC-FLASH MEMORY	29F800, 1M x 8/512K x 16, TSOP, 48P, 18.4 x 12 mm, 4.5/5.5 V, 0to+70C
19	1203-001643	U24	1	IC-RESET	DS1706, SOIC, 8P, 150MIL, PLASTIC, -40TO+85C, TP
20	1203-002267	U28	1	IC-POSI.FIXED REG.	TO-263-5, 5P, 400 MIL, PLASTIC, 1.782/1.818 V, 3W, -40TO + 125C, 1.5A, TP
21	1204-002210	U29	1	IC-ECHO	ZL50235QCC, LQFP, 100P, 14 x 14 x mm, PLASTIC, 3.6 V, -40TO + 85C, TR, 16CH VOICE ECHO-IC
22	1205-000443	U1, U2, U3, U4, U7~U10	4	IC-ADAPTER	TP3464V, PLCC, 28P, PLASTIC, 7 V, 0, 0to+70C, ST
23	1301-001473	U16	1	IC-CPLD	3064, TQFP, 100P, 16 x 16 mm, 10 nS, 3.3, 10%
24	1404-000126	PS1~PS8	8	THERMISTOR-PTC	4.85 ohm, 60V, 5 mm
25	2007-000041	R1~R3, R220	4	R-CHIP	475 ohm, 1%, 1/10W, TP, 1608
26	2007-000043	R102~R108, R111, R114, R138, R143, R147, R150, R153, R154, R157, R159, R160, R163, R168, R169, R170, R171, R221	24	R-CHIP	1K ohm, 1%, 1/10W, TP, 1608
27	2007-000052	R13, R140, R15, R151, R17, R19, R190, R203, R208, R215, R216, R233, R234, R30, R34, R35, R42, R43, R44, R48, R50, R53~R58	27	R-CHIP	10 kohm, 1%, 1/10W, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
28	2007-000070	R113, R115, R116, R119, R120, R141, R145, R146, R152, R156, R158, R162, R164, R165, R166, R201, R21, R214, R22, R223~R229,	26	R-CHIP	0 ohm, 5%, 1/10W, TP, 1608
29	2007-000070	R23, R230, R238, R239, R24, R240~R248, R25~R27, R29, R40, R41, R47, R49, R52, R59, R80, R82, R90	27	R-CHIP	0 ohm, 5%, 1/10W, TP, 1608
30	2007-000287	R10, R11, R117, R118, R121, R122~R129, R137, R142, R144, R148, R149, R177, R181~R185, R191~R200, R202, R205~R207, R209~R213, R217~R219, R235, R236, R37~R39, R4~R6, R60~R69, R7, R70, R8, R9, R91~R97	-	R-CHIP	100 ohm, 1%, 1/10W, TP, 1608
31	2007-001153	R31	1	R-CHIP	750 ohm, 1%, 1/10W, TP, 1608
32	2007-002918	R12, R14, R16, R18	4	R-CHIP	51.1 kohm, 1%, 1/10W, TP, 1608
33	2007-002987	R100, R101, R109, R110, R130~R136, R139, R167, R172, R173, R175, R176, R179, R180, R186~R189, R231, R232, R36, R46, R71~R79, R81, R83~R89, R98, R99	-	R-CHIP	4.75 kohm, 1%, 1/10W, TP, 1608
34	2007-007296	R45	1	R-CHIP	1.21 kohm, 1%, 1/10W, TP, 1608
35	2007-007645	R112, R161, R178, R20, R204, R246, R28, R32	8	R-CHIP	51.1 ohm, 1%, 1/10W, TP, 1608

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
36	2007-008122	R237, R33	2	R-CHIP	22.1 ohm, 1%, 1/10W, TP, 1608
37	2203-000257	C52, C86	2	C-CER, CHIP	10 nF, 10%, 50 V, X7R, 1608
38	2203-000426	C110	1	C-CER, CHIP	0.018 nF, 5%, 50 V, C0G, 1608
39	2203-001408	C57, C58	2	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
40	2203-002793	C1, C10, C12, C17~C19, C2, C20, C22, C24, C26, C28, C3, C4, C6, C8		C-CER, CHIP	1000 nF, +80-20%, 25 V, Y5 V, 2012
41	2203-005218	C11, C21, C23, C25, C27, C5, C7, C9	8	C-CER, CHIP	470 nF, 10%, 50 V, X7R, TP, 3216
42	2203-005249	C100~C107, C13~C16, C29~C32, C37~C56, C59~C99	-	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
43	2402-000170	C33~C36	4	C-AL, SMD	1, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
44	2402-001083	C93	1	C-AL, SMD	100, UF, 20%, 50 V, GP, TP, 10 x 10.3 x 10
45	2404-001037	C88, C94, C95	3	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528
46	2804-001496	Y1	1	OSCILLATOR-CLOCK	16.384 MHz, 50, Ppm, 10TTL, 15pF, TP, 3.3 V, 40 mA
47	2804-001499	Y2	1	OSCILLATOR-CLOCK	20 MHz, 50, Ppm, 10TTL, 15pF, TP, 3.3 V, 40 mA
48	3301-001120	L1, L34~L36	4	BEAD-SMD	30 ohm, 2012, 3000, TP, 0.015
49	3301-001308	L37, L38	2	BEAD-SMD	10 ohm, 1608, 500, TP, 0.15
50	3301-001309	L10~L17, L2~L9	-	BEAD-SMD	47 ohm, 1608, 500, TP, 0.3
51	3404-001008	SW2	1	SWITCH-TACT	15V, 50 MA, 160GF, 6 x 6 x 5 mm, SPST
52	3703-001252	P2, P3	2	CONNECTOR-BACK, PANEL	30P, 5R, FEMALE, ANGLE-F, AU30U

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
53	3711-003272	P1	1	CONNECTOR-HEADER	BOX, 10P, 2R, 2.54 mm, STRAIGHT, AUF, BLK
54	3722-002045	J1	1	JACK-MODULAR	8P/8C, INVERTED, Y, ANGLE, N, BLK, AU15U
55	GA13-10051A	U13	1	IC ASIC	DCS, STL7052E, QFP, 80P
56	GA26-10053A	T1~T8	8	TRANS, PULSE	DGP 360, 144//72.5/72T, 5mH
57	GA41-00139A	PCS.03	1	PCB-WLI	OFFICESERV SME, FR-4, 4L, 00, 1.6T, 130 x 275 mm

6.17 LIM Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02777A	-	1	PBA MAIN-16PORT, LAN SWITCH	OFFICESERV 7400, DOM/EXT, WORLD, 16PORT, LAN SWITCH, FR-4, 6, L, 130 x 275 x 1.6 T, LIM
3	0401-001099	D1	1	DIODE-SWITCHING	1N4148WS, 75 V, 150 MA, SOD-323, TP
3	0601-000005	LED1-LED3	3	LED	SMD, GRN, 3 x 2 MM, 570 NM, 3 x 2 MM
3	0801-000862	U9	1	IC-CMOS, LOGIC	74LVT125, BUFFER, SOP, 14, P, 244 MIL
3	0801-002095	U17	1	IC-CMOS, LOGIC	74LCX245, TRANSCEIVER, TSSOP, 20, 173 MIL, OCTAL, TP, 2.0/3.6 V
3	0801-002446	U13	1	IC-CMOS, LOGIC	74LCX14, SCHMITT INVERTER, TSSOP, 14, 173 MIL, HEX, TP, 2.0/3.6 V
3	0801-002643	U3	1	IC-CMOS, LOGIC	74LCX139, DECODER/DEMUX, SOP, 16, 150 MIL, QUAD, TP, 2.0/3.6 V
3	0802-001037	U1, U2, U7, U8, U12, U18	6	IC-BICMOS, LOGIC	74LVT245, BUS RANSCEIVER, TSSOP, 20, 173 MIL, OCTAL, TP, 2.7/3.6 V
3	1203-002681	U5, U6, U16	3	IC-POSI.FIXED REG.	LP3962, SOT-223, 5, P, PLASTIC, 2.475/2.525 V, -40TO+125, C, 1.5 A, TP
3	1205-001864	U15	1	IC-TRANSCEIVER	DJLXT972ALC, LQFP, 64, P, 393 MIL, PLASTIC, 4 V, 0TO+70C, TR
3	1205-002452	U11	1	IC-ETHERNET SWITCH	VT6526, LQFP, 208, P, 28 x 28 MM, PLASTIC, 5.5 V, 2.8 W, 0TO+70, C, TR, IC-ETHERNET SWITCH
3	1205-002455	U4, U14	2	IC-TRANSCEIVER	VT6108, PQFP, 208, P, 28 x 28 MM, PLASTIC, 3.45 V, 1.8 W, 0TO+70C, TR, 8, PORT TRANSCEIVER
3	2007-000043	R147, R162, R163, R173, R192	5	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000043	R24, R34, R37, R44, R57, R63, R75	7	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000045	R179, R180	2	R-CHIP	3.32 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R186-R191, R66, R76, R92	9	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R47, R56, R86	3	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-001164	R10-R12, R101-R103, R109-R111	9	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
3	2007-001164	R119-R121, R127-R129, R139-R141	9	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
3	2007-001164	R152-R154, R165-R167, R174-R176	9	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
3	2007-001164	R18-R20, R28-R30, R3-R5, R41-R43	12	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
3	2007-001164	R50-R52, R67-R69, R83-R85	9	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
3	2007-002916	R58	1	R-CHIP	475 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R114, R115, R137, R138, R151, R164	6	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R182, R183, R193, R194, R21, R27	6	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R62, R73, R90, R91	4	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007049	R157	1	R-CHIP	22.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007443	R158, R61	2	R-CHIP	3.01 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R1, R104, R105, R107, R108, R112	6	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007645	R113, R117, R118, R122, R123, R125	6	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R126, R13, R130, R131, R135, R136	6	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R14, R142-R146, R155, R156, R159	9	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R16, R160, R161, R168, R169, R17	6	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R171, R172, R177, R178, R2, R22, R23	7	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R25, R26, R31, R32, R39, R40, R45	7	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R46, R48, R49, R54, R55, R6, R64, R65	8	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R7, R71, R72, R8, R81, R82, R87, R88	8	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007645	R9, R93, R94	3	R-CHIP	51.1 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R36, R38	2	R-CHIP	2.21 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008122	R116, R124, R148, R149, R15, R150, R184	7	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008122	R185, R35, R60, R70, R74, R80, R89	7	R-CHIP	22.1 ohm, 1%, 1/10 W, DA, TP, 1608
3	2007-008166	R132-R134	3	R-CHIP	182 OHM, 1%, 1/10 W, DA, TP, 1608
3	2011-000002	RA1, RA4-RA8, RA11, RA12, RA15, RA18, RA19	11	R-NET	22 OHM, 5%, 1/16 W, L, CHIP, 8, P, TP, 3216

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2011-001238	RA2, RA3, RA9, RA10, RA13, RA14, RA16, RA17	8	R-NET	330 OHM, 5%, 1/8 W, L, CHIP, 8, P, TP
3	2203-000041	C130, C131	2	C-CER, CHIP	0.01 NF, 0.25PF, 50 V, C0G, TP, 1608
3	2203-000236	C216-C218	3	C-CER, CHIP	0.1 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000257	C147	1	C-CER, CHIP	10 nF, 10%, 50 V, X7R, TP, 1608
3	2203-000426	C167, C168	2	C-CER, CHIP	0.018 NF, 5%, 50 V, C0G, TP, 1608
3	2203-000815	C81, C100	2	C-CER, CHIP	0.033 NF, 5%, 50 V, C0G, TP, 1608
3	2203-001408	C141, C152	2	C-CER, CHIP	0.27 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005249	C1, C10, C101-C113, C115-C120, C122	22	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C123, C125, C126, C128, C13, C132, C133	7	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C135-C138, C14, C140, C142-C144, C148	10	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C15, C149-C151, C153-C155, C157, C16	9	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C161, C163, C164, C166, C169, C17, C170	7	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C172, C174, C175, C18, C182, C2, C20	7	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C219, C22, C220, C25-C27, C29-C34, C3	13	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C37-C40, C4, C42-C46, C48, C49-C60, C5	24	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005249	C62-C65, C68, C69, C7, C71, C72, C74	10	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C75, C76, C78-C80, C8, C82-C90, C9	16	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C92-C97	6	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2203-005457	C11, C114, C121, C139, C145, C146, C156	7	C-CER, CHIP	1 NF, 10 %, 2 KV, X7R, TP, 4520
3	2203-005457	C158, C171, C19, C28, C41, C47, C6, C61	8	C-CER, CHIP	1 NF, 10 %, 2 KV, X7R, TP, 4520
3	2203-005457	C77, C91, C98	3	C-CER, CHIP	1 NF, 10 %, 2 KV, X7R, TP, 4520
3	2203-005565	C183-C214	32	C-CER, CHIP	1 nF, 5 %, 50 V, NP0, TP, 1608
3	2402-000120	C127, C129, C160, C162, C165, C70, C73	7	C-AL, SMD	10, UF, 20 %, 50 V, GP, TP, 6.6 x 6.6 x 5.4 MM
3	2402-000170	C66	1	C-AL, SMD	1, UF, 20 %, 50 V, GP, TP, 4.3 x 4.3 x 5.4,
3	2402-001082	C124, C134, C176-178, C23, C24	7	C-AL, SMD	33, UF, 20 %, 50 V, GP, TP, 8.3 x 8.3 x 6.3
3	2402-001082	C35, C36	2	C-AL, SMD	33, UF, 20 %, 50V, GP, TP, 8.3 x 8.3 x 6.3
3	2601-001056	T5	1	TRANS-SMD, PULSE	350, UH, 1:1, 1:1, 12.7 x 6.73 x 5.97 MM, TP
3	2601-001111	T1-T4	4	TRANS-SMD, PULSE	350, UH, 0.9 OHM, 1CT:1CT, 28.58 x 16.00 x 5.84 MM, TP
3	2801-004058	Y1, Y2	2	CRYSTAL-SMD	25 MHZ, 30, PPM, 28-ABX, 20PF, 50 OHM, TP
3	3301-001120	L1-L14, L16, L17	16	BEAD-SMD	30 ohm, 2x1.25x0.85 mm, 3000 mA, TP, 0.015 ohm
3	3404-001008	S1	1	SWITCH-TACT	15 V, 50 MA, 160GF, 6 x 6 x 5 mm, SPST

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3703-001252	P1, P2, P3, P7	4	CONNECTOR-BACK, PANEL	30, P, 5R, FEMALE, ANGLE-F, AU30U
3	3711-005026	P8, P9	2	CONNECTOR-HEADER	BOX, 100P, 2R, 0.8 MM, SMD-S, AU30U, NTR
3	GA41-00141A	-	1	PCB-LIM	OFFICESERV 7400, FR-4, 6L, 00, 1.6T, 130 x 275 mm
2	GA92-02788A	-	1	PBA MAIN-8PORT A/D SUBSCIBER	OFFICESERV 7400, DOM/EXP, WORLD, 8PORT A/D SUBSCIBER, FR-4, 4, L, 130 x 275, LIMD
3	3710-001756	P4, P5	2	CONNECTOR-SOCKET	100P, 2R, 0.8 MM, SMD-S, AUF, NTR
3	3722-002054	J1	1	JACK-MODULAR	8P/8C, STANDARD/INVERTED, Y, ANGLE-F, GRN, BLK, AU50U
3	GA41-00147A	-	1	PCB-LIMD	OFFICESERV 7400, FR-4, 4, L, 00, 1.6T, 130 x 45 MM

6.18 PLIM Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0402-001211	D2	1	case_403	MURS320T3
2	0501-000476	Q1	1	sot23	KST5401TA
3	0501-000477	Q3	1	sot23	MMBT5550
4	0505-000323	Q2	1	fet_590x1070	IRFR220-TF
5	0601-000005	LED1, LED2, LED3	3	sml-010	SML010MT
6	0801-000862	U9	1	sop14_w600	74LVT125D
7	0801-002095	U17	1	ps_tssop20_w640_1.5	MC74LCX245DTR2
8	0801-002446	U13	1	ps_tssop14_w640_1.5	74LCX14MTCX
9	0801-002643	U3	1	sop16_w600	74LCX139M
10	0802-001037	U1, U2, U7, U8, U12, U18	6	ps_ssop20_w640_1.5	SN74LVT245APW
11	1203-000469	U19	1	sot223	LM1117MPX-ADJ
12	1203-001643	U20	1	sop8_w600	DS1706RESA
13	1203-002681	U5, U6, U16	3	sot223-5_nsc	LP3962EPM-2.5
14	1205-001864	U15	1	ps_tqfp64_w1200_1.5	LXT972LC
15	1405-000171	V1	1	vari_p200_1	ERZ-VA7V820
16	2007-000045	R179, R180	2	W1608_RES	3.32K, 1%
17	2007-000052	R37, R44, R66, R75, R76, R92, R196, R197, R206, R213, R214, R24, R34, R57, R63, R173, R186, R187, R188, R189, R190, R191, R195	23	W1608_RES	10K, 1%

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
18	2007-000060	R202	1	W1608_RES	100 K, 1%
19	2007-000066	R198	1	W1608_RES	20 K, 1%
20	2007-000070	R200, R207, R208, R209, R210, R56, R86	7	R1608_RES	RC1608J000CS
21	2007-000287	R204	1	R1608_RES	RC1608F1000CS
22	2007-001164	R3, R10, R18, R28, R41R50, R67, R83, R101, R109, R119, R127, R139, R152, R165, R174	16	W1608_RES	75, 1%
23	2007-002987	R21, R151, R211, R27, R62, R73, R90, R114, R115, R137, R138, R147, R162, R163, R164, R182, R183, R192, R193, R194	20	R1608_RES	RC1608F4751CS
24	2007-007049	R157	1	W1608_RES	22.1 K, 1%
25	2007-007443	R61, R158	2	W1608_RES	3.01 K, 1%
26	2007-007613	R205	1	W1608_RES	RC1608F1210CS
27	2007-007645	R1, R2, R6, R7, R8, R9, R13, R14, R16, R17, R22, R23, R25, R26, R31, R32, R39, R40, R45, R46, R48, R49, R54, R55, R64, R65, R71, R72, R81, R82, R87, R88, R93, R94, R104, R105, R107, R108, R112, R113, R117, R118, R122, R123, R125, R126, R130, R131, R135, R136, R142, R143, R144, R145, R146, R155, R156, R159, R160, R161, R168, R169, R171, R172, R177, R178	66	R1608_RES	RC1608F51R1CS
28	2007-007796	R36, R38	2	R1608_RES	2.21 K, 1%
29	2007-008091	R199	1	W1608_RES	RC1608F4321CS
30	2007-008122	R15, R60, R74, R89, R116, R35, R70, R80, R124, R148, R149, R150, R184, R185	14	W1608_RES	MCR03EZHF22R1

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
31	2007-008166	R132, R133, R134	3	W1608_RES	182, 1%
32	2011-000002	RA1, RA4, RA5, RA6, RA7, RA8, RA11, RA12, RA15, RA18, RA19	11	mnr14_3216	MNR14-EOA-J-220
33	2011-001238	RA2, RA3, RA9, RA10, RA13, RA14, RA16, RA17	8	sm_r_bcn4d	BCN4DB331JT
34	2203-000041	C130, C131	2	W1608_CAP	CL10C100CBNC
35	2203-000236	C216, C217, C218	3	R1608_CAP	CS1608C0G101J500NR
36	2203-000257	C147, C228, C229	3	R1608_CAP	10 NF, 50 V
37	2203-000426	C167, C168	2	W1608_CAP	18, PF, 50 V
38	2203-000815	C81, C100	2	W1608_CAP	33, PF, 50 V
39	2203-001408	C141, C152	2	R1608_CAP	270, PF, 50 V
40	2203-005249	C3, C4, C5, C7, C8, C9, C10, C13, C14, C15, C16, C17, C18, C20, C22, C25, C26, C27, C29, C30, C31, C32, C33, C34, C37, C38, C39, C40, C42, C43, C44, C45, C46, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C62, C63, C64, C65, C68, C69, C71, C72, C74, C75, C76, C78, C79, C80, C82, C83, C84, C85, C86, C87, C88, C89, C90, C92, C93, C94, C95, C96, C97, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C115, C116, C119, C120, C122, C123, C125, C126, C128, C132, C133, C135, C136, C137, C138, C140, C142, C143, C144, C148, C149, C150, C151, C154, C155, C157, C161, C163, C164, C166, C169, C170, C172, C182, C225	123	W1608_CAP	CL10B104KBNC

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
41	2203-005249	C1, C2, C117, C118, C153, C174, C175	7	R1608_CAP	CL10B104KBNC
42	2203-005457	C6, C11, C19, C28, C41, C47, C61, C77, C91,C98, C114, C121, C139, C145, C146, C156, C158, C171	18	R4520_CAP	1 nF, 2 KV
43	2203-005565	C183, C184, C185, C186, C187, C188, C189, C190, C207, C208, C209, C210, C211, C212, C213, C214, C191, C192, C193, C194, C195, C196, C197, C198, C199, C200, C201, C202, C203, C204, C205, C206	32	W1608_CAP	1 nF, 5%
44	2402-000120	C70, C73, C127, C129, C160, C162, C165	7	sm_ecap_f55	10, UF, 50 V
45	2402-000130	C222	1	sm_ecap_d55	2.2, UF, 50 V
46	2402-001082	C23, C24, C35, C36, C124, C134, C176, C177, C178	9	sm_ecap2	33, UF, 50 V
47	2402-001229	C221	1	sm_ecap_12.5 x 13.5	MVG100VC100M
48	2404-001074	C223, C224	2	R3216_TAN	TCSCS1A106KAAR
49	2601-001056	T5	1	sm_trans16_w940	H1102
50	2601-001111	T1 T2 T3 T4	4	sm_trans40_w1600	H1164
51	2801-004058	Y1 Y2	2	sm_xtal2	HC-49/SM5H
52	3301-001120	L1, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L16, L17, L18, L19, L20, L21, L22	20	R2012_CORE	BLM21P300SPT
53	3703-001252	P1, P2, P3, P7	4	zpack_pin30_5_fe	89047-102
54	3711-001465	J1 J2 J3	3	scon_sps01_pin3	103239-3

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
55	3711-005026	P8, P9	2	smd_dcon100_177986-4	1-177986-4
56	1205-002452	U11	1	ps_pqfp208_w3000_ep	VT6526R110
57	1205-002455	U4, U14	2	ps_pqfp208_w3120	VT6108
58	GA75-00017B	-	1	MEC-STIFFNER, PLIM ASSY	STIFFNER
59	6001-000568	-	2	PH, +, M3, L8, NI, PLT	SCREW
60	6203-001062	U11, U4, U14	3	HS2727B, T2.6, L27	Heat-Sink
61	EC70-00091A	-	2	SMG-3200	Spacer
62	3710-000001	J1 J2 J3	3	SHT-5A	CONNECTOR-SHUNT

6.19 PLIMD Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	0401-000115	D1 D3 D4 D5	4	sot23	MMBD7000LT1
2	0402-001080	ZD3 ZD4 ZD7 ZD8 ZD11 ZD12 ZD15 ZD16 ZD19 ZD20 ZD23 ZD24 ZD27 ZD28 ZD31 ZD32	16	do-214ba	GF1G
3	0403-001280	ZD1 ZD2 ZD5 ZD6 ZD9 ZD10 ZD13 ZD14 ZD17 ZD18 ZD21 ZD22 ZD25 ZD26 ZD29 ZD30	16	sod_123	MMSZ5240BT1
4	0502-000333	Q1	1	to_220	MJE340
5	0604-001002	PC1	1	sm_led4_tlp121	TLP181-GB
6	1037423	U1, U2, U4, U6	4	qfp48_w700	PD64004
7	2007-000043	R127, R128	2	R1608_RES	1 K, 1%
8	2007-000052	R56, R64, R108, R162, R165	5	R1608_RES	10 K, 1%
9	2007-000070	R43, R78, R81, R85, R105, R106, R109, R148	8	R1608_RES	RC1608J000CS
10	2007-000287	R25	1	R1608_RES	RC1608F1000CS
11	2007-000536	R24, R74, R134, R161	4	R1608_RES	RC1608F2000CS
12	2007-000669	R7, R14, R20, R29, R32, R49, R59, R71, R80, R95, R111, R120, R133, R137, R144, R152	16	R1608_RES	RC1608F2001CS
13	2007-001139	R8, R51, R112, R150	4	R1608_RES	RC1608F7501CS
14	2007-007049	R62, R155	2	R1608_RES	22.1 K, 1%
15	2007-007287	R157	1	R1608_RES	MCR03EZHF2802
16	2007-007299	R11, R55, R115, R154	4	R1608_RES	RC1608F6811CS

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
17	2007-007455	R16, R65, R122, R156	4	R1608_RES	24.9 K, 1%
18	2007-007549	R12	1	R1608_RES	4.99 K, 1%
19	2007-007723	R17	1	R1608_RES	RC1608F753CS
20	2007-007937	R123	1	R1608_RES	RC1608F1742CS
21	2007-008067	R116	1	R1608_RES	21 K, 1%
22	2007-008108	R6, R13, R21, R22, R28, R33, R48, R58, R69, R70, R79, R96, R110, R119, R126, R132, R138, R143, R151, R159	20	R1608_RES	RC0603FR-45.3 K
23	2007-008414	R23, R72, R131, R160	4	R1608_RES	RC0603FR-0722K6
24	2007-008656	R1, R2, R3, R4, R36, R37, R40, R41, R98, R99, R100, R101, R141, R142, R145, R146	16	R1608_RES	RC0603FR072R
25	2203-000971	C20, C64, C95, C125	4	R3216_CAP	47 NF, 100 V
26	2203-001386	C2, C4, C6, C8, C9, C15, C21, C23, C24, C25, C26, C36, C38, C40, C41, C42, C50, C53, C55, C57, C58, C66, C68, C69, C70, C75, C80, C83, C84, C85, C89, C96, C98, C99, C100, C103, C107, C109, C110, C111, C122	41	R3216_CAP	100 NF, 100 V
27	2203-005199	C3, C16, C19, C29, C34, C45, C48, C63, C65, C77, C79, C91, C94	16	R3216_CAP	1 NF, 100 V

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
27	2203-005199	C102, C106, C116	-	R3216_CAP	1 NF, 100 V
28	2203-005249	C13, C14, C17, C32, C47, C49, C51, C86, C88, C90, C117, C118, C123	13	R1608_CAP	CL10B104KBNC
29	2203-005565	C7, C18, C28, C46, C52, C60, C81, C92, C93, C113, C119, C124	12	R1608_CAP	1 nF, 5%
30	2402-001231	C1, C11, C12, C35, C76, C104	6	sm_ecap_10 x 10	GC2A476M10010
31	2404-001288	C30, C31	2	R3216_TAN	2.2, UF, 16 V
32	3710-001756	P1, P2	2	smd_dcon100_177985-4	177985-4
33	3722-002054	J1	1	modular_jack8p_16port	1116317-4
34	SCREW	SC1 SC2	2	screw_npth3.2	SCREW_3.2

6.20 GPLIM Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0404-001004	D1 D4	2	DIODES(electron)	DIODE-SCHOTTKY;MBRS130L, 30 V, 1000MA, DO-21
3	0404-001020	D3	1	DIODES(electron)	DIODE-SCHOTTKY;BAT54C, 30 V, 200mA, SOT
3	0601-001064	LED1, LED2, LED3, LED4, LED29, LED30	6	Optical Elements(electron)	LED;CHIP, RED/Y-GRN, 1.7 x 2.5 mm, 660/560 nm
3	0601-001094	LED5, LED6, LED7, LED8, LED9, LED10, LED11, LED12, LED13, LED14, LED15, LED16, LED17, LED18, LED19, LED20, LED21, LED22, LED23, LED24, LED25, LED26, LED27, LED28	24	Optical Elements(electron)	LED;SMD, Y-GRN, 1.6 x 0.8 x 0.8 MM, 570 NM, 1
3	0801-002446	U25, U32	2	LOGIC IC(electron)	IC-CMOS, LOGIC;74LCX14, SCHMITT INVERTER, T
3	0802-001029	U7, U10	2	LOGIC IC(electron)	IC-BICMOS, LOGIC;74LVTH16245, AND GATE, TSS
3	0802-001037	U2, U3, U4, U34	4	LOGIC IC(electron)	IC-BICMOS, LOGIC;74LVT245, BUS TRANSCEIVER
3	1089062	U9	1	-	-
3	1006-001140	U30	1	INTERFACE IC(electron)	IC-LINE TRANSCEIVER;3232, SSOP, 16P, 200MIL
3	2601-001140	T2 T3 T4 T5 T6 T7	6	TRANSFORMER(electricity)	TRANS-SMD, PULSE; 1:1, 13.64 x 14.99
3	1053661	U19	1	MICRO-PROCESSOR IC	RTC-8564, I2C Interface, Built-in Oscillator, 3.3 V
3	1053661	U19	1	MICRO-	RTC-8564, I2C Interface, built-in Oscillator, 3.3 V
3	1060666	J9	1	Connectors(electric field)	40P, 2RX2, PRESS-FIT
3	1062526	J10	1	Connectors(electric field)	8P/8C, STANDARD/INVERTED, Y, ANGLE-SNAP, LIGHTPIPE, BLK, AU50U

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1103-001010	U20	1	MEMORY IC(electron)	IC-EEPROM;24C02, 256 x 8, SOP, 8P, 5 x 4 mm
3	1105-001548	U8, U11	2	MEMORY IC(electron)	IC-DRAM;K4S561632, 4 x 4 M x 1 6 BIT, TSOP
3	1107-001229	U16	1	MEMORY IC(electron)	IC-FLASH MEMORY;28F128, 16 M x 8/8 M x 16 BIT, TS
3	1107-001534	U12	1	MEMORY IC(electron)	39VF040, 512K x 8 BIT, PLCC, 32P
3	1106-001058	U6	1	MEMORY IC(electron)	IC-SRAM; 71321, 2 K x 8 BIT, TQFP, 64P, 10 x 1
3	1203-000469	U21	1	LINEAR IC(electron)	IC-POSI.ADJUST REG.; 1117, SOT-223, 4P, 138 M
3	1203-001643	U33	1	LINEAR IC(electron)	IC-RESET; 706R, SOP, 8P, 150MIL, PLASTIC, 0.3/
3	1203-002681	U22, U26, U27	3	LINEAR IC(electron)	IC-POSI.FIXED REG.;, LP3962, SOT-223, 5P, P
3	1205-001530	U28, U31	2	LINEAR IC(electron)	IC-TRANSCEIVER; HDMP-1646A, QFP, 64P, 1
3	1205-001606	U1, U18	2	LINEAR IC(electron)	IC-BUFFER;, CY2305SC-1H, SOIC, 8P, 150MIL, PLA
3	1205-001864	U14	1	LINEAR IC(electron)	IC-TRANSCEIVER; DJLXT972ALC, LQFP, 64P, 393 M
3	1205-002452	U17	1	LINEAR IC(electron)	IC-ETHERNET SWITCH; VT6526, LQFP, 208P, 28 x 2
3	1205-002480	U29	1	LINEAR IC(electron)	IC-BUS SWITCH;, PCA9548PW, TSSOP, 24P, 7
3	1301-001663	U13	1	ASICs(electron)	IC-CPLD;, LC4128 V-75T128C, TQFP, 128P, 14 x 14 M

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000043	R28, R29, R38, R40, R42, R46, R50, R66, R70, R71, R79, R80, R98, R113, R114, R115, R116, R117, R128, R155, R156, R164, R165, R166, R167, R181, R183, R185, R186, R187, R189, R190, R191, R192, R193, R215, R216, R217, R218, R220, R221, R222, R223, R226, R227, R228, R230, R234, R236, R237, R241, R247, R274, R278, R291, R292, R293, R294, R297, R298, R299, R300, R301, R302, R303, R304, R315, R317, R319, R321, R323, R326, R335, R343, R345, R346, R347, R348, R351, R375, R396, R403, R404, R405, R406, R408, R409, R417, R424, R425, R427, R428, R431, R438, R439, R440, R441, R458, R459, R460, R462, R465, R466, R467, R468, R469, R470, R471, R472, R473, R474, R475, R476, R478, R487, R495, R508, R600, R602, R603, R609	121	Fixed Registers(electron)	R-CHIP; 1 KOHM, 1%, 1/16W, DA, TP, 1608
3	2007-000048	R213, R504	2	Fixed Registers(electron)	R-CHIP; 6.19 Kohm, 1%, 1/10W, TP, 1608
3	2007-000052	R162, R198, R203, R212, R214, R219 R225, R229, R233, R238, R414	11	Fixed Registers(electron)	R-CHIP; 10 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000070	R592, R593	2	Fixed Registers(electron)	R-CHIP; 0 OHM, 5%, 1/16 W, DA, TP, 1608
3	2007-000287	R99, R196, R224, R231, R309, R316, R318, R320, R322, R324, R325, R353	12	Fixed Registers(electron)	R-CHIP; 100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-001164	R430, R443, R565, R567, R569, R571, R573, R575, R577, R579, R581, R583, R585, R587	14	Fixed Registers(electron)	R-CHIP; 75 ohm, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-002899	R161	1	Fixed Registers(electron)	R-CHIP; 10 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-002913	R32, R33, R34, R41, R43, R44, R45, R47, R48, R49, R74, R75, R76, R77, R78, R96, R97, R120, R121, R122, R123, R124, R125, R126, R127, R150, R153, R154, R168, R169, R180, R235, R248, R251, R252, R253, R254, R260, R261, R262, R263, R264, R265, R266, R267, R273, R281, R282, R283, R284, R349, R402, R407, R515	54	Fixed Registers(electron)	R-CHIP; 33.2 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-002987	R16, R22, R23, R24, R25, R26, R27, R30, R31, R54, R55, R56 57, R58, R60, R61, R62, R63, R64, R65, R67, R68, R69, R81, R83, R86, R87, R88, R89, R111, R112, R148, R149, R157, R159, R174, R182, R184, R200, R201, R239, R249, R250, R255, R256, R275, R276, R279, R285, R286, R296, R342, R344, R373, R384, R385, R400, R410, R411, R412, R413, R415, R416, R420, R421, R422, R432, R442, R477, R479, R480, R481, R483, R490, R497, R501, R509, R510, R511, R512, R595, R596, R597	83	Fixed Registers(electron)	R-CHIP; 4.75 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007049	R429	1	Fixed Registers(electron)	R-CHIP; 22.1 KOHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007226	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R444, R445, R516, R517, R518, R519, R520, R521, R522, R523, R524, R525, R526, R527, R528, R529, R530, R531, R532, R533, R534, R535, R536, R537, R538, R539, R540, R541, R542, R543, R544, R545, R546 R547, R548, R549, R550, R551, R552, R553, R554, R555, R556, R557, R558, R559, R560, R561, R562, R563	65	Fixed Registers(electron)	R-CHIP; 49.9 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007238	R240, R242, R243, R244, R245, R246	6	Fixed Registers(electron)	R-CHIP; 8.25 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007454	R199, R202, R204, R205, R206, R207, R208, R209, R210, R211, R374, R482, R484, R485, R486, R489 R491 R492, R493, R496, R498, R499, R500, R502, R503, R588, R589, R590, R591	29	Fixed Registers(electron)	R-CHIP; 332 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007613	R197	1	Fixed Registers(electron)	R-CHIP; 121 OHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007620	R17, R18, R19, R20, R21, R35, R36 R37 R51 R52 R53 R72 R73 R82 R84 R85, R90, R91, R92, R93, R94, R95, R100, R101, R102, R103, R104, R105, R106, R107, R108, R109, R110, R129, R130, R131, R132, R133, R134, R135, R136, R137, R138, R139, R140, R141, R142, R143, R144, R145, R146, R147, R151, R152, R170, R171, R172, R173, R175, R176, R177, R178, R179, R268, R269, R270, R271, R272, R305, R306, R307, R308, R310, R311, R312, R313, R314, R327, R329, R330, R331, R332, R333, R334, R336, R337, R338, R339, R340, R341, R350, R352, R354, R355, R356, R357, R358, R359, R360, R361, R362, R363, R364, R365, R366, R367, R368, R369, R370, R371, R372, R376, R377, R378, R379, R380, R381, R382, R383, R386, R387, R388, R389, R390, R391, R392, R393, R394, R395, R401, R418, R419, R433, R434, R435, R436, R437, R446, R447, R448, R449, R450, R451, R452	148	Fixed Registers(electron)	R-CHIP; 47.5 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007620	R453, R454, R455, R456	-	Fixed Registers(electron)	R-CHIP; 47.5 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007645	R39	1	Fixed Registers(electron)	R-CHIP; 51.1 OHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-008122	R188, R194, R195, R232, R457, R505, R506, R507, R513, R514	10	Fixed Registers(electron)	R-CHIP; 22.1 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-008166	R163	1	Fixed Registers(electron)	R-CHIP; 182 OHM, 1%, 1/10 W, DA, TP, 1608
3	2203-000041	C15, C16, C67, C68, C76, C79, C87, C91, C130, C142, C197, C199, C200, C201, C209, C296, C297, C298, C301, C363	26	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.01 NF, 0.25PF, 50 V, C0G, TP
3	2203-000257	C58, C60, C143, C144, C145, C146, C147, C148, C149, C150, C151, C152, C153, C154, C155, C156	29	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;10 NF, 10%, 50 V, X7R, TP, 1608
3	2203-000257	C157, C158, C159, C160, C161, C162, C163, C164, C165, C166, C290, C299, C300		Ceramic Capacitor(electron)	C-CERAMIC, CHIP;10 NF, 10%, 50 V, X7R, TP, 1608
3	2203-000426	C131	1	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.018 nF, 5%, 50 V, NP0, TP, 160
3	2203-000783	C133, C367, C368	3	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.33 nF, 5%, 50 V, NP0, TP, 1608
3	2203-001408	C70, C71, C132	3	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.27 nF, 5%, 50 V, NP0, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005249	C7, C14, C22, C23, C26, C27, C54, C59, C61, C66, C77, C78, C84, C85, C86, C116, C134, C135, C136, C139, C140, C169, C170, C171, C174, C175, C177, C191, C192, C193, C194, C195, C196, C198, C202, C203, C204, C205, C206, C207, C208, C210, C211, C212, C213, C214, C215, C216, C217, C218, C219, C220, C221, C222, C223, C224, C225, C226, C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C238, C239, C240, C241, C242, C243, C244, C246, C247, C248, C250, C251, C252, C253, C254, C255, C256, C257, C258, C259, C260, C261, C262, C263, C264, C265, C266, C267, C268, C269, C270, C271, C272, C273, C274, C275, C276, C277, C278, C279, C280, C281, C282, C283, C284, C285, C286, C287, C288, C289, C291, C292, C293, C294, C295, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C316, C317, C318, C319, C320, C321, C322, C323, C324, C325, C326, C327, C328, C329, C330, C331, C332, C333, C334, C335, C336, C337, C338, C339, C340, C341, C342, C343, C344, C345, C346, C347, C348, C349, C350, C351, C352, C353, C354, C355, C356, C357, C358, C359, C360, C361, C362, C364, C365, C366, C369, C370, C371, C372, C373, C376, C377, C378, C379, C380, C381, C382, C383, C384, C385, C386, C387, C388, C389, C390, C391, C392, C393, C394, C395, C396, C397, C398, C399, C400, C401, C402, C403, C404, C405, C406, C407, C408, C409, C410, C411, C412, C413, C414, C415	233	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;100 NF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005457	C62, C69, C179, C180, C181, C182, C183, C184, C185, C186, C187, C188, C189, C190	14	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;1 NF, 10%, 2 KV, X7R, TP, 4525
3	2203-006005	C11, C12, C13	3	Ceramic Capacitor(electron)	C-CER, CHIP;10 NF, 10%, 100 V, X7R, TP, 160
3	2203-006104	C6, C65, C72, C73	4	Ceramic Capacitor(electron)	C-CER, CHIP;100 0NF, 10%, 50 V, X7R, TP, 3225
3	2402-001224	C5	1	Aluminum Capacitor(electron)	C-AL, SMD;10, UF, ±20%, 100 V, GP, TP, 8.0 x 10.0 M
3	2402-001229	C10	1	Aluminum Capacitor(electron)	C-AL, SMD;100, UF, 20%, 100 V, GP, TP, 13 x 13
3	2404-001037	C3, C4, C8, C9, C19, C20, C21, C25, C28, C29, C30, C32, C33, C34, C35, C36, C38, C41, C42, C43, C44, C45, C46, C47, C49, C50, C51, C52, C53, C57, C63, C64, C80, C81, C83, C88, C89, C92, C93, C94, C95, C96, C97, C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C114, C115, C120, C122, C123, C124, C125, C127, C128, C129, C137, C138, C141, C167, C168, C172, C173, C176, C178	77	Eletrolytic Capacitor(electron)	C-TA, CHIP;10, UF, 10%, 16 V, TP, 3528
3	2409-001112	C24, C31	2	Capacitors(electron)	C-ORGANIC, SMD;100, UF, 20%, 16 V, LR, TP, 1
3	2409-001114	C1, C2, C17, C18, C37, C40, C74, C75, C82, C90, C113, C119, C121, C126	14	Capacitors(electron)	C-POLYMER, CHIP;220, UF, 20%, 10 V, LR, TP
3	2601-001056	T1	1	TRANSFORMER(electricity)	TRANS-SMD, PULSE;350, UH, 1:1, 1:1, 12.7 X 6.7

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2804-001588	Y1	1	Oscillator(electron)	OSCILLATOR-CLOCK;50 MHZ, 50PPM, 10TTL
3	2804-001247	Y2	1	Oscillator(electron)	OSCILLATOR-CLOCK;25 MHz, 50ppm, 10TTL &, CMO
3	3301-000373	L19, L21, L22, L23	4	Magnetic, Parts(electricity)	BEAD-SMD;220 OHM, 1608, 200 MA, 307 OHM/346 M
3	3301-001120	L1, L2, L5, L6, L7, L8, L9, L10, L11, L14, L15, L16, L18, L20, L24	15	Magnetic, Parts(electricity)	CORE-FERRITE BEAD;AB, 30 ohm, 2 x1.25 x 0.85 mm
3	3301-001208	L3, L4, L12, L13	4	Magnetic, Parts(electricity)	BEAD-SMD;60 ohm, 1608, 500 mA, TP, 80.2o
3	3301-001273	L17	1	Magnetic, Parts(electricity)	CORE-FERRITE BEAD;AB, 600 OHM, 1608, 200 MA, T
3	3403-001144	S1	1	Switches(electric field)	SWITCH-PUSH 28 V, 0.4 A, 1P
3	3703-001252	P1, P2, P3	3	Connectors(electric field)	CONNECTOR-BACK, PANEL;30P, 5R, FEMALE, ANGLE
1	3710-001184	J8	1	Connectors(electric field)	CONNECTOR-SOCKET;60P, 2R, 0.8MM, SMD-S
1	3711-001465	J1 J2 J3 J4	4	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 3P, 1R, 2.54 mm, STR
1	3711-002630	J6	1	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 10P, 2R, 2.54 MM, ST
3	4309-001015	BAT1	1	Connectors(electric field)	CELL, PIN, 10 MM, 23.1 x 5.8 x 13.1 MM, BK
3	1205-002455	U23, U24	2	LINEAR IC(electron)	IC-TRANSCEIVER;VT6108, PQFP, 208P, 28 x 28 MM
3	1203-002267	U15	1	LINEAR IC(electron)	IC-POSI.FIXED REG.; TO-263-5, 5P, 400 MIL
3	2007-000040	R610, R611, R612, R613	4	Fixed Registers(electron)	R-CHIP;150 OHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1203-002267	U15	1	LINEAR IC(electron)	IC-POSI.FIXED REG.; TO-263-5, 5P, 400 MIL
3	2007-000040	R610, R611, R612, R613	4	Fixed Registers(electron)	R-CHIP;150 OHM, 1%, 1/16 W, DA, TP, 1608
3	3704-000249	U12	1	Connectors(electric field)	SOCKET-IC;32P, PLCC, SN, 1.27 mm
3	4301-000108	BAT1	1	POWER SUPPLY(electricity)	BATTERY-LI;3 V, 220 mAH, BUTTON, 20 x 3.2 m
1	6203-001062	U17, U23, U24	3	HEAT SINK	HEAT SINK;HS2727B, T2.6, W27, L27, H4.8, ANOD
1	3710-000001	J1 J2 J3 J4	4	Connectors(electric field)	CONNECTOR-SHUNT;2P, 1R, STRAIGHT, AUF
3	GA41-00196A	PCS01	1	PCB(electricity)	OFFICESERV 7400, FR4, 8L, 1.6T, 130 x 275 MM
1	6002-000154	-	2	Locking, Unit, Part(metal available)	SCREW-TAPPING;PH, +, 2, M3(P 1.35), L8, ZPC
1	GA72-00241A	-	2	Plastics(injection)	PMO-LED, LENS;SME, PMMA, TRP, T1.0, IF-830, UL
1	GA97-01927A	-	1	Plastics(injection)	MEA-GPLIM STIFFENER ASSY;OFFICESERV

6.21 GLMD Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0401-000115	D1 D2 D3	3	DIODES(electron)	MMBD7000LT1, 100 V, 20
3	0402-001080	ZD1 ZD2 ZD5 ZD6 ZD9 ZD10 ZD13 ZD14 ZD17 ZD18 ZD21 ZD22	12	DIODES(electron)	GF1G, 400 V, 1A, DO-214BA, TP
3	0403-001280	ZD3 ZD4 ZD7 ZD8 ZD11 ZD12 ZD15 ZD16 ZD19 ZD20 ZD23 ZD24	12	DIODES(electron)	MMSZ5240B, 9.5-10.5 V, 500
3	0404-001004	D4	1	DIODES(electron)	MBRS130L, 30 V, 1000 MA, DO-214AA, TP
3	0502-000333	Q1	1	Transistors(electron)	MJE340, NPN, 20 W, TO-225 AA, BK
3	0604-001002	PC1, PC2, PC3	3	Transistors(electron)	TR, 100-600%, 200 mW, SOP-4, TP
3	1028219	U4	1	MICRO-PROCESSOR IC	40MHZ, 8BIT, 64P, LQFP, 3.3 V, -40 TO +85C, 4KBYTE
3	1037423	U1, U2, U3	3	LINEAR IC(electron)	QFN, 48P, 7 x 7 x 1 MM, PLASTIC
3	2007-000042	R84, R92	2	Fixed Registers(electron)	499 OHM, 1%, 1/10 W, TP, 1608
3	2007-000043	R6, R10, R15, R16, R29, R35, R83, R85, R86, R90, R95	11	Fixed Registers(electron)	1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000052	R28, R34, R66, R67, R96, R99	6	Fixed Registers(electron)	10 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000060	R36	1	Fixed Registers(electron)	100 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000070	R20, R33, R97, R98	4	Fixed Registers(electron)	0 OHM, 5%, 1/16 W, DA, TP, 1608
3	2007-000287	R1, R37	2	Fixed Registers(electron)	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000475	R103	1	Fixed Registers(electron)	1MOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000536	R42, R58, R73	3	Fixed Registers(electron)	200 ohm, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000669	R2, R3, R4, R5, R11, R12, R13, R14, R21, R22, R23, R24	12	Fixed Registers(electron)	2 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-001139	R51, R65, R87, R89	4	Fixed Registers(electron)	7.5 KOHM, 1%, 1/10 W, TP, 1608
3	2007-002899	R104	1	Fixed Registers(electron)	10 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007049	R19	1	Fixed Registers(electron)	22.1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007226	R25, R26, R27, R38, R39, R80, R81, R82, R93, R94, R101, R102	12	Fixed Registers(electron)	49.9 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007296	R53	1	Fixed Registers(electron)	1.21 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007299	R8, R18, R31	3	Fixed Registers(electron)	6.81 KOHM, 1%, 1/10 W, TP, 1608
3	2007-007455	R7, R17, R30	3	Fixed Registers(electron)	24.9 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007549	R9	1	Fixed Registers(electron)	4.99 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007723	R52	1	Fixed Registers(electron)	75 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007937	R88	1	Fixed Registers(electron)	17.4 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008067	R32	1	Fixed Registers(electron)	21 KOHM, 1%, 1/10 W, TP, 1608
3	2007-008108	R40, R41, R46, R49, R50, R54, R55, R56, R61, R62, R68, R69, R71, R75, R76	15	Fixed Registers(electron)	45.3 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008414	R45, R57, R72	3	Fixed Registers(electron)	22.6 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008656	R43, R44, R47, R48, R59, R60, R63, R64, R74, R77, R78, R79, R100	13	Fixed Registers(electron)	2 ohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2011-001011	RA1	1	Fixed Registers(electron)	10 Kohm, 5%, 63 mW, L, CHIP, 8P, TP
3	2203-000426	C39, C79, C80	3	Ceramic, Capacitor(electron)	0.018 nF, 5%, 50 V, NP0, TP, 1608
3	2203-000971	C1, C19, C30	3	Ceramic, Capacitor(electron)	47 nF, 10%, 100 V, X7R, TP, 321
3	2203-001386	C6, C7, C10, C11, C20, C21, C23, C24, C28, C29, C35, C36, C43, C45, C46, C48, C49, C53, C54, C56, C57, C58, C59, C60, C64, C65, C66, C68, C69, C70	30	Ceramic, Capacitor(electron)	100 nF, 10%, 100 V, X7R, TP, 3216, 3.2
3	2203-001397	C77, C81	2	Ceramic, Capacitor(electron)	2.2 NF, 5%, 50 V, NP0, TP, 1608
3	2203-005199	C2, C3, C4, C5, C14, C15, C17, C18, C27, C31, C33, C34	12	Ceramic, Capacitor(electron)	1 nF, 5%, 100 V, NP0, TP, 3216
3	2203-005249	C12, C13, C25, C26, C37, C38, C44, C47, C55, C67, C74, C75, C76, C78	14	Ceramic, Capacitor(electron)	100 NF, 10%, 50 V, X7R, TP, 1608
3	2203-005565	C50, C51, C52, C61, C62, C63, C71, C72, C73	9	Ceramic, Capacitor(electron)	1 nF, 5%, 50 V, NP0, TP, 1608
3	2402-000130	C8, C9, C40, C41, C42	5	Aluminum, Capacitor(electron)	2.2, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.
3	2402-001231	C16, C22, C32	3	Aluminum, Capacitor(electron)	47, UF, 20%, 10 0 V, GP, TP, 10.3X1
3	1089115	Y1	1	Oscillator(electron)	9.8304 MHZ, 20PPM, SMD, 18, PF, 70 OHM, TP
3	3301-001120	L1, L2	2	Magnetic, Parts(electricity)	AB, 30 ohm, 2 x 1.25 x 0.85 mm, 3000 mA, TP, FERRITE
3	3711-003581	J1	1	Connectors(electric field)	BOX, 60P, 2R, 0.8 MM, S
1	6001-000560	XX	2	Locking, Unit, Part(metal available)	PH, +, M3, L6, PASS, STS30
1	6046-000184	XX	1	Locking, Unit, Part(metal available)	M3, L12, NI, PLT, SM20C
1	GA41-00197A	PCS01	1	PCB(electricity)	OFFICESERV 7400, FR4, 6L, 1.6T, 88.9 x 56 MM

6.22 GSIM Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0402-001211	D4 D5	2	DIODES(electron)	DIODE-RECTIFIER;MURS320, 200 V, 3 A, MSR, TP
3	0404-001004	D1 D2 D6 D7 D8 D10 D11	7	DIODES(electron)	DIODE-SCHOTTKY;MBRS130L, 30 V, 1000 MA, DO-21
3	0404-001020	D3	1	DIODES(electron)	DIODE-SCHOTTKY;BAT54C, 30 V, 200 mA, SOT
3	0404-001116	D9	1	DIODES(electron)	DIODE-SCHOTTKY;B540C, 40 V, 5000 MA, DO-
3	0501-000467	Q3	1	TRANSISTORs(electron)	TR-SMALL SIGNAL;MMBT3906, PNP, 300 MW, SOT-2
3	0505-001778	Q1 Q2	2	TRANSISTORs(electron)	FET-SILICON;IRF7822, N, 30 V, 18 A, 6.5 MO
3	0601-001064	LED10	1	Optical Elements(electron)	LED;CHIP, RED/Y-GRN, 1.7 x 2.5 mm, 660/560 nm
3	0601-001094	LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8, LED9, LED11, LED12	11	Optical Elements(electron)	LED;SMD, Y-GRN, 1.6 x 0.8 x 0.8 MM, 570 NM, 1
3	0801-002446	U28	1	LOGIC IC(electron)	IC-CMOS, LOGIC;74LCX14, SCHMITT INVERTER, T
3	0802-001029	U1, U2, U3	3	LOGIC IC(electron)	IC-BICMOS, LOGIC;74LVTH16245, AND GATE, TSS
3	0802-001037	U8, U13, U14	3	LOGIC IC(electron)	IC-BICMOS, LOGIC;74LVT245, BUS TRANSCEIVER
3	1205-002580	U18	1	LINEAR IC(electron)	IC-ETHERNET SWITCH;BCM5696B0KPBG, PB
3	1006-001140	U33	1	INTERFACE IC(electron)	IC-LINE TRANSCEIVER;3232, SSOP, 16P, 200MIL
3	1032143	U7	1	LINEAR IC(electron)	ICS8535AG-01, TSSOP, 20P, 6.6 x 6.4 MM, PLASTIC, 3.3 V
3	1053661	U6	1	MICRO-PROCESSOR IC	RTC-8564, I2C Interface, Built-in Oscillator, 3.3 V
3	1063422	U17	1	LINEAR IC(electron)	LT1170, 5-LEAD DD, 5P, 9.906 x 8.382, PLASTIC, 3/75 V, 0TO + 125C, 10 A, 1.224/1.264 V, ST

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1067118	U22	1	MICRO-PROCESSOR IC	400MHZ, 64BIT, PBGA, 516P, 1.5 V, 0 TO 105C, 32 BIT
3	1090354	L12	1	INDUCTOR/COIL(electricity)	IDI-OR17.5-130, 13 0UH, ±10%, 0.1 Ω MAX 21.5 x 10. M
3	1103-001010	U5	1	MEMORY IC(electron)	IC-EEPROM; 24C02, 256 x 8, SOP, 8P, 5 x 4 mm
3	1105-001548	U9, U10, U11, U12	4	MEMORY IC(electron)	IC-DRAM;K4S561632, 4 x 4 M x 1 6 BIT, TSOP
3	1107-001229	U20, U21	2	MEMORY IC(electron)	IC-FLASH MEMORY;28F128, 16M x 8/8 M x 16 BIT, TS
3	1107-001534	U30	1	MEMORY IC(electron)	39VF040, 512 K × 8 BIT, PLCC, 32P
3	1106-001058	U27	1	MEMORY IC(electron)	IC-SRAM;71321, 2 K x 8 BIT, TQFP, 64P, 10 x 1
3	1203-000469	U23	1	LINEAR IC(electron)	IC-POSI.ADJUST REG.;1117, SOT-223, 4P, 138 M
3	1203-001643	U25	1	LINEAR IC(electron)	IC-RESET;706R, SOP, 8P, 150MIL, PLASTIC, 0.3/
3	1203-001691	U31, U32	2	LINEAR IC(electron)	IC-POSI.ADJUST REG.;29152, TO-263, 5P, PL
3	1203-001694	U24	1	LINEAR IC(electron)	IC-SWITCH VOL. REG.;2678, TO-263, 7P
3	1203-003114	U4	1	LINEAR IC(electron)	IC-DC/DC, CONVERTER;MAX1813EEI, QSOP
3	1205-001606	U16	1	LINEAR IC(electron)	IC-BUFFER;, CY2305SC-1H, SOIC, 8P, 150MIL, PLA
3	1205-001864	U29	1	LINEAR IC(electron)	IC-TRANSCEIVER;DJLXT972ALC, LQFP, 64P, 393 M
3	1205-002480	U26	1	LINEAR IC(electron)	IC-BUS SWITCH;PCA9548PW, TSSOP, 24P, 7
3	1205-002676	U15	1	LINEAR IC(electron)	IC-BUFFER;ICS8305AGT, TSSOP, 16P, 5 x 4.
3	1301-001663	U19	1	ASICs(electron)	IC-CPLD;LC4128V-75T128C, TQFP, 128P, 14 x 14 M

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000043	R5, R6, R7, R8, R12, R14, R15, R22, R25, R26, R27, R30, R40, R64, R78, R79, R80, R81, R82, R105, R109, R121, R154, R156, R159, R180, R185, R197, R199, R201, R202, R203, R204, R216, R218, R219, R222, R223, R227, R228, R232, R233, R234, R235, R241, R245, R251, R259, R260, R264, R265, R267, R268, R270, R271, R272	56	Fixed Registers(electron)	R-CHIP;1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000052	R28, R172, R256	3	Fixed Registers(electron)	R-CHIP;10 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000060	R18, R35	2	Fixed Registers(electron)	R-CHIP;100 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000063	R9	1	Fixed Registers(electron)	R-CHIP;150 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-000070	R2, R42, R274	3	Fixed Registers(electron)	R-CHIP;0 OHM, 5%, 1/16 W, DA, TP, 1608
3	2007-000287	R31, R36, R73, R93, R95, R101, R107, R111, R116, R120, R133	18	Fixed Registers(electron)	R-CHIP;100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000287	R153, R155, R173, R205, R206, R236, R273		Fixed Registers(electron)	R-CHIP;100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000879	R32	1	Fixed Registers(electron)	R-CHIP;4.7 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-001164	R207, R208	2	Fixed Registers(electron)	R-CHIP;75 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-002899	R122, R124, R127, R129, R130, R137, R138, R141, R144, R147, R148, R229, R263, R269	14	Fixed Registers(electron)	R-CHIP;10 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-002913	R17, R63, R75, R77, R97, R98, R102, R106, R117, R118, R132, R164, R165, R174, R224, R230, R237, R258	18	Fixed Registers(electron)	R-CHIP; 33.2 OHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-002987	R209, R210, R252, R257	4	Fixed Registers(electron)	R-CHIP; 4.75 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007049	R255	1	Fixed Registers(electron)	R-CHIP; 22.1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007226	R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54	32	Fixed Registers(electron)	R-CHIP; 49.9 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007226	R55, R56, R59, R60, R61, R62, R65, R66, R67, R68, R85, R86, R91, R94, R99, R100, R103, R194, R195, R261	-	Fixed Registers(electron)	R-CHIP; 49.9 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007238	R1, R3, R10, R16, R21, R24, R33, R69, R70, R71, R72, R74, R76, R87, R92, R104, R113, R115, R123, R125, R126, R128, R131, R139, R140, R142, R145, R146, R149, R150, R151, R152, R157, R158, R160, R161, R166, R167, R168, R176, R178, R179, R183, R184, R188, R189, R190, R191, R192, R193, R198, R200, R212, R213, R214, R215, R217, R225, R226, R238, R239, R240, R243, R250, R275, R276	66	Fixed Registers(electron)	R-CHIP; 8.25 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007443	R83, R84, R162, R163, R170, R171, R186, R187	8	Fixed Registers(electron)	HIP; 3.01 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007454	R29, R39, R57, R58, R169, R175, R177, R181, R182, R211, R248, R254	12	Fixed Registers(electron)	R-CHIP; 332 OHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007520	R11	1	Fixed Registers(electron)	R-CHIP; 20 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007620	R4, R88, R89, R96, R220, R221	6	Fixed Registers(electron)	R-CHIP; 47.5 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007645	R90, R247, R253	3	Fixed Registers(electron)	R-CHIP; 51.1 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007676	R262	1	Fixed Registers(electron)	R-CHIP; 237 ohm, 1%, 1/10 W, TP, 1608
3	2007-007796	R112	1	Fixed Registers(electron)	R-CHIP; 2.21 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-008106	R37	1	Fixed Registers(electron)	R-CHIP; 3.92 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-008122	R108, R110, R114, R119, R134, R135	8	Fixed Registers(electron)	R-CHIP; 22.1 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-008122	R136, R143		Fixed Registers(electron)	R-CHIP; 22.1 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-008148	R20	1	Fixed Registers(electron)	R-CHIP; 121 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-008368	R266	1	Fixed Registers(electron)	R-CHIP; 10MOHM, 1%, 1/10 W, DA, TP, 1608
3	2011-000151	RA89, RA91	2	Fixed Registers(electron)	R-NETWORK;100 ohm, 5%, 63 mW, L, CHIP, 8P, TP
3	2011-000515	RA84, RA85, RA86	3	Fixed Registers(electron)	R-NETWORK;4.7 Kohm, 5%, 1/16 W, L, CHIP, 8P, TP
3	2011-000585	RA1, RA3, RA5, RA8, RA10, RA12, RA15, RA17, RA19, RA22, RA24, RA26, RA28, RA29, RA30, RA35, RA36, RA37, RA44, RA45, RA46, RA47, RA49, RA50, RA51, RA52, RA53, RA54, RA58, RA59, RA60, RA63, RA66, RA67, RA69, RA72, RA73, RA74, RA78, RA79, RA80, RA81	42	Fixed Registers(electron)	R-NETWORK; 47 ohm, 5%, 63 mW, L, CHIP, 8P, TP

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2011-000660	RA21, RA43, RA65, RA70, RA71, RA87, RA88, RA90, RA92	9	Fixed Registers(electron)	R-NETWORK; 1 Kohm, 5%, 63 mW, L, CHIP, 8P, TP
3	2011-000689	RA7, RA14, RA42, RA48, RA55, RA56, RA57, RA61, RA62, RA64, RA68, RA75, RA76, RA77, RA82, RA83	16	Fixed Registers(electron)	R-NET; 8.2 KOHM, 5%, 1/16 W, L, CHIP, 8P, TP
3	2011-000881	RA2, RA4, RA6, RA9, RA11, RA13, RA16, RA18, RA20, RA23, RA25, RA27, RA31, RA32, RA33, RA34, RA38, RA39, RA40, RA41	20	Fixed Registers(electron)	R-NETWORK; 33 ohm, 5%, 1/16 W, L, CHIP, 8P, TP
3	2203-000041	C22, C69, C70, C90, C136, C137, C138, C149, C151, C154, C167, C170, C198, C199, C200, C324, C325	17	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.01 NF, 0.25, PF, 50 V, C0G, TP
3	2203-000257	C285, C313, C314, C368, C376	5	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;10 NF, 10%, 50 V, X7R, TP, 1608
3	2203-000425	C86, C87, C88, C89, C99, C100, C101, C255, C256, C257, C258, C259, C260	13	Ceramic Capacitor(electron)	C-CER, CHIP;0.018 NF, 5%, 50 V, C0G, 1005
3	2203-000576	C4	1	Ceramic Capacitor(electron)	C-CER, CHIP;220 nF, 10%, 50 V, X7R, TP, 3216
3	2203-000681	C373, C374	2	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.027 nF, 5%, 50 V, NP0, TP, 160
3	2203-000783	C365, C371	2	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.33 nF, 5%, 50 V, NP0, TP, 1608
3	2203-000998	C13	1	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.047 NF, 5%, 50 V, NP0, TP, 160
3	2203-001386	C169, C183	2	Ceramic Capacitor(electron)	C-CER, CHIP;100 nF, 10%, 100 V, X7R, TP, 3216, 3
3	2203-001408	C286, C287	2	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.27 nF, 5%, 50 V, NP0, TP, 1608
3	2203-001634	C301	1	Ceramic Capacitor(electron)	C-CER, CHIP;33 NF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005171	C19, C21, C43, C52, C127, C132, C150, C176, C191, C355	10	Ceramic Capacitor(electron)	C-CER, CHIP 1000 NF, 10%, 16 V, X7R, 2012
3	2203-005249	C1, C5, C6, C7, C8, C9, C11, C15, C16, C17, C18, C20, C23, C25, C26, C27, C28, C29, C31, C33, C34, C37, C44, C46, C47, C48, C49, C50, C54, C56, C57, C59, C60, C61, C62, C63, C64, C71, C73, C74, C75, C76, C77, C78, C79, C80, C84, C93, C95, C97, C98, C104, C105, C106, C110, C111, C114, C115, C116, C117, C118, C119, C120, C121, C124, C125, C126, C128, C130, C131, C134, C135, C139, C140, C141, C142, C143, C144, C145, C146, C147, C148, C152, C153, C155, C156, C157, C158, C159, C160, C161, C162, C163, C164, C165, C168, C171, C172, C173, C174, C175, C177 178, C179, C180, C184, C185, C186, C190, C192, C193, C194, C196, C201, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216, C217, C218, C220, C221, C222, C223, C224, C225, C226, C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C239, C240, C241, C242, C243, C244, C245, C247, C248, C249, C252, C253, C254, C261, C264, C265, C266, C267, C268, C269, C270, C272, C273, C276, C277, C278, C279, C280, C281, C282, C283, C284, C288, C289, C293, C294, C295, C297, C298, C299, C300, C304, C305, C306, C307, C308, C309, C310, C312, C315, C316, C317, C321, C326, C328, C330, C331, C333, C334, C335, C336, C337, C338, C339, C340, C341, C342, C343, C345, C346, C347, C348, C349, C354, C357, C358, C359, C360, C366, C367, C369, C372, C375, C377, C380, C381, C382, C383, C386	238	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;100 NF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-005457	C322, C323	2	Ceramic, Capacitor(electron)	C-CERAMIC, CHIP;1 NF, 10%, 2KV, X7R, TP, 4525
3	2203-006005	C45, C53, C55, C67,C108, C181	6	Ceramic, Capacitor(electron)	C-CER, CHIP;10 NF, 10%, 100V, X7R, TP, 160
3	2203-006104	C24, C187	2	Ceramic, Capacitor(electron)	C-CER, CHIP;1000 NF, 10%, 50V, X7R, TP, 3225
3	2203-006170	C250	1	Ceramic, Capacitor(electron)	C-CER, CHIP;220 nF, 10%, 16V, X7R, 1608
3	2402-000204	C14, C274, C302, C370, C379	5	Ceramic, Capacitor(electron)	C-AL, SMD;10, UF, 20%, 16V, WT, TP, 4.3 x 4.3 x 5.4
3	2402-001224	C42	1	-	C-AL, SMD;10, UF, ±20%, 100 V, GP, TP, 8.0 x 10.0 M
3	2402-001229	C41, C94	2	-	C-AL, SMD;100, UF, 20%, 100 V, GP, TP, 13 x 13
3	2404-001037	C2, C3, C30, C38, C39, C40, C51, C58, C65, C66, C68, C72, C85, C91, C92, C102, C103, C107, C109, C112, C113, C129, C133, C166, C182, C188, C189, C195, C197, C219, C238, C262, C263, C275, C290, C292, C311, C318, C319, C320, C327, C329, C332, C350, C351, C352, C356, C378, C384, C385	50	Eletrolytic, Capacitor(electron)	C-TA, CHIP; 10, UF, 10%, 16 V, TP, 3528
3	2409-001112	C12, C246, C251	3	-	C-ORGANIC, SMD;100, UF, 20%, 16 V, LR, TP, 1
3	2409-001114	C10, C35, C36, C81, C82, C83, C96, C122, C123, C271, C291, C296, C303, C344, C353, C361, C362, C363, C364	19	-	C-POLYMER, CHIP;220, UF, 20%, 10 V, LR, TP
3	2601-001056	T1	1	TRANSFORMER(electricity)	TRANS-SMD, PULSE;350, UH, 1:1, 1:1, 12.7 x 6.7

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2703-001795	L24	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD; 15, UH, 20%, 18.54 x 15.24 x 7
3	2703-002220	L2	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD; 1, UH, 20%, 4540
3	2703-002330	L5	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD; 3.3, UH, 20%, 13.21 x 9.91 MM
3	2801-004058	Y4	1	-	CRYSTAL-SMD; 25 MHZ, 30, PPM, 28-ABX, 20, PF, 50 OH
3	2804-001247	Y1	1	Oscillator(electron)	OSCILLATOR-CLOCK;25 MHz, 50, Ppm, 10TTL &, CMO
3	2804-001587	Y3	1	Oscillator(electron)	OSCILLATOR-CLOCK;100 MHz, 50, Ppm, 10 TTL
3	2804-001622	Y2	1	Oscillator(electron)	OSCILLATOR-CLOCK;127 MHZ, 50PPM, E/D &, C
3	3301-000373	L3, L4, L7, L8, L10, L11, L13, L18, L19, L21, L22, L23	12	Magnetic Parts(electricity)	BEAD-SMD;220 OHM, 1608, 200MA, 307 OHM/346 M
3	3301-001120	L1, L14, L15	3	Magnetic Parts(electricity)	CORE-FERRITE BEAD;AB, 30 ohm, 2 x 1.25 x 0.85 mm
3	3301-001208	L6, L9, L17, L20, L25, L27, L28, L29, L30	9	Magnetic Parts(electricity)	BEAD-SMD;60 ohm, 1608, 500 mA, TP, 80.2o
3	3301-001273	L16, L26	2	Magnetic Parts(electricity)	CORE-FERRITE BEAD;AB, 600 OHM, 1608, 200 MA, T
3	3404-001062	S1	1	Switches(electric field)	SWITCH-TACT;12 V, 50 MA, 160GF, 6 x 6 x 3.6 MM, SPS
1	3703-001252	P1, P2, P3	3	Connectors(electric field)	CONNECTOR-BACK, PANEL;30P, 5R, FEMALE, ANGLE
3	3710-001184	J12	1	Connectors(electric field)	CONNECTOR-SOCKET;60P, 2R, 0.8 MM, SMD-S
1	3711-001465	J13 J14	2	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 3P, 1R, 2.54 mm, STR
1	3711-002630	J17	1	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 10P, 2R, 2.54 MM, ST
1	3711-002633	J15 J18	2	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 2P, 1R, 2.54 mm, STR
1	3719-001308	J7 J8 J9 J10 J11	5	Connectors(electric field)	CONNECTOR-ACCESSORY;20P, SFP, C-ALLOY
1	3722-001399	J1	1	Connectors(electric field)	JACK-MODULAR;8P/8C, STANDARD, Y, ANGLE, STAN

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	4309-001015	BAT1	1	Connectors(electric field)	CELL, PIN, 10 MM, 23.1 x 5.8 x 13.1 MM, BK
3	2007-008116	R249	1	Fixed Registers(electron)	R-CHIP;30.1 OHM, 1%, 1/10W, TP, 1608
3	3710-002077	J2 J3 J4 J5 J6	5	Connectors(electric field)	CONNECTOR-SOCKET;20P, 2R, 0.8MM, SMD-A
3	3704-000249	U30	1	Connectors(electric field)	32P, PLCC, SN, 1.27 mm
1	4301-000108	BAT1	1	POWER SUPPLY(electricity)	BATTERY-LI;3V, 220 mAH, BUTTON, 20 x 3.2 m
1	3710-000001	J13 J14	2	Connectors(electric field)	CONNECTOR-SHUNT;2P, 1R, STRAIGHT, AUF
1	6002-000154	XX	1	Locking, Unit, Part(metal available)	SCREW-TAPPING;PH, +, 2, M3(P 1.35), L8, ZPC
3	GA41-00194A	PCS01	1	PCB(electricity)	OFFICESERV 7400, FR4, 8L, 1.6T, 130 x 275 MM
1	GA72-00365A	XX	5	Plastics(injection)	PMO-LED, LENS-3;OFFICESERV7400, PMMA,
1	GA97-01929A	XX	1	Plastics(injection)	MEA-GSIM STIFFENER ASSY;OFFICESERV

6.23 GSIMD Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0404-001004	D1	1	DIODES(electron)	MBRS130L, 30 V, 1000 MA, DO-214AA, TP
3	0601-001094	LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8, LED9, LED10	10	Optical Elements(electron)	SMD, Y-GRN, 1.6 x 0.8 x 0.8 MM, 570 NM, 1
3	1203-001691	U1	1	LINEAR IC(electron)	29152, TO-263, 5P, PLASTIC, 1.24/26 V, -40
3	1205-002480	U2	1	LINEAR IC(electron)	PCA9548PW, TSSOP, 24P, 7
3	2007-000043	R1, R2, R3, R10, R17, R18, R19, R20, R21	9	Fixed Registers(electron)	1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007454	R6, R7, R8, R9, R11, R12, R13, R14, R15, R16	10	Fixed Registers(electron)	332 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007645	R4	1	Fixed Registers(electron)	51.1 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-008116	R5	1	Fixed Registers(electron)	30.1 OHM, 1%, 1/10 W, TP, 1608
3	2011-000515	RA5, RA6, RA7	3	Fixed Registers(electron)	4.7 Kohm, 5%, 1/16 W, L, CHIP, 8P, TP
3	2011-000689	RA1, RA2, RA3, RA4, RA8	5	Fixed Registers(electron)	8.2 KOHM, 5%, 1/16 W, L, CHIP, 8P, TP
3	2203-005249	C1, C2, C4, C6, C7, C8, C10, C12, C15, C16, C18, C20, C21, C22	19	Ceramic Capacitor(electron)	100 NF, 10%, 50 V, X7R, TP, 1608
3	2203-005249	C23, C25, C27, C28, C32	-	Ceramic Capacitor(electron)	100 NF, 10%, 50 V, X7R, TP, 1608
3	2404-001037	C3, C5, C9, C11, C13, C14, C17, C19, C24, C26, C31, C33	12	Eletrolytic Capacitor(electron)	10, UF, 10%, 16 V, TP, 3528
3	2409-001114	C29, C30	2	-	220, UF, 20%, 10 V, LR, TP
3	3301-000373	L1, L2, L3, L5, L6, L8, L9, L11, L12, L14, L15, L16	12	Magnetic Parts(electricity)	220 OHM, 1608, 200MA, 307 OHM/346 MHZ, 30000O

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3301-001208	L4, L7, L10, L13, L17	5	Magnetic Parts(electricity)	60 ohm, 1608, 500 mA, TP, 80.2o
3	3710-002077	J1 J3 J5 J8 J10	5	Connectors(electric field)	20P, 2R, 0.8 MM, SMD-A
3	3711-003581	J7	1	Connectors(electric field)	BOX, 60P, 2R, 0.8 MM, S
1	3719-001308	J2 J4 J6 J9 J11	5	Connectors(electric field)	20P, SFP, C-ALLOY
3	GA41-00195A	PCS01	1	PCB(electricity)	OFFICESERV 7400, FR4, 4L, 1.6T, 102.2 x 68.5 MM
1	GA72-00365A	-	5	Plastics(injection)	OFFICESERV7400, PMMA

6.24 GWIM Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0402-001211	D1 D9	2	DIODES(electron)	DIODE-RECTIFIER;MURS320, 200 V, 3A, MSR, TP
3	0404-001004	D2 D4 D6 D7 D10	5	DIODES(electron)	DIODE-SCHOTTKY;MBRS130L, 30 V, 1000MA, DO-21
3	0404-001020	D5	1	DIODES(electron)	DIODE-SCHOTTKY;BAT54C, 30 V, 200 mA, SOT
3	0404-001116	D3 D11	2	DIODES(electron)	DIODE-SCHOTTKY;B540C, 40 V, 5000 MA, DO-
3	0501-000467	Q6	1	Transistors(electron)	TR-SMALL SIGNAL;MMBT3906, PNP, 300 MW, SOT-2
3	0505-001778	Q1 Q2 Q3 Q4 Q5	5	Transistors(electron)	FET-SILICON;IRF7822, N, 30 V, 18 A, 6.5MO
3	0601-001064	LED1, LED2, LED3, LED4, LED5, LED6	6	Optical Elements(electron)	LED;CHIP, RED/Y-GRN, 1.7 x 2.5 mm, 660/560 nm
3	0801-002095	U2, U3, U4, U21, U22, U23	6	LOGIC IC(electron)	IC-CMOS, LOGIC;74LC x 245, BUFFERS, TSSOP, 20P
3	0801-002446	U31, U33	2	LOGIC IC(electron)	IC-CMOS, LOGIC;74LCX14, SCHMITT INVERTER, T
3	0801-002626	U18, U19, U20	3	LOGIC IC(electron)	IC-CMOS, LOGIC;74LVX573, LATCH, TSSOP, 20P, 1
3	0805-001038	U38	1	LOGIC IC(electron)	IC-ECL;100S324Q, TRANSLATOR, PLCC, 28P
3	0805-001039	U39	1	LOGIC IC(electron)	IC-ECL;100S325, TRANSLATOR, PLCC, 28P
3	0902-001866	U7	1	CPU IC(electron)	IC-MICROPROCESSOR;IBM25PPC750GX, 1 GH
3	0904-001363	U35	1	UART IC(electron)	IC-UART;16C1551, 8 BIT, PLCC, 28P, 24 MHZ, TR
3	0904-001991	U13	1	IC-MEMORY, CONT(electron)	IC-MEMORY, CONT.;MV64460, 64 BIT, BGA, 8
3	1003-001613	U17	1	IC-CLOCK DRIVER(electron)	IC-CLOCK DRIVER;95V857, TSSOP, 48P, 24
3	1006-001140	U37	1	INTERFACE IC(electron)	IC-LINE TRANSCEIVER;3232, SSOP, 16P, 200MIL
3	1053661	U15	1	MICRO-PROCESSOR IC	RTC-8564, I2C Interface, built-in Oscillator, 3.3 V

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	1063422	U1	1	LINEAR IC(electron)	LT1170, 5-LEAD DD, 5P, 9.906 x 8.382, PLASTIC, 3/75 V, 0TO+125C, 10 A, 1.224/1.264 V, ST
3	1063459	U9	1	LINEAR IC(electron)	LTC3413, TSSOP, 16P, 4.9 x 6.4 MM, PLASTIC, 0.7/3 V, -40TO+85C, 3A, 2.5/6 V, TP
1	1090354	L1	1	INDUCTOR/COIL(electricity)	IDI-OR17.5-130, 130UH, ±10%, 0.1 Ω MAX, 21.5 x 10.5 MM
3	1103-001010	U41	1	MEMORY IC(electron)	IC-EEPROM;24C02, 256 x 8, SOP, 8P, 5 x 4 mm
3	1107-001229	U28, U29	2	MEMORY IC(electron)	IC-FLASH MEMORY;28F128, 16M x 8/8 M x 16 BIT, TS
1	1107-001534	U34	1	Memory IC(electron)	39VF040, 512K × 8 BIT, PLCC, 32P
3	1106-001058	U40	1	Memory IC(electron)	IC-SRAM;71321, 2KX8 BIT, TQFP, 64P, 10 x 1
3	1203-001643	U32	1	Linear IC(electron)	IC-RESET;706R, SOP, 8P, 150MIL, PLASTIC, 0.3
3	1203-001691	U10, U36	2	Linear IC(electron)	IC-POSI.ADJUST REG.;29152, TO-263, 5P, PL
3	1203-001694	U6	1	Linear IC(electron)	IC-SWITCH VOL. REG.;2678, TO-263, 7P
3	1203-001998	U5	1	Linear IC(electron)	IC-SWITCH VOL. REG.;2596, TO-263, 5P
3	1203-003114	U8	1	Linear IC(electron)	IC-DC/DC, CONVERTER;MAX1813EEI, QSOP
3	1205-001530	U24, U25, U26	3	Linear IC(electron)	IC-TRANSCEIVER;HDMP-1646A, QFP, 64P, 1
3	1205-001606	U14, U16	2	Linear IC(electron)	IC-BUFFER;CY2305SC-1H, SOIC, 8P, 150MIL, PLA
3	1205-002480	U30	1	Linear IC(electron)	IC-BUS SWITCH;PCA9548PW, TSSOP, 24P, 7
3	1205-002675	U12	1	Linear IC(electron)	IC-BUFFER;ICS670M-03IT, SOP, 16P, 10 x 4
3	1205-002676	U11	1	Linear IC(electron)	IC-BUFFER;ICS8305AGT, TSSOP, 16P, 5 x 4.
3	1301-001663	U27	1	ASICs(electron)	IC-CPLD;LC4128V-75T128C, TQFP, 128P, 14 x 14 M
3	2007-000042	R204	1	-	R-CHIP;499OHM, 1%, 1/10 W, TP, 1608

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Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000043	R122, R150, R203, R210, R214, R217, R309, R311, R312, R313, R321, R331, R336, R338, R342, R346, R354, R359, R361, R371, R372, R395	22	Fixed Registers(electron)	R-CHIP;1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000052	R124, R176, R182, R194, R199, R202, R205, R322, R324, R326, R341, R350	12	Fixed Registers(electron)	R-CHIP;10 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000063	R26	1	Fixed Registers(electron)	R-CHIP;150 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-000143	R1, R5, R6, R7, R9, R12, R14, R15, R16, R17, R18, R19, R20, R28, R29, R30, R31, R32, R108, R109, R125, R135, R137, R138, R144, R145, R146, R147, R148, R151, R177, R178, R184, R185, R186, R187, R188, R190, R191, R192, R196, R197, R198, R207, R208, R212, R213, R215, R216, R230, R255, R256, R257, R258, R259, R260, R261, R262, R263, R264, R265, R289, R292, R293, R316, R330, R335, R349	68	Fixed Registers(electron)	R-CHIP;4.7 KOHM, 5%, 1/16 W, TP, 1005

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000147	R65, R66, R67, R70, R72, R83, R86, R87, R88, R169, R219, R220, R222, R224, R226, R233, R269, R271, R279, R280, R283, R284, R295, R300	27	Fixed Registers(electron)	R-CHIP;8.2 Kohm, 5%, 1/16 W, TP, 1005
3	2007-000147	R303, R305, R368	-	Fixed Registers(electron)	R-CHIP;8.2 Kohm, 5%, 1/16 W, TP, 1005
3	2007-000171	R43, R45, R53, R54, R91, R92, R93, R98, R120, R236, R238, R296, R297, R319, R320, R391	16	Fixed Registers(electron)	R-CHIP;0 OHM, 5%, 1/16 W, TP, 1005
3	2007-000173	R11, R42, R44, R46, R55, R58, R64, R90, R96, R99, R100, R101, R102, R103, R104, R153, R206, R306, R308, R310, R314, R315, R317, R318	24	Fixed Registers(electron)	R-CHIP;22 ohm, 5%, 1/16 W, TP, 1005
3	2007-000174	R50, R221, R223, R343, R344, R345	6	Fixed Registers(electron)	R-CHIP;47 ohm, 5%, 1/16 W, TP, 1005
3	2007-000239	R362, R364, R373, R374, R375, R376, R377, R378	8	Fixed Registers(electron)	R-CHIP;1.5 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000501	R149, R168, R171	3	Fixed Registers(electron)	R-CHIP;2.2 OHM, 1%, 1/10 W, TP, 1608
3	2007-000879	R164	1	Fixed Registers(electron)	R-CHIP;4.7 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-001292	R8, R10, R33, R34, R35, R39, R40, R41, R110, R136, R152, R155, R156, R160, R161, R165, R166, R173, R189, R195, R337, R339	22	Fixed Registers(electron)	R-CHIP;33 OHM, 5%, 1/16 W, TP, 1005

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-002451	R37	1	Fixed Registers(electron)	R-CHIP;4.3 MOHM, 5%, 1/10 W, TP, 1608
3	2007-002899	R47, R48, R62, R63, R97, R114, R158	7	Fixed Registers(electron)	R-CHIP;10 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007107	R162, R167, R181	3	Fixed Registers(electron)	R-CHIP;100 Kohm, 1%, 1/16 W, TP, 1005
3	2007-007226	R218, R369	2	Fixed Registers(electron)	R-CHIP;49.9 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007296	R154	1	Fixed Registers(electron)	R-CHIP;1.21 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007297	R201, R363, R381, R382, R383	5	Fixed Registers(electron)	R-CHIP;110 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-007306	R81, R82, R95, R105, R106, R107, R127, R128, R143, R229, R232, R235, R237, R239, R242, R389, R390	17	Fixed Registers(electron)	R-CHIP;100 OHM, 1%, 1/16 W, TP, 1005
3	2007-007318	R22, R24, R36, R49, R51, R52, R56, R57, R59, R68, R69, R71, R73, R74, R75, R76, R77, R78, R79, R80, R84, R85, R89, R129, R130, R131, R140, R170, R225, R231, R240, R241, R243, R250, R251, R252, R253, R254, R267, R268, R270, R272, R273, R274, R275, R276, R278, R281, R282, R285, R286, R287, R288, R290, R291, R294, R298, R299, R301, R302, R304, R307, R323, R325, R327, R328, R329, R332, R334	69	Fixed Registers(electron)	R-CHIP;1 KOHM, 1%, 1/16 W, TP, 1005

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007443	R358	1	Fixed Registers(electron)	HIP;3.01 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007444	R27	1	Fixed Registers(electron)	R-CHIP;5.11 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007454	R115, R116, R117, R118, R119, R365, R366, R367, R370, R379, R380, R384, R385, R386, R387, R388	16	Fixed Registers(electron)	R-CHIP;332 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007482	R159	1	Fixed Registers(electron)	R-CHIP;1.24 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007520	R172	1	Fixed Registers(electron)	R-CHIP;20 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007645	R112, R126, R157, R200, R347, R348, R355, R356, R357, R392, R393, R394	12	Fixed Registers(electron)	R-CHIP;51.1 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007796	R121	1	Fixed Registers(electron)	R-CHIP;2.21 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007798	R228, R234	2	Fixed Registers(electron)	R-CHIP;10 OHM, 1%, 1/16 W, DA, TP, 1005
3	2007-008101	R38	1	Fixed Registers(electron)	R-CHIP;316 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008116	R227, R244, R245, R246, R247, R340	6	Fixed Registers(electron)	R-CHIP;30.1 OHM, 1%, 1/10 W, TP, 1608
3	2007-001305	R396, R397, R398, R399, R400, R401	6	Fixed Registers(electron)	R-CHIP;120 ohm, 5%, 1/16 W, TP, 1005
3	2011-000515	RA4, RA112, RA124, RA155, RA156	5	Fixed Registers(electron)	R-NETWORK;4.7 Kohm, 5%, 1/16 W, L, CHIP, 8P, TP

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2011-000585	RA1, RA2, RA97, RA98, RA99, RA100, RA101, RA102, RA103, RA104, RA105, RA106, RA107, RA108, RA109, RA110, RA111, RA148, RA149, RA150, RA151, RA152, RA160, RA161	24	Fixed Registers(electron)	R-NETWORK;47 ohm, 5%, 63 mW, L, CHIP, 8P, TP
3	2011-000660	RA3, RA5, RA6, RA7, RA8, RA9, RA11, RA113, RA114, RA116, RA117, RA125, RA153, RA154, RA158, RA159	16	Fixed Registers(electron)	R-NETWORK;1 Kohm, 5%, 63 mW, L, CHIP, 8P, TP
3	2011-000689	RA38, RA39, RA46, RA47, RA52, RA53, RA59, RA60, RA65, RA66, RA71, RA72, RA79, RA80, RA85, RA86, RA91, RA92, RA157	19	Fixed Registers(electron)	R-NET;8.2 KOHM, 5%, 1/16 W, L, CHIP, 8P, TP
3	2011-001261	RA10, RA12, RA13, RA14, RA15, RA16, RA17, RA18, RA19, RA20, RA21, RA22, RA23, RA24, RA25, RA26, RA27, RA28, RA29, RA30, RA31, RA32, RA33, RA34, RA35, RA40, RA41, RA48, RA49, RA54, RA55, RA56, RA61, RA62, RA67, RA68, RA73, RA74, RA81, RA82, RA87, RA88, RA93, RA94, RA95, RA96, RA115	47	Fixed Registers(electron)	R-NET;33 ohm, 5%, 1/16 W, L, CHIP, 8P, TP, 2
3	2011-001264	RA36, RA37, RA42, RA43, RA44, RA45, RA50, RA51, RA57, RA58, RA63, RA64, RA69, RA70, RA75, RA76, RA77, RA78, RA83, RA84, RA89, RA90	22	Fixed Registers(electron)	R-NETWORK;10 ohm, 5%, 1/16 W, L, CHIP, 8P,

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2011-001346	RA118, RA119, RA120, RA121, RA122, RA123, RA126, RA127, RA128, RA129, RA130, RA131, RA132, RA133, RA134, RA135, RA136, RA137, RA138, RA139, RA140, RA141, RA142, RA143, RA144, RA145, RA146, RA147	28	Fixed Registers(electron)	R-NET;68 ohm, 5%, 1/16 W, L, CHIP, 8P, TP, 2
3	2203-000236	C259, C275, C287, C316, C376, C379, C419, C422	8	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.1 NF, 5%, 50 V, NP0, TP, 1608
3	2203-000330	C50, C51, C117, C119, C120, C121, C124, C125, C132, C133, C155, C198, C277, C278, C288, C298, C358, C434, C435, C437, C455, C459, C461, C463, C464, C465, C470, C471, C473, C476, C481, C482, C485, C486, C487, C489, C490, C494, C498, C499	40	Ceramic Capacitor(electron)	C-CER, CHIP;0.012 nF, 5%, 50 V, C0G, 1005

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-000671	C208	1	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;27 nF, 10%, 50 V, X7R, TP, 2012
3	2203-000783	C262, C599, C600	3	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.33 nF, 5%, 50 V, NP0, TP, 1608
3	2203-000998	C258	1	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.047 NF, 5%, 50 V, NP0, TP, 160
3	2203-001386	C164, C165	2	Ceramic Capacitor(electron)	C-CER, CHIP;100 nF, 10%, 100 V, X7R, TP, 3216, 3.
3	2203-001397	C46, C47, C261, C488	4	Ceramic Capacitor(electron)	C-CER, CHIP;2.2 NF, 5%, 50 V, NP0, TP, 1608
3	2203-001607	C601	1	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;0.22NF, 5%, 50 V, NP0, TP, 1608
3	2203-001634	C201	1	Ceramic Capacitor(electron)	C-CER, CHIP;33 NF, 10%, 50 V, X7R, TP, 1608
3	2203-002720	C363, C380, C453	3	Ceramic Capacitor(electron)	C-CER, CHIP;10 NF, 10%, 25 V, X7R, 1005
3	2203-005171	C34, C41, C186, C225, C242, C252, C265, C273, C484, C532, C571, C580	12	Ceramic Capacitor(electron)	C-CER, CHIP 1000 NF, 10%, 16 V, X7R, 2012
3	2203-005249	C167, C168, C169, C170, C171, C172, C173, C174, C183, C187, C223, C224, C226, C241, C249, C263, C264, C271, C274, C283, C475, C483, C581, C582	24	Ceramic Capacitor(electron)	C-CERAMIC, CHIP;100 NF, 10%, 50 V, X7R, TP, 1608
3	2203-006005	C161, C162, C163, C175	4	Ceramic Capacitor(electron)	C-CER, CHIP;10 NF, 10%, 100 V, X7R, TP, 160
3	2203-006158	C18, C19, C54, C55, C57, C58, C59, C60, C61, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82	360	Ceramic Capacitor(electron)	C-CER, CHIP;100 NF, 10%, 16 V, X7R, TP, 100

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-006158	C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C96, C97, C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C110, C111, C112, C113, C114, C115, C126, C146, C152, C153, C156, C157, C159, C160, C166, C176, C177, C192, C193, C194, C195, C196, C197, C202, C203, C204, C205, C206, C207, C209, C210, C211, C212, C213, C214, C215, C216, C217, C218, C219, C220, C221, C222, C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C238, C239, C240, C243, C244, C245, C246, C247, C248, C253, C254, C255, C256, C270, C272, C279, C280, C281, C282, C284, C286, C290, C291, C292, C293, C294, C295, C296, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C317, C318, C319, C320, C321, C322, C323, C324, C325	-	Ceramic Capacitor(electron)	C-CER, CHIP;100 NF, 10%, 16 V, X7R, TP, 100

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-006158	C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C238, C239, C240, C243, C244, C245, C246, C247, C248, C253, C254, C255, C256, C270, C272, C279, C280, C281, C282, C284, C286, C290, C291, C292, C293, C294, C295, C296, C301, C302, C303, C304, C305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C317, C318, C319, C320, C321, C322, C323, C324, C325, C394, C395, C396, C397, C398, C399, C400, C401, C402, C403, C404, C405, C406, C407, C408, C409, C410, C411, C413, C414, C415, C416, C418, C420, C421, C424, C425, C426, C427, C430, C431, C432, C438, C439, C440, C441, C442, C444, C448, C450, C451, C454, C456, C462, C467, C468, C469, C472, C474, C478, C479, C480, C493, C495, C496, C497, C506, C507, C508, C509, C510, C511	-	Ceramic, Capacitor(electron)	C-CER, CHIP;100 NF, 10%, 16 V, X7R, TP, 100

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2203-006158	C512, C513, C514, C515, C516, C517, C518, C519, C520, C521, C522, C523, C524, C525, C526, C527, C528, C529, C530, C531, C533, C534, C535, C536, C537, C538, C539, C540, C541, C542, C543, C544, C545, C546, C547, C548, C549, C552, C553, C554, C555, C556, C557, C558, C559, C560, C561, C562, C563, C564, C565, C566, C567, C568, C569, C572, C573, C575, C576, C577, C578, C579, C583, C584, C585, C586, C588, C589, C590, C591, C592, C593, C594, C595, C596, C597, C598	-	Ceramic, Capacitor(electron)	C-CER, CHIP;100 NF, 10%, 16 V, X7R, TP, 100
3	2203-006170	C35, C184, C445, C466	4	Ceramic, Capacitor(electron)	C-CER, CHIP;220 nF, 10%, 16 V, X7R, 1608
3	2402-000204	C21, C23	2	Aluminum, Capacitor(electron)	C-AL, SMD;10, UF, 20%, 16 V, WT, TP, 4.3 x 4.3 x 5.4
3	2402-001224	C6	1	Aluminum, Capacitor(electron)	C-AL, SMD;10, UF, ±20%, 100 V, GP, TP, 8.0 x 10.0 M
3	2402-001229	C1, C2	2	Aluminum, Capacitor(electron)	C-AL, SMD;100, UF, 20%, 100 V, GP, TP, 13 x 13
3	2404-000227	C130, C134, C477, C574	4	Eletrolytic, Capacitor(electron)	C-TA, CHIP;4.7, UF, 10%, 10 V, TP, 3216

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2404-001037	C3, C4, C5, C7, C8, C9, C22, C25, C28, C29, C30, C33, C40, C43, C44, C48, C49, C56, C62, C63, C95, C108, C109, C116, C122, C135, C136, C137, C138, C139, C140, C141, C142, C145, C147, C148, C149, C150, C151, C154, C158, C178, C179, C180, C181, C182, C185, C188, C189, C190, C191, C199, C200, C251, C260, C266, C267, C268, C269, C289, C297, C299, C300, C433, C436, C443, C446, C447, C449, C452, C460, C550, C551, C570, C587	75	Eletrolytic, Capacitor(electron)	C-TA, CHIP;10, UF, 10%, 16 V, TP, 3528
3	2404-001097	C11, C12, C13, C14, C15, C16, C17, C20, C26, C27, C31, C32, C36, C37, C38, C39, C45, C52, C53, C143, C144	21	Eletrolytic, Capacitor(electron)	C-TA, CHIP;220, UF, 10%, 10 V, GP, TP, 7343
3	2409-001112	C10, C24	2	Capacitors(electron)	C-ORGANIC, SMD;100, UF, 20%, 16 V, LR, TP, 1
3	2703-001795	L4	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD;15, UH, 20%, 18.54 x 15.24 x 7
3	2703-002626	L3	1	INDUCTOR/COIL(electricity)	IHLP5050CERZ100M01
3	2703-002664	L2	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD;0.58, UH, 20%, 12.5 x 12.5 MM
3	2703-002713	L5	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD;0.56, UH, 20%, 10 x 10 mm
3	2804-001244	Y4	1	Oscillator(electron)	OSCILLATOR-CLOCK;14.31818 MHz, 50, Ppm
3	2804-001302	Y2	1	Oscillator(electron)	OSCILLATOR-CLOCK;66 MHZ, 25, PPM, 10TTL &, CMO

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2804-001510	Y1	1	Oscillator(electron)	OSCILLATOR-CLOCK;125 MHz, 50, Ppm, 10TTL
3	2804-001587	Y3	1	Oscillator(electron)	OSCILLATOR-CLOCK;100 MHz, 50, Ppm, 10TTL
3	3301-000373	L16, L17	2	Magnetic, Parts(electricity)	BEAD-SMD;220OHM, 1608, 200 MA, 307 OHM/346 M
3	3301-001120	L6, L7, L8, L11, L14 L15, L18, L21, L22 L23, L24, L25, L26 L27, L28, L29, L30 L31, L32	19	Magnetic, Parts(electricity)	CORE-FERRITE BEAD;AB, 30 ohm, 2 x 1.25 x 0.85 mm
3	3301-001208	L9, L10, L12, L13	4	Magnetic, Parts(electricity)	BEAD-SMD;60 ohm, 1608, 500 mA, TP, 80.2o
3	3301-001273	L19, L20, L33	3	Magnetic, Parts(electricity)	CORE-FERRITE BEAD;AB, 600 OHM, 1608, 200 MA, T
3	3403-001144	S1	1	Switches(electric field)	SWITCH-PUSH 28 V, 0.4 A, 1P,
1	3702-001170	J12	1	Connectors(electric field)	CONNECTOR-RIBBON;50P, FEMALE, ANGLE, A
1	3703-001252	P1, P2, P3	3	Connectors(electric field)	CONNECTOR-BACK, PANEL;30P, 5R, FEMALE, ANGLE
3	3709-001308	J5	1	Connectors(electric field)	1565712-1
3	3710-001184	J4 J6 J7	3	Connectors(electric field)	CONNECTOR-SOCKET;60P, 2R, 0.8MM, SMD-S
3	3710-002077	J9	1	Connectors(electric field)	CONNECTOR-SOCKET;20P, 2R, 0.8MM, SMD-A
1	3711-000820	J3	1	Connectors(electric field)	CONNECTOR-HEADER;BOX, 2P, 1R, 2.5MM, STRAIGH
1	3711-001465	J1 J2	2	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 3P, 1R, 2.54 mm, STR
1	3711-002630	J10	1	Connectors(electric field)	CONNECTOR-HEADER;NOWALL, 10P, 2R, 2.54 MM, ST
1	3719-001308	J8	1	Connectors(electric field)	CONNECTOR-ACCESSORY;20P, SFP, C-ALLOY
1	3722-001399	J11	1	Connectors(electric field)	JACK-MODULAR;8P/8C, STANDARD, Y, ANGLE, STAN
3	4309-001015	BAT1	1	Connectors(electric field)	CELL, PIN, 10 MM, 23.1 x 5.8 x 13.1 MM, BK

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	3704-000249	U34	1	Connectors(electric field)	SOCKET-IC;32P, PLCC, SN, 1.27 mm
1	4301-000108	BAT1	1	POWER SUPPLY(electricity)	BATTERY-LI;3 V, 220 mAH, BUTTON, 20 x 3.2 m
1	3710-000001	J1 J2	2	Connectors(electric field)	CONNECTOR-SHUNT;2P, 1R, STRAIGHT, AUF
1	1105-001602	J5	1	Connectors(electric field)	IC-DRAM MODULE;M470L6524BT0, 64M x 64B
3	GA41-00198A	PCS01	1	PCB(electricity)	OFFICESERV 7400, FR4, 10L, 1.6T, 130 x 275 MM
1	6002-000154	-	2	Locking, Unit, Part(metal available)	SCREW-TAPPING;PH, +, 2, M3(P 1.35), L8, ZPC
1	GA62-00001A	U7	1	HEAT SINK	HEAT SINK-OFFICESERV FAN ASSY;OFFIC
1	GA72-00241A	-	3	Plastics(injection)	PMO-LED, LENS;SME, PMMA, TRP, T1.0, IF-830, UL
1	GA97-01928A	XX	1	Plastics(injection)	MEA-GWIM STIFFENER ASSY;OFFICESERV

6.25 GWIMD Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0404-001004	D1	1	DIODES(electron)	DIODE-SCHOTTKY;MBRS130L, 30 V, 1000MA, DO-21
3	1006-001030	U1	1	INTERFACE IC(electron)	IC-DRIVER/RECEIVER;504, QFP, 80P, TR, CE
3	2007-000043	R1, R2, R3, R4, R5, R6, R7	7	Fixed Registers(electron)	R-CHIP;1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2011-000689	RA1, RA2	2	Fixed Registers(electron)	R-NET;8.2 KOHM, 5%, 1/16 W, L, CHIP, 8P, TP
3	2203-005249	C2, C3, C4, C8, C9, C10, C11, C12, C14, C15 C16, C17, C18, C19 C20, C21, C22	17	Ceramic, Capacitor(electron)	C-CERAMIC, CHIP;100NF, 10%, 50 V, X7R, TP, 1608
3	2404-001037	C1, C5, C6, C7, C13, C23, C24, C25, C26, C27, C28	11	Eletrolytic, Capacitor(electron)	C-TA, CHIP;10, UF, 10%, 16 V, TP, 3528
3	3301-000373	L1, L2, L3, L4	4	Magnetic, Parts(electricity)	BEAD-SMD;220 OHM, 1608, 200 MA, 307 OHM/346 M
1	3701-001291	J5	1	Connectors(electric field)	CONNECTOR-DSUB;26P, 3R, FEMALE, ANGLE, AU30U
3	3710-002077	J2 J4	2	Connectors(electric field)	CONNECTOR-SOCKET;20P, 2R, 0.8 MM, SMD-A
3	3711-003581	J6	1	Connectors(electric field)	CONNECTOR-HEADER;BOX, 60P, 2R, 0.8MM, S
1	3719-001308	J1, J3	2	Connectors(electric field)	CONNECTOR-ACCESSORY;20P, SFP, C-ALLOY
3	GA41-00193A	PCS01	-	PCB(electricity)	OFFICESERV 7400, FR4, 6L, 1.6T, 82 x 61 MM

6.26 GWIMS Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	0402-001019	D1	1	DIODES(electron)	DIODE-SCHOTTKY;MBRS340, 40 V, 3000 MA, D
3	0404-001004	D2	1	DIODES(electron)	DIODE-SCHOTTKY;MBRS130L, 30 V, 1000 MA, DO-21
3	0501-000465	Q3, Q4, Q5	3	Transistors(electron)	TR-SMALL SIGNAL;MMBT3904, NPN, 350 mW, SOT-2
3	0505-001647	Q1	1	Transistors(electron)	FET-SILICON;IRF7811W, N, 30 V, 14 A, 9MOH
3	0505-001778	Q2	1	Transistors(electron)	FET-SILICON;IRF7822, N, 30 V, 18 A, 6.5MO
3	1065117	U2	1	MICRO-PROCESSOR IC	350MHZ, PCI 64BIT, PBGA, 256P, PLASTIC, 1 V, 6 W, 0TO + 70C
3	1203-002681	U3	1	Linear IC(electron)	IC-POSI.FIXED, REG.;LP3962, SOT-223, 5P, P
3	1203-003114	U1	1	Linear IC(electron)	IC-DC/DC, CONVERTER;MAX1813EEI, QSOP,
3	2007-000043	R2, R7, R8, R9, R12, R14, R19, R32, R34, R37, R38, R39	12	Fixed Registers(electron)	R-CHIP;1 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000060	R3, R4, R21, R23	4	Fixed Registers(electron)	R-CHIP;100 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-000063	R20	1	Fixed Registers(electron)	R-CHIP;150 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2007-000070	R1, R26, R41	3	Fixed Registers(electron)	R-CHIP;0 OHM, 5%, 1/16 W, DA, TP, 1608
3	2007-000287	R16, R25, R36	3	Fixed Registers(electron)	R-CHIP;100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000879	R42	1	Fixed Registers(electron)	R-CHIP;4.7 ohm, 1%, 1/16 W, DA, TP, 1608
3	2007-002913	R35	1	Fixed Registers(electron)	R-CHIP;33.2 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-002987	R6, R11, R13, R18, R22, R40	6	Fixed Registers(electron)	R-CHIP;4.75 KOHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007520	R17	1	Fixed Registers(electron)	R-CHIP;20 OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-007620	R27, R28, R29, R30, R31	5	Fixed Registers(electron)	R-CHIP;47.5 OHM, 1%, 1/16 W, DA, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007645	R15	1	Fixed Registers(electron)	R-CHIP;51.1OHM, 1%, 1/16 W, DA, TP, 1608
3	2007-008148	R24	1	Fixed Registers(electron)	R-CHIP;121 Kohm, 1%, 1/16 W, DA, TP, 1608
3	2011-000585	RA1, RA2 RA3, RA4, RA5, RA6, RA7, RA8, RA9, RA10, RA11, RA12, RA13, RA14, RA15, RA16, RA17, RA18RA19, RA20	20	Fixed Registers(electron)	R-NETWORK;47 ohm, 5%, 63 mW, L, CHIP, 8P, TP
3	2203-000041	C35, C57	2	Ceramic, Capacitor(electron)	C-CERAMIC, CHIP;0.01NF, 0.25PF, 50 V, C0G, TP,
3	2203-000576	C3	1	Ceramic, Capacitor(electron)	C-CER, CHIP;220nF, 10%, 50 V, X7R, TP, 3216
3	2203-000998	C17	1	Ceramic, Capacitor(electron)	C-CERAMIC, CHIP;0.047 NF, 5%, 50 V, NP0, TP, 160
3	2203-001607	C67	1	Ceramic, Capacitor(electron)	C-CERAMIC, CHIP;0.22 NF, 5%, 50 V, NP0, TP, 1608
3	2203-005171	C16, C56, C66	3	Ceramic, Capacitor(electron)	C-CER, CHIP 1000 NF, 10%, 16 V, X7R, 2012
3	2203-005249	C8, C9, C11, C13, C14, C18, C19, C21, C22, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C36, C37, C38, C39, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C58, C59, C60, C61, C62, C63, C65	46	Ceramic, Capacitor(electron)	C-CERAMIC, CHIP;100 NF, 10%, 50 V, X7R, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2402-000204	C7	1	Aluminum, Capacitor(electron)	C-AL, SMD;10, UF, 20%, 16 V, WT, TP, 4.3 x 4.3 x 5.4
3	2404-001037	C2, C6, C10, C12, C15, C20, C23, C40	8	Eletrolytic, Capacitor(electron)	C-TA, CHIP;10, UF, 10%, 16 V, TP, 3528
3	2404-001097	C1, C5, C64	3	Eletrolytic, Capacitor(electron)	C-TA, CHIP;220UF, 10%, 10 V, GP, TP, 7343
3	2703-002330	L1	1	INDUCTOR/COIL(electricity)	INDUCTOR-SMD;3.3UH, 20%, 13.21 x 9.91 MM
3	2804-001588	Y1	1	Oscillator(electron)	OSCILLATOR-CLOCK;50 MHZ, 50, PPM, 10TTL
3	3301-001208	L3	1	Magnetic, Parts(electricity)	BEAD-SMD;60 ohm, 1608, 500 mA, TP, 80.2o
3	3711-003581	J1 J2	2	Connectors(electric field)	CONNECTOR-HEADER;BOX, 60P, 2R, 0.8 MM, S
3	GA41-00204A	PCS01	1	PCB(electricity)	OFFICESERV 7400, FR4, 6L, 1.6T, 39.62 x 99.82 MM
1	6203-001051	U2	1	HEAT SINK	HEAT SINK;SJ90810-01, T10, W28, L28, H10, BLK

6.27 MODEM Board

No	Part Code	Assembly Position	Qtty.	Part Name	Description
1	-	-	-	IC	74HCT04, SMD
2	-	U1	1	IC	74HCT125, SMD
3	-	U5	1	IC	74HCT541, SMD
4	-	-		IC, EEPROM	AT24C02N-10SC,
5	-	U10	1	IC, SRAM	KM681002CJ-15
6	-	U9	1	IC, FLASH MEMORY	AM29F002NBB-90JC, F
7	-	U8	1	IC, MCU	L2800-38
8	-	U7	1	IC, MDP	R6764-63
9	-	U3	1	IC, DUAL OPAMP	MC1458CD
10	-	U2	1	IC, A-LAW, PCM, CODEC	TP3057WM
11	-	U11	1	IC, SINGLE 2-INPUT, POSITVE AND GATE	74AHCT1G08
12	-	U9	1	IC-SOCKET, 32PIN, PLCC	-
13	-	Y1	1	CRYSTAL	28.2240 MHz, +/- 30, Ppm,
14	-	C16, C17	2	CAP	CE, 30, PF, 20%, 50 V, SMD
15	-	C2	1	CAP	CE, 330, PF, 20%, 50 V, SMD
16	-	BC1~BC16, C3, C5, C7, C9, C11, C13, C15, C20, C21	25	CAP	CE, 0.1, UF, 20%, 50 V, SMD
17	-	C1	1	CAP	CE, 1, UF, 20%, 50 V, SMD
18	-	C4, C6, C8, C10, C12, C14, C18, C19, C22	9	CAP	TT, 10, UF, 20%, 10 V, SMD

(continued)

No	Part Code	Assembly Position	Qtty.	Part Name	Description
19	-	R7, R11, R13~20, R25, R25, R27, R33	15	R-CHIP	0 ohm, 1/10 W 1%, SMD
20	-	R23	1	R-CHIP	10 ohm, 1/10 W 1%, SMD
21	-	R22, R26	2	R-CHIP	100 ohm, 1/10 W 1%, SMD
22	-	R1	1	R-CHIP	3.3 Kohm, 1/10 W 1%, SMD
23	-	R4, R6, R9, R28, R29, R31, R37~39, R41, R45, R50	11	R-CHIP	10 Kohm, 1/10 W 1%, SMD
24	-	R10	1	R-CHIP	20 Kohm, 1/10 W 1%, SMD
25	-	R2, R3, R5, R8	4	R-CHIP	44.2 Kohm, 1/10 W 1%, SMD
26	-	L1., L2	2	INDUCTOR	10, UH, 10%
27	-	L4	1	EMI FILTER	BLM31A700S
28	-	-	-	SWITCH	TACT SWITCH, 2PIN
29	-	P1, P2	2	CONNECTOR	STRAIGHT HEADER MALE 17AS-2.54D;17P, 1R, 2.54 MM
30	-	-	2	PCB	MODEM

6.28 MIS Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	GA92-02785A	-	1	PBA MAIN-MISCELLANEOUS	OFFICESERV 7200, DOM/EXP, WORLD, MISCELLANEOUS, FR-4, 4, L, 111.8*50.9*1.6T, MIS
3	0401-001099	D5-D7	3	DIODE-SWITCHING	1N4148WS, 75 V, 150 MA, SOD-323, TP
3	0402-001216	D1-D4	4	DIODE-RECTIFIER	MURS120, 200 V, 1A, TO-220F, TP
3	0501-000477	Q1-Q3	3	TR-SMALL SIGNAL	MMBT5550, NPN, 300 MW, SOT-23, TP, 20-250
3	1201-000236	U13	1	IC-OP AMP	TL084, SOP, TP, 14, P, 150 MIL, QUAD, 200V/MV, PLASTIC, 18 V, 680 MW, 0TO+70C, 86DB, 13 V/US, 5PA, 2
3	1205-000120	U14, U15	2	IC-CODEC	TP3054WMX, SOP, 16, P, 300 MIL, PLASTIC, 5.25 V, 60 MW, -25TO+125C, TP
3	1205-000394	U1, U2	2	IC-CODEC FILTER	TP3057WM, SOP, 16, P, PLASTIC, 5.2
3	1301-001499	U4	1	IC-CPLD	4A5, TQFP, 44, P, 10 x 10 mm, 10 nS, 5, 5 %
3	2007-000043	R58	1	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000052	R17-R42, R64	27	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000060	R3, R4	2	R-CHIP	100 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000287	R51-R54	4	R-CHIP	100 OHM, 1%, 1/10 W, DA, TP, 1608
3	2007-000669	R43-R45	3	R-CHIP	2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002906	R5, R6	2	R-CHIP	200 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002918	R1, R2	2	R-CHIP	51.1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002991	R46-R49	4	R-CHIP	61.9 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007237	R50, R61	2	R-CHIP	24.3 Kohm, 1%, 1/10 W, TP, 1608
3	2007-007274	R59, R60	2	R-CHIP	27.4 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008102	R62, R63	2	R-CHIP	357 ohm, 1%, 1/10 W, TP, 1608
3	2007-008223	R11-R16	6	R-CHIP	39.2 Kohm, 1%, 1/10 W, TP, 1608
3	2007-008225	R7, R8	2	R-CHIP	226 Kohm, 1%, 1/10 W, TP, 1608
3	2203-003027	C25, C26	2	C-CER, CHIP	0.82 nF, 5%, 50 V, NP0, TP, 1608
3	2203-005249	C10-C24	15	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2402-000130	C1-C6	6	C-AL, SMD	2.2, UF, 20%, 50 V, GP, TP, 4.3 x 4.3 x 5.
3	2404-001037	C7-C9	3	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528
3	3301-001308	B1-B18	18	BEAD-SMD	10 ohm, 1608, 500 mA, TP, 0.15 ohm
3	3501-001139	K1-K3	3	RELAY-MINIATURE	4.5 VDC, 140 MW, 1000 MA, 2FORMC, 4 MS, 4 MS
3	3711-004744	P1, P2	2	CONNECTOR-HEADER	BOX, 40, P, 2R, 0.8 MM, SMD-S, AU30U, NTR
3	EC26-20501A	T1-T4	4	TRANS AF	INFOREX, 800 mH
3	GA41-00143A	-	1	PCB-MISC	OFFICESERV 7200, FR-4, 4, L, 00, 1.6T, 120 x 45 MM

6.29 CRM Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
1	GA92-02929A	-	1	PBA SUB-CRM	OFFICESERV 7400, octavo volume, COMMON RESOURCE MODU, 1 69 x 194
2	0202-000108	-	0.001	SOLDER-CREAM	RMA-20-21L, 20~38 µm, 62.8SN/36.8PB/0.4 AG, 10%
2	0202-001091	-	0.001	SOLDER-BAR	HI-FLO, 20 X 356 X 11, 63SN/37PB
2	0904-001310	U4, U5	2	IC-DSP	TMS320LC549, 16BIT, TQFP, 144P, 20 x 20 MM, 80 MHZ, TR, CMOS, PLASTIC, 3.3V, -40TO+100C, 32 KX
2	1203-001631	U3	1	IC-POSI.FIXED REG.	2940, TO-263, 3P, PLASTIC, 3.3 V,
2	1301-001663	U2	1	IC-CPLD	LC4128V-75T128C, TQFP, 128P, 14 x 14 MM, 7.5NS, 3.3 V, 10%, 0TO+90C, 92, 92, 4, 333 MHZ, 3.47
2	2007-000043	R58 R122	2	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R1 R34 R35 R36 R37 R38 R39 R40 R42 R43 R45 R49 R50 R51 R52 R53 R56 R65 R67 R68 R71 R73 R75 R76 R78 R80 R83 R85 R89 R90 R91 R92 R93 R94 R96 R99 R100 R102 R104 R105 R108 R109 R111 R112 R116 R117 R118 R123 R124 R125 R126 R128 R129 R132 R134 R135 R138	57	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2007-007226	R18 R19 R20 R21 R22 R23 R24 R25 R26 R27 R28 R29 R30 R31 R32 R33 R46 R48 R54 R55 R57 R59 R61 R62 R64 R66 R69 R72 R77 R79 R81 R84 R95 R97 R101 R103 R107 R110 R114 R115 R119 R120 R121 R133 R136 R137	46	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 1608
2	2007-007507	R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R41 R44 R47 R60 R63 R70 R82 R86 R87 R88 R98 R106 R113 R127 R130 R131	32	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 1608
2	2203-000998	C24, C30, C39	3	C-CER, CHIP	0.047 nF, 5%, 50 V, C0G, 1608

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2203-005249	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C25, C26, C27, C28, C29, C32, C34, C35, C36, C37	33	C-CER, CHIP	100 nF, 10%, 50 V, X7R, 1608
2	2404-001037	C31, C33, C38	3	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528
2	2804-001496	Y1	1	OSCILLATOR-CLOCK	16.384 MHz, 50, Ppm, 10TTL, 15, PF, TP, 3.3 V, 40 mA
2	3301-001120	L1, L6, L8	3	BEAD-SMD	30 OHM, 2012, 3000, TP, 0.015
2	3301-001308	L2, L3, L4, L5, L7	5	BEAD-SMD	10 OHM, 1608, 500, TP, 0.15
2	3407-001067	S1	1	SWITCH-SMD	6 V, 100 MA, SLIDE
2	3711-004744	P1, P2	2	HEADER-BOARD TO BOARD	BOX, 40P, 2R, 0.8 MM, SMD-S, AU30U, NTR
2	GA13-10064A	U1	1	IC ASIC	DCS, STL7065C, QFP, 160P
2	GA41-00184A	-	1	PCB-CRM	OFFICESERV 7400, FR4, 4L, 1.6T, 169 x 19 MM
2	GA68-00289A	-	1	LABEL(P)-BAR, CODE	KEY, PHONE, POLYESTER, T0.05, W6.5, L37.5, WHT, WHT

6.30 RCM2 Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
1	GA92-02819A	-	1	PBA MAIN-RCM2	IDCS 500, KOR, RCM2, K/P KSU
2	0202-000108	-	0	SOLDER-CREAM	RMA-20-21L, 20~38 ㎛, 62.8SN/36.8PB/0.4AG, 10%
2	0202-001091	-	0	SOLDER-BAR	HI-FLO, 20 x 356 x 11, 63SN/37PB
2	0801-002379	U2, U6	2	IC-CMOS, LOGIC	74LCX16245, TRANSCEIVER, TSSOP, 48, 240MIL, DUAL, TP, 2.0/3.6 V
2	0802-001084	U4	1	IC-BICMOS, LOGIC	74ABT125, BUFFER, TSSOP, 14, 173MIL, QUAD, TP, 4.5/5.5 V
2	0904-001310	U1, U7	2	IC-DSP	TMS320LC549, 16BIT, TQFP, 144P, 20 x 20 MM, 80 MHZ, TR, CMOS, PLASTIC, 3.3 V, 40TO+100C, 32KX
2	1203-001631	U8	1	IC-POSI.FIXED REG.	2940, TO-263, 3P, PLASTIC, 3.3 V,
2	1301-001499	U5	1	IC-CPLD	4A5, TQFP, 44P, 10 x 10 mm, 10nS, 5, 5%
2	2007-000043	R29-R31, R49, R53, R65	6	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000043	R66, R74, R78	3	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R1-R14, R23-R28, R38-R48	31	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R50, R51, R52, R54-R63	13	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000052	R70-R73, R76, R79-R81	8	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
2	2007-000287	R64, R67, R68, R69, R75	5	R-CHIP	100 OHM, 1%, 1/10 W, TP, 1608
2	2007-008122	R77	1	R-CHIP	22.1 OHM, 1%, 1/10 W, TP, 1608
2	2203-005249	C1-C24, C27, C28	26	C-CER, CHIP	100 nF, 10%, 50 V, X7R, 1608
2	2404-001037	C25, C26, C29	3	C-TA, CHIP	10, UF, 10%, 16 V, TP, 3528

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
2	2804-001496	Y1	1	OSCILLATOR-CLOCK	16.384 MHz, 50, Ppm, 10TTL, 15, PF, TP, 3.3 V, 40 mA
2	3301-001120	L3, L4, L6	3	BEAD-SMD	30 OHM, 2012, 3000, TP, 0.015
2	3301-001308	L1, L2, L5	3	BEAD-SMD	10 OHM, 1608, 500, TP, 0.15
2	3408-000230	S1	1	SWITCH-SLIDE	30 V DC, 200 mA, DPDT, ANGLE SHAPE
2	3711-004744	J1, J3	2	HEADER-BOARD TO BOARD	BOX, 40P, 2R, 0.8 MM, SMD-S, AU30U, NTR
2	GA41-00150A	REV.01	1	PCB-RCM2	IDCS500, FR4, 4L, 1.6T, 169 X 194.1 MM
2	GA68-00289A	-	1	LABEL(P)-BAR, CODE	KEY, PHONE, POLYESTER, T0.05, W6.5, L37.5, WHT, WHT

6.31 MGI2DB Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
0	KP-OSDBMG2	-	-	-	-
2	GA92-02782A	-	1	PBA MAIN-VOIP, D B'D, CLIENT	OFFICESERV 7400, DOM/EXP, WORLD, VOIP, D B'D, CLIENT, FR-4, 4, L, 48204 4CH, 75 x 54.5 x 1.6 T, MG
3	1106-001469	U2	1	IC-SRAM	GA71116ATP-8, 64K x 16 BIT, TSOP, 44, P, 400 MIL, 8NS, 3.3 V, 10%, 0TO+70C, 20 MA, TP
3	1204-002202	U1	1	IC-VOICE, PROCESSOR	AC48204E6-C, TQFP, 144P, 20 x 20 MM, PLASTIC, 3.6 V, 200 MW, 0TO+70C, TR, VOP, PROCESSOR
3	2007-000043	R22, R32	2	R-CHIP	1 Kohm, 1%, 1/10 W, TP, 1608
3	2007-000070	R7-R10, R21, R35-R42	13	R-CHIP	0 ohm, 5%, 1/10 W, TP, 1608
3	2007-001164	R33, R34	2	R-CHIP	75 ohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R1-R5, R24-R29	11	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 1608
3	2203-005249	C3-C17	15	C-CER, CHIP	100 nF, 10%, 50 V, X7R, TP, 1608
3	2402-001140	C1, C2	2	C-AL, SMD	4.7UF, 50V, GP, TP, 4.3 x 4.3 x 5.3 MM
3	3711-004744	J1, J2	2	CONNECTOR-HEADER	BOX, 40, P, 2 R, 0.8 MM, SMD-S, AU30U, NTR
3	GA41-00145A	-	1	PCB-MGI2D	OFFICESERV 7400, FR-4, 4, L, 00, 1.6 T, 120 x 240 MM

6.32 MBD40 Board

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
1	1405-000171	V1	1	VARISTOR	82 V, 1200A, 9 x 6 mm, TP
1	3703-000236	P502	1	CONNECTOR-BACK, PANEL	10P, 2R, FE
1	3703-001454	P500-P501	2	CONNECTOR-BACK, PANEL	110P, 5R, M
1	3703-001526	P1-P39	39	CONNECTOR-BACK, PANEL	30P, 5R, MA
1	3711-001528	P504-P505	2	HEADER-BOARD TO, CABLE	NOWALL, 4P
1	3711-003272	P40	1	HEADER-BOARD TO, CABLE	BOX, 10P
1	3711-004515	P503	1	CONNECTOR-HEADER	BOX, 4P, 1R, 7.4
3	0402-001476	D1-D3	3	DIODE-RECTIFIER	ES3B, 100V, 3A, D
3	0501-000477	Q2	1	TR-SMALL SIGNAL	MMBT5550, NPN, 3
3	0505-001477	Q1	1	FET-SILICON	SFR9220, P, 200 V, 3.1
3	0604-001002	PC1	1	PHOTO-COUPLER	TR, 100-600%, 200 m
3	0801-002127	U2, U4-U12	10	IC-CMOS, LOGIC	74FCT16245, TRANS
3	1203-001643	U3	1	IC-RESET	DS1706, SOIC, 8P, 150MIL
3	1301-001647	U1	1	IC-CPLD	LC4256 V-75F256BC, FPBGA

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-000052	R2-R3, R6, R10, R14, R16, R20, R22, R28-R29, R31, R35, R37-R38, R41, R43-R44, R46-R47, R49, R52, R55, R59-R60, R62-R63, R65, R68, R70-R71, R70-R71, R74, R76-R77, R79, R81, R84, R86-R91, R93, R95, R97-R98, R100, R103, R105-R106, R108, R111-R121, R124, R129, R131-R136, R145-R156, R177, R200-R201, R207-R208, R211-R213, R215-R218, R200-R202, R229, R237, R245, R255, R264, R277, R279, R281, R284-R285, R287, R345-R349, R350-R373	137	R-CHIP	10 Kohm, 1%, 1/10 W, TP, 1608
3	2007-002987	R304-R306	3	R-CHIP	4.75 Kohm, 1%, 1/10 W, TP, 16
3	2007-007226	R1, R4-R5, R7-R9, R10-R13, R15, R17-R18, R21, R23-R24, R26, R32-R34, R36, R39, R40, R42, R45, R48, R50-R51, R53-R54, R56-R58, R61, R64, R66, R69, R72-R72, R75, R78, R80 R83-R83, R85, R92, R94, R96, R99, R101-R102, R104, R107, R109-R110, R123, R125-R126, R128, R130, R137-R144, R163-R172, R178-R179, R190-R199, R209-R210, R214, R219, R223-R228, R230-R236, R238-R244, R246-R254, R256-R263, R265-R271, R273-R276, R278, R280, R282-R283, R286, R288-R303, R307-R344	202	R-CHIP	49.9 ohm, 1%, 1/10 W, TP, 160

(continued)

Level	Part Code	Assembly Position	Qtty.	Part Name	Description
3	2007-007507	R25, R27, R30, R122, R127, R157-R162, R180-R189, R202-R206, R272	27	R-CHIP	2.74 Kohm, 1%, 1/10 W, TP, 16
3	2203-000236	C32-C35, C42, C53	6	C-CER, CHIP	0.1 nF, 5%, 50 V, C0G, 16
3	2203-000626	C70	1	C-CER, CHIP	0.022 nF, 5%, 50 V, C0G,
3	2203-005249	C1-C9, C11-C31, C36-C41, C43-C52, C54-69	62	C-CER, CHIP	100 nF, 10%, 50 V, X7R, 1
3	2203-005565	C10	1	C-CER, CHIP	1 nF, 5%, 50 V, NP0, TP, 1
3	2804-001496	Y1	1	OSCILLATOR-CLOCK	16.384 MHz, 50p
3	3301-001308	L1-L5	5	BEAD-SMD	10 OHM, 1608, 500, TP
3	GA41-00180A	PCS01	1	PCB-MBD40	OFFICESERV 7400, FR4,

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CHAPTER 7. System Parts Diagram

This chapter provides the parts diagram of the OfficeServ 7400 system.

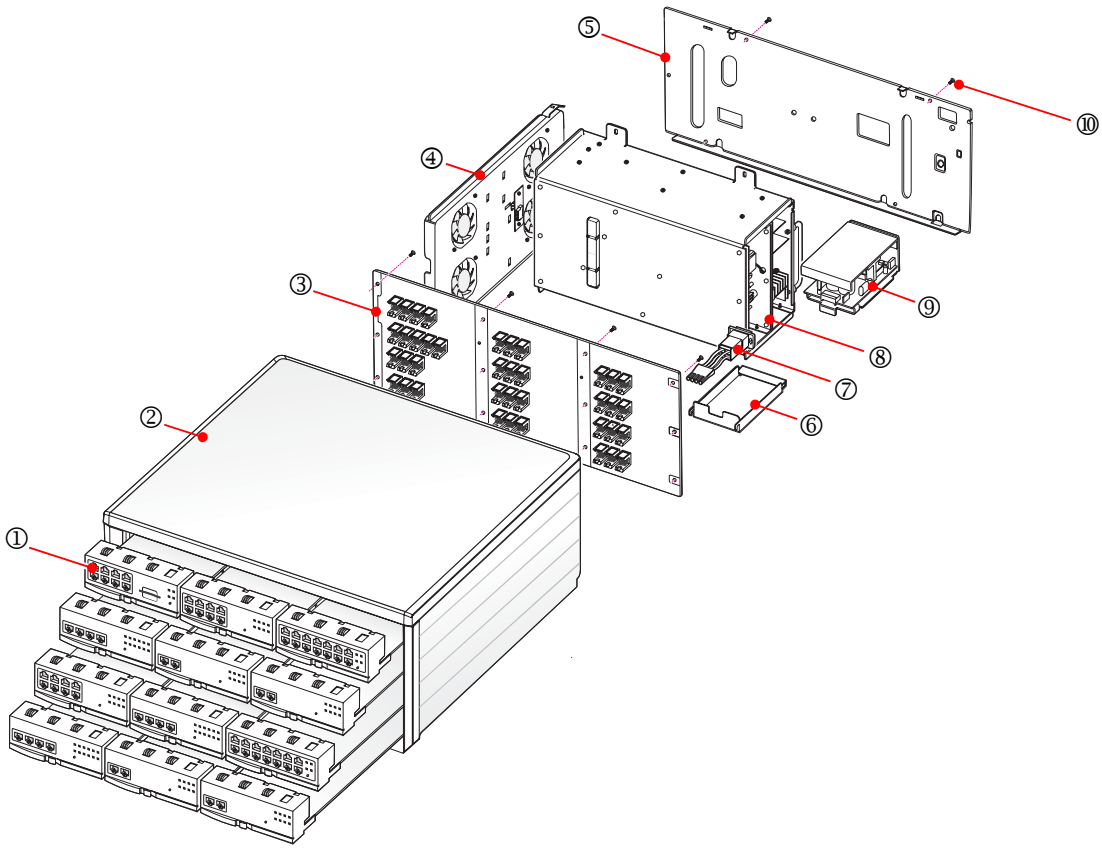

Figure 7.1 Exploded Parts Diagram of OfficeServ 7400

Table 7.1 Parts List

No.	Part Name	Part Code	Qtty.
1	LP40 STIFFNER ASSY	GA97-01931A	1
2	OS7400 RACK ASSY	GA97-01925A	1
3	OS7400 MBD40	GA92-02925C	1
4	FAN ASSY	GA96-00822A	1
5	REAR, PANEL	GA70-00081A	1

No.	Part Name	Part Code	Qtty.
6	RINGER BRKT	GA70-00082A	1
7	PoE, CABLE	GA39-00042A	1
8	AC/DC, UNIT	-	1
9	RINGER ASSY	-	1
10	M3 SCREW	6003-000267	16

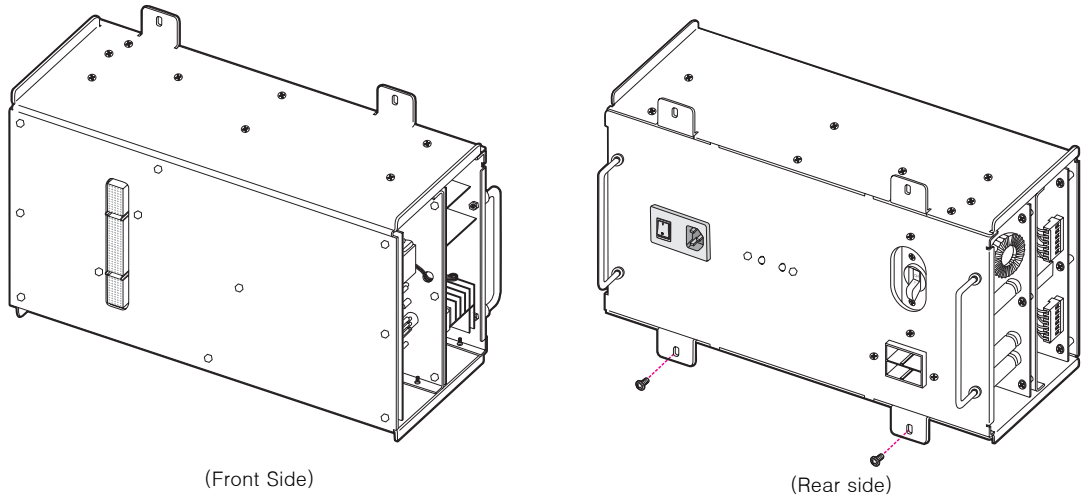

Figure 7.2 Front/Rear side of Power Supply Module

ABBREVIATION

A

AAA	Authentication, Authorization and Accounting
AC	Alternating Current
ALG	Application Level Gateway
AMI	Alternate Mark Inversion
AOM	Add On Module
AP	Access Point
ASIC	Application Specific Integrated Chip

B

BRI	Basic Rate Interface
B8ZS	Bipolar 8-Zero Substitution

C

CA	Call Agent
CAS	Channel Associated Signaling
CCS	Common Channel Signaling
CID	Caller Identification
COM	Communication
CRM	Common Resource Module
CSU	Communication Service Unit
CTI	Computer Telephony Integration

D

DASL	Digital Adaptor for Subscriber Loop
DC	Direct Current
DECT	Digital Enhanced Cordless Telecommunications
DGP	Digital Phone
DHCP	Dynamic Host Configuration Protocol
DPLL	Digital Phase Locked Loop
DLI	Digital Line Interface
DSU	Data Service Unit
DSSS	Direct Sequence Spread Spectrum
DTMF	Dual Tone Multi Frequency

E

EMI	Electro-Magnetic Interference

F

FXO	Foreign Exchange Office
FXS	Foreign Exchange Station

G

GARP	Generic Attribute Registration Protocol
GK	Gatekeeper
GVRP	GARP VLAN Registration Protocol

H

HDB3	High Density Bipolar of order 3
HDLC	High level Data Link Control
HLR	Home Location Register
HOS	Hook Off Sensing
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol

I

ID	Identification
IDS	Intrusion Detection System
IGMP	Internet Group Management Protocol
IMAP	Internet Messaging Access Protocol
IN-SCP	Intelligent Network Service Control Point
IP	Internet Protocol
IPC	Inter Processor Communication
IPDC	Internet Protocol Device Control
IP-SCP	Internet Protocol Service Control Point
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITP	IP Telephone
ITU	International Telecommunication Union

J

JDBC	Java Database Connectivity

K

KDB	Keyset Daughter Board

L

LAN	Local Area Network
LCD	Liquid Crystal Display
LCP	Local Control Processor
LED	Light Emitting Diode
LIM	LAN Interface Module

M

MCP	Main Control Processor
MEGACO	Media Gateway Control
MG	Media Gateway
MGC	Media Gateway Controller
MGI	Media Gateway Interface
MGCP	Media Gateway Control Protocol
MMC	Man Machine Communication
MMU	Memory Management Unit
MPD	Metering Pulse Detection
MOH	Music On Hold
MUA	Mail User Agent
MTA	Mail Transfer Agent

N

NAT	Network Address Translation

O

OSPF	Open Shortest Path First

P

PAT	Port Address Translation
PBA	Printed circuit Board Assembly
PCM	Pulse Code Modulation
PCMMC	PC based Man Machine Communication
PLD	Programmable Logic Device
PLIM	Physical Layer Interface Module
PLL	Phase Locking Loop
POP3	Post Office Protocol version 3
PPP	Point to Point Protocol
PPPoE	Point to Point Protocol over Ethernet
PRI	Primary Rate Interface
PSTN	Public Switched Telephone Network
PSU	Power Supply Unit

Q

QFP	Quad Flat Pack
Q-SIG	Q-Signaling
QoS	Quality of Service

R

RCM	R2 CID Module
RIP	Routing Information Protocol
RTCP	Real-time Transmission Control Protocol
RTP	Real-time Transmission Protocol

S

SCP	Signal Control Processor
SDP	Session Description Protocol
SG	Signaling Gateway
SGCP	Simple Gateway Control Protocol
SIGTRAN	Signaling Transport
SIP	Session Initiation Protocol
SLI	Single Line Interface
SLT	Single Line Telephone
SMTP	Simple Mail Transfer Protocol
SoL	Server optimized Linux
STA	Spanning Tree Algorithm
STP	Signaling Transfer Point

T

TCAP	Transmission Control Application Part
TCP	Transmission Control Protocol
TEPRI	T1E1PRI
TRK	Trunk

U

UA	User Agent
UAC	User Agent Client
UART	Universal Asynchronous Receiver and Transmitter
UAS	User Agent Server
UCD	Uniform Call Distribution
UDP	User Datagram Protocol
USB	Universal Serial Bus

V

VAD	Voice Activation Detect
VDSL	Very high-Data rate digital Subscriber Line
VLAN	Virtual LAN
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network

W

WAN	Wide Area Network
WIM	WAN Interface Module
WLI	Wireless LAN Interface

X

xDSL	x-Digital Subscriber Line

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