ELECTRONIC SWITCHING SYSTEMS
5ESS®
COMMUNICATION MODULE PROCESSOR UNIT
CIRCUIT

CONTENTS

1. GENERAL DESCRIPTION

1.1 PURPOSE OF CIRCUIT

The communication module processor unit (CMPU) resides in the communication module 2 (CM2) of the 5ESS® switching system or in the communication module 2 compact (CM2C) of the 5ESS® switch. In CM2 applications, the CMPU houses up to two communication module processors (CMPs) in community B and up to four QLPS Gateways (QGWs) in community A. Community B encompasses the right half of the unit and community A the left half. In CM2C applications the X wiring option converts communities A and B into two independent CMPs. CMP community B side 0 encompasses the left half of the unit and CMP community B side 1 contains the right half.

1.2 GENERAL DESCRIPTION OF OPERATION

In CM2 applications the CMPU can provide two CMPs and four QGWs in its two communities. Each community communicates with the 5ESS® system through the message switch control unit (MSCU) through an input/output microprocessor interface (IOMI). In CM2C applications each community can provide one CMP. Each community communicates with the 5ESS® switch through the message switch controller (KBN10) in the communications module unit (CMU) through an IOMI. Each CMP is defined as a "core" pack (TN1368 or TN1800), and from one to three "auxiliary memory" packs (TN1369). CMPs perform selected system functions (call processing, recent change and verify, etc.) based on the need for real time response in the switch. Each QGW is defined as a "QGW core" pack (TN1683) and a "QGW link" pack (TN1684). QGWs connect the switch's traditional messaging network with the QLPS' messaging network of SM 2000.

2. DETAILED DESCRIPTION

2.1 FUNCTIONAL SCHEMATICS

There are two communities (A and B) in each CMPU. Community A is described symbolically by functional schematic 1 (FS1). Community A can provide up to four QGWs, each equipped with one QGW link board or, when equipped with a CM2C (as community B side 0), up to one CMP. Community B is described symbolically by functional schematic 2 (FS2). Community B can provide up to two CMPs, each equipped with up to three auxiliary memory boards.

2.2 FUNCTIONAL SCHEMATIC 1

2.2.1 SCAN and DISTRIBUTE

Two terminal fields located at equipment locations (EQLs) 04-006 and 04-007, are used for scan and distribute points in CM2 applications. In CM2C applications the scan and distribute points are located on the control and display pack. The signals in these fields provide some degree of control to the system over the control and display circuits associated with the two failure groups in a CMPU. Through the scan points, the system can tell when power has been removed from either community A (FS1) or community B (FS2). In a similar manner, through distribute points, the system can activate or deactivate the out of service (OOS) lamps on the control and display pack for either community.

2.2.2 CONTROL and DISPLAY

The control and display pack (SN516B) is used for controlling and monitoring power for community A. The SN516B provides the following functions:

1) Allows the power converter to be turned on or off, and requests, through the manual switch, that the unit either be in-service or out-of-service.

2) Displays the status of the power circuits such as: power alarms, out-of-service, request out-of-service, request restore, and request-in-progress.

3) A software interface in the form of scan points reports alarms and distribute points to the light status light emitting diodes (LEDs).

2.2.3 410AA POWER CONVERTER

The power converter takes a nominal 48 volt input and provides a well-regulated +5 volt output to run the logic on the CMPU circuit packs.

2.2.4 TN1683 - QGW CORE

The TN1683 is the basic processing circuit of the QLPS gateway. All HDLC message processing is done on the TN1683. The interface to the MSCU is also resident on the TN1683.

2.2.5 TN1684 - QGW LINK

The QGW link, or QGL, provides the actual connection into the QLPS network for the QGW. The devices on the QGL are actually peripheral devices of the QGW core.

2.2.6 TN1800 - CMP CORE

The TN1800 is a general purpose multi-processor single board computer used to perform various functions (call processing, recent change, etc.) in the 5ESS® and is used in place of the TN1368 core pack. The TN1800 is available in generics 5E9 or later and provides 16 MB of core memory. The particular functions targeted for a specific CMP are determined by the generic software. Functions assigned to CMPs are usually those whose response times are critical.

2.2.7 TN1369 - CMP AUXILIARY MEMORY

The TN1369 provides a 16 MB cache of dynamic memory available to the CMP for applications (such as recent change) where a large data base is necessary.

2.2.8 IOMI

Leads at EQLs 04-086, 04-087 04-092 and 04-093 describe the terminal fields used for connection of the IOMI cables that facilitate the input output microprocessor interface. The QGW or the CMP communicate with the message switch controller over the IOMI.

2.3 FUNCTIONAL SCHEMATIC 2

2.3.1 CONTROL and DISPLAY

The control and display pack (SN516B) is used for controlling and monitoring power for community B. The SN516B provides the following functions:

1) Allows the power converter to be turned on or off, and request, through the manual switch, that the unit be either in-service or out-of-service.

2) Displays the status of the power circuits such as: power alarms, out-of-service, request out-of-service, request restore, and request-in-progress.

3) A software interface in the form of scan points reports alarms and distribute points to the light status LEDs.

2.3.2 410AA POWER CONVERTER

The power converter takes a nominal 48 volt input and provides a well-regulated +5 volt output to run the logic on the CMPU circuit packs.

2.3.3 TN1368 - CMP CORE

The TN1368 is a general purpose multi-processor single board computer used to perform various functions (call processing, recent change, etc.) in the 5ESS®. The TN1368 provides four MB of core memory. The particular functions targeted for a specific CMP are determined by the generic software. Functions assigned to CMPs are usually those whose response times are critical.

2.3.4 TN1800 - CMP CORE

The TN1800 is a general purpose multi-processor single board computer used to perform various functions (call processing, recent change, etc.) in the 5ESS® and is used in place of the TN1368 core pack. The TN1800 is available in generics 5E9 or later and provides 16 MB of core memory. The particular functions targeted for a specific CMP are determined by the generic software. Functions assigned to CMPs are usually those whose response times are critical.

2.3.5 TN1369 - CMP AUXILIARY MEMORY

The TN1369 provides a 16 MB cache of dynamic memory available to the CMP for applications (such as recent change) where a large data base is necessary.

2.3.6 IOMI

Leads at EQLs 04-174, 04-175, 04-180 and 04-181 describe the terminal fields used for connection of the IOMI cables that facilitate the input output microprocessor interface. The CMP communicates with the message switch control unit over the IOMI.

2.4 EXTERNAL INTERFACES (CADS)

2.4.1 CAD1

All input and output points to the unit are listed in CAD 1. Input/Output (IO) points are grouped by function and alphabetized by net name.

3. ACRONYMS

CAD1	Cable Assembly Drawing 1
CM2	Communication Module 2
CM2C	Communication Module 2 Compact
CMP	Communication Module Processor
CMPU	Communication Module Processor Unit
CMU	Communications Module Unit
EQL	Equipment Location
FS1	Functional Schematic 1
FS2	Functional Schematic 2
HDLC	High Level Data Link Control
I/O	Input/Output
IOMI	Input/Output Microprocessor Interface
LED	Light Emitting Diode
MSCU	Message Switch Control Unit

OOS   Out Of Service
QGL   QLPS Gateway Link
QGW   QLPS Gateway
QLPS   Quad Link Packet Switch

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