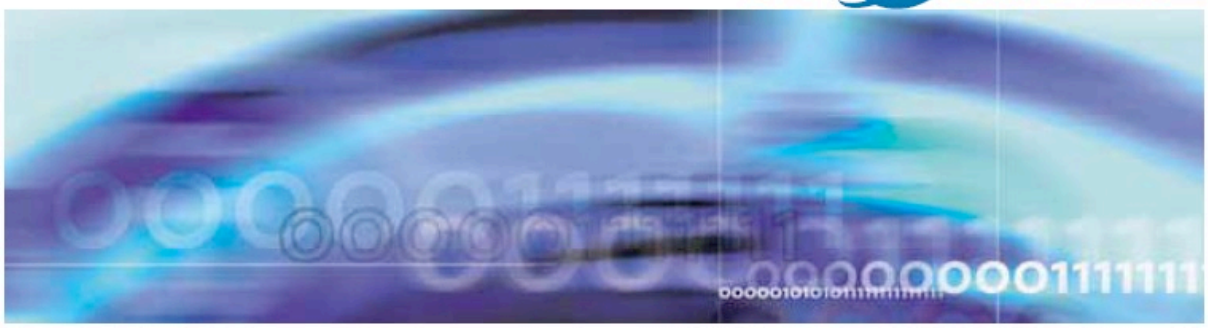


Communication Server 1000

(Nortel Communication Server 1000S)

System Evaluation

NN43031-301

Document status: Standard
Document version: 01.01
Document date: 11 May 2009

COMMUNICATION SYSTEM 1000S

System Evaluation

for

_____

SUMMARY: A system evaluation of the _____(Customer) Communication System 1000S solution in _____(City) was requested by _____(Name) of _____(Company). The evaluation was performed on _____(Date). The nature of the evaluation was to determine if the Communication System 1000S was installed per Nortel manufacturing specifications and Product Bulletin requirements.

DISTRIBUTION:

EVALUATED BY:

DATE:

Location Profile

Site Information:

Audit Engineer: _____ Evaluation Date: _____

Distributor: _____ Customer: _____
Address: _____ Address: _____

Contact: _____ Site Telephone: _____
Telephone: _____ Attendees: _____
Email: _____

System Information:

System Serial Number: XXXXX

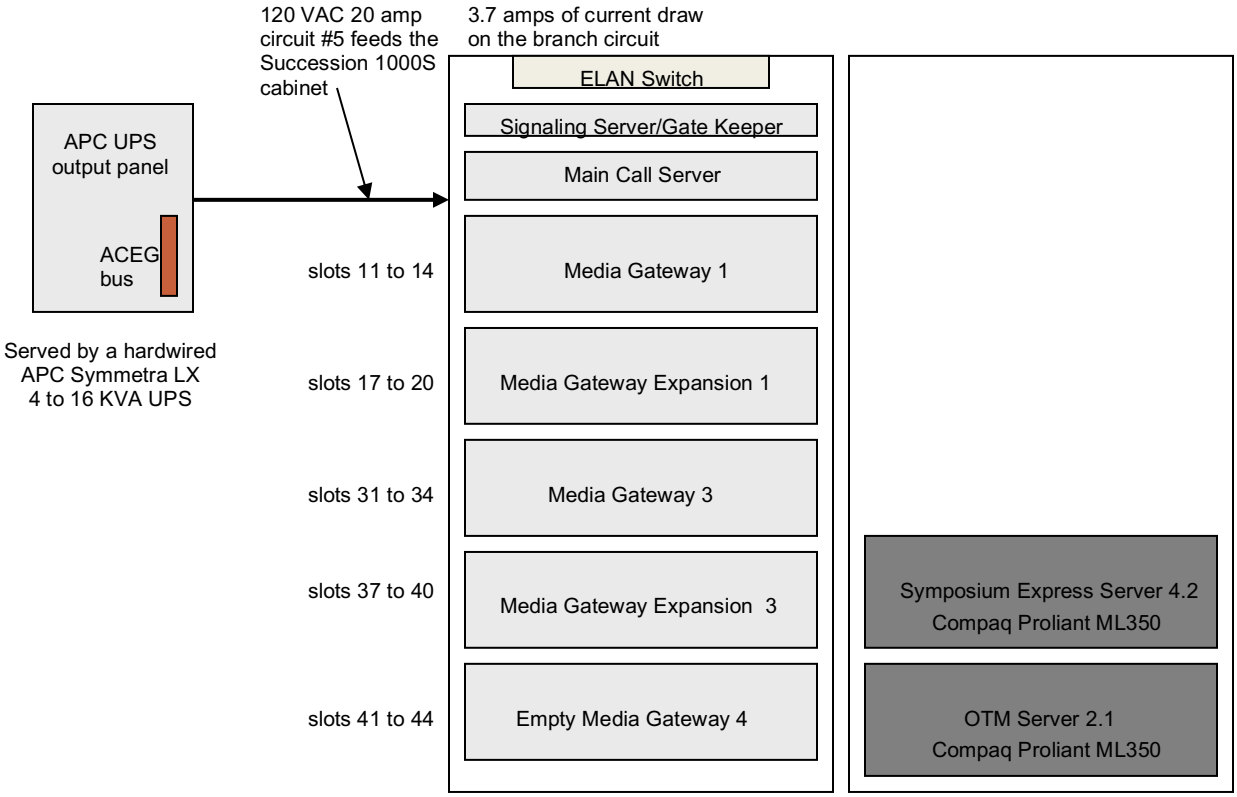
	Type/Platform	Software Release	Ports
PBX	NCS 1000S	XX21/X.00	XXX
OTM			
Symposium Call Center Server			
Call Pilot IPE	201i		
VGMC	NTVQ01BA		

Equipment Information:

	Type	Quantity
Cabinets :		
Call Server	NTDU06	
Media Gateway	NTDU14	
MG Expansion	NTDU15	
Signaling Server	NTDU27 on X.XX.XX load	

Power Equipment	Quantity
UPS Type:	
PoE Yes No	
Evaluation Type:	

SAMPLE SITE LAYOUT



The main #6 AWG system grounding conductor terminates inside AC service panel #3 in the back room near the UPS system

FINDINGS AND RECOMMENDATIONS

Introduction:
The evaluation of this Nortel CS 1000S system, located _____ was requested by _____. The request was initiated because _____ _____.
The evaluation was performed on (date) _____ and covered the areas of Equipment Room Environment, Maintenance and Technician Area Environment, Power and Grounding, System Power and Ground Connections, Cabinet Installation, Cabling Installation, System Operation, System Software, and Network Parameters for VoIP.
_____ (name of company representative) was the main contact person during the evaluation process. All questions that pertain to this report may be directed to: _____.

DISCREPANCIES AND RECOMMENDATIONS:

EQUIPMENT ROOM ENVIRONMENT

Item # **Findings:** **Recommendation:**	

MAINTENANCE AND TECHNICIAN AREA ENVIRONMENT

Item # **Findings:** **Recommendation:**	

POWER AND GROUNDING

Item # **Findings:** **Recommendation:**	

SYSTEM POWER AND GROUND CONNECTIONS

Item # **Findings:** **Recommendation:**	

CABINET INSTALLATION

Item # **Findings:** **Recommendation:**	

CABLING INSTALLATION

Item # **Findings:** **Recommendation:**	

SYSTEM OPERATION

Item # **Findings:** **Recommendation:**	

SYSTEM SOFTWARE

Item # **Findings:** **Recommendation:**	

NETWORK PARAMETERS FOR VoIP

Item # **Findings:** **Recommendation:**	

CONCLUSION

NOTE: *This report is based on checklist items contained in this document. The checklist item under each subheading is answered with a "Y" or "N", signifying that it either complies or does not comply with Nortel specifications. An "N/A" means that the checklist question does not apply in this instance. The specifications are based on Nortel Practices, Product Bulletins, Product Advisories, and General Release Bulletins. Each checklist item is given a weight. The item may be deemed as "Critical, Major, Minor, or Recommended" in nature. A system evaluation is found to be "non-compliant" when one "Critical" or two "Major" discrepancies have been identified. Checklist weighting is not given to Applications products questions. The aim of an evaluation is to ensure installation completeness, optimize system performance/ reliability, and provide a safe environment for personnel.*

Further Comments:

CHECKLIST

SYSTEM AND SITE REQUIREMENTS

Equipment Room Environment

NTP 553-3031-120 Planning and Engineering
NTP 553-3031-210 Installation and Configuration
Nortel Draft System Evaluation Checklist for Nortel Option 11C/Succession Small Systems

		Meets Specifications Y / N
1.	Temperature is maintained between 0° and 45° C (32° and 113° F) and does not deviate any more than 5°F within a 24 hour period. A temperature of 22°C (72°F) is recommended. Temperature: _____° (Indicate C or F) [Major]	_____
2.	Humidity is between 5% and 95% non-condensing. Humidity _____% [Major, Critical if more than 95% or less than 5%]	_____
3.	Environment does not show any visible signs of moisture. [Critical]	_____
4.	Ventilating openings on equipment are free of obstructions. [Major]	_____
5.	The room is clean, relatively dust-free, and well ventilated. [Minor, Major if concrete dust]	_____
6.	Equipment location is not subject to constant vibration. [Major]	_____
7.	Equipment is located at least 12 ft (3660 mm) away from sources of electrostatic, electromagnetic, or radio frequency interference. [FCC CFR 47 Part 15 for Class A devices. (<20 milliGauss ELF) [Major]	_____
8.	Equipment is not located under liquid-carrying pipes. [Major]	_____
9.	Equipment room is not conducive to generating electrostatic discharge (ESD) [Major]	_____
10.	Anti-static wrist straps, sprays and/or mats in evidence on site. [Recommendation]	_____
11.	Switch room door has a lock installed. [Minor]	_____
12.	No tripping or safety hazards exist in the equipment room. [Major]	_____

Equipment Room Environment (continued)

Meets Specifications Y / N

13. Installation is not located close to sources of EMI/RFI, such as high-voltage power lines, radar, broadcast stations, mobile communications, power tools, appliances (such as vacuum cleaners), and office business machines (such as copiers), industrial machines and ultrasonic cleaners, vehicle ignition, arc welders, dielectric heaters and dimmer switches. [Major] _____
14. Lighting illumination is 50 to 75 foot candles measured 76 cm (30 in.) above the equipment room floor. [Recommendation] _____
15. Equipment room is protected from receiving direct sunlight. Direct sunlight is prevented from shining on electronic hardware, especially disk drives. [Major] _____
16. Adequate floor space has been made available to install equipment racks, patch panels, power systems (UPS) etc. [Major] _____
17. RS-232 terminal/communications devices should not exceed the 50 foot cable length limit unless line drivers are utilized. [Major] _____
18. The storage room for spare parts is secure. [Recommendation] _____
19. If it is not possible that the site maintain the environment of the storage area exactly the same as the environment of the operating equipment, stored materials are allowed time to adjust to the equipment room environment before using them. [Major] _____
20. The storage area is dust-free and away from high humidity and machinery such as electric motors of transformers. [Major] _____
21. Circuit cards which are not in use are stored in a protective antistatic bag. [Major] _____
22. Media Gateway and Call Server covers are installed. [Major] _____

Maintenance and Technician Area Environment

23. A locking cabinet or storage area is in place for backup disks [Recommendation] _____
24. The area contains a table or desk terminal, printer, or equivalent device [Recommendation] _____
25. Maintenance workstation is equipped with a: [Major]
    - dial-up modem or connected to the network; _____
    - terminal emulator application such as Telnet or rlogin; _____
    - web browser; _____
    - operational maintenance telephone. _____
26. Observations/Comments

Power and Grounding

NTP 553-3031-120 Planning and Engineering
NTP 553-3031-210 Installation and Configuration
Nortel Draft System Evaluation Checklist for Nortel Option 11C/Succession Small Systems

Meets Specifications Y / N

Per the NTP 553-3031-120 Nortel CS 1000S Planning and Engineering Guide, an isolated ground topology is the recommended/preferred method of grounding for use as the Nortel CS 1000S "single point ground" source. In the absence of such facilities, a portable or hardwired UPS system may be used. It is preferable that UPS systems contain load isolation transformers in their design. Isolated Ground topology is not accepted in Canada per code.

Nortel CS 1000S System AC Service Panel

1. The AC supply conductors are dedicated and uninterrupted from the building primary source or transformer to the PBX main AC service panel.(This does not apply to sub panels). [Major] _____
2. Verify that an Isolated Ground (IG) or ACEG conductor is installed from MGN/ X0 to an IG or ACEG bus in the AC panel serving the PBX equipment room. This point will become the single point ground reference for the PBX. Note: In some cases an AC panel may not be a requirement. Various UPS systems will establish the same intent and purpose as the panel IG/ACEG bus. The engineer performing the evaluation should research the application and determine its intent. [Critical] _____
3. The IG/ACEG conductor is sized per code. (NEC 250). Note: It is recommended that the ACEG conductor be the same size as the largest phase conductor. [Major] _____
4. The IG/ACEG conductor runs in the same raceway (conduit) as the phase and neutral conductors (NEC 250). [Major] _____
5. The IG/ACEG conductor is insulated, permanent, and continuous (no splices). (NEC 250) [Major] _____
6. A dedicated AC panel is installed in the PBX room for the Nortel CS 1000S and associated equipment only. Circuits being served for purposes such as lighting, air conditioning, heating, generators, copiers, or motors from the Nortel CS 1000S service panel are not recommended. Panel I.D.:_____ [Major] _____
7. Circuit breakers are identified/labeled at the AC service panel. (NEC 110-22) [Minor] _____
8. Ensure that all voltage and current levels recorded are within the defined limits. [Critical] Note: A licensed Electrician should obtain these results. See the AC Power/Ground Worksheet _____
9. The workspace clearance around the AC service panel is 3 feet. (NEC 110-26) [Major] _____

Meets Specifications Y / N

Power and Grounding (continued)

10. All RS-232 ancillary devices connected to the system I/O circuit cards must be wired from the same AC panel as the PBX power supplies, with individual hot, neutral, and isolated/ACEG ground wires. Note: Protection devices such as electro-optical isolators must be installed for all RS-232 devices (terminal, modem, etc.) not served from the same AC service panel as the Nortel CS 1000S system. [Critical]

11a. Power from each outlet meets the input requirements of at least one Nortel CS 1000S power supply listed in the following tables: [Major]

AC input requirements for each Call Server		y/n
(North America)		
Voltage	Recommended: 100-120 Volts Maximum limits: 90 and 132 Volts Single phase	
Frequency	50-60 Hz	
Power (I/P max)	60 VA maximum	
Outlet Type	120 Volts, 15 Amp supply	
(Europe and UK)		
Voltage	Recommended: 208/220 Volts Maximum limits: 180 and 250 Volts Single phase	
Frequency	50-60 Hz	
Power (I/P max)	60 VA maximum	
Outlet Type	208/240 Volts, 15 Amp supply	
Carried out in accordance with local power specifications.		
The supplied power is single-phase 240 or three-phase 208 Y and has a system ground conductor		
(Germany)		
Voltage	Recommended: 230 Volts Maximum limits: 180 and 250 Volts Single phase	
Frequency	50 Hz	
Power (I/P max)	60 VA maximum	
Fuse	16 A	
Outlet Type	Receptacles by DIN regulation	

Meets Specifications Y / N

Power and Grounding (continued)

11b. Power from each outlet meets the input requirements of at least one Nortel CS 1000S power supply listed in the following tables (continued):

AC input requirements for each MG 1000S or MG 1000S Expander		y/n
(North America)		
Voltage	Recommended: 100-120 Volts. Maximum limits: 90 and 132 Volts Single phase	
Frequency	50-60 Hz	
Power (I/P max)	300 VA maximum	
Outlet Type	120 Volts, 15 Amp supply	
(Europe and UK)		
Voltage	Recommended: 208/220 Volts Maximum limits: 180 and 250 Volts Single phase	
Frequency	50-60 Hz	
Power (I/P max)	300 VA maximum	
Outlet Type	208/240 Volts, 15 Amp supply	
Carried out in accordance with local power specifications		
The supplied power is single-phase 240 or three-phase 208 Y and has a system ground conductor		
(Germany)		
Voltage	Recommended: 230 Volts Maximum limits: 180 and 250 Volts Single phase	
Frequency	50 Hz	
Power (I/P max)	300 VA maximum	
Fuse	16 A	
Outlet Type	Receptacles by DIN regulation	

Power and Grounding (continued)

Meets Specifications Y / N

11c. Power from each outlet meets the input requirements of at least one Nortel CS 1000S power supply listed in the following tables (continued):

AC input requirements for each Signaling Server		y/n
(North America)		
Voltage	Recommended: 100-120 Volts Maximum limits: 90 and 132 Volts Single phase	
Frequency	50-60 Hz	
Power (I/P max)	200 VA maximum	
Outlet Type	120 Volts, 15 Amp supply	
(Europe and UK)		
Voltage	Recommended: 208/220 Volts Maximum limits: 180 and 250 Volts Single phase	
Frequency	50-60 Hz	
Power (I/P max)	200 VA maximum	
Outlet Type	208/240 Volts, 15 Amp supply	
Carried out in accordance with local power specifications.		
The supplied power is single-phase 240 or three-phase 208 Y, and has a system ground conductor		
(Germany)		
Voltage	Recommended: 230 Volts Maximum limits: 180 and 250 Volts Single phase	
Frequency	50 Hz	
Power (I/P max)	200 VA maximum	
Fuse	16 A	
Outlet Type	Receptacles by DIN regulation	

Location of power outlets

NOTE: The maximum distance between a power outlet and the system equipment is met, in relation to the length of the power cord.

- *In North America, the power cord is 9 ft 10 in. (3000 mm).*
- *Outside North America, the power cord is 8 ft 2 in. (2490 mm).*

12. Observations/Comments

AC Power & Ground Worksheet

AC Service Panel Measurements

Note: If a portable UPS system is used, measurements will only be taken on the input/output voltage and the neutral-ground voltage. Percent of load must also be notated

Voltage Measurements:	AC		MIN	MAX
Between neutral and phase A	_____	volts	105v	125v
Between neutral and phase B	_____	volts	105v	125v
Between neutral and phase C	_____	volts	105v	125v
Between ground and phase A	_____	volts	105v	125v
Between ground and phase B	_____	volts	105v	125v
Between ground and phase C	_____	volts	105v	125v
Between phase A and phase B	_____	volts	180v	250v
Between phase A and phase C	_____	volts	180v	250v
Between phase B and phase C	_____	volts	180v	250v
Between neutral and ground (ACEG)	_____	Vrms	0.0v	0.5Vrms

UPS percent of load:
UPS input voltage:
UPS output voltage:

Current Measurements:	AC		MAX
Neutral conductor amps	_____	amps	See Note 1
Ground conductor amps (IG or ACEG)	_____	amps	0.5 amps
Phase A amps	_____	amps	
Phase B amps	_____	amps	
Phase C amps	_____	amps	

Note 1: The neutral current should never exceed the current in any single-phase leg.
A licensed electrician must take AC service panel measurements.
Voltage and current values must comply with NTPs.

Voltage between neutral and ground could signify poor or loose connections or non-continuous grounding.

Current flow in the grounding conductor may indicate that the neutral has been used for equipment grounding.

If currents are balanced in a three phase system and there is significant neutral current, then harmonics are present. Harmonics can deteriorate transformers over time by over heating their internal wiring. Solution: Use transformers specifically designed for harmonic loading (k-factor-rated).

System Power and Ground Connections

Meets Specifications Y / N

1. The Signaling Server power cord is plugged into the rack's AC outlet and the rack's AC outlet is grounded to its dedicated electrical panel. [Major] _____
2. In a system with more than one MG 1000S powered by multiple service Panels, a #6 AWG (#40 Metric Wire Gauge) ground wire from the rear panel grounding lug of each MG 1000S is connected to an NTBK80 Ground Bar. The ground bar is connected to the Single Point Ground reference. [Major]
   Note: In the UK, the ground wire from the Nortel CS 1000S equipment is connected to an NTBK80 Ground Bar or through a Krone Test Jack Frame. _____
3. When multiple pieces of equipment are installed in a rack, a separate connection is run from the grounding lug on each piece of equipment to the NTBK80 Ground Bar. [Major] _____
4. In an installation where a dedicated panel cannot provide optimal conditions, a load isolation transformer or load isolation transformer-based UPS/Line conditioner with the following characteristics is used: [Major]
   - 120/208/240 V AC input, over-current protected at primary _____
   - 120/208/240 V AC available at secondary outputs, each circuit breaker protected _____
   - primary and secondary windings are completely isolated from one another _____
   - it is approved for use locally as a stand-alone user product (CSA, UL, or other locally recognized clear markings) _____
   - it is capable of providing power to all Nortel CS 1000S components operating at the same time at full load _____
   - equipment unrelated to the Nortel CS 1000S is not powered from a transformer that provides service to the Nortel CS 1000S system _____
   - it is electrostatically shielded to minimize ELF fields _____
5. The installation meets the specific grounding requirements for the area: [Major] _____

Germany	#8 AWG (10 mm2) green/yellow wire
North America; other areas in Europe	Not smaller than #6 AWG (16 mm2) at any point
UK	Two green/yellow wires no thinner than two 10 mm2

System Power and Ground Connections (continued)

Meets Specifications Y / N

6. A 120VAC non-switched receptacle is provided within 9 feet of the Nortel CS 1000S cabinet(s). It is strongly recommended that each Media Gateway/Media Gateway Expansion pair for 1000S systems be powered from one dedicated 120VAC, 15/20 amp branch circuit with individual hot, neutral, and AC equipment ground/isolated ground wires. **Do not exceed 80% of the maximum branch circuit or UPS load rating.** [Major] _____
7. A system ground conductor, sized at a minimum of a #6 AWG stranded, insulated wire is installed from the cabinet ground bus to the ACEG bus in the AC panel. Where UPS systems are employed, a #6 AWG wire can be installed from the cabinet ground bus to the grounded metallic case of the UPS using a ground lug. [Critical if missing; Major if undersized]. _____
8. A #6 AWG insulated, stranded conductor is installed between each Nortel CS 1000S cabinet ground lug and the cabinet ground bus. [Major] _____
9. All grounding conductors are clearly identified/labeled. [Minor] _____
10. Ground connections are tagged with a clear message such as "CRITICAL CONNECTION: DO NOT REMOVE OR DISCONNECT. [Minor] _____
11. No telecommunications ground bus of the Nortel CS 1000S is connected to untested horizontal structural steel, water pipes, or other unreliable ground paths. [Major] _____
12. The cabinet ground bus is mounted near the Nortel CS 1000S cabinets. [Major] _____

UPS Requirements

13. Cabinets are grounded to the same AC service panel or UPS that provides input power to the PBX system. [Major] _____
14. All UPS systems must have a ground lug (to accommodate a minimum of #6AWG wire) or ground bus installed and bonded to the UPS metallic enclosure to allow connections to the PBX system ground bus and the AC panel ACEG bus. Note: If the UPS system is equipped with an isolation transformer, the ground lug or bus must be wired from the center tap (X0) of the transformer (The ground lug or bus allows a parallel connection to the Nortel CS 1000S single point ground source in case the UPS power cord is unplugged). [Major] _____
15. #6 AWG grounding conductors are installed from the UPS ground bus/lug to the Nortel CS1000S cabinet ground bus and the ACEG bus in the AC service panel. See items #3 and #10 above. [Major] _____
16. CSUs (Channel Service Units) are connected to reserve power (UPS) or are span powered. [Major] _____
17. Equipment unrelated to the Nortel CS1000S system in any way is not powered from the same 120 VAC receptacles or UPS system as the PBX. [Major] _____

System Power and Ground Connections (continued)

Meets Specifications Y / N

18. In isolated ground environments, other equipment, equipment racks, or metallic conduit do not come in contact with the Nortel CS1000S equipment rack. [Major] _____
19. The earth source, which the Nortel CS1000S system connects to via the AC service panel, has a resistance of 5 ohms or less. [Major] _____
20. There are continuous conductors as opposed to spliced conductors. [Major] _____
21. Conductors must terminate in a permanent way. [Major] _____
22. All terminations are easily visible and accessible for maintenance purposes. [Major] _____
23. The resistance between the ground post of any equipment and the single point ground to which it connects is less than 0.25 ohms for an installed Call Server, MG 1000S, MG 1000S Expander, or Signaling Server. [Major] _____
24. The installation uses one of the following bus bars as a system SPG: [Major]
    - building principal ground, normally in a building with one floor
    - floor ground bar, normally in buildings with more than one floor
    - dedicated TMGB/TGB bonded to the building grounding system
    - ACEG bus located inside the PBX service panel

    _____

Other items

25. QUA6 Power Failure Transfer Units (PFTU) are available to transfer trunk lines during a power or system failure. [Recommendation] _____

Note: *The appropriate AC power cord kit is used for the installation as listed in the following table. (These cords connect a Nortel CS 1000S system to a commercial AC power source.)*

Country / Region	AC Power Cord	Voltage Rating	Current Rating	Plug Type
North America	A0379412	250 V	10 A	NEMA 6-15P
Argentina	A0814961	250 V	10 A	IRAM 2073
North America	NTTK14	125 V	13 A	NEMA 5-15P
Australia/ New Zealand	NTTK15	250 V	10 A	AS3112
Europe	NTTK16	250 V	10 A	CEE(7)VII
Switzerland	NTTK17	250 V	10 A	SEV 1011
UK/Ireland	NTTK18	250 V	10 A	BS1363
Denmark	NTTK22	250 V	10 A	AFSNIT

Cabinet Installation

NTP 553-3031-210
Nortel Draft System Evaluation Checklist for Nortel Option 11C/Succession Small Systems

Meets Specifications Y / N

1. Circuit cards are of allowable vintage (no outstanding Product Advisories/Bulletins). [Major] _____
2. Circuit cards are locked into place. [Minor] _____
3. All MDF/IDF blocks are clearly labeled. [Major] _____
4. PBX cabling is not strapped to the exterior of any conduit or raceway as a means of support. [Major] _____
5. MICB cards, where installed, use cards slots 1, 2, 3 in Media Gateways and slots 7, 8, 9 in Media Gateway Expanders only. [Major] _____
6. M2250 consoles utilize 5 consecutive units and are properly cross-wired with three power TNs. The "AUX" cable may be utilized to take the place of two power TNs only!! See console cable wh/sl, rd/or, & rd/grn pairs [Major] _____

Application Tapes & Messaging System Tape Cartridges

7. Media is not subject to rapid changes in temperature or humidity. [Major] _____
8. Media is kept away from strong magnetic fields. [Major] _____
9. Database backups are routinely performed and are readily available. [Major] _____
10. System installation CDs, PC cards are available for the PBX and Applications products in the event of severe system hardware malfunction or data corruption. [Critical] _____
11. Observations/Comments

Cabling Installation

NTP 553-3031-210
Nortel Draft System Evaluation Checklist for Nortel Option 11C/Succession Small Systems

Meets Specifications Y / N

Outside Plant Cabling and Protectors

1. Entrance cable sheath is grounded as close as possible at the point of entry to an approved ground source. [Major] (NEC 800-33; 40) _____
2. Splice cases are properly grounded. [Major] _____
3. Approved protection devices are used for Telco network and campus cables. (Carbon, Gas tube type for network cables; fast-acting, low let-through type on campus cables). (NEC 800) [Major] **See Nortel Product Bulletin 97040 (April) revision 1 relating to protection** _____
4. Protection devices are installed at both ends of a cable in a campus environment. (Silicon Avalanche type. see Oneac 5SDP; 5SAP) [Major] ANSI/UL 497-1995 Specs -10V for digital sets; 48VDC for analog sets. **See Nortel Product Bulletin 97040 (April) revision 1** _____
5. All protection device grounding conductors are grounded to an approved source with an appropriately sized wire. The grounding conductors must be kept as short and straight as possible. (No sharp bends- 8" radius) (NEC 800-40) [Major] _____

Cabinet Cabling

6. Cabling must be installed in a neat and orderly fashion. [Major] _____
7. MDF cables are seated and secured in place using factory velcro straps. [Major] _____
8. All cables for cabinets, Call Servers, Media Gateways/Expanders, Signaling Servers (SDI, AUX, VGMC ELAN/TLAN, CE-MUX, DS-30X, and 10/100BaseT cables) and adapters are properly fastened. [Major] _____
9. Power wiring must not be installed in a parallel fashion with CAT5 cabling. Installing power wires perpendicular to CAT5 cables is preferred and minimizes effects from EMI/ELF fields. [Major] _____
10. EMI mitigating ferrite rings (NTVQ83AA) are installed on Voice Gateway Media Card TLAN/ELAN patch cables. [Major] _____
11. NTCW84JA assemblies are used for each VGMC connector. [Major] _____
12. CAT5 patch cables are not installed near fluorescent lighting fixtures. [Major] _____
13. ELAN/TLAN patch cables for VGMC and Signaling Server hardware are "factory made" and kept at 20 cable feet or less. [Recommendation] _____
14. All patch cables are labeled and correlate to a network infrastructure diagram/schematic. [Minor] _____

Cabling Installation (continued)

Meets Specifications Y / N

Cross-connect terminal requirements

15. To allow for future expansion and equipment changes at the cross-connect terminal, the cross-connect terminal has enough space for connecting blocks to terminate the following wires: [Recommendation]
    - three 25-pair cables from each MG 1000S _____
    - four 25-pair cables from each MG 1000S Expander _____
    - four conductors for the AUX cable from the MG 1000S _____
    - one 25-pair cable from each QUA6 PFTU _____
    - wiring from telephones and trunks _____
16. In the UK
    If the Krone Test Jack Frame is used, only authorized personnel are allowed access the Krone Test Jack Frame and it is installed in a locked room or in an environment that prevents free access to the equipment. Refer to Communication Server 1000S: Installation and Configuration (553-3031-210) for additional information about the cross-connect terminals. [Major] _____
17. Observations/Comments

System Operation

X11 Software General Release Bulletin (shipped with new software)

Meets Specifications Y / N

System Diagnostics

1. LD 30 Network and Signaling Diagnostic (NWS). [Minor] _____
2. LD 34 Tone and Digit Switch and Digitone Receiver (TDS). [Major] Check results from the midnight routines. _____
3. LD 37 Input/Output Diagnostic (IOD). Use "STAT" command for TTYs [Major] _____
4. LD 38 Conference Circuit Diagnostic (CNF). [Major] Check results from the midnight routines. _____
5. LD 43 Data Dump (EDD). [Critical] Check for successful completion of a manual data dump. _____
6. LD 44 Software Audit (AUD). [Major] Must be configured in BKGD of Ld-17. Check for normal AUD000 messages. _____
7. LD 48 Status of ELAN/ Mail/ESDI Links. [Major] Make sure all AMLs that are in use are ACTIVE EMPTY. _____
8. LD 60 Digital Trunk Diagnostic (DTI/PRI). [Major] Use the SSCK command to check system clocks. **Locked on to IP daughterboard #1.** Also check midnight routines for frame slips, CRC errors. _____
9. LD 117 "STAT HOST" _____
10. LD 137 ELNK "STAT ELNK" command _____
11. GTR, NTPs, and Backup logs are located in switch room. Note: Ensure appropriate level and system type of NTPs are available. [Minor] _____
12. The PBX maintenance modem/terminal server performs as expected. [Major] _____
13. A terminal server or SEB modem is configured as to allow Telnet access to the system. [Recommendation] _____
14. The system is equipped with a working maintenance terminal and printer. [Major] _____
15. A PC is available on location in order to access Element Manager/NRS [Major] _____
16. Minimum level PEPs are installed in the system. This includes DepList PEPs for the Call Servers, required PEPs for Signaling Servers, and Voice Gateway Media Card PEPs. [Recommendation] _____
17. IP sets are on the latest recommended firmware. [Recommendation] _____
18. Signaling Servers are load sharing (equal number of registered IP phones) [Recommendation] _____
19. Printouts of Signaling Server config.ini and bootp.tab files readily available. [Minor]
    pdt> cd /u/config, copy config.ini, copy bootp.tab _____

Meets Specifications Y / N

System Operation (continued)

Memory size

20. The installation meets the minimum memory requirements for Nortel CS 1000 Release 4.5 software.

Nortel **CS 1000S Release 4.5 memory requirements**			
Processor	**Flash memory required**	**DRAM memory required**	**Total memory**
SSC	48 MByte	32 MByte	80 MByte

21. The installation does not exceed the maximum call register count recommended for Nortel CS 1000S Release 4.5 software.

Recommended maximum call register counts			
	Recommended	**Memory**	**Memory**
	call register	**required**	**required**
System	**count**	**(SL-1 words)**	**(MByte)**
CS 1000S	800	181 600	0.693
Note: Call registers are 227 SL-1 words long. One SL-1 word is 4 bytes.			

22. Observations/Comments

System Software

NTP 553-3031-305 Feature Compatibility/ Dependency and Operation
NTP 553-3031-400 or Handbook PO738411 X11 Test and Print Routines
Nortel Draft System Evaluation Checklist for Nortel Option 11C/Succession Small Systems

Meets Specifications Y / N

Overlay 15/21 Customer Data Block

1. SRCD (Auto Set Relocation Code) has a value programmed. [Major if SPRE is 1, Minor if other] _____

Overlay 17/22 Configuration Record

2. Daily Routine defined as LD 34, 38, 60,137 [Major] _____
3. LD 44 in background routine. [Major] _____
4. The number of call registers (NCR) within the maximum value required per GRB documentation regarding port size and features used.
   1000S- 800 call registers [Major] _____
5. 1000S LPIB and HPIB values equal 450 [Recommendation] _____
6. History File is defined as MTC, BUG and is set at minimum length of 60,000 characters. [Major] _____
7. ERRM is configured as ERR, BUG, AUD [Major] _____
8. RLS IDs are configured for each D-Channel where appropriate. [Major] _____

Overlay 11/12/13 Digital Sets / Attendant Consoles/ Digitone Receivers

9. Switchroom phone requires MTA for class of service. [Major] _____
10. Consoles powered via unused TNs are correctly programmed “PWR”. [Major] _____
11. Consoles are cross-wired properly and must utilize consecutive units. [Major] _____
12. Observations/Comments

Networking Parameters for VoIP

Nortel Draft System Evaluation Checklist for Nortel Option 11C/Succession Small Systems

		Meets Specifications Y / N
1.	A LAN/WAN assessment has been performed on the customer network. [Critical]	
2.	The layer 2 switch ports (Baystack 470) in place for the Nortel CS 1000S ELAN/TLAN are configured for full duplex, auto negotiate. [Major]	
3.	The port speed for ELAN related ports are configured at 10 Mbps for Nortel CS 1000S systems. [Major]	
4.	The ELAN subnet and the TLAN subnet are on separate subnets. [Major]	
5.	All applications on the ELAN subnet are on the same subnet. [Major]	
6.	The port speed for all TLAN ports on the layer 2 switch are configured for 100 Mbps [Major]	
7.	VGMC circuit cards in the same node are on the same TLAN subnet. [Major]	
8.	Minimum of one VGMC DSP resource for every TDM port (T-1 trunks, digital phones, analog phones, analog trunks, CallPilot channels). [Recommendation] For non-blocking requirements one DSP per TDM port is a best practice.	
9.	Layer 2 switches derive UPS power from different branch circuit sources, if possible, in order to minimize single points of failure. [Recommendation]	
10.	Observations/Comments	

Product Bulletins for Vintage/Release Updates

Product Bulletin	Affected Product	Part Description	Defective Part #	Replacement Part #	Reason for Change
97030	SL1-100	Digital Line	NT8D02EA	NT8D02EB	M1 Option 11 through 81 unaffected
97031	Meridian 1	XNET card	NT8D04BA, rel.3 after 9/96	NT8D04BA, rel.4	Loss of dial tone after power down of opposite network shelf; releases 1, 2, 3 before 9/96 not affected
97043	Option 11C		NTDK20AB, rel.6	NTDK20AB, rel.6	Clicking during established calls. Manufactured between 4-1-97 and 5-1-97
97051	Meridian 1	Call Processor	NT9D19AA NT9D19CA NT9D19HA	NT9D19AB NT9D19CB NT9D19HB	68040 48MB/64MB/96MB
97064	Opt. 81C	QPC 441	QPC441 prior to F	QPC 441 F or later	All 441s must be F or later
98016	NT5D12	Dual Port PRI/DTI	Rls AA 4-10	Rls AB 1-5	Blows fuse on DCH/PRI daughter board
98037	Opt. 61C/81C	IODU/C NT5D61	NT5D61AA Rel. 1-7	NT5D61AB now rls 8	Inadequately designed power trace
98040	All PBX IPE	XDAC card	NT7D16AA	NT7D16BA	DM to TLINK protocol enhancement
98069	Mini carrier remote	Local Interface (LMI)	NT5D64AA	Same 10/98 or later	Lockup –10/98 or earlier need terminator kit
98069	Mini carrier remote	Local Extender(LMX)	NT5D65AA	Same 10/98 or later	Lockup –10/98 or earlier need terminator kit
98052	Opt. 61C; 81C	FNET	NT1P61BA	NT7D16CA	Curtail PWR0013 & PWR0053 msgs.
		FPEC	NT1P62BA	NT1P62CA	" "
98053	Carrier remote IPE	LCIC	NT7R51AA/AB	NT7R51AC	Y2K compliance issue w/MMI msgs
		RCIC	NT7R52AA/AB	NT7R52AC	" "
	Line side T-1	Interface card	NT5D11 AA-AC	NT5D11AD	Y2K compliance issue w/MMI msgs
		Interface (Opt.11)	NT5D14 AA-AB	NT5D14AC	" "
	Fiber Remote IPE II	Fiber Interface	A0634488	A0732456	" "
		Fiber Interface	A0634489	A0732458	" "
		Fiber Interface	A0634490	A0732527	" "
		Fiber Interface	A0634491	A0732528	" "
98106	Mmail	Meridian Mail Disk and Tape Drive Assembly Matrix			
99014	Fiber Remote IPE II	Fiber Remote Multi-IPE -- FCC/IC Compliance			
99043	Option 11C		NTAK02BB and prior vintages	NAK02BC	Card may sometime experience system synchronization errors

Product Bulletin	Affected Product	Part Description	Defective Part #	Replacement Part #	Reason for Change
99046	Mini carrier remote	LMI Opt.21-81 LMX Opt.21-81 RMI LMI Opt.11	NT5D64BA NT5D65BA NT5D67BA NT5D68BA NT5D69BA	NT5D64CA NT5D65CA NT5D67CA NT5D68CA NT5D69CA	The vintage of the Mini Carrier (MCR) interface cards was advanced to correct potential problems of short-term intermittent loss of digital set operation, in vintages and releases prior to the new CA vintage.
99055	Meridian 1	DDP Card	NT5D12AC	NT5D12AD	The DDP card has been advanced in vintage to incorporate signaling enhancements necessary to support operation in global markets
99070	Conference	MICB	NT5D51AA	NT5D51AB	The Vintage of the Meridian Integrated (MICB) has been advanced to AB to improve reliability.
99083	Conference	MIRAN	NTAG36AA	NTAG36AB	The vintage of MIRAN card has been advanced. This modification resolve a possible issue with slight background noise on the A1 cross-connect channel when the MIRAN C: drive is active. This problem only occurs on cross-connect channel A1.
99086	Option 51C, 61C,81, 81C	X11 Release 25 Call Processor Changes/Memory Requirements			
99090	Mmail Modular EC Option Systems	Meridian Mail Modular Option EC Backplane NT6P0102	NT6P0102 rel 4 & 5	NT6P0102 rel.6	NT6P0102 rel.4 & 5 assemblies manufactured between October 1st, 1998 and September 25th, 1999, may encounter system failure and become out-of-service after a few months of successful operation in the field.
99095 (see also 98093)	Fiber Remote	Fiber Remote Multi-IPE – New Backplane	A0759609 A0759612 A0759618 A0759620	A0773056 A0773059 A0773054 A0773055 rls 3 or greater if daisy-chaining more than 2 units together for XSM communication is required.	Fiber Remote Multi-IPE Interface unit (FRMII) was modified to provide greater power surge immunity.
99098	Option 11C	NT8D09BA MWLC – Application with Option 11E/C Expansion Cabinet	NT8D09BA prior to release 5	NT8D09BA rel.5	The NT8D09BA Message Waiting Line Card (MWLC) fails to initialize if the clock signals are not present at the time power is applied to the card. This only occurs when the NT8D09BA is equipped in the Expansion Cabinet of the Option 11E and 11C systems using fiber optic cable connectivity to the main cab.

Product Bulletin	Affected Product	Part Description	Defective Part #	Replacement Part #	Reason for Change
99100	Meridian 1	Call Processor Portfolio Change / Memory Upgrade Kit Introductions			
99125	Fiber	NT1P62 Fiber Controller: Vintage Update	NT1P62CA	NT1P62EA	The NT1P62 Fiber Peripheral Controller (FPEC) has been advanced in vintage to incorporate the firmware necessary to support the 24 port Digital Line Card (NTRD24).
99124	Meridian 1	NT5D12 DDP: Vintage Update	NT5D12AD	NT5D12AF	The NT5D12 Dual Port Digital Trunk/Primary Rate Interface (DDP) has been advanced in vintage to incorporate modification as necessary to permit card identification.
2000-004	Mmail	Meridian Mail enhanced Card Option and Option 11 Battery Back Up Interaction	NT6R16AA prior to rel.6	NT6R16AA rel.6	If a power failure occurs to an AC-powered Opt.11 PBX that is using a battery backup, the Enhanced Card Option processor board will cease to function. When AC power is restored, the Enhanced Card Option must be manually rebooted for normal operation to resume.
2000-006	Mini- Carrier Remote	Mini-Carrier Remote and Controller – Four	NT5D64CA, NT5D65CA Release 1, 2 or 3	NT5D64CA,NT5D65CA Release 4 & 5	The release level of two Mini-Carrier Remote (MCR) cards has been advanced to include modifications required to improve certain operational aspects of the design. These design modifications will correct occasional problems experienced enabling the MCR cards when used with the M1 Controller – Four card NT8D01BC Release 10.
2000-015	Meridian 1	X11 Release 25 Call Processor Changes / Memory Requirements			
2000-017	Option 11C	DO NOT USE Call Pilot Mgate Card NTRB18CA in SLOT 10 of a Meridian 1 Option 11C	NTRB18CA rel.3 or prior releases	NTRB18CA rel. 4	Option 11 Controller cards (NTDK20XX) and Option 11 Controller cards (NTDK20XX) and CallPilot Mgate cards (NTRB18CA) being damaged after the Mgate card is installed in slot 10 of a Meridian 1 Option 11. The controller card is damaged to the extent that the Option 11 stops call processing.

Product Bulletin	Affected Product	Part Description	Defective Part #	Replacement Part #	Reason for Change
2000-047	Meridian 1	Compatibility of NT5D12AA, AB, AE, AF DDP cards and X11 Rel.25 with Fiber Network Fabric (FNF)	Dual-port DTI/PRI (DDP) NT5D12AA, AB, AE & AF cards	NT5D12AC, AD or AG	Timing issue between the Fiber Network feature (FNF) and the dual port DTI/PRI (DPP) card when installed in the same Meridian 1 system. The problem severely impacts FNF feature operation and occurs on vintages AA, AB, AE and AF of the NT5D12 card. The problem has been corrected on Vintage AG of the NT5D12 card.
2000-071	Meridian 1	Compatibility of the Dual-port DTI/PRI (DDP2) NT5D97AA and X11 Rel.25 with Fiber Network Fabric (FNF)	Dual-port DTI/PRI (DDP2) NT5D97AA card	NT5D97AB	Timing issue between the Fiber Network feature (FNF) and the dual port DTI/PRI (DPP2) card when installed in the same Meridian 1 system. The problem severely impacts FNF feature operation. The problem has been corrected on Vintage AB of the NT5D97 card.
2000-075	Meridian 1	Multi-Frequency Receiver 911 PSAP Installations	NTAG26AA	NTAG26AB	A problem may occur with the NTAG26AA Multi-Frequency Receiver (XMFR) card in a 911 environment. 911 calls that terminate into a Meridian 1 system will intermittently hear a noise that lasts until ring-back tone is given. The noise is sometimes loud enough to cause the caller to hung-up and retry the call. Problem has been corrected on Vintage AB of the NTAG26 card.
2000-077	Meridian 1	Digital Line Card	NT8D02GA rel.4	NT8D02GA rel.4	A limited number of NT8D02GA, rel.4 cards built between Feb.22, 1999 and March 15, 1999 may have an operational problem. Affected cards are identified with a faceplate label indicating warranty start date 5/99 or 6/99.
2000-056	Meridian 1 11C Mini	Digital Line Card	NTDK95BA Cabinet Inter-connect Cables	NTDK95BB cables	Cables are unreliable as far as connection ability. Order kit number NTDK89AA, which contains the “BB” cables.
2000-092	Meridian 1	IODU/C Card	NT6D61AB rel 4 or 6	NT6D61AB rel 7,8, 10, 12, or 15	Some systems may experience a “lockup” or failure to communicate with the IODU/C card.
2000-093	Meridian 1	MICB II	prior to 2.09 firmware	2.09 firmware	Conferences drop. Reservations are lost.

Product Bulletin	Affected Product	Part Description	Defective Part #	Replacement Part #	Reason for Change
2001-004	Meridian 1	QSDI Paddleboard	NT8D41BA rel 1 to 5	NT8D41BA rel 6	Loss of data during large file/data transfers. Sites that may experience this condition may be locations with ACD MAX high-speed links or PMS links at hotels.
2001-009	Meridian 1	Clock Controller	QPC471H	NTRB53AA	Noise on Meridian Mail when loops providing service to different nodes are spread amongst different FNF network groups in the PBX. This occurs when Overlay 30 swaps clocks during midnight routines. New clock card is not available until 2nd quarter 2002. Use mplr15446 to allow ovly 30 to run in MIDN but not swap clocks.
2001-029	Meridian Mail EC	MMP040 Processor	NT6R15AA prior to release 3	NT6R15AA rel. 3	AML errors due to clocking issues with MM12.14, 13.11, and 13.12. New card improves ACCESS link capabilities to SCCS. Replace the MMP040 only in the node containing the ACCESS link.
2001-036	Special Cables	Meridian 1 Option 81CPP II	Cables needed for network modules in other rows		See Bulletin for CPP and for 81C Motorola.
2001-037 also 2003-088	Meridian 1	MSDL card NT6D80	All MSDL prior to AC vintage	Use “AC” vintage	Clocking issues when placed in network group 6. Re-locate it or use NT6D80AC
2001-072	Meridian CPP II	BUG2285			Insert PEP mplr15935
2001-078	Meridian Mail	Voice Processor 4 or 8	NT6P04AA or 08AA Rls 7 5/01 to 9/01		Noisy Channels. Replace with rls 8 cards.
2002-018 PAA-2003-1548 Rev2	Meridian 1	Message Waiting Line Card	NT8D09BA rls 6 and lower NT8D09BA rls 1 to 8	NT8D09BA rls 7 NT8D09BA rls 10	Noise on ports. Symptoms clear when card is reseated or powered down. Send cards in for retrofit to rls. 7 Noise on ports. Retrofit good until June 2005
2002-024	Meridian 1 CPP II	Memory upgrade	NT4N19AA	NT4N19AA	This memory upgrade kit is required for all CPP II systems wishing to upgrade to X11 25.40 running 6 or more network groups. Upg to 256MB
2002-025	SCCS 4.0 Client	Client Software	4.0 Client software for WIN2000 or NT 4.0	Use Pentium 3 systems	Client software installation will freeze on a P4 system. See workaround for Win2000 & NT 4.0 Clients only W95 & W98 not supported.
2002-020	Meridian 1 CPP	MMDU	NT4N43AA/BA	NT4N43CA- both sides must be “CA” vintage units !!!!	Drive failures- Replace only if a site has particular drive related issues only.
2002-1596	Meridian 1	Clock Controller	QPC471	NTRB53AA	Improved clock synchronization on FNF systems
Product Bulletin	**Affected Product**	**Part Description**	**Defective Part #**	**Replacement Part #**	**Reason for Change**

2002-1600	Meridian 1	ITG Trunk or Line	NT0961AA/0966AA NTVQ55AA/ZC80AA		Update firmware to v5.7 to fix a call swap issue.
2002-1658	Meridian 1	FIJI Card	NTRB33AA rls 11 or greater	NTRB33AC or AD	Updated firmware to work with NTRB53AA clock card.
NF08-2003	Meridian 1	M3904 & M3905	Firmware prior to 8.5	Install firmware 8.5	Need loadware PEP's mplr17093 to mplr17096 for M3904 and mplr17097 to mplr17100 for M3905 sets.
96063	Meridian Mail	MMP040 Processor for Mod. Option & EC	NT6P97AA-EC NT4R45AA-Mod Opt	NT6P97AA rls 13 or above NT4R45AA rls 10 or later	To fix parity error 17 during Boot ROM diagnostics
PAA2003-0321	Symposium	Server	Servers on 3.0 or above	MS03-026 MS03-039	Microsoft security fixes for RPC errors
PAA2003-0322	CallPilot	Server	Servers on 2.0 or 2.02	PEP's 47S and 48C	To fix backup and restore problems
Stop Ship	Remote Office for Meridian 1	NTDR76BB-9110 NTDR77BB-9115	A0505173 A0505174	Use latest units later than 1/20/04	Bad FET when loop current is up around 40ma
2003-340	Meridian Mail	NT6P97AA MMP040	NT6P97AA rls 18 & 19 Shipped 1/98 to 7/99	NT6P97AA rls 20 or 22	Intermittent reboots with "Unknown daughterboard interrupt"
PAA2003-0435	CallPilot 2.02 (2.01.27.05)	Servers		All installed servers	Install most current PEP's:
PAA 2004-0055	Meridian 1	MMDU	NT4N43CA rls 5	NT4N43CA rls 3 or 4	A release 25.40b disk dated before 12/19/2003 cannot be read by CD-ROM drive. The fix is to use a later CD-ROM
P-2004-	All Succession	Signaling Server	NTDU27AA	NTDU27AA w/512MB memory	If over 5,000 IP phones are used you must upgrade the memory to 512 MB using the NTDU80CA Upgrade Kit.
P-2004-0058 Rev 2	All Succession	Signaling Server	NTDU27AA	NTDU27AA w/ new loadware	Use loadware 2.11.03 for latest fixes
PAA-2004-224	Meridian 1	FIJI Card	NTRB33AD rls 7 NTRB33AD rls 8	NTRB33AD rls 9 NTRB33AD rls 10	Incorrect loadware installed at factory on rls 7 and 8.
PAA-2004-412	Meridian 1/Succession	RLC, 9110,9115, 9150	Firmware	Updated firmware	Memory leak on affected hardware. Upgrade to 1.5.2 firmware.
P-2005-0013	Succession/ M1	M3900 sets	Old set firmware	M3902- 8.4 M3903- 8.7 M3904/M3905- 8.9	New firmware updates
P-2005-0038	CallPilot 1002 trp rack servers	SCSI power cable	N0029330 on any system before 2/2005	New N0029330	Order new SCSI power cable by end of 9/2005. E-mail usenterp@nortel.com and enter PRF in the subject field to obtain a Part Request Form. (FR029367). If tech support is needed, call 1-800-466-7835 ERC 1143. Old cable has no over current protection.
P-2005-054	Succession	IP phone firmware		0604D88 firmware	IP enhancements
P-2005-0070	Succession	MIRAM III	3.0M	3.0P.03	To implement BUG fixes
P-2005-0098	Meridian 1/Succession	IP Trunk 3.01 ITG Trunk 2.1	3.01 or 2.1	3.01.60	To derive security enhancements
P-2005-0129	Meridian 1/Succession	Message Waiting Line Card	NT8D09BB or below	NT8D09CA	Electromagnetic coupling improvements/higher voice quality
P2005-0131	Meridian Option 61C/Succession 1000SG	Clock to clock cables	NT8D75	Use NT8D75DA on AC powered systems	Fixes clock switching problems