

Nortel CallPilot

1005r Server Maintenance and Diagnostics

NN44200-704

Document status: Standard
Document version: 01.09
Document date: 11 August 2009

Copyright © 2007-2009, Nortel Networks
All Rights Reserved.

Sourced in Canada

While the information in this document is believed to be accurate and reliable, except as otherwise expressly agreed to in writing NORTEL PROVIDES THIS DOCUMENT "AS IS" WITHOUT WARRANTY OR CONDITION OF ANY KIND, EITHER EXPRESS OR IMPLIED. The information and/or products described in this document are subject to change without notice.

Nortel, Nortel Networks, the Nortel logo, and the Globemark are trademarks of Nortel Networks.

All other trademarks are the property of their respective owners.

Trademarks

*Nortel, the Nortel logo, the Globemark, and Unified Networks, BNR, CallPilot, DMS, DMS-100, DMS-250, DMS-MTX, DMS-SCP, DPN, Dualmode, Helmsman, IVR, MAP, Meridian, Meridian 1, Meridian Link, Meridian Mail, Norstar, SL-1, SL-100, Succession, Supernode, Symposium, Telesis, and Unity are trademarks of Nortel Networks.

3COM is a trademark of 3Com Corporation.

ADOBE is a trademark of Adobe Systems Incorporated.

ATLAS is a trademark of Quantum Corporation.

BLACKBERRY is a trademark of Research in Motion Limited.

CRYSTAL REPORTS is a trademark of Seagate Software Inc.

EUDORA is a trademark of Qualcomm.

eTrust and InoculateIT are trademarks of Computer Associates Think Inc.

DIRECTX, EXCHANGE.NET, FRONTPAGE, INTERNET EXPLORER, LINKEXCHANGE, MICROSOFT, MICROSOFT EXCHANGE SERVER, MS-DOS, NETMEETING, OUTLOOK, POWERPOINT, VISUAL STUDIO, WINDOWS, WINDOWS MEDIA, and WINDOWS NT are trademarks of Microsoft Corporation.

GROUPWISE and NOVELL are trademarks of Novell Inc.

LOGITECH is a trademark of Logitech, Inc.

MCAFEE and NETSHIELD are trademarks of McAfee Associates, Inc.

MYLEX is a trademark of Mylex Corporation.

NETSCAPE COMMUNICATOR is a trademark of Netscape Communications Corporation.

NOTES is a trademark of Lotus Development Corporation.

NORTON ANTIVIRUS and PCANYWHERE are trademarks of Symantec Corporation.

QUICKTIME is a trademark of Apple Computer, In.

RADISYS is a trademark of Radisys Corporation.

SLR4, SLR5, and TANDBERG are trademarks of Tandberg Data ASA.

SYBASE is a trademark of Sybase, Inc.

TEAC is a trademark of TEAC Corporation

US ROBOTICS, the US ROBOTICS logo, and SPORTSTER are trademarks of US Robotics.

WINZIP is a trademark of Nico Mark Computing, Inc.

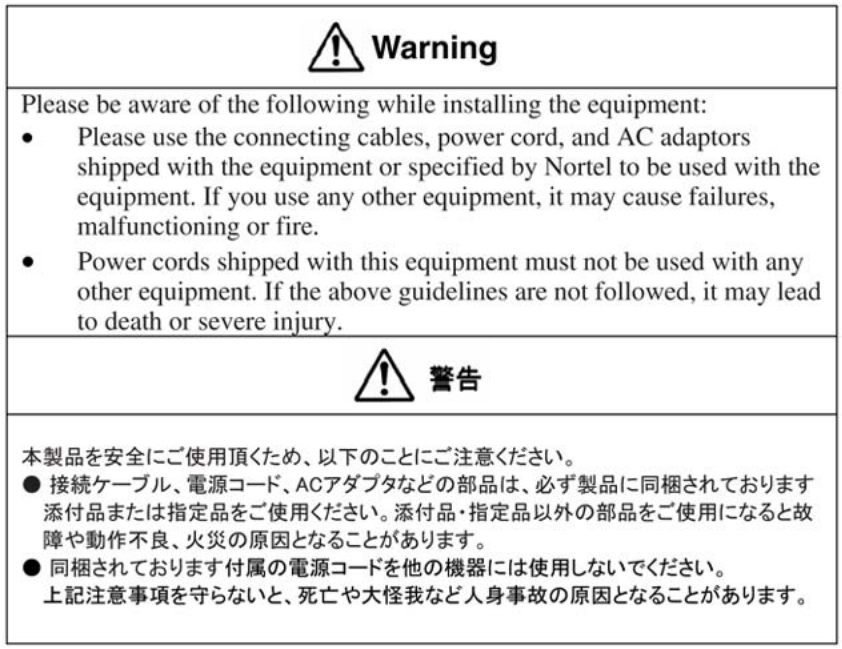
XEON is a trademark of Intel, Inc.

All other trademarks and registered trademarks are the property of their respective owners.

Information for Japan

Japan Denan statement

The following applies to server models 1005r, 600r, 703t, and 1002rp:



Warning

Please be aware of the following while installing the equipment:

- Please use the connecting cables, power cord, and AC adaptors shipped with the equipment or specified by Nortel to be used with the equipment. If you use any other equipment, it may cause failures, malfunctioning or fire.
- Power cords shipped with this equipment must not be used with any other equipment. If the above guidelines are not followed, it may lead to death or severe injury.

警告

本製品を安全にご使用頂くため、以下のことにご注意ください。

● 接続ケーブル、電源コード、ACアダプタなどの部品は、必ず製品に同梱されております添付品または指定品をご使用ください。添付品・指定品以外の部品をご使用になると故障や動作不良、火災の原因となることがあります。

● 同梱されております付属の電源コードを他の機器には使用しないでください。

上記注意事項を守らないと、死亡や大怪我など人身事故の原因となることがあります。

Japan VCCI statement

The following applies to server models 600r, 1005r,703t, 201i, and 1002rp:

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の規定に基づくクラス A 装置です。この装 置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を取るように要求されることがあります。

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective action.

Publication History

August 2009
CallPilot 5.0, Standard 01.09 of the*1005r Server Maintenance and Diagnostics* guide is updated to inform about tracking deleted read and unread messages in the Session Trace tool.

May 2009
CallPilot 5.0, Standard 01.08 of the*1005r Server Maintenance and Diagnostics* guide is updated to inform about the estimated time for the rebuild of the hard drive on the 1005r.

May 2008
CallPilot 5.0, Standard 01.07 of the *1005r Server Maintenance and Diagnostics* guide is updated with information about the NTRH40CA MPB96 board.

July 2007
CallPilot 5.0, Standard 01.06 of the *1005r Server Maintenance and Diagnostics* guide is updated as per CR - Q01665596-01.

April 2007
CallPilot 5.0, Standard 01.05 of the *1005r Server Maintenance and Diagnostics* guide is issued for general release.

April 2007
CallPilot 5.0, Standard 01.04 of the *1005r Server Maintenance and Diagnostics* guide is issued for general release.

April 2007
CallPilot 5.0, Standard 01.03 of the *1005r Server Maintenance and Diagnostics* guide is issued for general release. Changed the precaution note for replacement hard drive size.

March 2007
CallPilot 5.0, Standard 01.02 of the *1005r Server Maintenance and Diagnostics* guide is issued for general release.

Copyright © 2007-2009, Nortel Networks

March 2007

CallPilot 5.0, Standard 01.01 of the *1005r Server Maintenance and Diagnostics* guide is issued for general release.

Copyright © 2007-2009, Nortel Networks

Contents

Chapter 1 How to get help 9

Chapter 2 Outlining maintenance and diagnostics activities 11
1005r server features 11
Maintenance and diagnostics overview 13

Chapter 3 Troubleshooting your CallPilot system 17
Startup diagnostics overview 17
Basic hardware check 17
Power-On Self-Test diagnostics 19
Interpreting BIOS error messages 21
When a processor in the 1005r server is disabled 23
What to do when the server fails to boot into service 23
Interpreting hard drive LEDs 24
Performing a hardware shutdown 25

Chapter 4 Using Windows online diagnostic tools 27
Overview 27
Viewing event logs 27
Using TCP/IP diagnostic tools 31
Using the chkdsk utility 38

Chapter 5 Monitoring server hardware 41
ISM overview 41

Chapter 6 Monitoring multimedia hardware 43
Understanding fault management 43
Alarm Monitor 45
Event Browser 46
Channel and Multimedia Monitors 48
The Maintenance screen 48
Viewing component states 51
Starting and stopping components 53
Running integrated diagnostics 55
Viewing the last diagnostics result 58
Working with the Multimedia Monitor 59
Working with the Channel Monitor 60

Copyright © 2007-2009, Nortel Networks

Chapter 7 Using CallPilot system utilities 63
Overview 63
Diagnostics Tool 64
PEP Maintenance utility 65
Session Trace 66
CallPilot System Monitor 68

Chapter 8 Replacing basic chassis components 73
Removing and replacing the front bezel 73
Removing and replacing the server cover 75
Removing and replacing the processor air duct 76
Replacing the power supply 78
Replacing a hard drive 79
Replacing the four-fan assembly 82
Replacing the dual NIC card 84
Replacing the DVD combo drive 90
Replacing memory DIMMs 92
Replacing the software feature key 94

Chapter 9 RAID operations 97
Outlining RAID functions 97
Verifying the RAID firmware 98
Configuring RAID using LSI320-1 controller and Ctrl+M 100
Verifying consistency on the drives 103
RAID splitting 104
Replacing the RAID card 107

Chapter 10 Replacing or adding voice processing boards 115
M1/CS1000 switch connectivity 115
Locating the voice processing boards 116
DSP numbering and location 116
Replacing an MPB96 board 118
Upgrading to high capacity 127

Chapter 11 Maintaining the BIOS and system board firmware 135
Configuring the 1005r BIOS and firmware 135
BIOS settings 138
Using system event logs 141
Maintaining the onboard video and network cards 143

Copyright © 2007-2009, Nortel Networks

Chapter 1
How to get help

This chapter explains how to get help for Nortel products and services.

Getting Help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting Help over the phone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support Web site, and you have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the phone number for your region:

www.nortel.com/callus

Getting Help from a specialist by using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

Copyright © 2007-2009, Nortel Networks

www.nortel.com/erc

Getting Help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

Copyright © 2007-2009, Nortel Networks

Chapter 2
Outlining maintenance and diagnostics activities

In this chapter

"1005r server features" (page 11)

"Maintenance and diagnostics overview" (page 13)

1005r server features

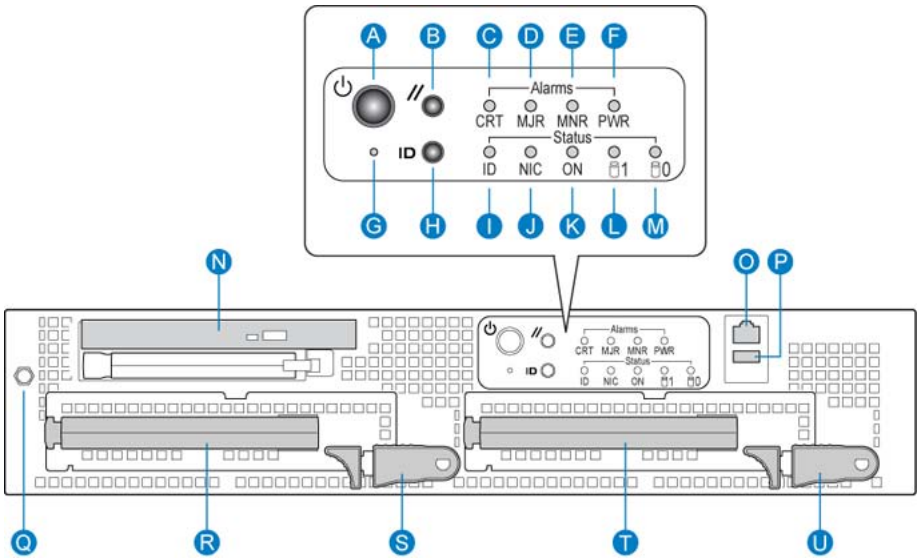
Note: To comply with the EU (European Union) RoHS directive, some of the part numbers now contain an E5 or E6 suffix. For example, part number NTRH2014 is now NTRH2014E6. The part numbers in this guide do not contain a suffix.

Front control panel and features

The following diagram shows the front view of the 1005r server chassis with the bezel cover removed. When the bezel cover is on, the DVD connections, controls, alarm LEDs, and status LEDs are visible. With the bezel cover removed, both hard drives, the peripheral DVD/CD/CDRW drive, the antistatic connection, and the front serial port are accessible.

Copyright © 2007-2009, Nortel Networks

Front panel controls



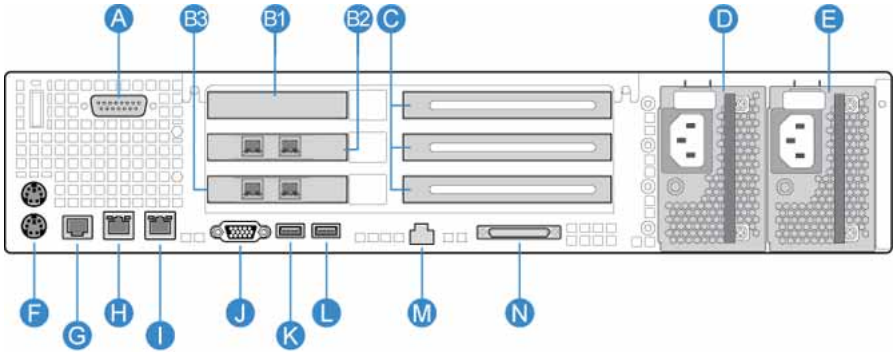
Label	Control or feature	Label	Control or feature
A	Power switch	L	HDD1 activity
B	Reset switch	M	HDD0 activity
C	Critical alarm LED	N	DVD/CD/CDRW LED and eject button
D	Major alarm LED	O	Front connection to comm 2 serial port
E	Minor alarm LED	P	USB 2
F	Power alarm LED	Q	Electrostatic discharge (ESD) connection
G	NMI switch (not used)	R	Hard drive 1 pull handle
H	ID switch	S	Hard drive 1 release lever
I	ID LED	T	Hard drive 0 pull handle
J	NIC activity LED	U	Hard drive 0 release lever
K	Status LED		

Back panel controls and features

The following diagram shows the back panel controls. The features on the right are the AC power supply banks. The PCI card brackets are in the middle of the back panel while the connectors and ports are along the bottom and left side.

Copyright © 2007-2009, Nortel Networks

Back panel controls and features



Label	Control or feature	Label	Control or feature
A	DB15 Telco alarm connector (not used)	G	Rear connection to comm 2 serial port
B1	RAID	H	RJ45 NIC 1 connector
B2	PCI card #2 dual NIC for High Availability (HA) configuration. For more information about HA, see *High Availability: Installation and Configuration* (NN44200-311).	I	RJ45 NIC 2 connector
B3	PCI card #3 dual NIC for HA configuration. For more information about HA, see *High Availability: Installation and Configuration* (NN44200-311).	J	Video connector
C	PCI full-size card brackets. Numbered (1, 2, 3) from top to bottom.	K	USB 1
D	Power supply 1	L	USB 0
E	Power supply 2	M	Server management LAN port
F	PS/2 mouse and keyboard connectors	N	External SCSI tape drive

Maintenance and diagnostics overview

The maintenance and diagnostic activities discussed in this guide are divided into two groups of activities:

- troubleshooting and diagnostics (identifying the cause of system problems and resolving them)
- performing hardware maintenance

Copyright © 2007-2009, Nortel Networks

This guide is for administrators, technicians, and engineers responsible for maintaining a CallPilot server. This guide assumes that you have basic computing skills and are familiar with the necessary safety procedures.

If you cannot resolve your system problems with the resources described in this guide, you can also refer to the *Troubleshooting Reference Guide* (NN44200-700).

> ***Note:*** Nortel continually updates the *Troubleshooting Guide*. It is available from the Partner Information Center (PIC) at www.nortel.com/pic.

For information about restarting, shutting down, and powering up the CallPilot server, see the *Installation and Configuration Task List* (NN44200-306). You can be asked to perform one or more of these tasks while maintaining your server.

Your CallPilot server comes preinstalled with the Windows operating system and CallPilot server software. If your CallPilot server no longer functions because of a software problem, you may need to reinstall the CallPilot software or rebuild the system.

> ***Note:*** If you load the firmware on the server, both power supplies and hard drives must be connected and the hard drives must be online. If a failure occurs on any of these components it is not reported by the server LEDs or by ISM.

Replacement parts

Before replacing any parts on your server, refer to the Nortel product catalog for the part codes.



CAUTION
Risk of system damage
The use of parts that are not supplied by Nortel can cause serious system problems or void your Nortel warranty.

Preparing for maintenance activities

Before you proceed with hardware maintenance activities, review the *1005r Server Hardware Installation* (NN44200-308) guide for the following information:

- required tools and equipment
- recommended safety precautions for electrostatic discharge, handling cards, and handling your server

Copyright © 2007-2009, Nortel Networks

Reference documents

NORTEL

CallPilot Customer Documentation Map

- **Fundamentals**
  - CallPilot Fundamentals Guide (NN44200-100)
- **Planning and Engineering**
  - Planning and Engineering Guide (NN44200-200)
  - Network Planning Guide (NN44200-201)
  - Converging the Data Network with VoIP Guide (NN43001-260)
  - Solution Integration Guide for Communication Server 1000/CallPilot/Contact Center/Telephony Manager (NN49000-300)*
- **Installation and Configuration**
  - Upgrade and Platform Migration Guide (NN44200-400)
  - High Availability: Installation and Configuration (NN44200-311)
  - Installation and Configuration Task List Guide (NN44200-306)
  - **Server Installation Guides**
    - 201i Server Hardware Installation Guide (NN44200-301)
    - 703t Server Hardware Installation Guide (NN44200-304)
    - 1002rp Server Hardware Installation Guide (NN44200-300)
    - 1005r Server Hardware Installation Guide (NN44200-308)
    - 600r Server Hardware Installation Guide (NN44200-307)
  - **Configuration and Testing Guides**
    - Meridian 1 and CallPilot Server Configuration Guide (NN44200-302)
    - T1/SMDI and CallPilot Server Configuration Guide (NN44200-303)
    - Communication Server 1000 System and CallPilot Server Configuration Guide (NN44200-312)
  - **Unified Messaging Software Installation**
    - Desktop Messaging and My CallPilot Installation and Administration Guide (NN44200-305)
- **Administration**
  - Administrator Guide (NN44200-601)
  - Software Administration and Maintenance Guide (NN44200-600)
  - Meridian Mail to CallPilot Migration Utility Guide (NN44200-502)
  - Application Builder Guide (NN44200-102)
  - Reporter Guide (NN44200-603)
- **Maintenance**
  - CallPilot Troubleshooting Reference Guide (NN44200-700)
  - Preventative Maintenance Guide (NN44200-505)
  - **Server Maintenance and Diagnostics**
    - 201i Server Maintenance and Diagnostics Guide (NN44200-705)
    - 703t Server Maintenance and Diagnostics Guide (NN44200-702)
    - 1002rp Server Maintenance and Diagnostics Guide (NN44200-701)
    - 1005r Server Maintenance and Diagnostics Guide (NN44200-704)
    - 600r Server Maintenance and Diagnostics Guide (NN44200-703)
    - Contact Center Manager Communication Server 1000/Meridian 1 & Voice Processing Guide (297-2183-931)*
- **End User Information**

End User Cards

Unified Messaging Quick Reference Card
Unified Messaging Wallet Card
A-Style Command Comparison Card
S-Style Command Comparison Card
Menu Interface Quick Reference Card
Alternate Command Interface Quick Reference Card

End User Guides

Multimedia Messaging User Guide
Speech Activated Messaging User Guide
Desktop Messaging User Guide for Microsoft Outlook
Desktop Messaging User Guide for Lotus Notes
Desktop Messaging User Guide for Novell Groupwise
Desktop Messaging User Guide for Internet Clients
Desktop Messaging User Guide for My CallPilot
Voice Forms Transcriber User Guide

**available in summer 2007*

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Chapter 3
Troubleshooting your CallPilot system

In this chapter

"Startup diagnostics overview" (page 17)

"Basic hardware check" (page 17)

"Power-On Self-Test diagnostics" (page 19)

"Interpreting BIOS error messages" (page 21)

"What to do when the server fails to boot into service" (page 23)

"Interpreting hard drive LEDs" (page 24)

"Performing a hardware shutdown" (page 25)

Startup diagnostics overview

This section contains procedures for interpreting the startup diagnostics on the 1005r server.

Types of startup diagnostics

The following types of startup diagnostics are available on the server:

- basic hardware check (front panel LEDs)
- Power-On Self-Test (POST) diagnostics
- SCSI hard drive controller diagnostics or RAID controller diagnostics

These diagnostics are available at initial system startup or after any 1005r server reset.

Basic hardware check

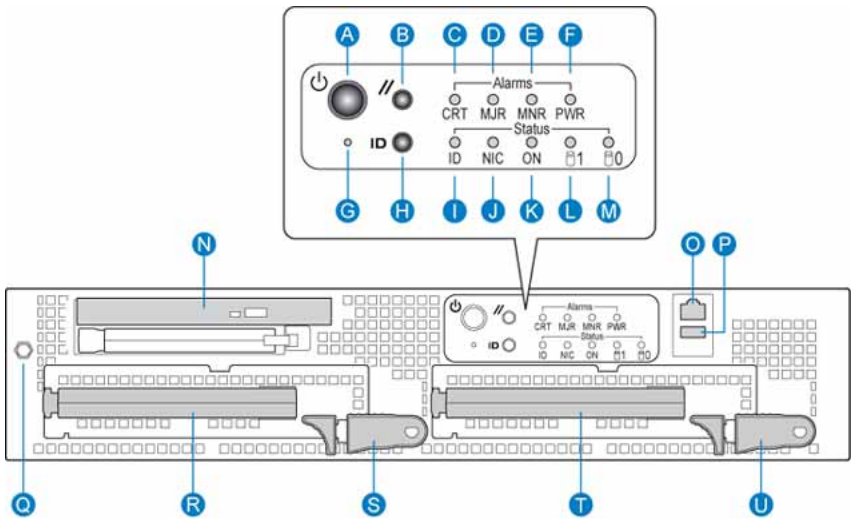
This section describes some basic checks that you can do when you start up the server.

Copyright © 2007-2009, Nortel Networks

To run the startup test

Step	Action
1	Ensure the system is powered down and the AC cords are disconnected. Wait 5 seconds before applying power again.
2	Apply AC power to the server by plugging in the first AC cord then the second AC cord. Observe the front panel display.

1005r front panel.



Result: All the alarm LEDs on the front panel illuminate for a fraction of a second.

Note 1: The back panel LEDs on each power supply start blinking green when AC power is applied and turn solid green after a few seconds. When AC power is removed from one power supply, the LED turn amber. If there is a hardware problem with the supply or it is not functioning properly, the power supply LED is red.

Note 2: Refer to "Front control panel and features" (page 11) for details of the front panel.

3	Check that all the alarm LEDs (C to F) are illuminated amber for a few seconds. If not, refer to the following table for functional descriptions of fault LEDs.

Copyright © 2007-2009, Nortel Networks

Alarm fault LEDs

LED	Functional description
CRT	A critical system fault is an error or event with a fatal system impact. The system cannot continue to operate.
MJR	A major system fault is an error or event with a discernible impact on system operation. The system can continue to operate but with reduced performance or features.
MNR	A minor system fault is an error or event with little impact on system operation. The system continues to operate.
PWR	A power supply fault indicates that one of the power supplies is not providing power. The MJR LED is also lit.

4 Boot the server by pressing the power button on the front of the CallPilot 1005r server.

5 Observe the following server actions:

- The hard drives (R and T) spin up, and the amber hard drive activity LEDs on the front panel display (HDD0 and HDD1) extinguish, and then flash with activity.
- The DVD combo LED illuminates temporarily as the system checks the DVD combo drive (N).

6 Check the monitor for any error messages as the server counts RAM and completes a POST.

For more information about POST, see "Power-On Self-Test diagnostics" (page 19).

—End—

Power-On Self-Test diagnostics

The Power-On Self-Test (POST) is a system diagnostic program (stored in the BIOS (Basic Input/Output)) that runs each time the 1005r server starts. The function of the POST is to test system components and display status messages.

To run the POST

Step	Action
1	Power up the CallPilot server and monitor. **Result:** After a few seconds, the POST begins to run.

Copyright © 2007-2009, Nortel Networks

After the memory test, various screen prompts and messages appear. The screen prompts can be accompanied by a single beep.

2 Observe the screen for any error messages and listen for POST beep codes. When the POST is complete, the server beeps once.

If the server halts before the POST is finished, the server emits a beep code indicating that a fatal system error requires immediate attention. For more information, see "Interpreting POST diagnostics" (page 20).

If the POST can display a message on the monitor, the server emits two beeps as the message appears.

Record the message that appears on the monitor and the beep code that you hear. This information is useful if you need assistance from your technical support representative.

—End—

Interpreting POST diagnostics

This section provides an explanation of the POST diagnostic codes.

POST beep codes

If an error occurs before video initialization, the POST emits beep codes that indicate errors in hardware, software, or firmware.

A beep code is a series of separate tones, each equal in length.

ATTENTION

If your system emits POST beep codes, record the beep code sequence and then call Nortel technical support before attempting to correct the problem. Ensure you have the required system information. Some POST beep codes are fatal and can require that you replace the server.

POST beep codes

Beep count	Description
1, 2, or 3	Memory error.
4 – 7 or 9 – 11	A fatal error indicates a possible serious system problem occurred.
8	A problem with the onboard video card occurred indicating a fault on the server board.

Copyright © 2007-2009, Nortel Networks

Interpreting BIOS error messages

When a recoverable error occurs during the POST, an error message appears describing the problem.

ATTENTION

If BIOS error messages appear, record the error messages and then call Nortel technical support before attempting to correct the problem.

BIOS error messages

BIOS error messages appear on the video monitor. Refer to the following table for a description of the messages.

BIOS error messages

Error message	Description
GA20 Error	An error occurred with Gate A20 when switching to protected mode during the memory test.
Pri Master HDD Error Pri Slave HDD Error Sec Master HDD Error Sec Slave HDD Error	Could not read sector from corresponding drive.
ATAPI Incompatible Drive • Pri Master Drive • Pri Slave Drive • Sec Master Drive • Sec Slave Drive	The corresponding drive is not an ATAPI (Advanced Technology Attachment Packet Interface) device. Run Setup to make sure the device is selected correctly.
A: Drive Error	No response from the disk drive.
CMOS Battery Low	The battery is losing power. Replace the battery soon.
CMOS Display Type Wrong	The display type is different from that stored in CMOS. Check Setup to make sure the type is correct
CMOS Checksum Bad	The CMOS checksum is incorrect. CMOS memory can be corrupted. Run Setup to reset the values.

Copyright © 2007-2009, Nortel Networks

Error message	Description
CMOS Settings Wrong	The CMOS values are not the same as the last boot. Either these values are corrupted or the battery failed.
CMOS Date/Time Not Set	The time or date values stored in CMOS are invalid. Run Setup to set the correct values.
DMA Error	An error occurred during the read/write test of the DMA (Direct Memory Access) controller.
FDC Failure	An FDC Failure error occurred while trying to access the diskette drive controller.
HDC Failure	An error occurred trying to access the hard disk controller.
Checking NVRAM....	The NVRAM (Non-Volatile Random Access Memory) is being checked to see if it is valid.
Update OK!	The NVRAM is invalid and has been updated.
Updated Failed	The NVRAM is invalid and cannot be updated.
Keyboard Error	An error in the keyboard connection. Make sure the keyboard is connected properly.
KB/Interface Error	The keyboard interface test failed.
Memory Size Decreased	The memory size has decreased since the last boot. If you have not removed any memory, then the memory can be faulty.
Memory Size Increased	The memory size has increased since the last boot. If you have not added any memory, there is a problem with the system.
Memory Size Changed	The memory size has changed since the last boot. If you did not add or remove any memory, then the memory can be faulty.
No Boot Device Available.	The system did not find a device to boot from.
Off Board Parity Error	A parity error occurred on an offboard card. This error is followed by the card address.

Copyright © 2007-2009, Nortel Networks

Error message	Description
On Board Parity Error	A parity error occurred in onboard memory. This error is followed by the card address.
Parity Error	A parity error occurred in onboard memory at an unknown address.
NVRAM / CMOS / PASSWORD cleared by Jumper	NVRAM, CMOS, and passwords have been cleared. Power the system down and remove the jumper.
<CTRL_N> Pressed	The CMOS is ignored and NVRAM is cleared. You must enter Setup.

When a processor in the 1005r server is disabled

In some cases, where the server is recovering from the system error, you may see two red lines appearing at the bottom of the screen.

To clear system error message from the log

Step	Action
1	Reboot the system.
2	Press **F2** so that the system boots into the BIOS.
3	Set Re-test to **Enabled** in the BIOS under **Advanced Processor Configuration > Processor.**
4	Exit BIOS and power down.
5	Disconnect both power cords for about 1 minute to allow complete reset of the firmware module.
6	Re-connect the power cords.
7	Power on the system.
8	Boot into service.

—End—

What to do when the server fails to boot into service

This section suggests tasks you can perform to determine why the server fails the bootup cycle.

Copyright © 2007-2009, Nortel Networks

To determine why the server fails to boot to Windows

Step	Action
	If CallPilot fails to boot to Windows, follow these steps:
1	Make a note of any diagnostic codes.
2	Press the power switch to restart the server.
3	View the diagnostic codes for failures during the boot sequence.
4	Retrieve the system event log. Refer to "To save system event logs to a USB media drive" (page 142).
5	Refer to the *Troubleshooting Guide* (NN44200-700) for other suggestions. If you still cannot determine the cause of the startup failure, call your Nortel technical support representative.

—End—

To determine why CallPilot fails to come into service

Step	Action
	If CallPilot fails to come into service, follow these steps:
1	Make a note of any diagnostic codes.
2	Press the power switch to restart the server.
3	View the diagnostic codes for failures during the boot sequence.
4	View the event logs. For instructions, see "Viewing event logs" (page 27).
5	Refer to the *Troubleshooting Guide* (NN44200-700) for other suggestions. If you still cannot determine the cause of the startup failure, call your Nortel technical support representative.

—End—

Interpreting hard drive LEDs

Refer to L and M in "1005r front panel." (page 18) for the location of the hard drive LEDs for drive 0 and drive 1.

LED color	Hard drive status
Green/blinking green	Normal

Copyright © 2007-2009, Nortel Networks

LED color	Hard drive status
Amber	Critical but recoverable condition. Often during a controlled condition such as a RAID split.
Red	Failure. This LED color is a major event, and the server must be attended to immediately.

Performing a hardware shutdown

If you cannot shut the server down using Windows, press the power switch on the front panel and hold it in for more than 1 second. The server saves all system data and then powers off.

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Chapter 4
Using Windows online diagnostic tools

In this chapter

"Overview" (page 27)

"Viewing event logs" (page 27)

"Using TCP/IP diagnostic tools" (page 31)

"Using the chkdsk utility" (page 38)

Overview

This section describes how to access the run-time online diagnostic tools provided by the Windows server software. Use the following tools when a serious problem prevents the use of the CallPilot diagnostic tools that are available in CallPilot Manager:

- Windows Event Viewer
- TCP/IP diagnostics
- chkdsk utility



CAUTION
Risk of software corruption
Do not run any utilities that are not documented in this guide.

Viewing event logs

If one or more messages appear on the monitor during the server startup cycle, use the following diagnostic tools to determine what event or fault occurred.

- Hardware system event log
- Windows Event Viewer on the 1005r server

Copyright © 2007-2009, Nortel Networks

- CallPilot Event Browser or Alarm Monitor in CallPilot Manager

  Note: The Event Browser and Alarm Monitor include online Help for events to help you resolve the problem. If you cannot log on to the CallPilot system using a Web browser due to server problems, then use the Windows Event Viewer.

You can view the Hardware system event log from ISM, or by booting from the CallPilot image DVD and selecting the system event log from the menu.

If the server does not boot up, use the Nortel CallPilot Image Utilities on the DVD to view system event logs. Refer to "Using system event logs" (page 141).

Types of Windows event logs

Three types of event logs are available from the Windows Event Viewer, as follows:

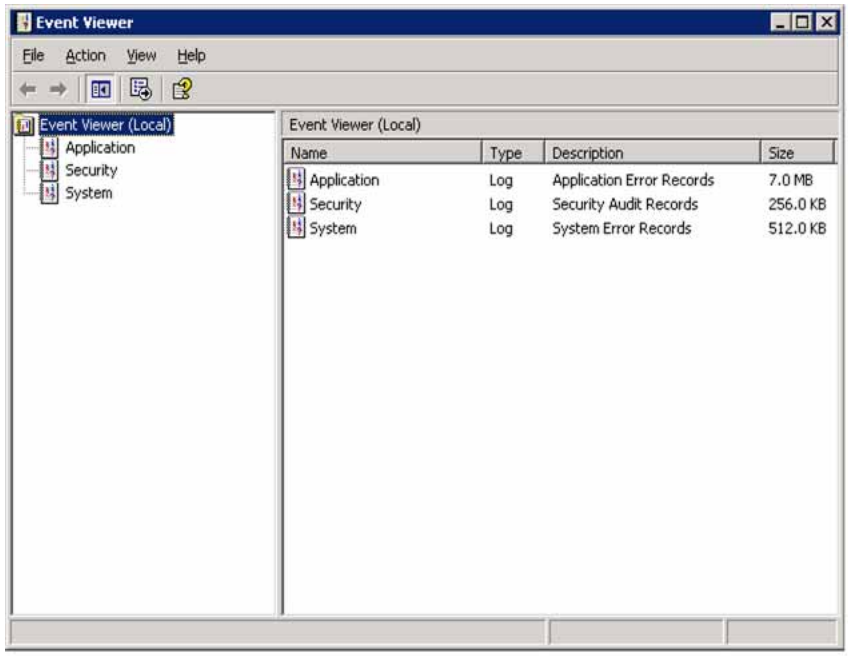
Log type	Description
System	Logs events by Windows components, including RRAS or other Windows services.
Security	Logs security events, such as logons, logoffs, and illegal access. This option is available to users with Administrative access.
Application	Logs events by application, such as database file errors.

To use the operating system Event Viewer

Step	Action
1	Click **Start > Programs > Administrative Tools > Event Viewer**. **Result:** The Event Viewer window appears.

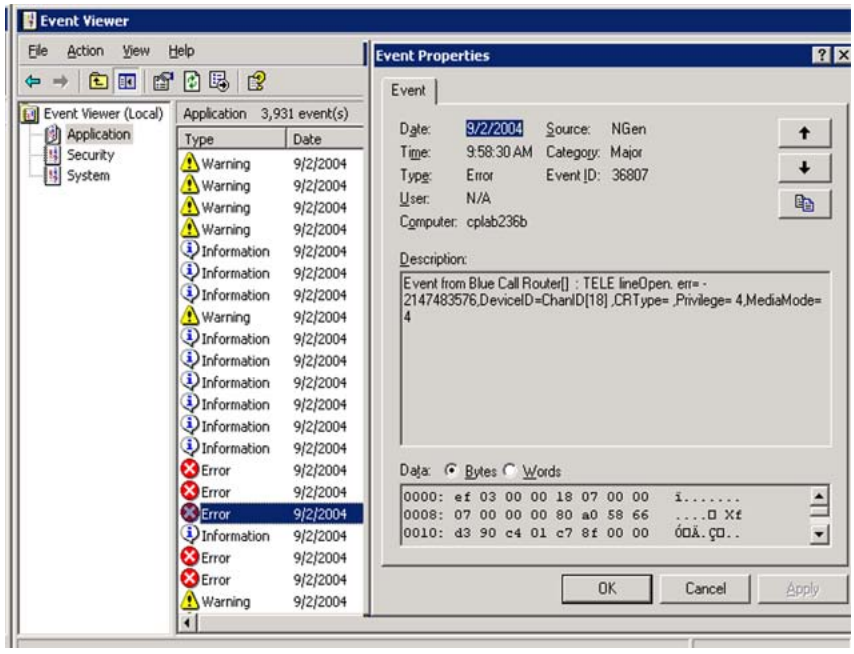
Copyright © 2007-2009, Nortel Networks

Event Viewer



2 To view a log, click the name of the log in the left pane of the window. The following illustration shows an example of the Application log.

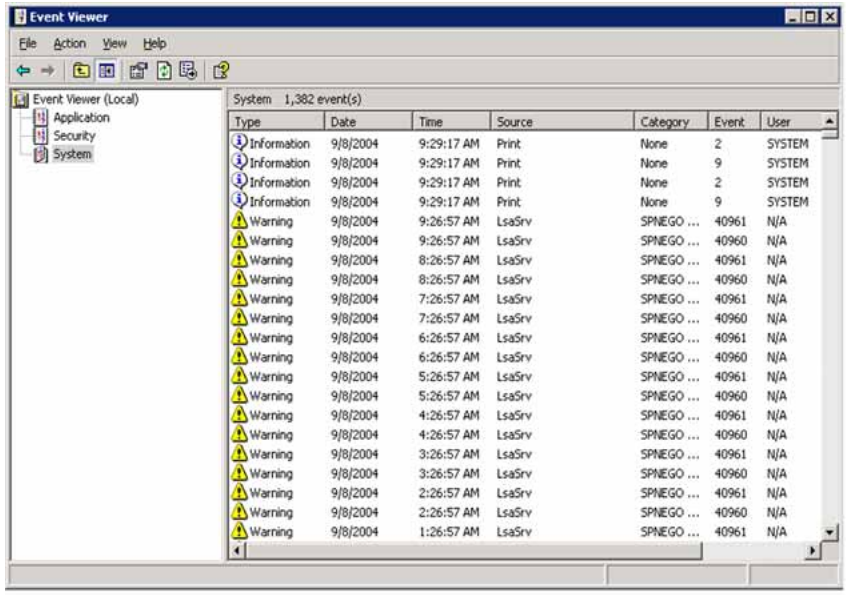
Application log



Copyright © 2007-2009, Nortel Networks

The following illustration shows an example of the System log.

System log



Note: The Security log, which is available to administrators, is not shown.

3 Look for error codes flagged with or that have occurred since the last startup.





Note: Each error is date- and time-stamped. indicates major or critical errors. indicates minor errors, and indicates information.

 Major or critical errors

 Minor errors

Copyright © 2007-2009, Nortel Networks



4 Double-click an error to determine the cause of the error.

Result: An Event Properties dialog box appears detailing the description of the error. Use the description to help determine how to resolve errors.

Note: If the error persists or the error description does not suggest a solution, contact your Nortel support representative.

5 Click **OK**.

Result: The Event Properties dialog box disappears.

6 Click **File > Exit**.

Result: The Event Viewer closes.

—End—

Using TCP/IP diagnostic tools

This section describes the following TCP/IP diagnostic tools that are available for the network adapter:

- ipconfig
- ping
- tracert
- arp
- nbtstat
- netstat

These utilities help you to verify network connectivity, test the network interface, and isolate any configuration problems.

The ipconfig command

The ipconfig command displays IP configuration information.

ipconfig default

If you run the command without flags, it displays the IP address, subnet mask, and default gateway for each adapter bound to TCP/IP.

Copyright © 2007-2009, Nortel Networks

ipconfig command syntax

The ipconfig command uses the following syntax:

```
ipconfig /[ ]
```

The following flags are available for the ipconfig command.

ipconfig command extensions

Flag	Description
/?	Displays Help information.
/all	Displays full configuration information.
/release	Releases the IP address for the specified adapter.
/renew	Renews the IP address for the specified adapter.

To run the ipconfig command from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type **`ipconfig <parameters>`**. **Example:** ipconfig /all
3	Press Enter. **Result:** The system runs the ipconfig utility.
4	Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

The ping command

The ping command sends an echo request to a specified host. Use this command to verify network connectivity to the remote device.

Ping command syntax

The ping command uses the following syntax:

```
ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL]
     [-v TOS] [-r count] [-s count]
     [[-j host-list] | [-k host-list]]
     [-w timeout] destination-list
```


Copyright © 2007-2009, Nortel Networks

ping command extensions

Parameter	Description
-t	Pings the specified host until interrupted.
-a	Resolves addresses to host names.
-n count	Specifies the number of echo requests to send.
-l size	Sends buffer size.
-f	Sets Don't Fragment flag in packet.
-i TTL	Specifies the Time To Live.
-v TOS	Specifies the Type Of Service.
-r count	Specifies the number of Record route for count hops.
-s count	Specifies the number of Time stamp for count hops.
-j host-list	Specifies the Loose source route along host list.
-k host-list	Specifies the Strict source route along host list.
-w timeout	Specifies the Timeout in milliseconds to wait for each reply.

To run the ping command from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type **`ping <destination IP address>`** (for example, ping 200.286.32.0) or **`ping <computer name>`**.
3	Press Enter. **Result:** The system displays the ping results.
4	Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

The tracert command

This utility determines the route taken to a destination.

How tracert works

The tracert utility follows several steps to complete its task:

- Tracert sends Internet Control Message Protocol (ICMP) echo packets with varying Time-To-Live (TTL) values to the destination.

Copyright © 2007-2009, Nortel Networks

- Each router along the path must decrement the TTL on a packet by at least 1 before forwarding it, so the TTL is effectively a hop count.
- When the TTL on a packet reaches 0, the router sends back an ICMP Time Exceeded message to the source system.
- Tracert determines the route by sending the first echo packet with a TTL of 1, and incrementing the TTL by 1 each subsequent transmission until the target responds or the maximum TTL is reached.
- Tracert then examines the ICMP Time Exceeded messages sent back by intermediate routers.

Tracert syntax

The tracert command uses the following syntax:

```
tracert [-d] [-h maximum_hops] [-j host_list]
        [-w timeout] [target_name]
```

Tracert parameters

The following table shows the tracert parameters.

Tracert parameters

Parameter	Description
-d	Specifies not to resolve addresses to host names.
-h maximum_hops	Specifies the maximum number of hops to search for the target.
-j host-list	Specifies a loose source route along the host list.
-w timeout	Waits the number of milliseconds specified by the timeout for each reply.
target_name	Specifies the name of the target host.

To run the tracert command from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type the following command: `tracert [-d] [-h maximum_hops] [-j host_list] [-w timeout] [target_name]` **Example:** tracert 200.286.0.32
3	Press Enter.

Copyright © 2007-2009, Nortel Networks

Result: The system runs the tracert utility.

4 Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

The arp command

The arp command displays and modifies the IP-to-physical address translation tables used by Address Resolution Protocol (ARP).

ARP command syntax

The ARP command uses the following syntax:

```
arp -s inet_addr eth_addr [if_addr]
arp -d inet_addr [if_addr]
arp -a [inet_addr] [-N if_addr]
```

ARP command parameters

ARP command parameters

Parameter	Description
-a	Displays current arp entries by interrogating the current protocol data. If inet_addr is specified, the IP and physical addresses for the specified computer appear. If more than one network interface uses arp, entries for each arp table appear.
-g	Same as -a.
inet_addr	Specifies an Internet address.
if_addr	Specifies the Internet address of the interface where the address translation table can be modified. If not present, the first applicable interface is used.
eth_addr	Specifies a physical address.
-N if_addr	Displays the arp entries for the network interface specified by if_addr.
-d	Deletes the host specified by inet_addr.
-s	Adds the host and associates the Internet address inet_addr with the physical address eth_addr. The physical address is given as six hexadecimal bytes separated by hyphens. The entry is permanent.

Copyright © 2007-2009, Nortel Networks

To run the arp command from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type **`arp`** with the required parameters (for example, arp -g 200.286.0.32).
3	Press Enter. **Result:** The system runs the arp command.
4	Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

The nbtstat command

The nbtstat command displays protocol statistics and current TCP/IP connections using NBT.

Nbtstat command syntax

The nbtstat command uses the following syntax:

```
nbtstat [-a remotename] [-A IP address] [-c] [-n]
        [-R] [-r] [-S] [-s] [interval]
```

nbstat command parameters

nbstat command parameters

Parameter	Description
-a remotename	Lists the remote computer name table using its name.
-A IP address	Lists the remote computer name table using its IP address.
-c	Lists the contents of the NetBIOS name cache giving the IP address of each name.
-n	Lists local NetBIOS names. Registered indicates that the name is registered by broadcast (Bnode) or WINS (other node types).
-R	Reloads the LMHOSTS file after purging all names from the NetBIOS name cache.

Copyright © 2007-2009, Nortel Networks

Parameter	Description
-r	Lists name resolution statistics for Windows networking name resolution Windows computer configured to use WINS, this option returns the number of names resolved and registered through broadcast or through WINS.
-S	Displays both client and server sessions, and lists the remote hosts by IP address.
-s	Displays both client and server sessions and attempts to convert the remote host IP address to a name using the HOSTS file.
interval	Displays selected statistics, pausing interval seconds between each display. Press Ctrl+C to stop displaying statistics. Without this parameter, nbtstat prints the current configuration information once.

To run the nbtstat command from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type **`nbtstat`** with the required parameters.
3	Press Enter. **Result:** The system runs the nbtstat utility.
4	Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

The netstat command

The netstat command displays current TCP/IP network connections and protocol statistics.

Netstat command syntax

The netstat command uses the following syntax:

```
netstat [-a] [-e] [-n] [-s] [-p proto] [-r] [interval]
```


Copyright © 2007-2009, Nortel Networks

netstat command parameters

netstat command parameters

Parameter	Description
-a	Displays all connections and listening ports.
-e	Displays Ethernet statistics. This can be combined with the -s option.
-n	Displays addresses and port numbers in numeric form.
-s	Displays statistics for each protocol.
-p proto	Shows connections for the protocol specified by proto. Proto can be tcp or udp. If used with the -s option, proto can be tcp, udp, or ip.
-r	Displays the contents of the routing table.
interval	Re-displays selected statistics, pausing between each display. Press Ctrl+C to stop re-displaying.

To run the netstat command from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type **`netstat`** with the required parameters.
3	Press Enter. **Result:** The system runs the netstat utility.
4	Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

Using the chkdsk utility

The chkdsk utility checks a specified disk on the server and displays a status report. You can run the utility on drives C, D, E, or F. It is an online utility, but it reduces system performance while it runs.

The chkdsk utility checks for errors at the Windows file system level. CallPilot can be affected by errors at both the Windows and CallPilot file system levels. The chkdsk utility does not detect CallPilot file system level errors.

Copyright © 2007-2009, Nortel Networks

Note: A version of this utility, called autocheck, automatically runs during Windows startup. Output from this utility appears on the blue startup screen.

Chkdsk utility syntax

The chkdsk utility uses the following syntax:

```
chkdsk [drive:][path]filename] [/F] [/V] [/R]
```

Chksdsk utility parameters

Chksdsk utility parameters

Parameter	Description
drive:	Drive letter of the drive that you want to check.
filename	Names of files to check for fragmentation.
/F	Optional parameter to fix errors on the disk.
/V	Optional parameter to display the full pathname of every file on the disk.
/R	Optional parameter to locate bad sectors and to recover readable information.

To run the chkdsk utility from Windows

Step	Action
1	Click **Start > Programs > Accessories > Command Prompt**. **Result:** The Command Prompt dialog box appears.
2	Type **`chkdsk <drive letter:>`** (for example, chkdsk c:).
3	Press Enter. **Result:** The system runs the chkdsk utility.
4	Type **`Exit`** to exit the Command Prompt dialog box and return to Windows.

—End—

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Chapter 5
Monitoring server hardware

In this chapter

"ISM overview" (page 41)

ISM overview

Intel Server Manager (ISM) is a server management tool installed on your 1005r server. Use ISM to monitor hardware health and server performance. Set up the following types of tasks using ISM:

- Monitor the hardware sensors on the managed server.
- Monitor the performance of the server using data collected from the operating system.
- Receive alert messages when the sensor values are out of range, or when a performance threshold is reached.

Refer to the Help files in the ISM screen for more information.

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Chapter 6
Monitoring multimedia hardware

In this chapter

"Understanding fault management" (page 43)

"Alarm Monitor" (page 45)

"Event Browser" (page 46)

"Channel and Multimedia Monitors" (page 48)

"The Maintenance screen" (page 48)

"Viewing component states" (page 51)

"Starting and stopping components" (page 53)

"Running integrated diagnostics" (page 55)

"Viewing the last diagnostics result" (page 58)

"Working with the Multimedia Monitor" (page 59)

"Working with the Channel Monitor" (page 60)

Understanding fault management

Fault management is a subsystem within CallPilot that detects and notifies you of potential or real hardware problems with the multimedia hardware. CallPilot monitors events in the multimedia hardware and raises an alarm when a fault occurs.

Event processing

An event is any change in system configuration or operational state. An event is also any action taken by the system that requires user notification such as a faulty MPB96 board switching to disabled status.

Copyright © 2007-2009, Nortel Networks

All events are reported to the fault management server. The fault management server lets the CallPilot server listen and respond to its clients. The interaction is called event processing and the server detects hardware faults in the multimedia hardware.

Alarm notification

Alarms are warnings generated by events. Alarms communicate the same information as events. However, alarms are reported in the Alarm Monitor instead of the Event Browser and are managed differently than events.

When an alarm appears in the Alarm Monitor, you must investigate the problem, isolate it, and then fix the cause of the problem. When you fix the problem, the alarm is cleared from the Alarm Monitor.

Component dependencies

The status of some components is dependent on the operational status of other components. If a component fails or is stopped, the dependent components go out of service.

Note: The components in your system are based on your CallPilot server type and switch type. Disregard dependencies for components not in your system.

Component	Dependent components
Media bus	All MPBs, all multimedia channels, and all call channels.
MPB board	All multimedia and call channels associated with the MPB board.
Time switch	All multimedia and call channels associated with the same MPB as the time switch.
MPB96	All multimedia channels on the MPB96 board.
DS30X or DS30	All DS30X or DS30 channels associated with the DS30X or DS30 link. (depending on MPB96 board version)

Detecting hardware problems

Typically, you first become aware of a hardware problem when an alarm is raised. All hardware faults produce an alarm (or series of alarms, depending on the problem) in the Alarm Monitor.

Other indications of a hardware problem include the following:

- user complaints
- call processing difficulties, such as busy signals, static, dropped calls, connection problems, and cross talk (hearing other conversations)
- system administrator logon difficulties

Copyright © 2007-2009, Nortel Networks

- alert icons on the Maintenance screen

Alarm Monitor

Use the Alarm Monitor to investigate one or more raised alarms.

About alarms

Alarms are warnings generated by events. Alarms communicate the same information as events. However, alarms are reported in the Alarm Monitor instead of the Event Browser and are managed differently than events:

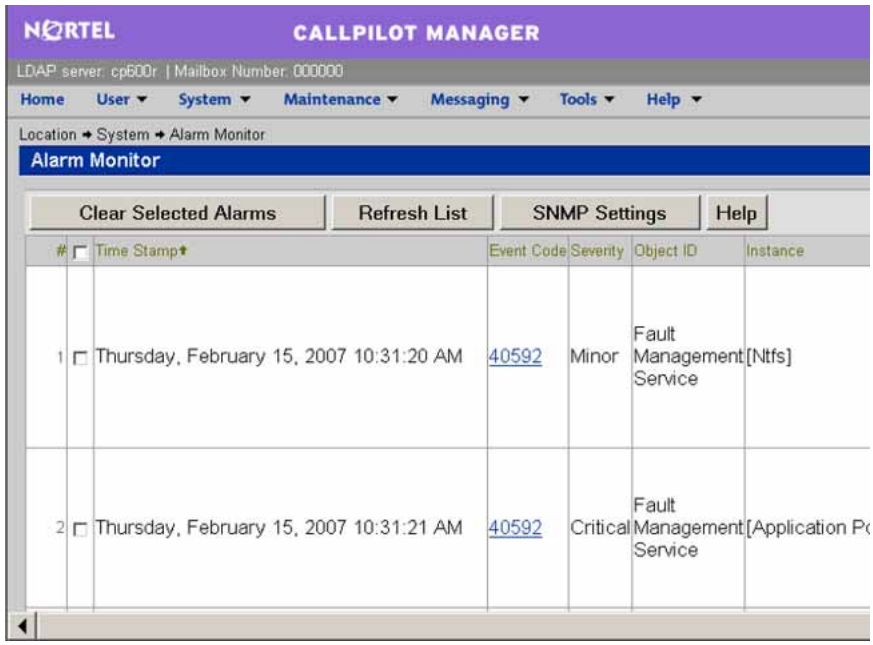
- Alarms appear in the Alarm Monitor for Minor, Major, and Critical events (not Information events). All events can be reported in the Event Browser (depending on the filtering criteria defined in the Event Browser).
- The first time an event occurs, it generates an alarm that appears in the Alarm Monitor. If the same event continues to occur, a new alarm is not generated. Instead, the time and date assigned to the original generated alarm is updated.
- Alarms can be cleared from the Alarm Monitor, but the event that generated the alarm is not cleared from the event log or the Event Browser.

Each alarm in the Alarm Monitor has Help text that often provides a solution to the problem. If the solution is not apparent, use the Event Browser or the Maintenance screen to further investigate the problem.

To investigate using the Alarm Monitor

Step	Action
1	Run CallPilot Manager and log on.
2	In CallPilot Manager, click **System > Alarm Monitor**. **Result:** The Alarm Monitor screen appears.

Copyright © 2007-2009, Nortel Networks



3 Click the Event Code for the first Critical or Major alarm.

Result: A description of the event appears in a new Web browser window.

4 Review the description and recovery action.

5 Repeat steps 3 and 4 for more alarms, if necessary.

6 If the solution to the problem is not apparent, make a note of the event codes and continue the investigation by using the Event Browser (see "Event Browser" (page 46)).

—End—

Event Browser

Use the Event Browser to investigate a series of events that occurred around the time an alarm was raised. The event listing can help you determine the root cause of a problem.

About events

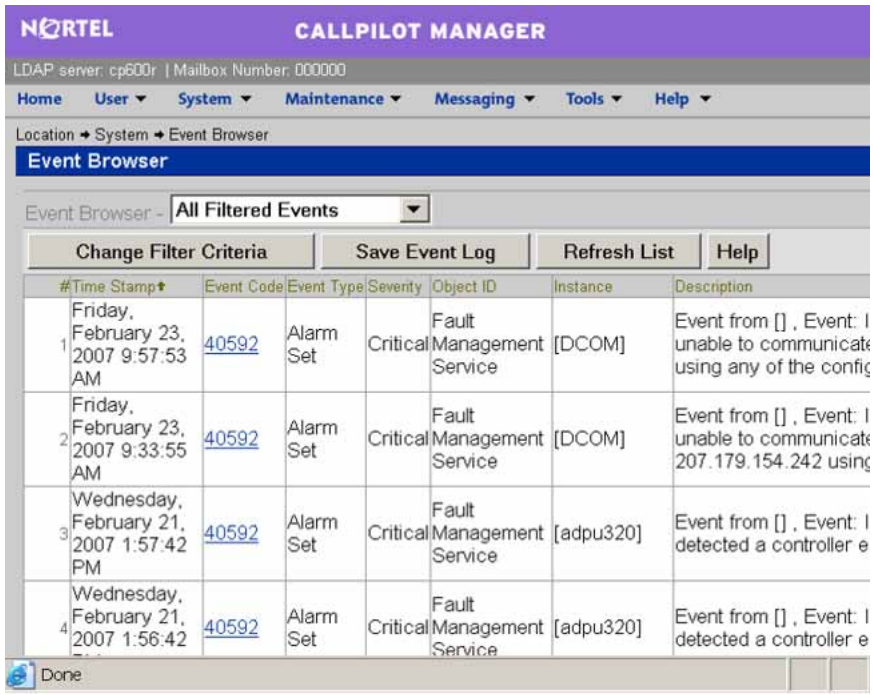
The Event Browser displays events that are recorded in the server log. Each event identifies the time the event occurred, the object that generated the event, and the cause of the event.

Copyright © 2007-2009, Nortel Networks

Events are classified as Information, Minor, Major, or Critical. By default, the Event Browser displays the latest 100 critical events.

To investigate using the Event Browser

Step	Action
1	Run CallPilot Manager and log on.
2	In CallPilot Manager, click **System > Event Browser**. **Result:** The Event Browser screen appears.
3	Click an event that appears to be related to the problem, or click an event that occurred near the time the alarm was raised. **Result:** A description of the event appears in a new Web browser window.
4	View the description and recovery action.
5	Repeat steps 3 and 4 for more events, if necessary.
6	If the solution to the problem is not apparent, contact your Nortel technical support representative. ***Note:*** For information about how to use the Event Browser, see the CallPilot Manager online Help.



Copyright © 2007-2009, Nortel Networks

—End—

Channel and Multimedia Monitors

The Channel Monitor shows the status of call channels. The call channels are the connections between the server and the switch that carry the call signals to CallPilot.

The Multimedia Monitor shows the status of multimedia channels. The multimedia channels are the DSP ports that process the calls. They are the voice, fax, and speech recognition channels.

Disabling call channels

If you must take the CallPilot system out of service to perform software or hardware maintenance, Nortel recommends that you disable all call channels first. There are two ways to disable the call channels:

- Courtesy stop the channels (preferred method).

  When you courtesy stop call channels, CallPilot waits until the channels are no longer active before disabling them, instead of suddenly terminating active calls.

- Stop the channels.

  When you stop channels, you suddenly disable them and terminate all active calls.

The Maintenance screen

Use the Maintenance screen in CallPilot Manager to do the following:

- Obtain general information about components.
- View component states.
- Start and stop components.
- Run integrated diagnostic tests.
- View the results of the last diagnostic test run against a component.

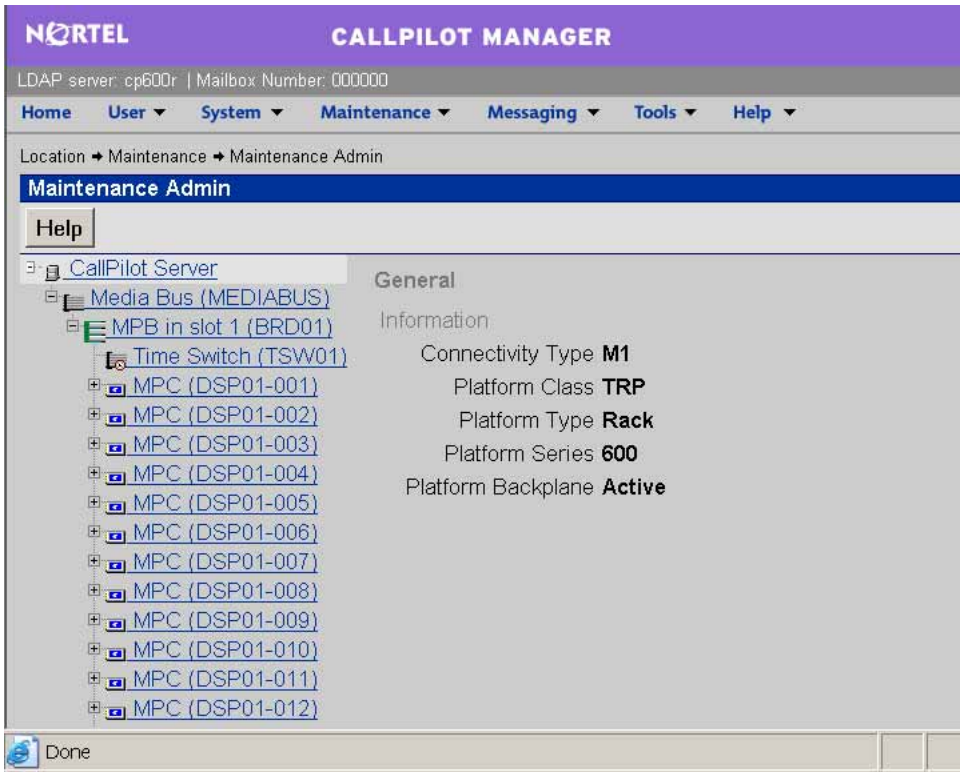
What the Maintenance screen provides

The Maintenance screen identifies the server platform and switch connectivity type. It also provides a navigation tree that, when expanded, lists the physical and logical hardware components down the left side of the screen. To list the server hardware components, click the plus sign (+) at the top of the tree. To list the subcomponents for each component, click the plus sign (+) beside the component.

Copyright © 2007-2009, Nortel Networks

Note: The components that are listed on the Maintenance screen are based on the CallPilot server type and the switch that is connected to CallPilot. The examples in this chapter are for illustration purposes and may not appear exactly the same as your system.

The Maintenance screen below shows a partially expanded tree for the 1005r server.



When you click a component, the screen refreshes to show the details about that component. Details are divided into the sections described in the following table.

Component sections

Section	Description
General	This section shows general technical information about the selected component. This typically includes the following details: • the name, class, type, series, or version of a component • various capabilities of a component (for example, whether a component is removable)

Copyright © 2007-2009, Nortel Networks

Section	Description
	Note: This section does not appear for all components.
Maintenance	This section shows the state of the selected component. Use this section to start and stop a component before running a diagnostic test. For more information about working with component states, see the following sections: • "Viewing component states" (page 51) • "Starting and stopping components" (page 53)
Diagnostics	Use the Diagnostics section to run one or more diagnostic tests, or to view the results of the last diagnostic tests that were run on the selected component. For more information about running diagnostics, see the following sections: • "Running integrated diagnostics" (page 55) • "Viewing the last diagnostics result" (page 58)

Maintenance activities for each component

The following table identifies the maintenance activities you can perform for each component that is listed in the component tree.

Maintenance activities

Component	Start / stop?	Courtesy stop?	Diagnostics available?	Replaceable?
Media Bus	Yes	No	No	No
MPB96 board	Yes	No	Yes	Yes
Time Switch	No	No	No	No
DSPs (embedded MPB boards)	Yes	No	Yes	No (embedded)
Multimedia channels	Yes	Yes	No	No
Call channels	Yes	Yes	No	No
DS30X link	Yes	No	No	No

Copyright © 2007-2009, Nortel Networks

Note: The MGate card and DS30X cable are replaceable. If you are having problems with the DS30X link, determine if either one or both of these items are causing the problem and need to be replaced.

Viewing component states

View a component state to determine the general condition of the component, including whether the component is disabled or off duty. The component state is shown in the Maintenance section of the Maintenance screen.

Component states

You can determine the state of a component by looking at the State box in the Maintenance section.

State	Description
Active	The component is working and currently involved in processing a call.
Disabled	The diagnostic failed.
Idle	The component is working but not currently involved in processing a call.
InTest	A diagnostic is running on the resource or device.
Loading	The component has started and takes it out of the Off Duty state. This state occurs quickly and is immediately followed by Idle.
Local (Red) Alarm	A Receive Loss of Synchronization error occurred on incoming data over a T1 link and lasted more than 2.5 seconds. This condition exists until synchronization is recovered and remains recovered for 12 seconds.
No resources	The hardware required for the component to operate is not installed or is not operating properly.
Not Configured	The device is not configured in CallPilot. For example, a DSP is not being used because it was not allocated in the Configuration Wizard.
Off Duty	The component has been stopped.
Remote Off Duty	The component has been taken out of service at the switch.
Remote (Yellow) Alarm	A red alarm exists at the receiving device. This alarm is sent by the receiving T1 device to CallPilot, and it remains in effect until the red alarm is cleared at the receiving device.

Copyright © 2007-2009, Nortel Networks

State	Description
Shutting Down	The component is in the process of stopping. This state occurs quickly and is immediately followed by Off Duty.
Uninitiated	The call processing component has not initialized the resource.

Alert icons

If one of the following icons appears next to a component in the tree, then the component or one of its subcomponents is experiencing a problem:

Icon	Description
	A problem exists with a subcomponent of the selected component. Expand the tree to locate the subcomponent with the problem.
	A problem exists with the selected component.

To view the state of a hardware component

Step	Action
1	Run CallPilot Manager and log on.
2	In CallPilot Manager, click **Maintenance > Maintenance Admin**. **Result:** The Maintenance screen appears.
3	Click the plus signs (+) beside the CallPilot server to expand the component tree.
4	Continue clicking the plus sign (+) until the component you want to work with is visible.
5	Click the hardware component you want to work with. **Result:** The Maintenance screen refreshes to show details about the component.
6	Scroll down to the Maintenance section.
7	View the state of the selected component in the State box.

—End—

Copyright © 2007-2009, Nortel Networks

Starting and stopping components

When you stop a component, you take it out of service and prevent it from operating. You must stop a component before you can replace it (if the component is replaceable) or run a diagnostic test on it.

To bring an out-of-service component back into service, you must start it.

Start and stop components from the Maintenance section on the Maintenance screen.

ATTENTION

Nortel recommends that, if possible, you courtesy stop a component. Courtesy stop is available at the individual channel level.

To courtesy stop CallPilot, use the following:

- Multimedia Monitor - to courtesy stop a range of multimedia channels
- Channel Monitor - to courtesy stop a range of call (DS30X, also known as DS0) channels

Stop versus courtesy stop

The following two methods of taking a component out of service allow you to choose how active calls are affected.

Courtesy stop

A courtesy stop takes the component out of service after the component finishes processing the active calls.

- If the component is currently processing a call, the call is not dropped; the component remains active until the call is finished.
- If the component is not currently in use, it is taken out of service immediately.

Courtesy stop is the preferred method for taking a component out of service.

Stop

A stop takes the component out of service immediately, regardless of whether the component is currently processing calls. All active calls are dropped. Typically, you perform a stop only when severe problems that are affecting a large number of incoming calls occur or if your organization determines a special need for it.

Components that you can start and stop

Only the following components can start and stop.

Copyright © 2007-2009, Nortel Networks

Note: If you want to start or stop more than one or two multimedia (DSP) or call (DS30X) channels, use the Multimedia Monitor or Channel Monitor.

Component	Effect of stopping
Media Bus	Takes all call processing resources out of service.
MPB board	Takes all call processing resources on the selected board out of service.
Time switch	You cannot perform maintenance administration on the time switch.
Multimedia Channel	Takes the selected multimedia channel out of service.
Channels	Takes the selected DS30X channel out of service.
DS30X link	Takes the selected DS30X link out of service.

To start or stop a component

Step	Action
1	Run CallPilot Manager and log on.
2	In CallPilot Manager, click **Maintenance > Maintenance Admin**. **Result:** The Maintenance screen appears.
3	Click the plus sign (+) beside the CallPilot server to expand the component tree.
4	Continue clicking the plus signs (+) until the component you want to work with is visible.
5	Click the hardware component that you want to start or stop. **Result:** The Maintenance screen refreshes to show details about the component.
6	Scroll down to the Maintenance section.
7	Click Courtesy Stop or Start as required.

Button	Description
Start	If the selected component is out of service, click this button to put it into service.

Copyright © 2007-2009, Nortel Networks

Button	Description
Courtesy Stop	Click this button to take the selected component out of service. CallPilot waits for calls to be completed before disabling the component. **ATTENTION** If you are courtesy stopping all components (that is, you are taking the entire system down), ensure that you inform all administrators, desktop messaging users, and Web messaging users so that they can log off their sessions before you proceed. The system asks you to confirm the courtesy stop. If you click OK, the component is put out of service after all calls are finished.
Stop	Click this button to take the selected component out of service immediately. All calls that are in progress are disconnected immediately. **ATTENTION** If you are stopping all components (that is, you are taking the entire system down), ensure that you inform all administrators, desktop messaging users, and Web messaging users so that they can log off their sessions before you proceed.

—End—

Running integrated diagnostics

Run diagnostic tests from the Diagnostics section on the Maintenance screen in the following circumstances:

- You want to ensure that a component is operating properly after installing or reinstalling it.
- The CallPilot server is having trouble processing incoming calls and you are hoping that diagnostic results can tell you why.

Copyright © 2007-2009, Nortel Networks

Problems include static, dropped calls, and cross talk (hearing another conversation).

Before you begin

ATTENTION

Take the component out of service before you run the diagnostic test. See "Starting and stopping components" (page 53).

Components with diagnostic tests available

The following table identifies the components on which you can run diagnostics.

Component	Diagnostics available?	Replaceable?
Media Bus	No	No
MPB96 board	Yes	Yes
Time switch	No	No
Multimedia channels	No	No
Channels	No	No
DS30X link (cable)	No	Yes

Diagnostic tests available for each component

The diagnostic tests that are available for each component are listed in the Diagnostic section of the Maintenance screen. To view the list of diagnostic tests for a particular component, click the component in the component tree.

If a diagnostic test fails or cannot be run

If a warning message appears, you cannot run the diagnostic test because a prerequisite condition has not been met. If a diagnostic test fails, a message appears in a new browser window.

In both cases, check the Alarm Monitor to determine the reason and the appropriate action to take.

If the Alarm Monitor and Event Browser do not provide a solution to a hardware problem, you may need to replace or service a component. If the problem is with a component that is not replaceable because it is not a physical entity (such as the Time Switch), you must either replace its parent component or contact your Nortel technical support representative, depending on the component.

Copyright © 2007-2009, Nortel Networks

To run a diagnostic test

Step Action

ATTENTION

Nortel recommends that you courtesy stop rather than stop a component if possible. For instructions, see "Starting and stopping components" (page 53).

1 Run CallPilot Manager and log on.

2 In CallPilot Manager, click **Maintenance > Maintenance Admin**.

Result: The Maintenance screen appears.

3 Click the plus sign (+) beside the CallPilot server to expand the component tree.

4 Continue clicking the plus signs (+) until the component you want to work with is visible.

5 Click the hardware component for which you want to run diagnostics with.

Result: The Maintenance screen refreshes to show details about the component.

6 Scroll down to the Maintenance section, and ensure that the component is out of service.

7 Scroll down to the Diagnostics section.

8 Select the check box for each diagnostic that you want to run.

Note: If you want to run all of the diagnostics, select the Diagnostic Description check box at the top of the list.

9 Click Run.

Result: A new Web browser window appears with the progress and results of the diagnostics.

Note: The Diagnostic Results box in the Diagnostics section appears when you click Get Last Result.

—End—

Copyright © 2007-2009, Nortel Networks

Viewing the last diagnostics result

You can review the results of diagnostics by clicking the Get Last Results button for a component.

To view the last diagnostics result

Step	Action

ATTENTION

Nortel recommends that you courtesy stop rather than stop a component if possible. For instructions, see "Starting and stopping components" (page 53).

1 Run CallPilot Manager and log on.

2 In CallPilot Manager, click **Maintenance > Maintenance Admin**.

Result: The Maintenance screen appears.

3 Click the plus sign (+) beside the CallPilot server to expand the component tree.

4 Continue clicking the plus signs (+) until the component you want to work with is visible.

5 Click the hardware component for which you want to run diagnostics with.

Result: The Maintenance screen refreshes to show details about the component.

6 Scroll down to the Diagnostics section.

7 Select the check box for each diagnostic for which you want to review results.

8 Click Get Last Result.

Result: The results appear in the Diagnostic Results box with the following information:

- diagnostic title
- diagnostic result: pass or fail
- the date and time the test was completed

—End—

Copyright © 2007-2009, Nortel Networks

Working with the Multimedia Monitor

The Multimedia Monitor shows the status of multimedia channels. The multimedia channels are the DSP ports that process the calls. They are the voice, fax, and speech recognition channels.

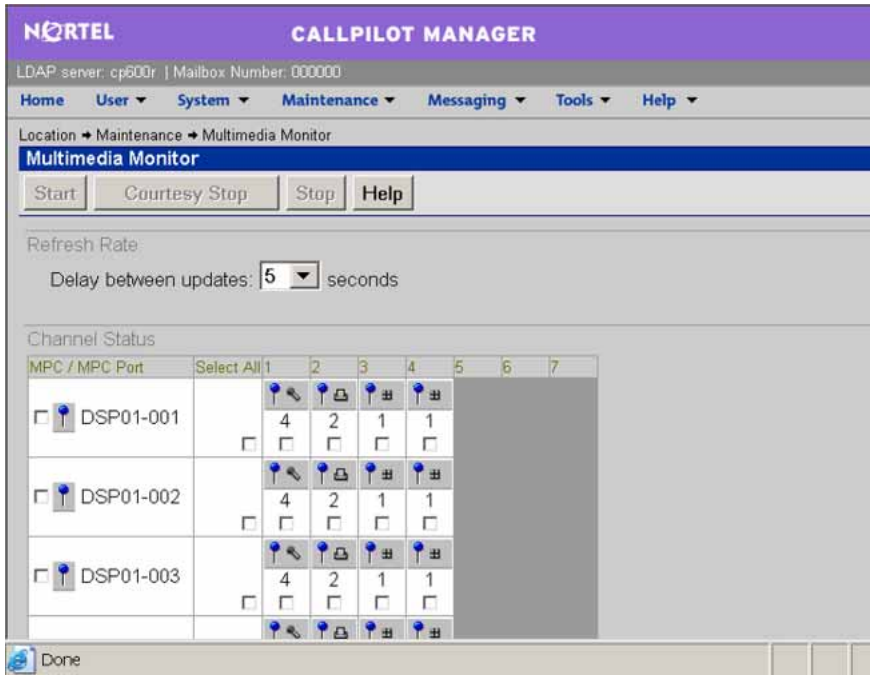
To view or work with multimedia channel states

Step	Action

1 Run CallPilot Manager and log on.

2 In CallPilot Manager, click **Maintenance > Multimedia Monitor**.

Result: The Multimedia Monitor screen appears, showing the channels associated with each DSP.



Note: For an explanation of the channel states, see the CallPilot Manager online Help.

3 Do one of the following:

Copyright © 2007-2009, Nortel Networks

IF you want to stop or start	THEN
all of the channels associated with a DSP	select the check box to the left of the DSP that you want to stop or start. Repeat this step for each DSP.
only one or several channels that are associated with a DSP	select the check box for each channel that you want to stop or start.

4 Click Courtesy Stop or Start as required.

Result: If you click Courtesy Stop or Start, you are asked to confirm the Courtesy Stop or Start. Click OK.

The selected channels change to off-duty or idle status, according to the action you chose.

Note: If the buttons are not available, wait a few seconds for the screen to refresh.

—End—

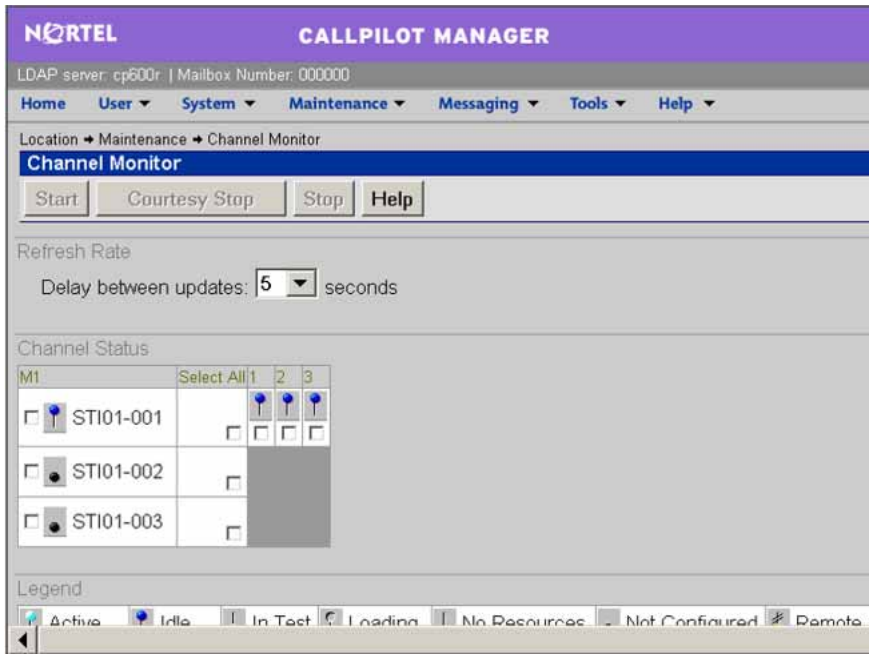
Working with the Channel Monitor

The Channel Monitor shows the status of call channels. The call channels are the connections between the server and the switch that carry the call signals to CallPilot.

To view or work with call channel states

Step	Action
1	Run CallPilot Manager and log on.
2	In CallPilot Manager, click **Maintenance > Channel Monitor**. **Result:** The Channel Monitor screen appears, showing the DS30X (also known as DS0) channels associated with each DS30X link.

Copyright © 2007-2009, Nortel Networks



Note: For an explanation of the channel states, see the CallPilot Manager online Help.

3 Do one of the following:

IF you want to stop or start	THEN
all of the channels associated with a DS30X link	select the check box to the left of the DS30X link that you want to stop or start. Repeat this step for each DS30X link.
only one or several channels that are associated with a DS30X link	select the check box for each channel that you want to stop or start.

4 Click Courtesy Stop or Start as required.

Result: If you click Courtesy Stop or Start, you are asked to confirm the Courtesy Stop or Start. Click OK.

The selected channels change to off-duty or idle status, according to the action you chose.

Note: If the buttons are not available, wait a few seconds for the screen to refresh.

Copyright © 2007-2009, Nortel Networks

—End—

Copyright © 2007-2009, Nortel Networks

Chapter 7
Using CallPilot system utilities

In this chapter

"Overview" (page 63)

"Diagnostics Tool" (page 64)

"PEP Maintenance utility" (page 65)

"Session Trace" (page 66)

"CallPilot System Monitor" (page 68)

Overview

The following table lists the CallPilot system utilities.

Utility	Description
Diagnostics Tool	Allows CallPilot startup diagnostics to be enabled or disabled (turned on or off).
PEP Maintenance	Displays a list of installed PEPs and enables PEP removal.
Session Trace	Displays detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI).
CallPilot System Monitor	Displays the following information: • the status of all CallPilot channels • the status of all CallPilot services ***Note:*** This status is more accurate than the status provided in the Services Control Panel.

Copyright © 2007-2009, Nortel Networks

- particulars about the CallPilot system, such as names, keycodes, serial numbers, IP addresses, and system numbers

Accessing the system utilities

You can access all CallPilot utilities from the CallPilot server in the **Start > Programs > CallPilot > System Utilities** menu.

Diagnostics Tool

Use the Diagnostics Tool to enable or disable CallPilot startup diagnostics. CallPilot startup diagnostics automatically identify hardware problems that can exist when the system and its services are started. When you disable startup diagnostics, you can save time during system maintenance operations where restarts or call processing services restarts are required. There are three recommended steps:

- Use the Diagnostics Tool to turn off CallPilot startup diagnostics.
- Perform system maintenance.
- Use the Diagnostics Tool to turn on CallPilot startup diagnostics.

To access the Diagnostics Tool

Step	Action
1	On the Windows desktop, click **Start > Programs > CallPilot > System Utilities > Diagnostic Tool**. **Result:** The Diagnostics Tool dialog box appears.

—End—

To enable startup diagnostics

Step	Action
1	From the Diagnostics Tool dialog box, select **Configuration > Maintenance Startup Diag > Enable**.

—End—

Copyright © 2007-2009, Nortel Networks

To disable startup diagnostics

Step	Action

ATTENTION

Nortel recommends that you leave the startup diagnostics turned on. When you disable CallPilot startup diagnostics, you prevent CallPilot from automatically identifying hardware problems that can exist when the system and its services are started (for example, DSP, time switch, or Media Bus).

1 On the Diagnostics Tool dialog box, select **Configuration > Maintenance Startup Diag > Disable**.

—End—

PEP Maintenance utility

The PEP Maintenance utility displays a list of all installed PEPs on the server and lets you uninstall PEPs. For information about installing or uninstalling PEPs, see the *Installation and Configuration Task List* (NN44200-306).

To access the PEP Maintenance utility

Step	Action

1 From the Windows desktop, click **Start > Programs > CallPilot> System Utilities > PEP Maintenance Utility**.

Result: The DMI Viewer dialog box appears.

—End—

To view a list of all installed PEPs

Step	Action

1 Click the component for which you want to display the PEP list.

2 Click Show PEPs.

Result: A list of all installed PEPs appears in the left pane.

3 If you want to review the readme file associated with a PEP, click the PEP, and then click Read.

Result: The readme file appears in Notepad.

Copyright © 2007-2009, Nortel Networks

—End—

Session Trace

The Session Trace tool displays detailed information about the activity in a user's mailbox and the state of the message waiting indicator (MWI). The session information includes:

- voice messaging
- call answering
- express messaging activity (messages composed and sent or left in a mailbox)
- the number of messages played or unplayed at the beginning, middle, and end of a session
- the number of deleted read messages
- the number of deleted unread messages
- messages and personal distribution lists restored to a mailbox
- the last change to the MWI (turned on or off, or untouched)

With the Session Trace information, an administrator or technician can study the state of a user's mailbox and MWI to track user complaints. For example, a user can complain that the MWI is on, but no voice messages are in the mailbox when the user logs on. The session information can tell the administrator why the MWI is turned on.

To access the session trace tool

Step	Action
1	From the Windows desktop, click **Start > Programs > CallPilot > System Utilities > Session Trace Tool**. **Result:** The MCE Session Trace dialog box appears.

—End—

To find a session

Step	Action
1	From the Session Type list, choose the type of session. To display a list of all session types, select All Session Types.

Copyright © 2007-2009, Nortel Networks

2 Enter as much information in the search criteria boxes to identify the session you want to view. To display a list of all users for the selected session type, leave the search criteria boxes blank.

3 Click Search to initiate the search.

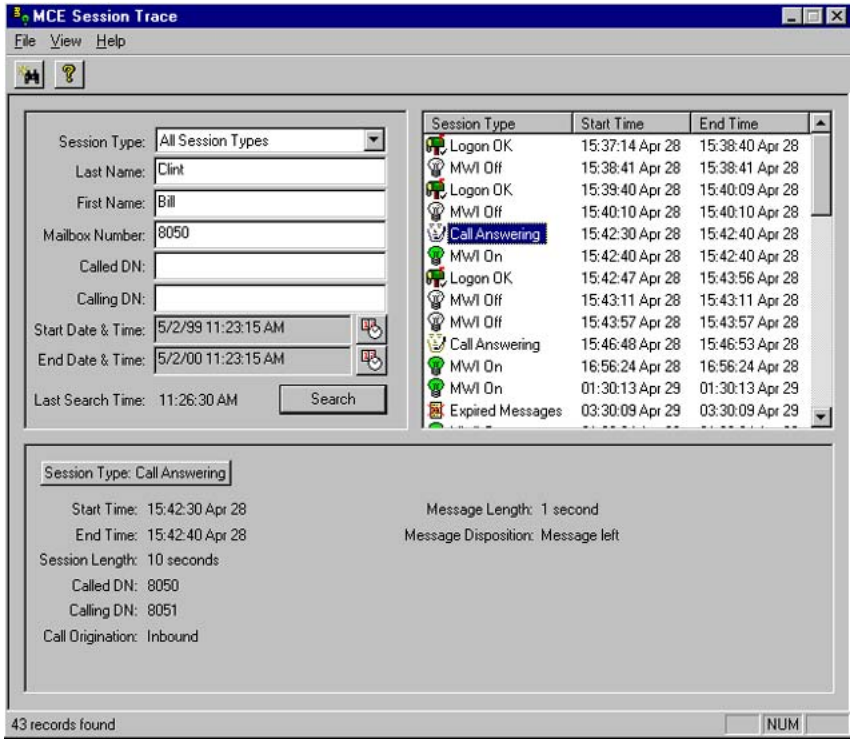
a. If you did not enter any user information, a list of users matching the session type appears at the bottom of the window. To select a user from the list, double-click the user name to display session type information.

b. If you selected All Session Types for a user, the session type information appears in the right of the window.

4 Double-click the session type to display the session information.

Result: The session type information appears at the bottom of the window. The following example shows Call Answering session type information.

Call Answering session



—End—

Copyright © 2007-2009, Nortel Networks

CallPilot System Monitor

The System Monitor consists of three tabs, as described in the following table.

System Monitor tabs

Tab	Description
Channel Monitor	Shows the status of all CallPilot services, multimedia channels, and call channels (DS30X channels).
System Info	Displays details about the CallPilot system, such as features purchased, keycode, serial number, and CallPilot server IP addresses.
Legend/Help	Provides a description of icons and terminology displayed in the System Monitor window.

System Monitor is a nondestructive tool that does not alter the behavior of any CallPilot components.

To access the CallPilot System Monitor

Step	Action
1	On the Windows desktop, click Start → Programs → CallPilot → System Utilities → System Monitor. **Result:** The CallPilot System Monitor window appears. By default, the Channel Monitor tab appears at the top. Click the other tabs to view the information on those tabs.

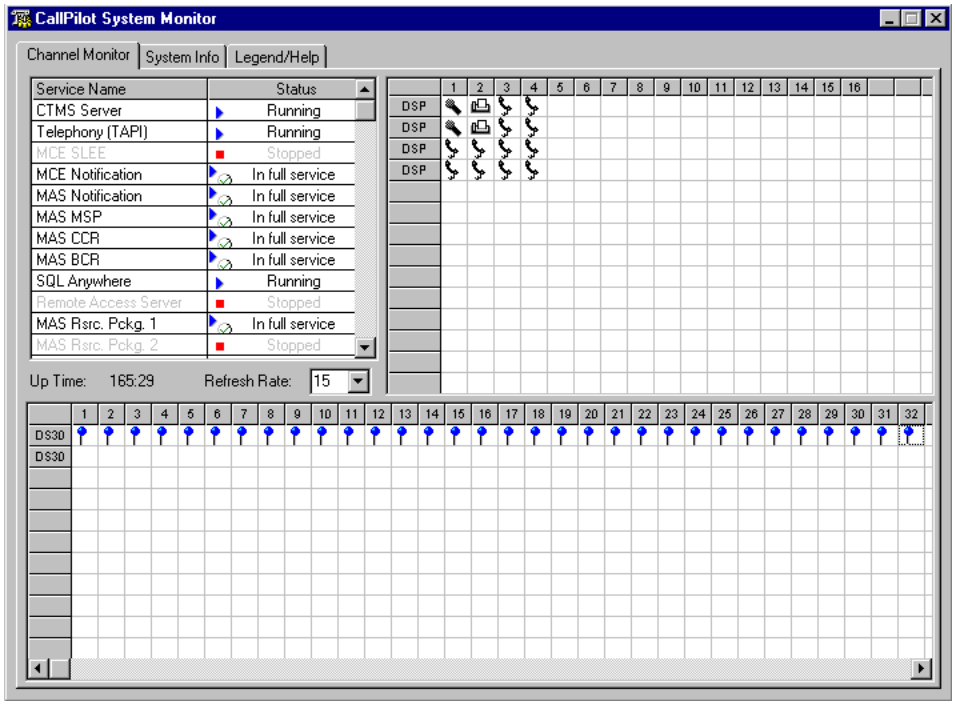
—End—

Channel Monitor tab

The following is an example of the Channel Monitor tab when connected to a Meridian 1.

Copyright © 2007-2009, Nortel Networks

Channel Monitor with M1



CallPilot services

The Service Name pane shows the status of services from a CallPilot perspective. The Windows Services Control Panel can show that a service is running, but it may not be fully running or in service from a CallPilot perspective. Refer to the Channel Monitor tab in the Systems Monitor for the true status.

The services listed under Service Name can be either running or in full service when CallPilot is functioning optimally. If any CallPilot services are stopped, investigate the cause of this. Call Nortel technical support for assistance.

> ***Note:*** While you can investigate any stopped services, some services are not critical. CallPilot can continue to handle call processing even with some services stopped.

The critical services that are required for basic CallPilot call answering are listed in the following table. For your reference, the equivalent names as they appear in the Windows Control Panel are also listed.

CallPilot System Monitor	Windows Control Panel equivalent
CTMS Server	CTMS Server

Copyright © 2007-2009, Nortel Networks

CallPilot System Monitor	Windows Control Panel equivalent
Telephony (TAPI)	Telephony Services
MCE SLEE	CallPilot SLEE Service
MCE Notification	CallPilot MWI Service
MAS Notification	CallPilot Notification Service
MAS CCR	CallPilot Call Channel Router
MAS BCR	CallPilot Blue Call Router
SQL Anywhere	Adaptive Server Anywhere - %ComputerName%_SQLANY
MAS MltmediaCache	CallPilot Multimedia Cache
MAS MltmediaVol1	CallPilot Multimedia Volume 1
MAS MltmediaVol2 (TRP only)	CallPilot Multimedia Volume 102 (TRP only)
MAS MltmediaVol3 (TRP only)	CallPilot Multimedia Volume 103 (TRP only)
MAS Rsrc. Pckg. 1	CallPilot Resource Package1

DSPs

In the DSP pane, each DSP is represented in a separate row. Each box in the row is one DSP channel or multimedia channel. Click the Legend/Help tab to view descriptions of the multimedia channel icons.

Your 1005r server has either one or three MPB96 boards. Each MPB96 board has 12 DSP sections embedded on the board.

DS30X links

In the DS30X link pane, each DS30 row represents a separate DS30X link (also referred to as a DS30 link). Each box in the row represents one DS30X channel.

The DS30X links connect the CallPilot server to the MGate card in the Meridian 1 switch or Communication Server 1000 system. The DS30X link to the switch is supported by the connection of the server to the switch backplane.

Copyright © 2007-2009, Nortel Networks

ATTENTION

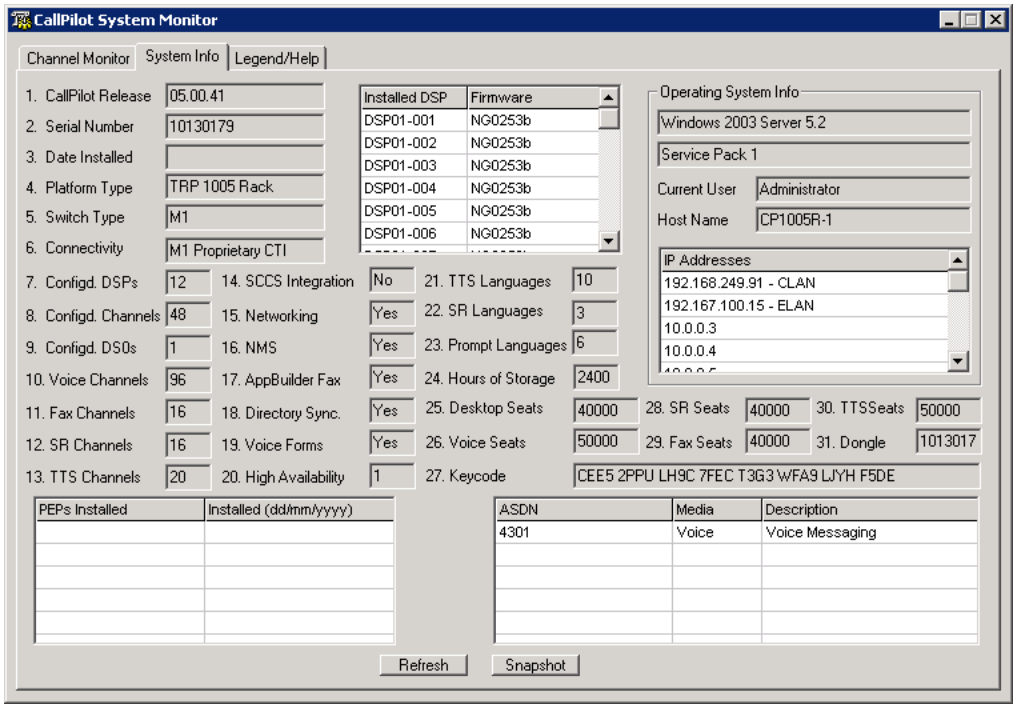
if your server has NTRH40AA cards, you must connect the DS30X-1cable to an MGate card to receive the clock source for the MPB96 board. Failure to connect the DS30X-1 cable to an MGate card can result in noise interference on the remaining voice channels.

This restriction does not apply to the NTRH40CA MPB96 boards.

System Info tab

"System Info tab" (page 71) shows an example of the System Info tab.

System Info tab



The numbered items provide information about the features purchased. Information about the underlying operating system appears in the top right corner, including the server IP addresses.

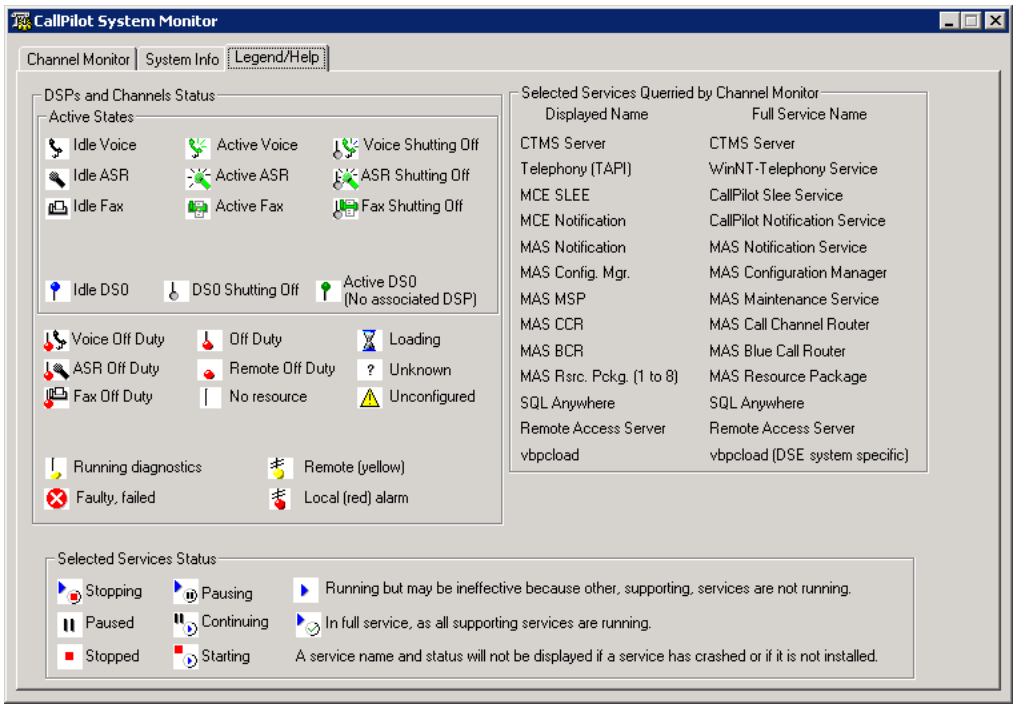
PEP information and configured Service DNs appear in the bottom part of the window.

Legend/Help tab

"Legend/Help tab" (page 72) shows an example of the Legend/Help tab. Consult this window for descriptions of the icons found on the Channel Monitor tab.

Copyright © 2007-2009, Nortel Networks

Legend/Help tab



Copyright © 2007-2009, Nortel Networks

Chapter 8
Replacing basic chassis components

In this chapter

"Removing and replacing the front bezel" (page 73)

"Removing and replacing the server cover" (page 75)

"Removing and replacing the processor air duct" (page 76)

"Replacing the power supply" (page 78)

"Replacing a hard drive" (page 79)

"Replacing the four-fan assembly" (page 82)

"Replacing the dual NIC card" (page 84)

"Replacing the DVD combo drive" (page 90)

"Replacing memory DIMMs" (page 92)

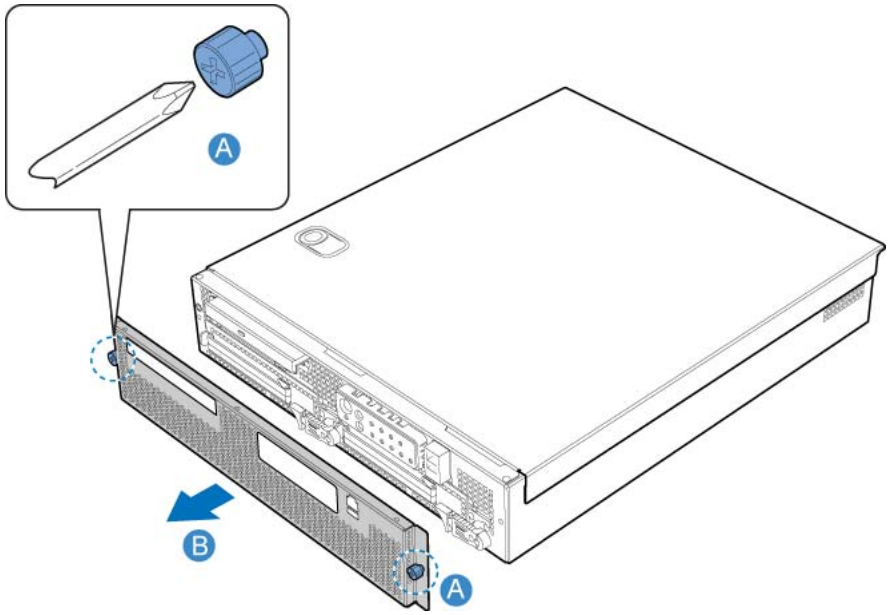
"Replacing the software feature key" (page 94)

Removing and replacing the front bezel

Remove the front bezel to service the hard drives and DVD combo drive.

Copyright © 2007-2009, Nortel Networks

To remove the front bezel

Step	Action
1	**Front bezel**  Loosen the captive screws (A) on both sides of the front bezel. The screws cannot be removed from the front bezel. Refer to "Front bezel" (page 74).

CAUTION
Risk of equipment damage
Support the front bezel while loosening the captive screws as the front bezel is not held onto the front panel with another mechanism.

2	Hold the front bezel by the captive screws and lift it toward you. Place it in a secure location while you service the server.

—End—

To replace the front bezel

Step	Action

When the CallPilot server maintenance is complete, replace the front bezel.

Copyright © 2007-2009, Nortel Networks

1 Align the captive screws on the front bezel with the threaded holes in the front panel.

2 Tighten the captive screws.

—End—

Removing and replacing the server cover

Remove the server cover if you must service the interior of the server.

Note: If a component has a:

Blue tab	Power down the server before replacing it.
Green tab	It can be replaced while the server is powered on.
Black tab	It is non-replaceable, or not important.

To remove the server cover

Step Action



DANGER
Risk of electric shock
High current inside the chassis can cause severe injury.



CAUTION
Risk of equipment damage
Take precautions to protect internal components. Electrostatic discharge (ESD) can damage boards and make them unusable.

1 Power down the server, unplug all peripheral devices and Ethernet cables, and disconnect the AC power.

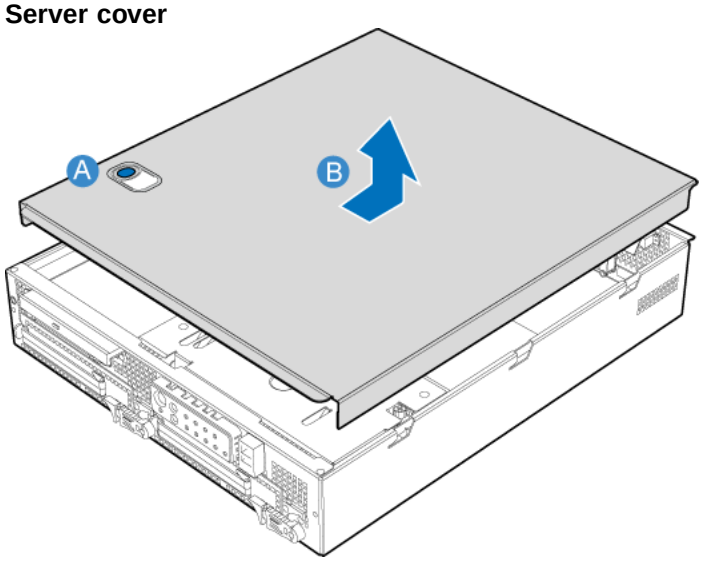
2 Turn off all peripheral devices connected to the server.

3 Attach the ESD strap to your wrist and attach the other end to a known grounded connection.

4 While holding the blue button at the top of the chassis in, slide the top cover back until it stops.

Copyright © 2007-2009, Nortel Networks

Server cover



5 Lift the cover straight up to remove it from the platform.

—End—

To replace the server cover

Step	Action
1	Place the cover over the chassis so that the side edges of the cover sit just inside the chassis sidewalls. The front of the cover is about an eighth of an inch from the sheet metal at the front of the chassis. Refer to "Server cover" (page 76).
2	Press down slightly on the chassis cover behind the DVD combo drive area and slide the cover forward until it clicks into place.

—End—

Removing and replacing the processor air duct

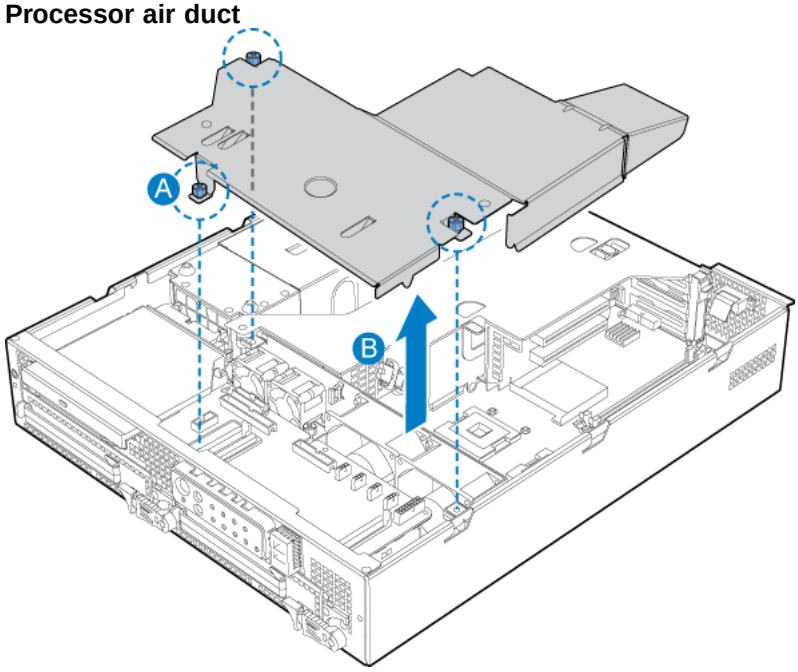
You must remove the air duct to access the processor assembly, four-fan assembly, and the memory modules. Because the processor air duct channels the airflow within the chassis, be sure to reinstall the air duct before installing the chassis cover.

Requirements

You need a Phillips (cross head) screwdriver, #1 and #2 bit.

Copyright © 2007-2009, Nortel Networks

To remove the processor air duct

Step	Action
1	Power down the server, unplug all peripheral devices and Ethernet cables, and disconnect the AC power.
2	Attach the ESD strap to your wrist and attach the other end to a known grounded connection.
3	Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75).
4	Remove the screws at the top of the air duct. **Processor air duct** 
5	Lift the air duct from the server platform and store it in a safe location.

—End—

To replace the processor air duct

Step	Action
1	Place the processor air duct over the processor socket and four-fan assembly. Make sure you do not pinch any wires beneath the edges of the air duct. Refer to "Processor air duct" (page 77).

Copyright © 2007-2009, Nortel Networks

2 Tighten the screws at the top of the air duct. The top of the installed air duct must be flush with the top surface of the PCI adapter assembly.

3 Replace the chassis cover. Refer to "Removing and replacing the server cover" (page 75).

4 Take the ESD strap off.

—End—

Replacing the power supply

The power supplies are hot-swappable and you can replace each power supply without powering down the server.

ATTENTION

Do not remove both power supplies while the system is running. Shut down the multimedia channels by using the Courtesy Stop in CallPilot Manager. Shut down the server using the Windows Shut Down option, and unplug the power supplies before removing both power supplies at the same time.

When to hot-swap the power supply

A green LED on the power supply indicates that the power supply is working properly. If the green LED on the power supply module is unlit or red, the module is failing or has failed. If the PWR alarm LED on the front panel is red, this also indicates a problem with one of the power supplies.

Note: A power supply will not be used by the system if it is not installed when the firmware is updated.

To hot-swap a power supply

Step Action

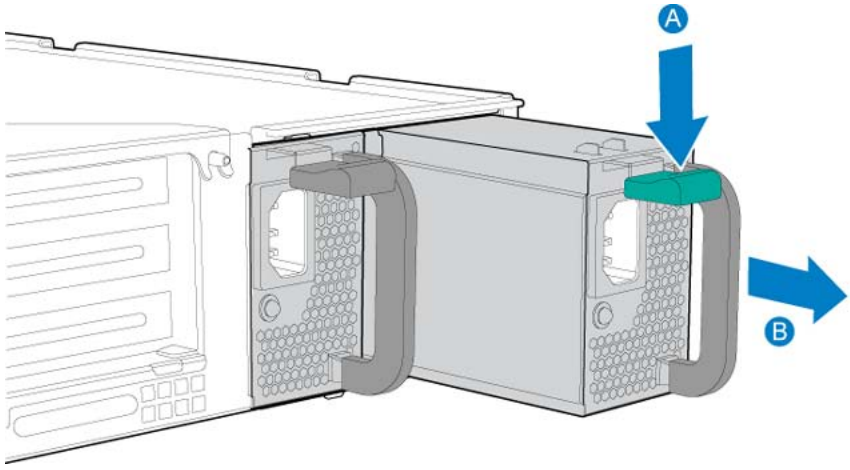


DANGER
Risk of electric shock
High current inside the chassis can cause severe injury.

1 Depress and hold the green lever (A) to disengage the power supply.

Copyright © 2007-2009, Nortel Networks

Power supplies



2 Grasp the black handle (B) and pull the power supply from the chassis.

3 Insert the replacement power supply. When inserting the new power supply, make sure the green handle (A) is pressed downward while sliding the module into the power supply cage.

4 Plug the new power supply into the AC mains.

Result: The power supply LED illuminates green.

—End—

Replacing a hard drive

Two hot-swappable SCSI drives are installed in your chassis. You do not need to remove the chassis cover to add or replace a hot-swap hard drive, but you must remove the front bezel to access the hard drives.

ATTENTION

The replacement hard drive must be the same size or larger than the drive being replaced.

To replace a SCSI hard drive

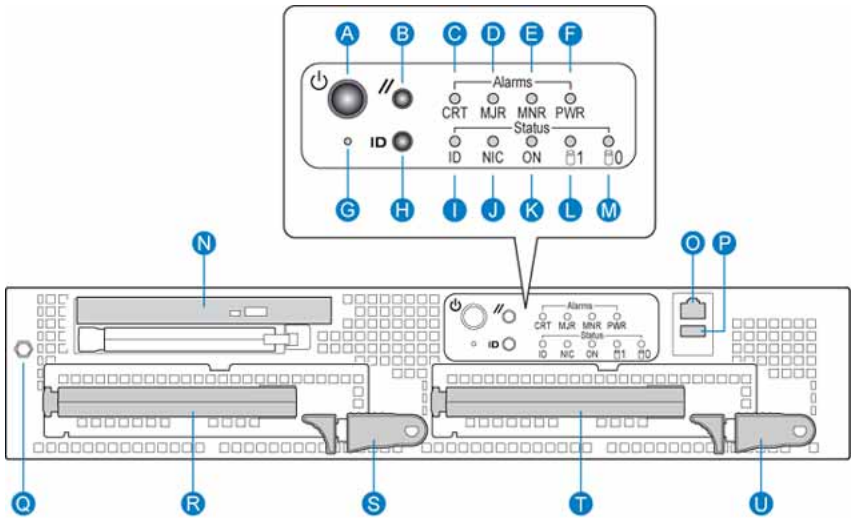
Step	Action
1	Remove the front bezel. Refer to "Removing and replacing the front bezel" (page 73) for instructions.

Copyright © 2007-2009, Nortel Networks

2 Attach the ESD strap to your wrist and attach the other end to a known grounded connection.

3 Locate the faulty hard drive. Refer to the following diagram of the front panel.

Front panel

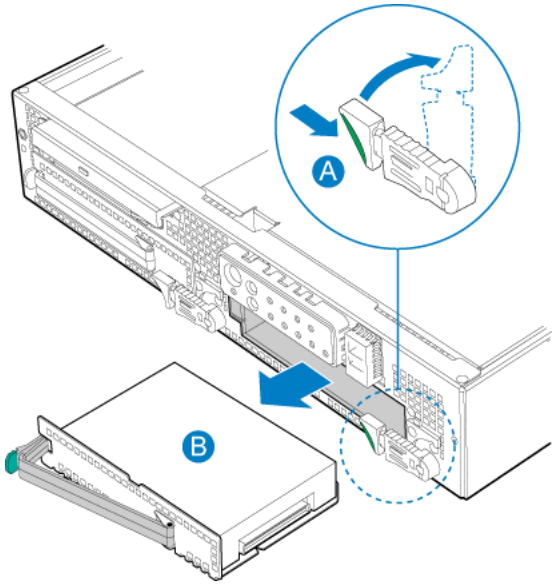


- Hard drive 0 is on the right (T). The status LED of hard drive 0 is marked with the hard drive symbol and the number 0 (M).
- Hard drive 1 is on the left (R). The status LED of hard drive 1 is marked with the hard drive symbol and the number 1 (L).

4 Press the green latch (A) on the front of the hard drive carrier as shown in the following diagram.

Copyright © 2007-2009, Nortel Networks

SCSI hard drive carrier



5 Pivot the latch (A) into the upright position.

6 Pull out on the black lever to slide the carrier from the chassis (B).

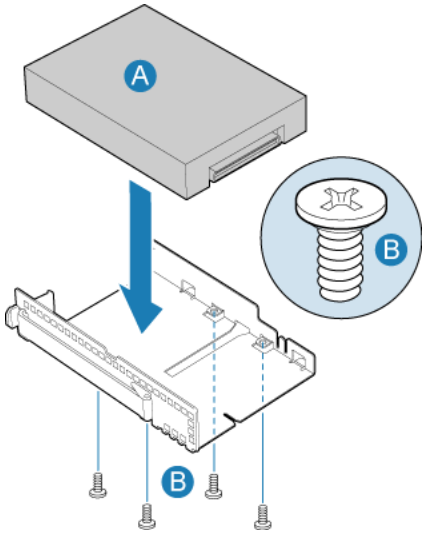
7 Remove the new hard drive from its wrapper and place it on an antistatic surface.

8 With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier.

9 Align the holes in the drive to the holes in the drive carrier and attach it to the carrier using four screws that meet the drive vendor's recommendation.

Copyright © 2007-2009, Nortel Networks

Hard disk drive location in carrier



10 With the black lever in the fully open position, slide the drive assembly into the chassis.

11 Insert the replacement drive in the bay. The green latch at the front of the drive carrier must be to the right. Do not push on the black drive carrier lever until the lever begins to close by itself.

12 When the black drive carrier lever begins to close by itself, push on it to lock the drive assembly into place.

13 Take the ESD strap off.

14 Replace the front bezel.

15 Resynchronize the new hard disk. Refer to "To synchronize the RAID after a successful PEP installation" (page 105).

—End—

Replacing the four-fan assembly

The four-fan cooling assembly is not hot-swappable. You must power down the server and disconnect it from the power supply.

Copyright © 2007-2009, Nortel Networks

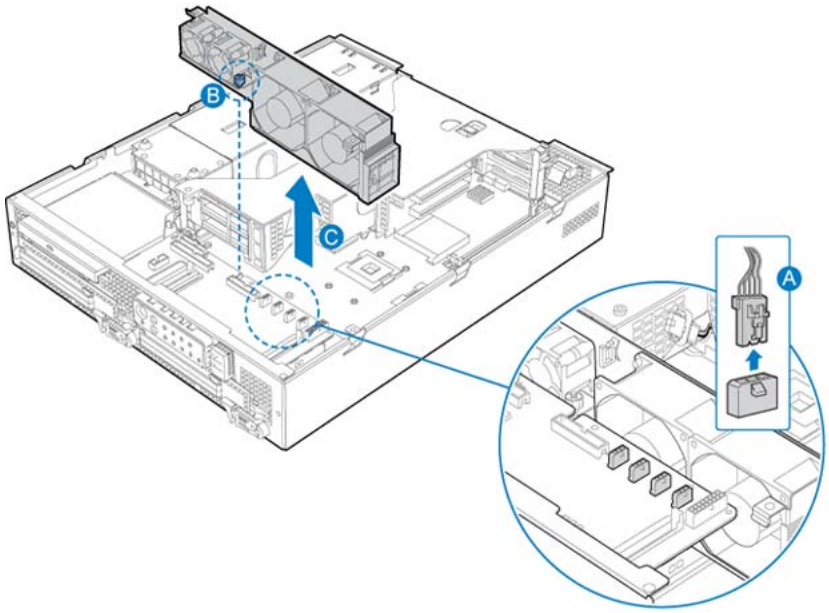
When to replace the cooling fan assembly

When one or more of the four cooling fans is not turning, the remaining fans rotate faster to maintain the same volume of air flow through the chassis. The hum of a cooling fan rotating faster is both louder and higher in pitch than normal and indicates that the assembly must be replaced. You cannot replace just one fan in the assembly.

To replace the four-fan assembly

Step	Action
1	Power down the server, unplug all peripheral devices and Ethernet cables, and disconnect the AC power.
2	Attach the ESD strap to your wrist and attach the other end to a known grounded connection.
3	Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.
4	Remove the processor air duct. Refer to "Removing and replacing the processor air duct" (page 76) for instructions.
5	Disconnect the fan connectors (A) from the front panel I/O board. Make of note of the order in which the fans are plugged into the board.

Cooling fan assembly



Copyright © 2007-2009, Nortel Networks

6 Loosen the captive screw (B) that attaches the four-fan assembly to the chassis.

7 Lift the fan module straight up and remove it from the chassis.

8 Lower the new fan module into place.

9 Tighten the captive screw (B).

10 Connect the fan cables to the correct fan connectors on the front panel I/O board. The fan connectors are labeled on the front panel I/O board.

11 Replace the processor air duct.

12 Replace the chassis cover.

13 Take the ESD strap off.

14 Connect the AC power cords, peripheral devices, and restart the server.

—End—

Replacing the dual NIC card

Your server has three low-profile PCI add-in cards. The RAID card is in slot 1 and the two dual NIC cards are in slots 2 and 3 (counting from top to bottom). The two dual NIC cards are reserved for future use.



CAUTION
Risk of electrical damage

- Wear an antistatic ESD wrist strap when handling cards or boards, or when working inside the server.
- Do not touch the components or gold-edge connectors of the cards.
- Place the card on an antistatic surface until you are ready to install it.

PCI add-in cards are not hot-swappable and you must power down the system before adding or replacing the cards.

Copyright © 2007-2009, Nortel Networks



CAUTION
Risk of physical equipment damage
Remove the 1005r from the rack, and place it on a solid surface when replacing or adding cards. The PCI riser assembly requires considerable force when inserting it into the connector, and physical damage can result if the assembly is not properly aligned.

Placing the server on a solid surface such as a workbench gives you a better view of the card alignment, and lets you exert the necessary force when inserting the assembly into the connector.

Requirements

- Phillips (cross head) screwdriver, #1 and #2 bit
- replacement dual NIC card
- electrostatic discharge (ESD) grounding strap

To replace a dual NIC card

Step	Action
1	Power down the server, unplug all peripheral devices and Ethernet cables, and disconnect the AC power. Ensure all cables are labeled.
2	Attach the ESD strap to your wrist and attach the other end to a known grounded connection.
3	Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.
4	Disconnect the red power cable from the PCI riser assembly.
5	Disconnect the DS30X cable or the DS30 cables from the MPB96 board in the full-size side of the PCI riser.

Copyright © 2007-2009, Nortel Networks

DS30X cables for high capacity

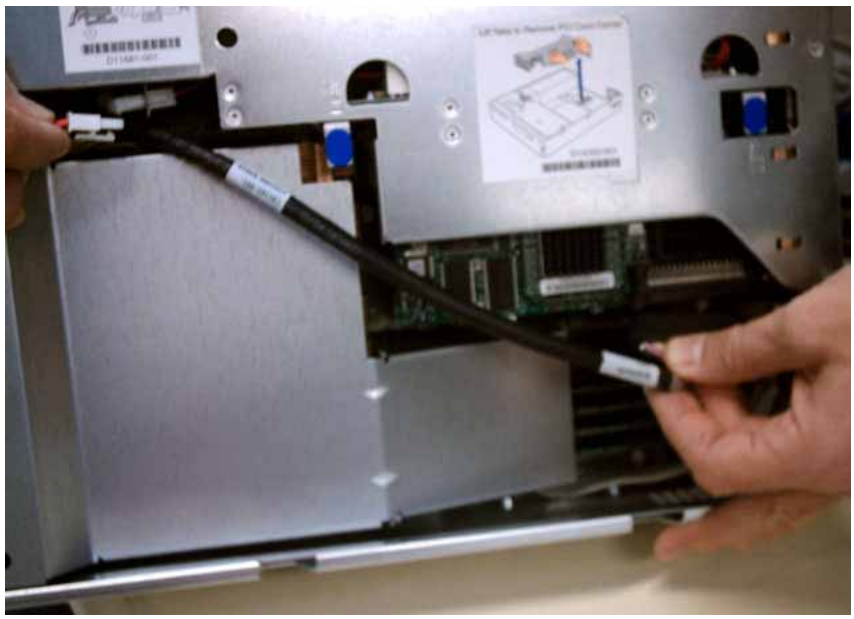


ATTENTION

If you have the high capacity configuration with three MPB96 boards, label each cable with the MPB96 slot number before disconnecting them. Incorrectly connected MPB96 boards do not answer calls.

6 Disconnect the SCSI cable attached to the RAID card.

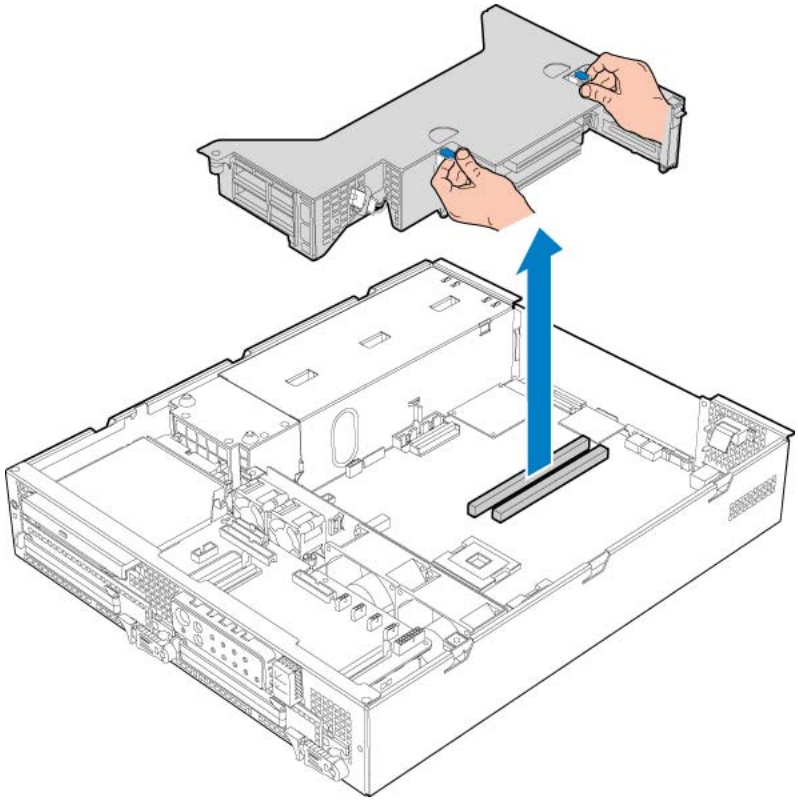
SCSI cable attached to RAID card



Copyright © 2007-2009, Nortel Networks

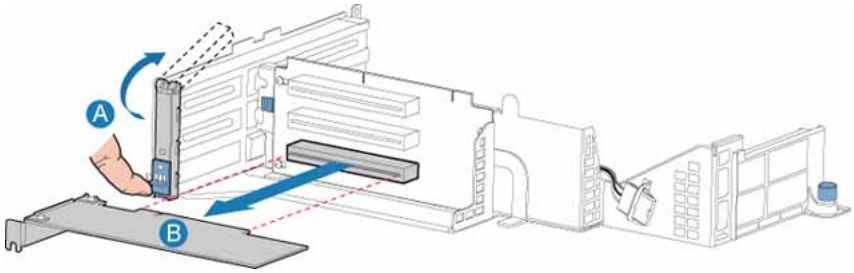
7 Lift the blue tabs and pull up on the riser to remove the riser card assembly from the chassis.

PCI riser card assembly



8 Turn the riser card upside down and place it on a table.

Low-riser PCI card



9 Release the retention bar (A).

10 Replace the card in either slot 2 or 3 (the two upper slots in the preceding diagram and not the lower slot as shown).

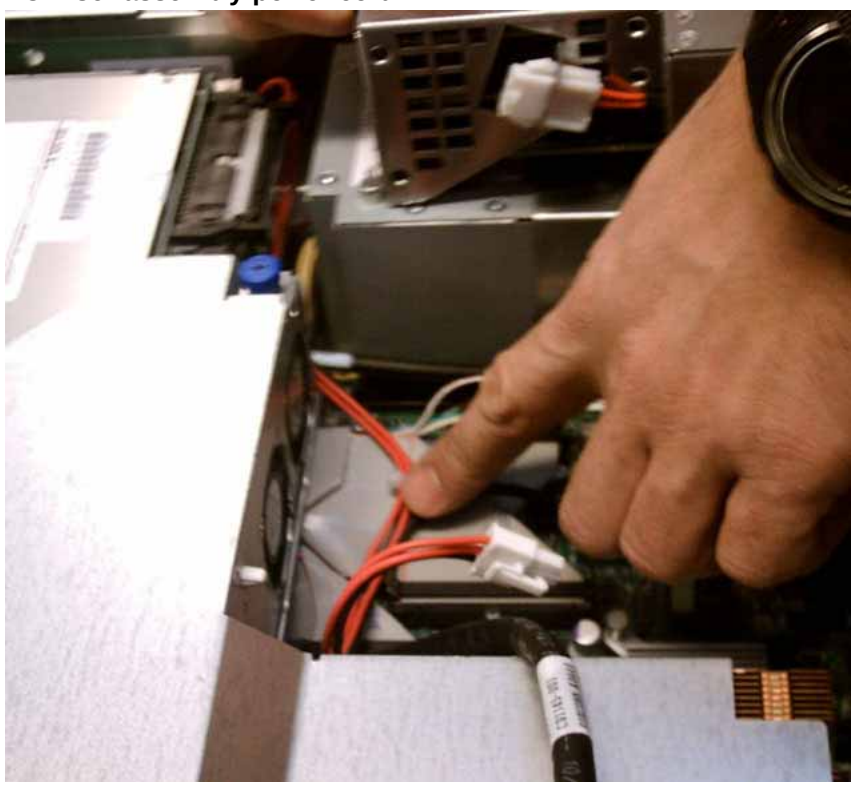
11 Lock the retention bar in place.

Copyright © 2007-2009, Nortel Networks

12 Turn the PCI riser card right-side up.

13 Arrange the PCI riser assembly red power cable as shown in the following illustration to avoid pinching the cable when you put the riser assembly into the chassis.

PCI riser assembly power cord



14 Hold the PCI riser assembly by the two blue handles (A) and push the assembly into the server board. Refer to "PCI riser card assembly" (page 87).

15 Line up the two grooves on the back lip of the PCI riser assembly with the pins on the rear panel as shown in the following illustration.

ATTENTION

If the PCI riser assembly is not fully seated, the server can malfunction.

Copyright © 2007-2009, Nortel Networks

PCI riser assembly rear grooves



16 Reconnect the PCI riser assembly power cord.

17 Reconnect the SCSI cable to the RAID card.

18 Reconnect all cables.

19 Replace the chassis cover.

20 Take the ESD strap off.

21 Power up the server and log onto Windows.

Result: The Windows New Hardware Found Wizard screen appears.

22 Click Next.

23 Select the presented driver (there is only one).

24 Run the Configuration Wizard to detect the new hardware.

For instructions, see the *Installation and Configuration Task List* (NN44200-306).

Result: The board replacement is complete.

25 Test the system to ensure the new board is functioning properly.

For instructions, see "Testing the CallPilot installation" in the *Installation and Configuration Task List* (NN44200-306).

—End—

Copyright © 2007-2009, Nortel Networks

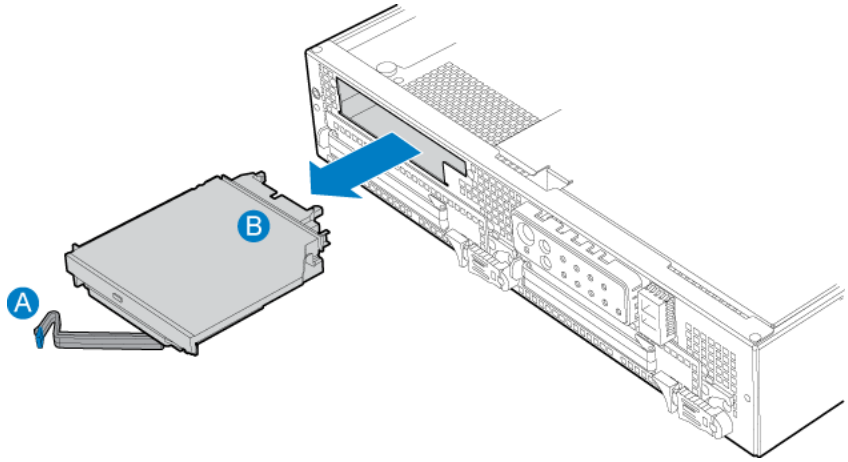
Replacing the DVD combo drive

The DVD combo drive is not hot-swappable. You must power down the system to replace the DVD combo drive.

Requirements

You need a Phillips (cross head) screwdriver, #1 and #2 bit.

To replace the DVD combo drive

Step	Action
1	Power down the server, unplug all peripheral devices and Ethernet cables, and disconnect the AC power.
2	Remove the front bezel. Refer to "Removing and replacing the front bezel" (page 73).
3	Attach the ESD strap to your wrist and attach the other end to a known grounded connection.
4	Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.
5	Pull out on the drive carrier handle (A) as shown in the following diagram. **DVD combo drive assembly** 
6	Slide the DVD combo drive assembly from the chassis. ***Note:*** There are no cables to disconnect.

Copyright © 2007-2009, Nortel Networks

7 Remove the screw on the left side of the drive assembly and save it for installing the new DVD combo.

8 Remove the DVD combo drive from the carrier.

a. Open the two latches holding the DVD combo drive in the carrier.

b. Disconnect the ribbon cable.

c. Disconnect the power cable from the DVD combo drive.

d. Remove the three screws that fasten the carrier around the DVD combo drive.

e. Gently pry open the carrier and remove the DVD combo drive.

9 Install the new DVD combo drive in the carrier.

a. Line up the pins on each side of the bracket (two on each side) with the holes in the drive and set the replacement DVD combo drive into the drive bracket. Push gently on one side of the bracket to push the pins into place.

b. Screw the carrier shut with the three screws.

c. Reconnect the power and ribbon cables.

10 Slide the DVD combo drive assembly into the chassis.

11 With the black drive carrier handle in the fully open position, slide the drive assembly back into the chassis.

12 Attach the drive power and data cables at the rear of the drive. When the cables are firmly installed, the cable retention clips lock into place.

13 Replace the chassis cover.

14 Take the ESD strap off.

15 Replace the front bezel.

16 Reconnect the power cables and peripheral devices.

17 Restart the server.

—End—

Copyright © 2007-2009, Nortel Networks

Replacing memory DIMMs

Four Dual Inline Memory Modules (DIMMs) are installed on your server. You must replace all four memory DIMMs with those in the Nortel replacement pack. Nortel does not support more than four DIMM modules in the 1005r server.



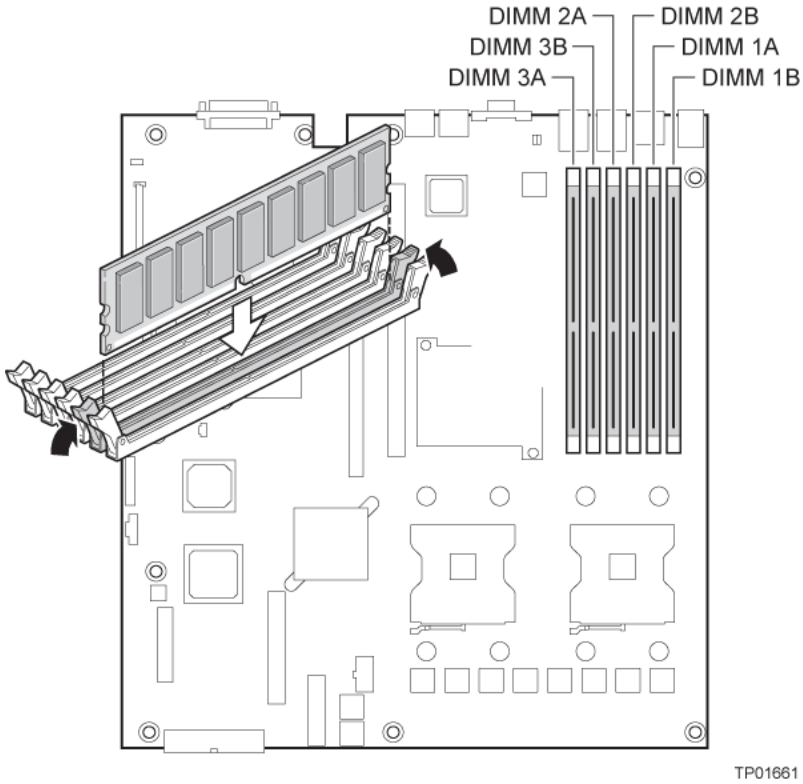
CAUTION
Risk of equipment damage
Take precautions to protect internal components. Electrostatic discharge (ESD) can damage cards and make them unusable.

To replace the DIMM cards

Step	Action
1	Power down the server, unplug all peripheral devices and Ethernet cables, and disconnect the AC power.
2	Attach the ESD strap to your wrist and attach the other end to a known grounded connection.
3	Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.
4	Remove the processor air duct. Refer to "To remove the processor air duct" (page 77) for instruction.
5	Locate memory banks 1A, 1B, 2A, and 2B on the server board. Refer to the following diagram.

Copyright © 2007-2009, Nortel Networks

Memory DIMM locations



6 Push the clips at each end of the DIMM sockets outward to the open position.

7 Remove all the DIMMs.

8 Holding each DIMM by the edges, remove it from the antistatic envelope.

9 Position the DIMM above the socket and align the small notch in the bottom edge of the DIMM with the keys in the socket.

10 Insert the bottom edge of the DIMM into the socket.

11 Push down on the top edge of the DIMM until the retaining clips snap into place. The retaining clips must be fully closed for the DIMM to make proper contact with the server board.

12 Install the other three DIMMs.

13 Replace the processor air duct.

14 Replace the chassis cover.

15 Plug in all peripheral devices and AC power.

Copyright © 2007-2009, Nortel Networks

16 Restart the server.

—End—

Replacing the software feature key

If you upgrade your system or convert it to high capacity, you must replace the software feature key with a new key.

To replace the software feature key

Step	Action
1	Remove the new software feature key from the plastic bag.
2	Eject the old software feature key by inserting a straightened paper clip into the side access hole.
3	Push the paper clip in the direction of the software feature key.
4	Insert the new software feature key into the software feature slot on the dongle with the data contact facing down and away from the embossed *i*.

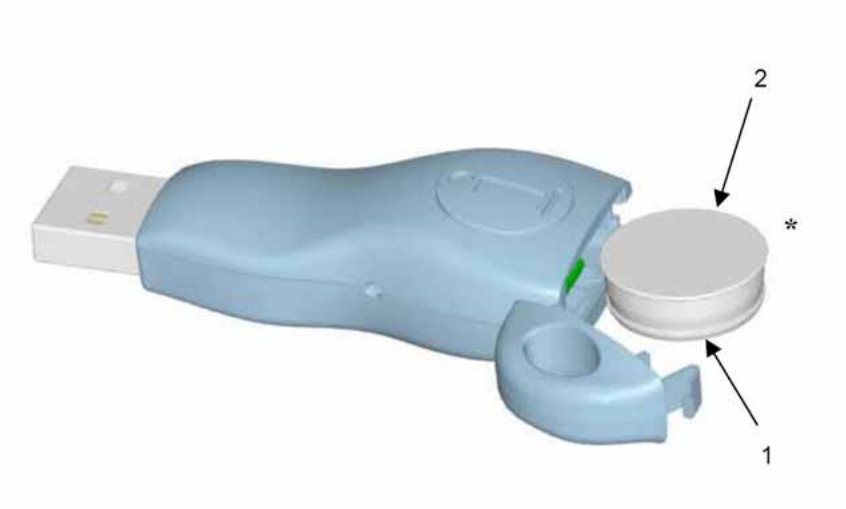
Dongle with open slot



In the following figure, label 1 is the data contact and label 2 is the ground.

Copyright © 2007-2009, Nortel Networks

Inserting the feature key



—End—

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Chapter 9
RAID operations

In this chapter

"Outlining RAID functions" (page 97)

"Verifying the RAID firmware" (page 98)

"Configuring RAID using LSI320-1 controller and Ctrl+M" (page 100)

"Verifying consistency on the drives" (page 103)

"RAID splitting" (page 104)

"Replacing the RAID card" (page 107)

Outlining RAID functions

Redundant Array of Independent Disks (RAID) is a technology that can combine two or more drives for fault tolerance and continuous service. The CallPilot RAID controller is a PCI RAID SCSI card that provides high-performance disk mirroring with RAID Level 1.

With Level 1 mirroring, two equal-capacity disk drives mirror one another. One disk drive serves as the backup copy of the other disk drive. If one disk drive fails, the other continues to run.

RAID configuring and splitting

Working with RAID involves the following:

- verifying the RAID firmware version
- upgrading or downgrading the RAID firmware
- configuring RAID using the LSI320-1 controller and the Ctrl+M menu at server bootup
- ensuring that your system is working and the RAID hardware is properly configured

Copyright © 2007-2009, Nortel Networks

- performing RAID splitting
- synchronizing RAID after installing CallPilot software upgrades (PEPs)
  - — Resynchronizing RAID if the installation is successful
  - — Resynchronizing RAID if the installation is not successful



WARNING
Nortel strongly recommends that you do not perform low level formatting. Performing low level formatting results in the drives becoming unusable.

Verifying the RAID firmware

You require the following minimum RAID firmware version:

- 1L37

To verify the RAID firmware version

Step	Action

To determine what the current RAID firmware version is on the RAID LSI320-1 controller, use either of the following procedures:
Press Ctrl+M

1 Turn on the server and press Ctrl+M when prompted during system bootup.

Note: The Ctrl+M utility can take up to 1 minute to launch with 1L37 firmware. The system can appear frozen. Do not reset.

2 Select Objects menu → Adapter → Other Adapter Information.

3 Review the information on the screen. The LSI320-1 controller firmware must be 1L37.

—End—

Step	Action

Launch MegaRAID Power Console Plus

1 Launch the MegaRAID client by clicking **Start > Programs> Power Console Plus > Launch Client**.

2 From the MegaRAID Power Console Plus - Server Selection window, select **Access Mode > Full Access** to view or change configuration information and click OK.

Copyright © 2007-2009, Nortel Networks

3 From the MegaRAID console, choose **Adapter > Properties**.

4 Review the information on the screen. The LSI320-1 controller firmware must be 1L37.

If the firmware is not correct, perform a firmware update. For instructions, see "To upgrade or downgrade the RAID firmware" (page 99).

—End—

ATTENTION

Perform the following procedure only if the firmware version is not the version identified in this section.

To upgrade or downgrade the RAID firmware

Step Action

The firmware of the RAID card is upgraded through a flash process. The flash process is initiated by running the RAID card firmware update utility on the CallPilot DVD.

1 Insert the CallPilot Image DVD for the platform into the DVD combo drive.

2 Power down the CallPilot server.

3 Restart the CallPilot server.

Result: The server boots from the DVD and the Startup Menu appears.

```
1.Install CallPilot 5.0 1005r server image and exit to
DOS (recommended).
2.Install CallPilot 5.0 1005r server image and exit to
DOS (FACTORY ONLY).
3.Utilities (BIOS, Firmware, etc...)
```

4 Enter 3 and press Enter to run Utilities (BIOS, Firmware, etc...) from the Startup.

Result: The Nortel CallPilot Image Menu appears.

```
1.1005r server BIOS update
2.1005r server FRU/SDR firmware update
3.1005r server Board Management Controller (BMC)
firmware update
4.LSI320-1 RAID controller firmware update
5.1005r system Utilities and SEL Viewer
6.Go to DOS
```


Copyright © 2007-2009, Nortel Networks

5 Enter 4 to run the LSI320-1 RAID card firmware update from the Nortel CallPilot Image Menu.

Result: The system prompts you to confirm the RAID firmware update.

6 Enter Y to confirm.

Result: The system displays the valid image for the RAID card firmware update and asks the following:

```
Do you wish to continue (y/n)?
```

7 Type Y and press Enter.

Result: The system states that you are flashing the Firmware (it displays the version), and asks the following:

```
Do you wish to continue (y/n)?
```

8 Type Y and press Enter.

Result: The Flash programming is performed. Once complete, the system prompts for you to reboot the system.

9 Manually reboot the CallPilot 1005r.

Result: The system reboots and the Startup Menu appears.

10 Remove the DVD from the DVD combo Drive.

11 Restart the server.

—End—

Configuring RAID using LSI320-1 controller and Ctrl+M

The configuration of the RAID card is stored on both the card and the hard drive. Typically you are not required to reconfigure RAID unless you are making a change to the RAID system (for example, if you replace the hard drives with higher capacity hard drives).



CAUTION
Risk of data loss
This procedure requires that the logical drive be initialized. When you initialize the logical drive, all data on the hard drives is erased.

Do not perform this procedure unless you are replacing the hard drives or you are rebuilding the CallPilot system (that is, reinstalling the Windows operating system and CallPilot software).

Copyright © 2007-2009, Nortel Networks

To configure an LSI320-1 RAID system

Step	Action

To configure RAID, do the following:

1 Turn on the server and press Ctrl+M when prompted during system bootup.

Note: The Ctrl+M utility can take up to 1 minute to launch with 1L37 firmware. The system can appear frozen. Do not reset.

2 From the Management menu, select Objects and press Enter.

3 From the Objects menu, select Adapter and press Enter.

4 From the Adapter menu, select Factory Default and press Enter.

5 Select Yes to confirm the selection and press Enter.

Result: The system displays **ForceBoot Option is Enabled Press Any Key**.

6 Press any key.

Result: The system displays **BOOT Parameters Changed. Press Ctrl-Alt-Delete to REBOOT**.

7 Press Ctrl+Alt+Delete when prompted to restart system.

8 During bootup, press Ctrl+M to re-enter the RAID setup utility.

9 From the Management menu, select Objects → Adapter, and then ensure the Adapter 1 values are set as follows:

FlexRAID PowerFail: **Enabled**
Fast Initialization: **On**
Disk Spin up Timings: **1 disk every 6 secs**
Cache Flush Timings: **Every 4 Seconds**
Rebuild Rate: **30%**
Alarm Control: **Enabled (There is no audible alarm)**
Other Adapter Options:
Emulation: **Mass Storage**
— Auto Rebuild: **Disabled**
— Initiator ID: **7**
— Multiple PCI Delayed Trans: **Disabled**
— Force Boot: **On**
— Coercion Algorithm: **1GB-way**
— CC Restoration: **Enabled**

Note: The Coercion Algorithm must be set properly. When changed, it cannot be changed again without clearing the configuration.

Copyright © 2007-2009, Nortel Networks

10 From the Configure menu, select **New Configuration**. Click **Yes** to proceed.

Result: The system displays the SCSI channel with two drives. SCSI IDs are automatically assigned for each of the two drives. All disk drives must be in READY state.

Note: Do not use the Load command on the Configure menu. This command is not for RAID operations.

11 Create the logical drive by selecting Channel-1 A01-0 and pressing the spacebar.

Result: The display changes to ONLIN A01-01.

12 Select A01-02 and press the Spacebar.

Note: The drives blink when you select them.

13 Press Enter to End the Array.

Result: The blinking stops.

14 Press F10 to configure the logical drive.

15 Press the spacebar to select Configuration Array.

Result: Span-1 appears in the box opened for the A01 logical drive.

16 Press F10 to configure the logical drive.

Result: The system prompts you for the logical drive to consecutively select:

RAID 1;
Size: accept the size displayed
Accept
SPAN = NO

Change the last value to NOSPAN, if required.

17 Select Accept and press Enter to accept these new values.

Result: The system prompts you to save the configuration.

18 Select YES and press Enter.

Result: The configuration is saved. Press any key to continue.

19 Press ESC to exit the submenus.

20 In the Management menu, choose the Initialize submenu.

21 Press F2 to select the logical drive.

22 Press F10 and consecutively select YES to initialize the drive pack.

Copyright © 2007-2009, Nortel Networks

23	When the initialization is complete, press any key to return to the Management menu.
24	Press ESC to exit the utility. Select Yes and press Enter.
25	Press Ctrl+Alt+Delete as indicated by the menu to reboot.

—End—

Verifying consistency on the drives

This optional consistency check on the logical drive of the RAID system ensures that the data on the drives is identical. If any errors are found, they are corrected automatically. Nortel strongly recommends that you do a consistency check before you split the RAID system pack. If possible, perform the consistency check the day before the scheduled maintenance. A good data backup on an offline drive is important if you need to revert to the CallPilot system from an unsuccessful upgrade or update.

Note: The consistency check can take up to 2 hours to complete and has no significant impact on system performance.

To perform a consistency check

Step	Action
1	In Windows, click **Start > Programs > Power Console Plus > Launch Client**. **Result:** The MegaRAID Power Console Plus Server Selection dialog box appears.
2	Ensure that **Access Mode > Full Access** is selected, and click OK. **Result:** The MegaRAID Power Console Plus dialog box appears displaying the Logical View of the Physical Devices and the Logical Devices. The status bar at the bottom of the window indicates that RAID channels are being scanned. When scanning is done, the screen refreshes and the Physical and Logical Devices screen appears.
3	In the Logical Devices section, right-click the logical drive, and then choose Check Consistency from the shortcut menu. **Result:** The Check Consistency status dialog box appears. You are informed when the check is finished. If any errors are found, a window with an error message appears.
4	Select **Configuration > Exit** to close the MegaRAID console. **Result:** An end of session message appears.

Copyright © 2007-2009, Nortel Networks

5 Click **OK**.

—End—

RAID splitting

Ensure that your system is in full working order and the RAID hardware configuration is set up properly as described on "Configuring RAID using LSI320-1 controller and Ctrl+M" (page 100).

Split the RAID before you install software upgrades (PEPs). If you are performing a platform upgrade or migration, refer to the *Upgrade and Platform Migration Guide* (NN44200-400) for complete instructions.

ATTENTION

As an extra precaution, Nortel recommends that you perform a full system backup prior to performing a RAID-split. For more information about system backups, see the CallPilot Manager online Help.

To split the RAID

Step	Action
1	Load the MegaRAID console. Select **Start > Programs > Power Console Plus > Launch Client**.
2	Ensure that **Access Mode > Full Access** is selected.
3	Click OK. **Result:** The MegaRAID Power Console Plus window appears.
4	Ensure all drives are in ONLINE state (marked green).
5	In the Physical Devices section, right-click the first drive. The drives are displayed as follows: (0)A1-1-Onln (1)A1-2-Onln
6	Select Tools → Fail Drive from the shortcut menu. **Result:** A message appears advising that marking the online drive Failed results in changes.
7	Ignore the warning and click OK. The drive status changes to FAILED and the color of the icon changes to red (for example, A01-2-Failed).

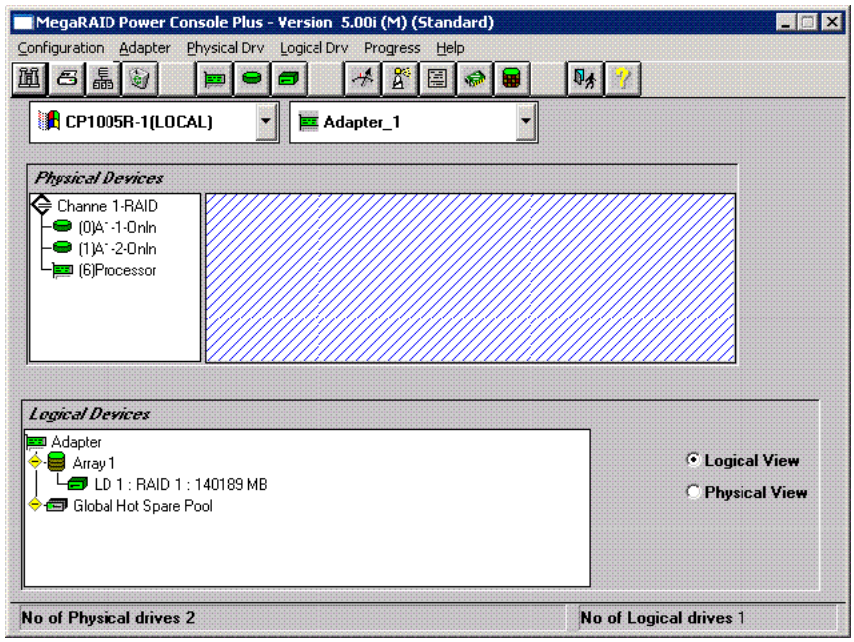
Copyright © 2007-2009, Nortel Networks

At this point, the RAID is split, and the drive marked FAILED is the backup drive and is no longer written to. You can install a PEP on the system and use the backup drive to back out of the installation.

ATTENTION

Do not make the failed drive online at this point, or data corruption can occur. If you failed the wrong drive by mistake, you must select rebuild to bring it back into service.

MegaRAID Power Console Plus drive status



—End—

RAID synchronization after installing a PEP

Resynchronize the RAID after you perform a software upgrade with a PEP.

To synchronize the RAID after a successful PEP installation

Step	Action

To restore RAID to full service after a successful PEP installation:

1 Without shutting down the server, from Windows, click **Start > Programs > Power Console Plus > Launch Client**.

Note: Ensure that **Access Mode > Full Access** is selected.

Copyright © 2007-2009, Nortel Networks

2 Click OK.

Result: The MegaRAID Power Console Plus window appears.

3 In the Physical Devices section, right-click the hard disk drive that is marked FAILED.

Example: A01-2-Failed.

ATTENTION
Do not make the failed drive online at this point, or data corruption can occur. If you failed the wrong drive by mistake, you must select rebuild to bring it back into service.

4 From the right mouse shortcut menu, select Rebuild.

Result: When the rebuild is complete, the drive status changes to ONLINE and the color of the icon changes to green.

—End—

The rebuild process takes between 3 to 6 hours depending on the drives. Individual drive testing resulted in 3 hours for 147 GB drives and 6 hours for 320 GB drives. If the server reboots during the rebuild process, the rebuild continues when the server restarts. However, a power down or reboot is not recommended during the rebuild process.

To synchronize the RAID after an unsuccessful PEP installation

Step Action

If the PEP installation fails, you must return the system to the original configuration.

ATTENTION
Do not use the Power Console for the following procedure, or data corruption can occur.

1 Restart the server and enter the Ctrl+M utility when prompted during system bootup.

2 From the Management menu, select Objects and press Enter.

3 Select **Objects > Physical Drive** and press Enter.

4 Select FAIL Drive for the drive that is online (A01-1-Onln).

Result: The drive shows as failed.

Copyright © 2007-2009, Nortel Networks

5 Select the second drive (previously taken offline as the backup drive and marked failed) and make it ONLINE. Ignore the warning message.

Result: The second drive is marked ONLINE and the first drive is marked failed.

6 Exit the utility and press Ctrl+Alt+Delete to reboot the server.

Result: The system boots up to the original configuration before the PEP installation.

7 When the system is fully booted, open the Windows MegaRAID console and rebuild the failed drive using the same process described in "To synchronize the RAID after a successful PEP installation" (page 105).

Result: The system is now in the original configuration.

—End—

Replacing the RAID card

The RAID card is in low-profile slot 1 (counting from the top down) of the PCI riser assembly.



CAUTION
Risk of electrical damage

- Wear an antistatic ESD wrist strap when handling cards or boards, or when working inside the server.
- Do not touch the components or gold-edge connectors of cards or boards.
- Place the card on an antistatic surface until you are ready to install it.

PCI add-in cards are not hot-swappable. You must power down the system and remove the power cords before replacing the card.

Copyright © 2007-2009, Nortel Networks



CAUTION
Risk of physical equipment damage
Remove the 1005r from the rack, and place it on a solid surface when replacing or adding cards. The PCI riser assembly requires considerable force when inserting it into the connector, and physical damage can result if the assembly is not properly aligned.

Placing the server on a solid surface such as a workbench gives you a better view of the card alignment and lets you exert the necessary force when inserting the assembly into the connector.

Requirements

- Phillips (cross head) screwdriver, #1 and #2 bit
- RAID card replacement kit
- electrostatic discharge (ESD) grounding strap

To replace the RAID card

Step	Action
1	Power down the server, unplug all peripheral devices and ethernet cables, and disconnect the AC power.
2	Attach the ESD strap to your wrist and attach the other end to a grounded connection away from the server.
3	Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.
4	Disconnect the red power cable from the PCI riser assembly.
5	Disconnect the DS30X cable from the MPB96 board in the full-size side of the PCI riser. If you have an NTRH40CA MPB96 board or boards, disconnect the DS30 cables from the RJ-45 connectors.

Copyright © 2007-2009, Nortel Networks

DS30X cables for high capacity



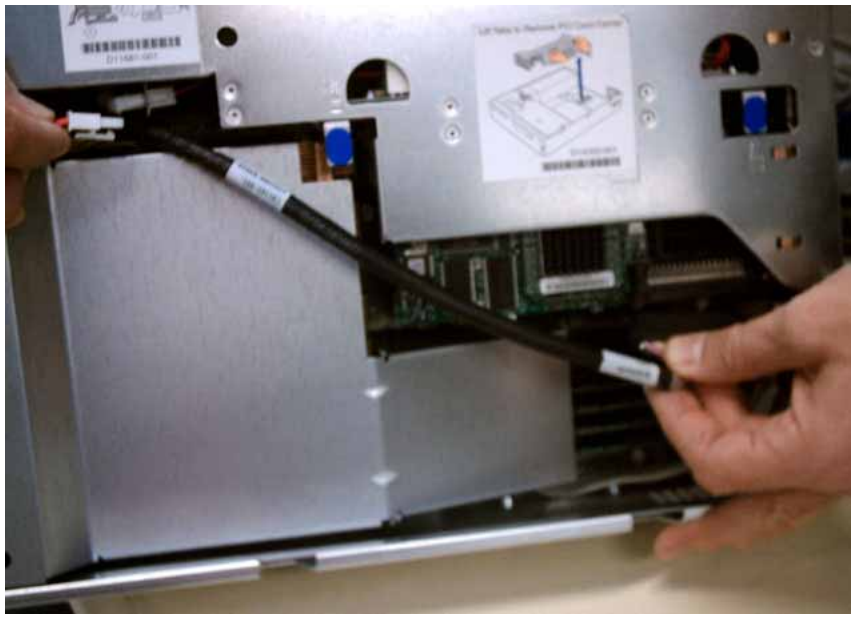
ATTENTION

If you have the high capacity configuration with three MPB96 boards, label each cable with the MPB96 slot number before disconnecting them. Incorrectly connected MPB96 boards do not answer calls. If you have an NTRH40CA MPB96 board, label each DS30 cable according to its RJ-45 connector.

6 Disconnect the SCSI cable from the RAID card.

Copyright © 2007-2009, Nortel Networks

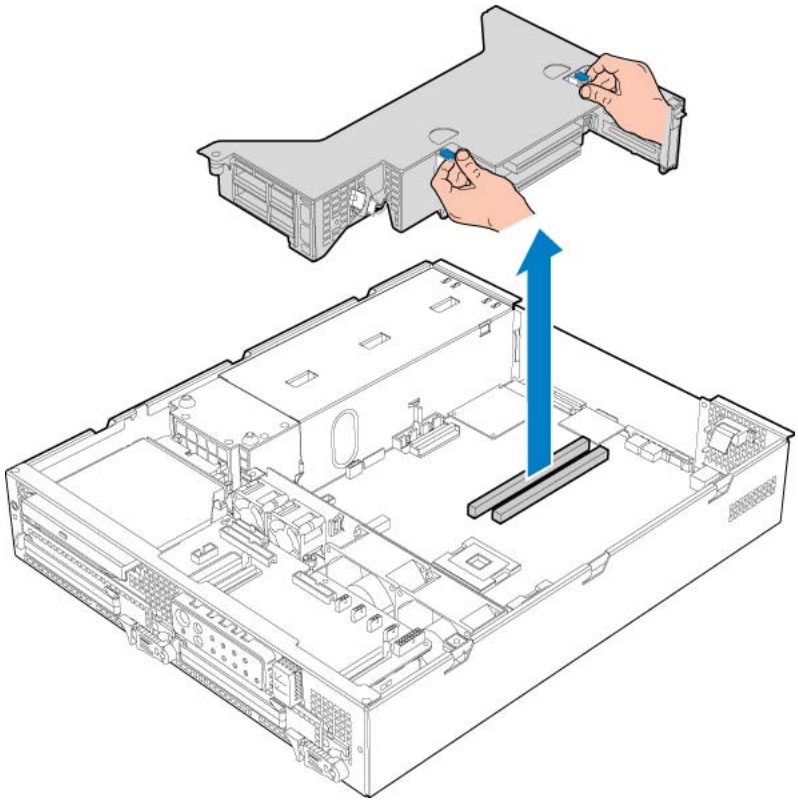
SCSI cable to RAID card



7 Lift the blue tabs and pull up on the riser to remove the riser card assembly from the chassis.

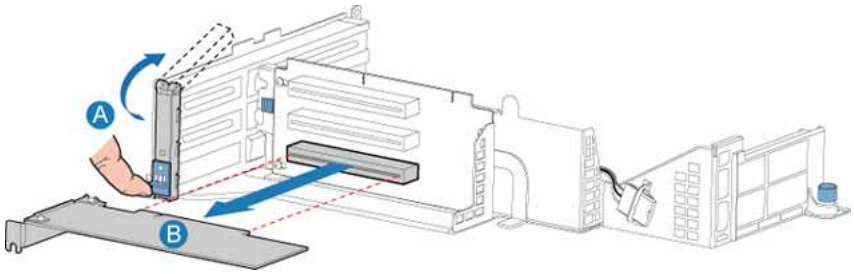
Copyright © 2007-2009, Nortel Networks

PCI riser card assembly



8 Turn the riser card upside down and place it on a table.

Low-riser PCI card



9 Release the retention bar (A).

10 Replace the card (B).

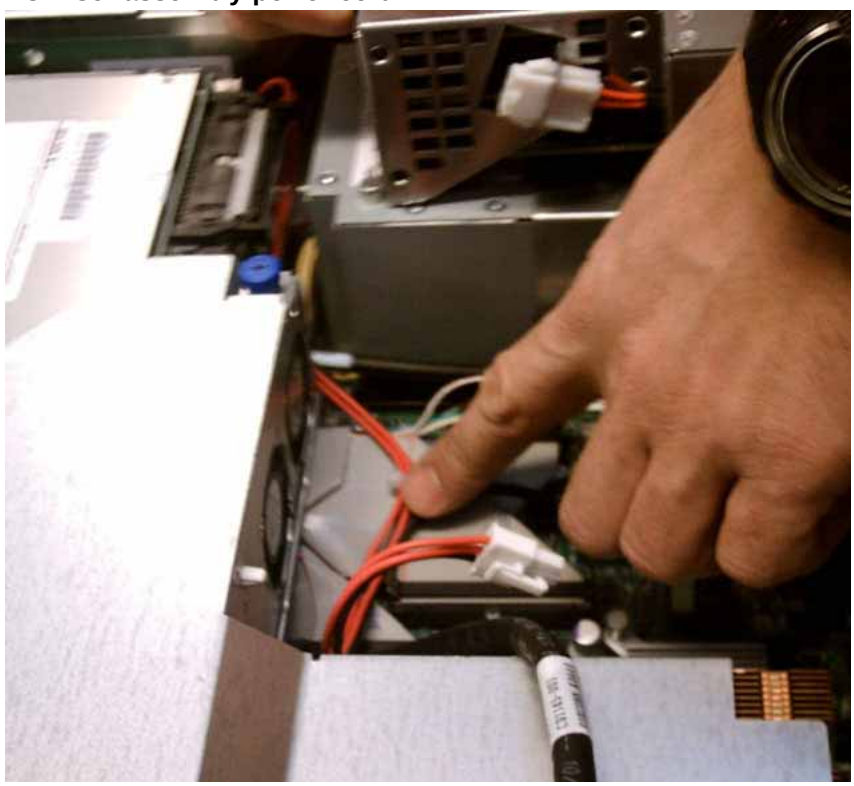
11 Lock the retention bar in place.

12 Turn the PCI riser card right-side up and place it on a table.

Copyright © 2007-2009, Nortel Networks

13 Arrange the PCI riser assembly red power cable as shown in the following illustration to avoid pinching the cable when you put the riser assembly into the chassis.

PCI riser assembly power cord



14 Reconnect the DS30X or DS30 cable or cables to the MPB96 board or boards. You must reconnect each cable to the same MPB96 board to which it was previously connected. Use the labels you applied in step 4

15 Hold the PCI riser assembly by the two blue handles (A) and push the assembly into the server board. Refer to "PCI riser card assembly" (page 111).

16 Line up the two grooves on the back lip of the PCI riser assembly with the pins on the rear panel as shown in the following illustration.

ATTENTION
If the PCI riser assembly is not fully seated, the server can malfunction.

Copyright © 2007-2009, Nortel Networks

PCI riser assembly rear grooves



17 Reconnect the PCI riser assembly power cord.

18 Reconnect the SCSI cable to the RAID card.

19 Replace the chassis cover.

20 Take the ESD strap off.

21 Power up the server and log on to Windows.

Result: The Windows New Hardware Found Wizard screen appears.

22 Click Next.

23 Select the presented driver.

24 Check that the RAID firmware is version 1L37. Refer to "To verify the RAID firmware version" (page 98).

25 Upgrade the RAID firmware, if required. Refer to "To upgrade or downgrade the RAID firmware" (page 99).

26 Configure the new RAID card. Refer to "To configure an LSI320-1 RAID system" (page 101).

27 Test the system to ensure the new board is functioning properly.

For instructions, see "Testing the CallPilot installation" in the *Installation and Configuration Task List* (NN44200-306).

Copyright © 2007-2009, Nortel Networks

—End—

Copyright © 2007-2009, Nortel Networks

Chapter 10
Replacing or adding voice processing boards

In this chapter

- "M1/CS1000 switch connectivity" (page 115)
- "Locating the voice processing boards" (page 116)
- "DSP numbering and location" (page 116)
- "Replacing an MPB96 board" (page 118)
- "Upgrading to high capacity" (page 127)

M1/CS1000 switch connectivity

There are two valid configurations for MPB96 boards with M1/CS1000 switch connectivity. The following table shows valid configurations.

MPB96 with M1/CS1000 switch

MPB96 boards	Slot number	Max. channels	MPU
1	1	96	96
3 (high capacity)	1, 2, 3	192	288

Determine which configuration applies to your system.

ATTENTION
You must use one of the valid configurations for the system to function properly.

Taking safety precautions

Before you make any changes to the server hardware, follow these safety precautions:

- Respect appropriate electrostatic discharge (ESD) rules.
- Power down the system.

Copyright © 2007-2009, Nortel Networks

- Do not drop and leave screws inside the server.
- Do not drop hard objects (such as screwdrivers) inside the server as this can damage the server.

Locating the voice processing boards

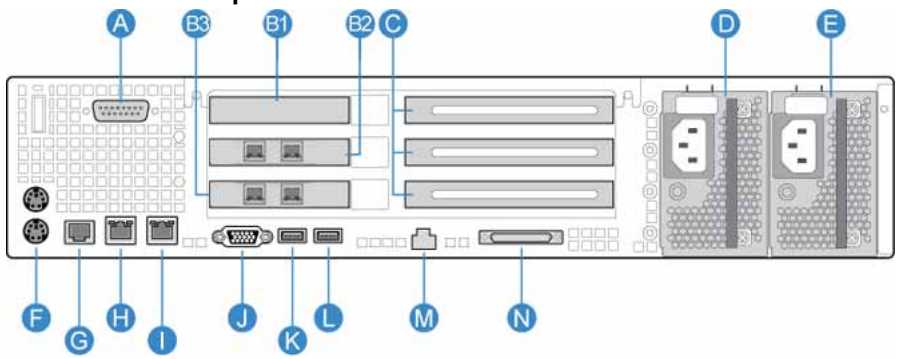
"1005r server rear panel" (page 116) shows the rear panel of the 1005r server with the three full-height PCI card slots (C). The MPB96 voice processing boards occupy one or three full-height slots. In the following diagram, the card slots are numbered from 1 to 3 starting at the top.

ATTENTION

There are two versions of MPB96 boards: NTRH40AA and NTRH40CA.

- The NTRH40AA has a single DB-44 faceplate connector, and connects to the Communication Server 1000 or Meridian 1 using an NTRH2014 DS30X cable.
- The NTRH40CA has three RJ-45 faceplate connectors, and connects to the Communication Server 1000 or Meridian 1 using standard DS30 Ethernet-type CAT5e (or greater) cables. These DS30 cables can be up to 600 metres in length. The RJ-45 connectors are numbered from 1 to 3 starting from the right side of the server as you face the back panel (next to the power supplies).

1005r server rear panel



Refer to the *1005r Server Hardware Installation* (NN44200-308) guide to identify the other features on the 1005r rear panel.

DSP numbering and location

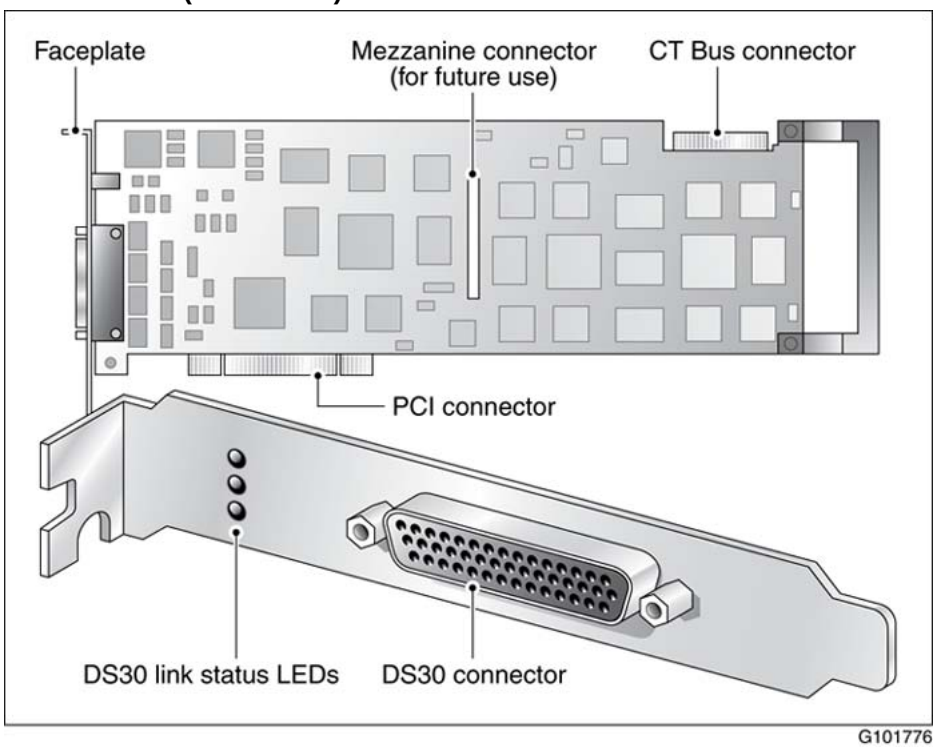
DSPs are the built-in voice processing components on MPB boards. DSPs are numbered to distinguish them in CallPilot maintenance programs, such as the Maintenance screen in CallPilot Manager. Each DSP supports up to eight multimedia channels.

Copyright © 2007-2009, Nortel Networks

DSP numbering MPB96 boards

The MPB96 board has 12 embedded DSPs. MPC-8 cards are not required. If an embedded DSP is faulty, you must replace the entire MPB96 board.

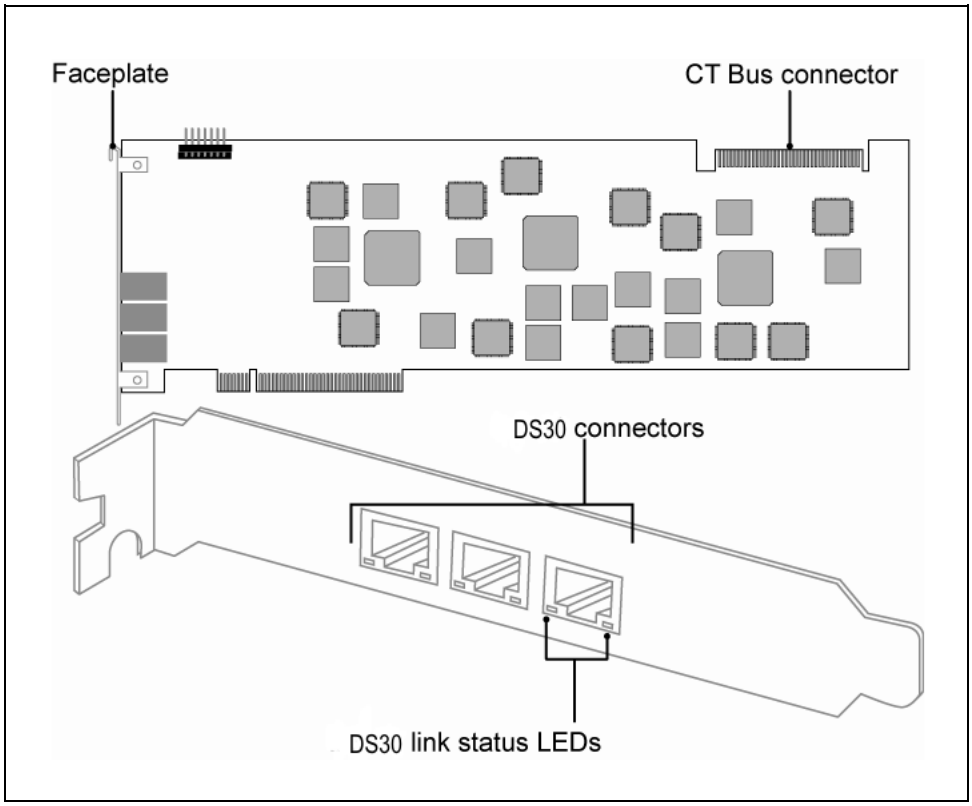
MPB96 board (NTRH40AA)



The following illustration shows an NTRH40CA MPB96 board, and faceplate. Note that there are link status LEDs on each RJ-45 connector.

Copyright © 2007-2009, Nortel Networks

MPB96 board (NTRH40CA)



Replacing an MPB96 board

This section describes how to replace an MPB96 board.

You must replace an MPB96 board:

- if the board becomes faulty
- when the PCI firmware needs to be updated, and the board must be sent back to the factory

ATTENTION

If you are replacing an NTRH40AA MPB96 board with an NTRH40CA, make sure you have the following:

- NTRB18DA MGate cards. The NTRH40CA MPB96 board only connects to NTRB18DA and later MGate cards.
- CAT5e cables to connect from the MPB96 board to the MGate Cards. You require one CAT5e cable for each MGate card.

Copyright © 2007-2009, Nortel Networks



CAUTION
Risk of electrical damage

- Wear an antistatic ESD wrist strap when handling cards or boards, or when working inside the server.
- Do not touch the components or gold-edge connectors of cards or boards.
- Place the board on an antistatic surface until you are ready to install it.

MPB96 boards are not hot-swappable and you must power down the system before replacing the cards.



CAUTION
Risk of physical equipment damage
Remove the 1005r from the rack, and place it on a solid surface when replacing or adding cards. The PCI riser assembly requires considerable force when inserting it into the connector, and physical damage can result if the assembly is not properly aligned.

Placing the server on a solid surface such as a workbench gives you a better view of the card alignment and lets you exert the necessary force when inserting the assembly into the connector.

Requirements

- Phillips (cross head) screwdriver, #1 and #2 bit
- MPB96 replacement board
- electrostatic discharge (ESD) grounding strap

To replace an MPB96 board

Step	Action
1	Courtesy stop all CallPilot channels. Refer to "Starting and stopping components" (page 53).
2	Power down the server, unplug all peripheral devices and ethernet cables, and disconnect the AC power.
3	Attach the ESD strap to your wrist and attach the other end to a known grounded connection.

Copyright © 2007-2009, Nortel Networks

4 Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.

5 Disconnect the red power cable from the PCI riser assembly.

6 Disconnect the DS30X cable or DS30 cables from the MPB96 board in the full-size side of the PCI riser.

DS30X cables for high capacity

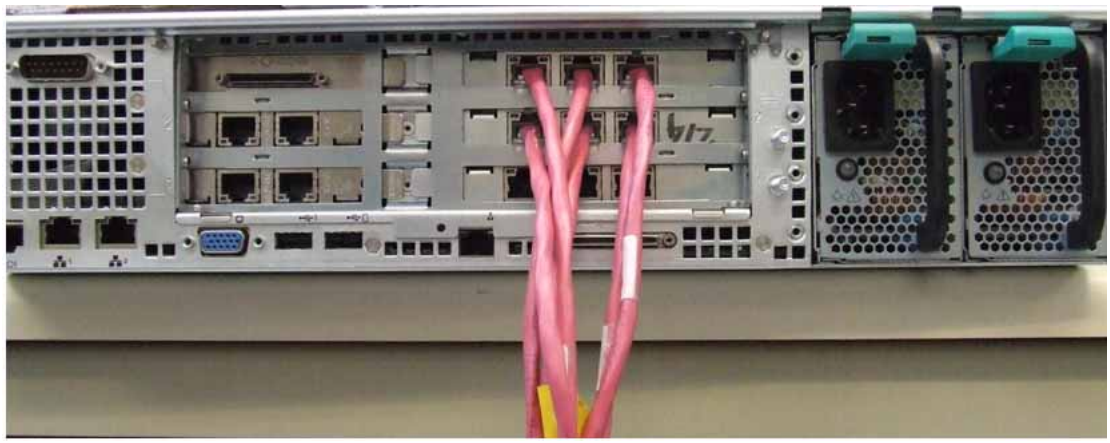


ATTENTION

Before disconnecting your DS30X or DS30cables, make sure each cable is labeled according to its location. Incorrectly connected MPB96 boards do not answer calls.

Copyright © 2007-2009, Nortel Networks

DS30 (CAT5e) cables for high capacity



7 Disconnect the SCSI cable attached to the RAID card.

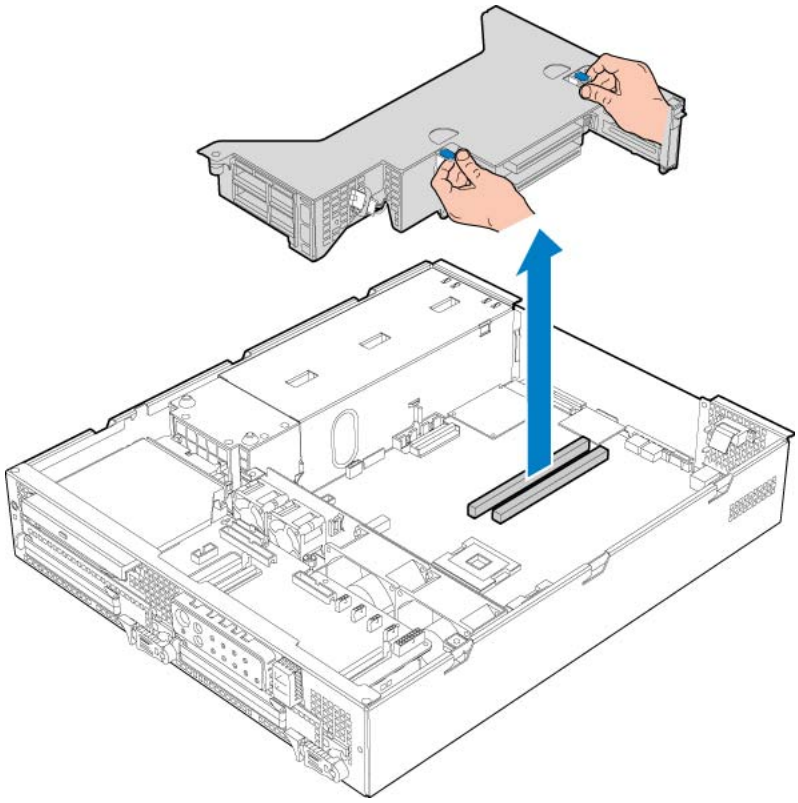
SCSI cable attached to RAID card



8 Lift the blue tabs and pull up on the riser to remove the riser card assembly from the chassis.

Copyright © 2007-2009, Nortel Networks

PCI riser card assembly



9 Turn the riser card upside down and place it on a table.

10 Disconnect the CT bus cable from the MPB96 boards (high capacity configuration only).

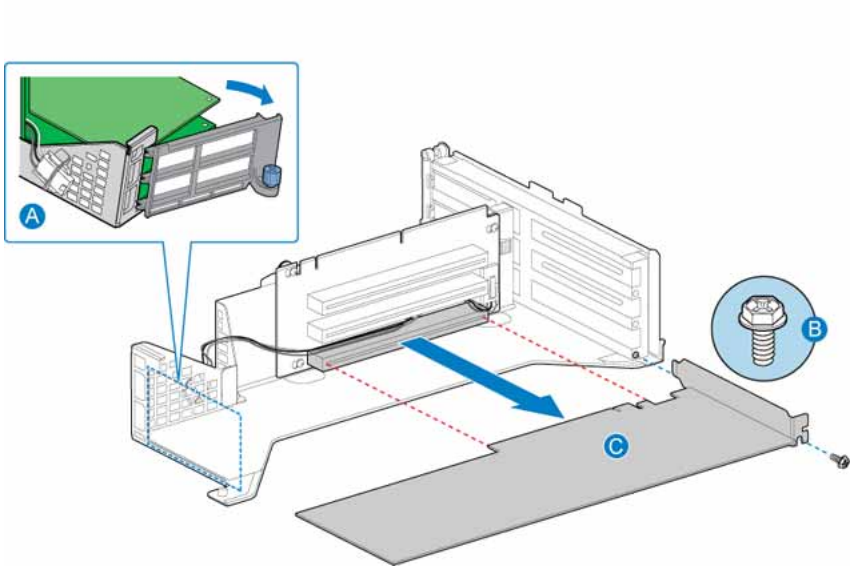
Copyright © 2007-2009, Nortel Networks

CT bus cable attached to MPB96 boards.



11 Release the retention clip by loosening the blue captive screw (A) as shown in the following diagram.

Full-height PCI card



Copyright © 2007-2009, Nortel Networks

12 Remove the rear retention screw (B) as shown in the previous diagram.

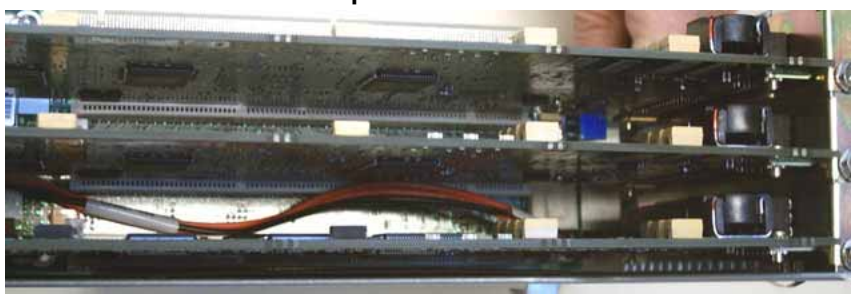
13 Replace the card and tighten the screws. Make sure the red power cable to the full-size PCI riser card is not pinched.

14 Reconnect the 3-drop CT bus cable (high capacity configuration only).

15 Turn the PCI riser card right-side up.

16 Arrange the PCI riser assembly short red power cable inside the riser assembly as shown in the following illustration to avoid pinching the cable when you put the riser assembly into the chassis.

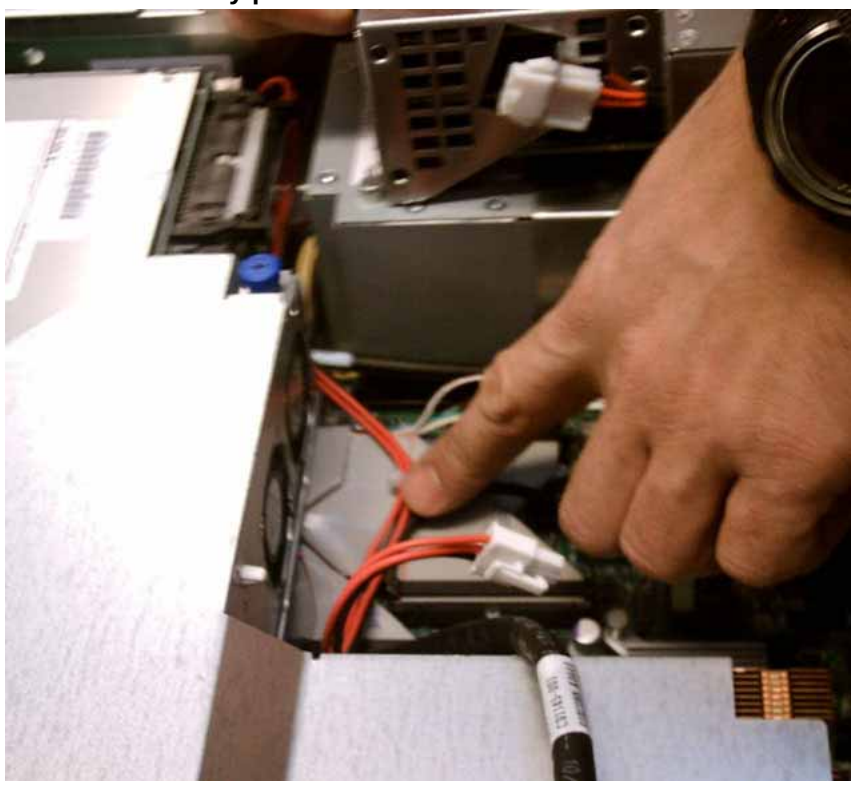
Full-size PCI riser card red power cable



17 Arrange the PCI riser assembly power cable as shown in the following illustration.

Copyright © 2007-2009, Nortel Networks

PCI riser assembly power cable



18 Line up the two grooves on the back lip of the PCI riser assembly with the pins on the rear panel as shown in the following illustration.

19 Hold the PCI riser assembly by the two blue handles (A) and push the assembly into the server board. Refer to "PCI riser card assembly" (page 122).

ATTENTION

If the PCI riser assembly is not fully seated, the server can malfunction.

Copyright © 2007-2009, Nortel Networks

PCI riser assembly rear studs and slots



20 Reconnect all MPB96 cables. If you are replacing an NTRH40AA MPB96 with an NTRH40CA, see *Meridian 1 and CallPilot Server Configuration* (NN44200-302) or *CS1000 and CallPilot Server Configuration* (NN44200-312) for information about connecting the DS30 cables.

21 Reconnect the SCSI cable to the RAID card

22 Replace the chassis cover.

23 Take the ESD strap off.

24 Power up the server and log on to Windows.

25 Run the Configuration Wizard to configure the new hardware.

For instructions, see *Meridian 1 and CallPilot Server Configuration* (NN44200-302) or *CS1000 and CallPilot Server Configuration* (NN44200-312).

Result: The MPB96 board replacement is complete.

26 Test the multimedia channels to ensure the new MPB96 board is functioning properly.

For instructions, see "Testing the CallPilot installation" in the *Installation and Configuration Task List* (NN44200-306).

—End—

Copyright © 2007-2009, Nortel Networks

Upgrading to high capacity

This section describes how to upgrade your server hardware to the high capacity configuration. You need three MPB96 boards to support the high capacity feature.

For more information about MPB96 board versions and cables see "Locating the voice processing boards" (page 116).

ATTENTION

The NTRH40CA MPB96 board only connects to NTRB18DA or later MGate cards.



CAUTION
Risk of electrical damage

- Wear an antistatic ESD wrist strap when handling cards or boards, or when working inside the server.
- Do not touch the components or gold-edge connectors of cards or boards.
- Place the board on an antistatic surface until you are ready to install it.

MPB96 boards are not hot-swappable and you must power down the system before adding boards.

Requirements

- Phillips (cross head) screwdriver, #1 and #2 bit
- High capacity upgrade kit (two or three MPB96 boards, and a CT bus cable)

ATTENTION

DS30 cables are not supplied with the upgrade kit. The NTRH40CA uses standard CAT5e (or greater) Ethernet-type cables. For a detailed description of these cables see *CS 1000 and CallPilot Server Configuration guide* (NN44200-312).

Note:

To add MPB96 boards

Step	Action
1	Courtesy stop all CallPilot channels. Refer to "Starting and stopping components" (page 53).

Copyright © 2007-2009, Nortel Networks

2 Power down the server, unplug all peripheral devices and ethernet cables, and disconnect the AC power.

3 Attach the ESD strap to your wrist and attach the other end to a known grounded connection.

4 Remove the chassis cover. Refer to "Removing and replacing the server cover" (page 75) for instructions.

5 Disconnect the red power cable from the PCI riser assembly.

6 Disconnect the DS30X cable from the MPB96 board in the full-size side of the PCI riser. Mark the cable as number 1.

If the MPB96 board is an NTRH40CA, disconnect the three DS30 cables from the RJ-45 faceplate connectors. Mark the cables as 1, 2, and 3. The RJ-45 connectors are numbered from the right of the server as you face the back panel next to the power supplies.

7 Disconnect the SCSI cable attached to the RAID card.

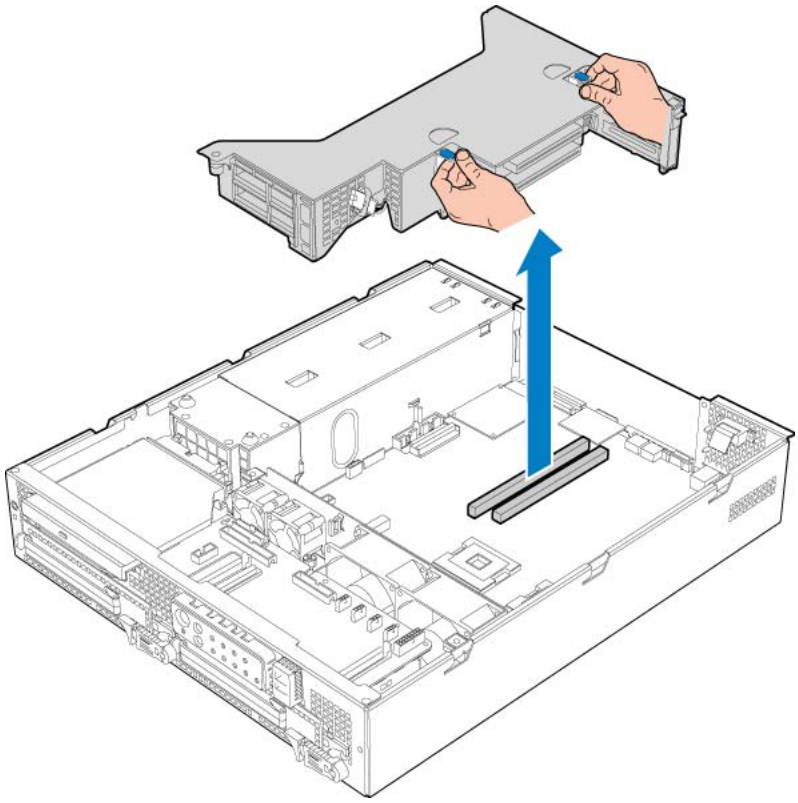
SCSI cable attached to RAID card



8 Lift the blue tabs and pull up on the riser to remove the riser card assembly from the chassis.

Copyright © 2007-2009, Nortel Networks

PCI riser card assembly



9 Turn the riser card upside down and place it on a table.

10 Release the retention clip by loosening the blue captive screw (A).

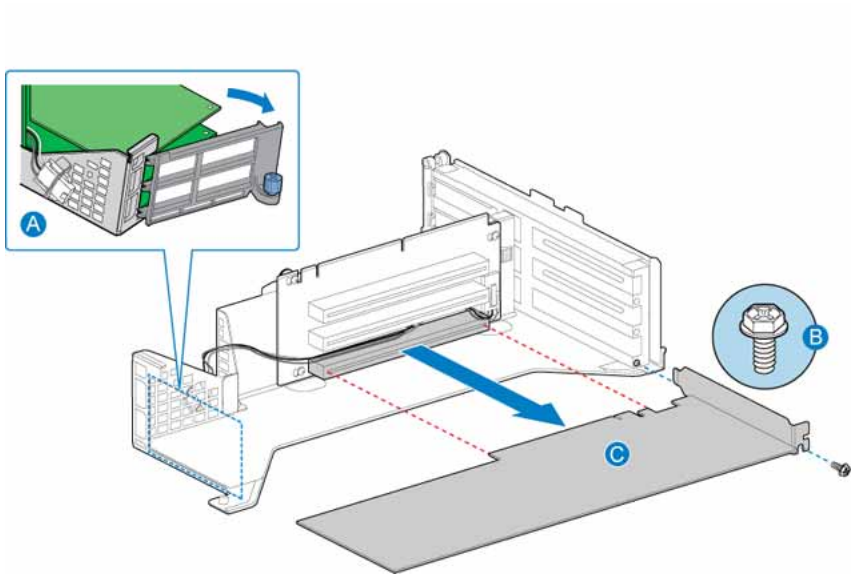
11 Remove the rear retention screw (B).

12 If the existing MPB96 board is an NTRH40AA, move the board to slot 3.

13 Add the two new boards to the two vacant slots.. Insert and tighten the retaining screws (B). Make sure the red power cable is not pinched.

Copyright © 2007-2009, Nortel Networks

Full-height PCI card



14 Connect the 3-drop CT bus cable to the MPB96 boards as shown in the following illustration.

CT bus cable attached to MPB96 boards

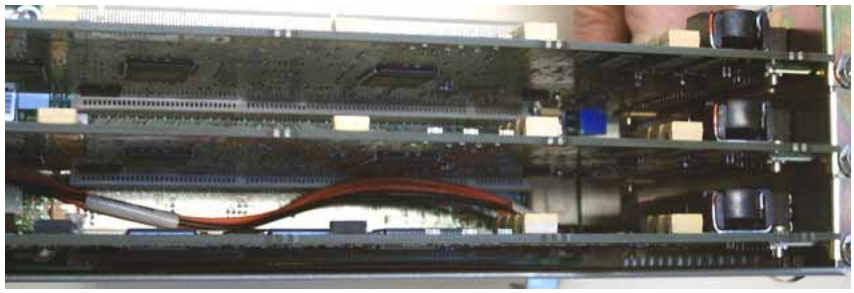


Copyright © 2007-2009, Nortel Networks

15 Turn the PCI riser card right-side up.

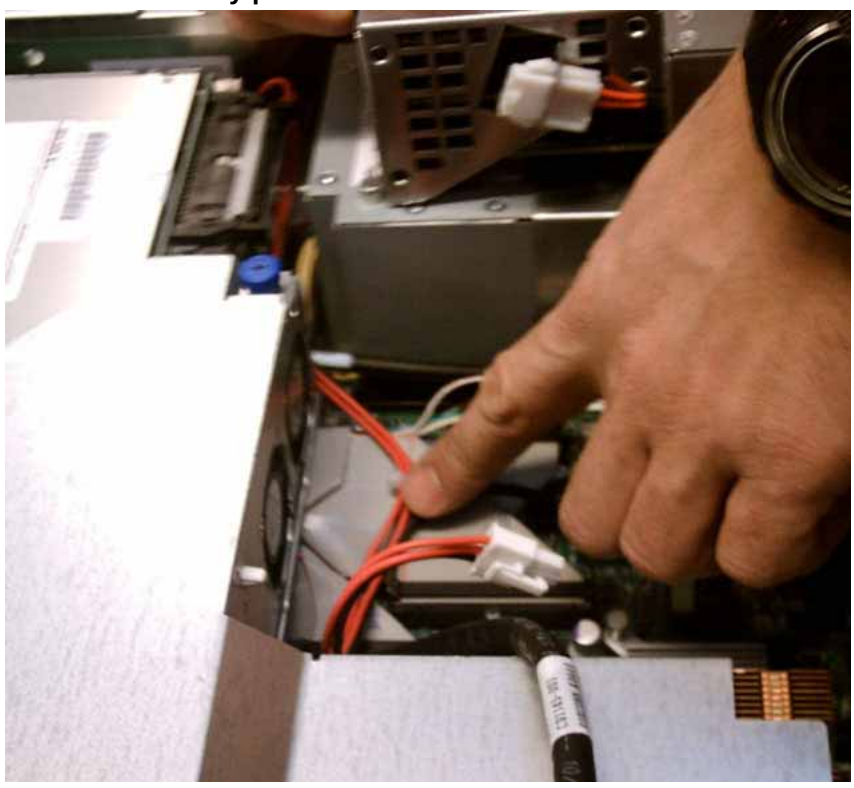
16 Arrange the PCI riser assembly red power cable inside the riser assembly as shown in the following illustration to avoid pinching the cable when you put the riser assembly into the chassis.

PCI riser assembly inside power cable



17 Arrange the PCI riser assembly long red power cable that plugs into the short red cable as shown in the following illustration.

PCI riser assembly power cable



18 Line up the two grooves on the back lip of the PCI riser assembly with the pins on the rear panel.

Copyright © 2007-2009, Nortel Networks

Replacing the riser assembly



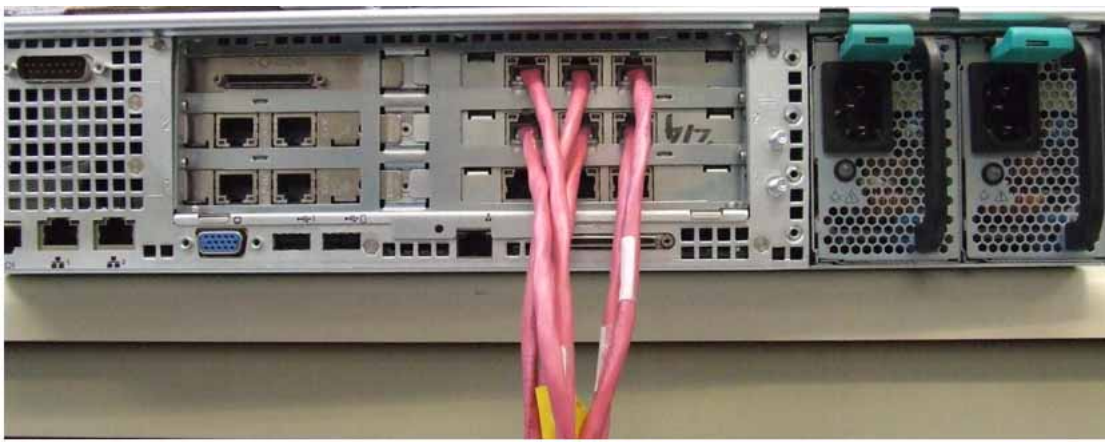
19 Hold the PCI riser assembly by the two blue handles (A) and push the assembly into the server board. Refer to "PCI riser card assembly" (page 122).

20 Reconnect the PCI riser assembly power cord.

21 Reconnect the CT bus cable.

22 Connect the cables to the MPB96 boards

High capacity rear view



The RJ-45 connectors are numbered from 1 to 3 starting at the right side of the server next to the power supplies as you face the back panel.

23 Reconnect the SCSI cable to the RAID card.

Copyright © 2007-2009, Nortel Networks

24 Replace the chassis cover.

25 Take the ESD strap off.

26 Power up the server and log on to Windows.

Result: The Windows New Hardware Found Wizard screen appears.

27 Click Next.

28 Select the presented Nortel MPB driver (there is only one).

29 The Windows New Hardware Found Wizard screen appears again.

30 Click Next.

31 Select the presented Nortel MPB driver (there is only one).

If you are upgrading a pair of High Availability servers, do not complete the next two steps. Return to the Procedure "Performing a High Capacity upgrade".

32 Run the Configuration Wizard to configure the new hardware.

For instructions, see *Meridian 1 and CallPilot Server Configuration* (NN44200-302) or *CS1000 and CallPilot Server Configuration* (NN44200-312).

Result: The high capacity expansion is complete.

33 Test the multimedia channels to ensure the new MPB96 boards are functioning properly.

For instructions, see "Testing the CallPilot installation" in the *Installation and Configuration Task List* (NN44200-306).

—End—

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Chapter 11
Maintaining the BIOS and system board firmware

In this chapter

"Configuring the 1005r BIOS and firmware" (page 135)

"BIOS settings" (page 138)

"Using system event logs" (page 141)

"Maintaining the onboard video and network cards" (page 143)

Configuring the 1005r BIOS and firmware

The Basic Input/Output System (BIOS) of your 1005r server is flash ROM-based code. Upgrade or reconfigure the BIOS using the utilities on the CallPilot Image DVD. The utility programs write updated code to the Flash ROM chips. The following table shows the latest BIOS and firmware versions.

BIOS and firmware versions

Description	Version
System board BIOS	87
FRU/SDR	Nortel customized based on Intel FRU/SDR 6.55
BMC	0.50

Upgrading the BIOS and firmware is a four step process:

1. Boot off the Image DVD and display the Image Menu.
2. Update the BIOS firmware.
3. Update the FRU/SDR firmware.
4. Update the BMC firmware.

Copyright © 2007-2009, Nortel Networks

ATTENTION
You must complete all steps in the correct order for your system to function properly.

When to upgrade the BIOS



CAUTION
Risk of data loss
Perform this procedure only if specifically instructed to do so by your Nortel representative.

The CallPilot server is shipped to you with the required minimum BIOS and system board firmware versions. Upgrade the BIOS and system board firmware only if your Nortel representative deems this necessary to solve a system problem.

When to reconfigure the BIOS

The initial BIOS configuration is performed at the factory before the CallPilot server is shipped to you. Reconfigure the BIOS only after you recover from a BIOS or CMOS failure.

Requirements for upgrading or reconfiguring the BIOS

- CallPilot Image DVD

ATTENTION
You must have all of the hardware components of your system installed and connected before you upgrade the firmware.

To display the Nortel CallPilot Image Menu

Step	Action
1	Insert the CallPilot Image DVD for the platform into the DVD combo drive.
2	Power down the CallPilot server.
3	Restart the CallPilot server. **Result:** The server boots from the DVD and the Startup Menu appears. `1.Install CallPilot 5.0 1005r server image and exit to DOS (recommended)`

Copyright © 2007-2009, Nortel Networks

```
2.Install CallPilot 5.0 1005r server image and exit to
DOS (FACTORY ONLY)
3.Utilities (BIOS, Firmware, etc...)
```

4 Enter 3 to select `Utilities (BIOS, Firmware, etc...)` and press **Enter**.

Result: The Nortel CallPilot Image Menu displays.

```
1.1005r server BIOS update
2.1005r server FRU/SDR firmware update
3.1005r server Board Management Controller (BMC)
firmware update
4.LSI320-1 RAID controller firmware update
5.1005r system Utilities and SEL Viewer
6.Goto DOS
```

—End—

To upgrade the BIOS and system board firmware

Step	Action

1 Enter 1 to run 1005r server BIOS update from the Nortel CallPilot Image Menu.

Result: The system prompts you to confirm the BIOS update.

2 Enter Y to confirm.

Result: The BIOS update progress appears with the following message:

```
System will now reboot.
Press any key to continue...
```

3 Enter any key.

Result: The system reboots and the Startup Menu appears.

4 Enter 3 to run Utilities (BIOS, Firmware, etc...) from the Startup Menu and press **Enter**. If the Startup Menu is not displayed, refer to "To display the Nortel CallPilot Image Menu" (page 136).

5 Enter 2 to run 1005r server FRU/SDR firmware update from the Nortel CallPilot Image Menu.

Result: The system prompts you to confirm the FRU/SDR update.

6 Enter Y to confirm.

Result: The FRU/SDR update progress dialog box appears with the following message:

Copyright © 2007-2009, Nortel Networks

```
System will now reboot.
Press any key to continue...
```

7 Enter any key.

Result: The system reboots and the Startup Menu appears.

8 Enter 3 to run Utilities (BIOS, Firmware, etc...) from the Startup Menu and press **Enter**. If the Startup Menu is not displayed, refer to "To display the Nortel CallPilot Image Menu" (page 136).

9 Enter 3 to run 1005r server Board Management Controller (BMC) firmware update from the Nortel CallPilot Image Menu.

Result: The system prompts you to confirm the BMC update.

10 Enter Y to confirm.

Result: The BMC update progress dialog box appears with the following message:

```
System will now reboot.
Press any key to continue...
```

11 Remove the Image DVD from the DVD combo drive and enter any key.

Result: The system reboots.

12 The BIOS upgrade is complete.

—End—

BIOS settings

"BIOS settings" (page 138) displays the 1005r server BIOS settings. As the system boots, press F2 to enter the 1005r BIOS. BIOS Settings that are in **bold text** are settings that are modified by Nortel.

BIOS settings

Main	Set the Date and the language to English	
Advanced	Processor Configuration	Processor Re-test: Disabled Max CPU ID Value Limit: Disabled Hyper treading Technology: Enabled HT Technology in MPS: **ENABLED** Execute Disable Bit: Enabled Hardware Prefetcher: Disabled Adjacent Cache Line Prefetch: Disabled

Copyright © 2007-2009, Nortel Networks

	IDE Configuration	Onboard P-ATA Channels: **PRIMARY** Onboard S-ATA Channels: **DISABLED** Primary IDE master: ATAPI CDROM Primary IDE slave: Not Detected Secondary IDE Slave: Not Detected Third IDE Master: Not Detected Fourth IDE master: Not Detected Hard Disk write protection: Disabled IDE Detect Time Out: 35 sec ATA(PI) 80 pin Cable Detection: Host&Device
	Floppy Configuration	Onboard FDD Disabled
	Super I/O Configuration	Serial Port Trimode:Mode1 BMC Snoop SIM Tri state: Disabled Serial Port A Address: 3F8/IRQ4 Serial Port B Address: 2F8/IRQ3
	USB Configuration	USB Function: Enabled Legacy USB Support: Auto Post64/100 Emulation: Disabled USB2.0 Controller: Enabled USB2.0 Controller Mode: HiSpeed
	PCI Configuration	Onboard Video: Enabled Dual Monitor Video: Disabled Onboard NIC: Enabled Onboard NIC1 ROM: Enabled Onboard NIC2 ROM: Enabled Onboard SCSI: Enabled Onboard SCSI ROM: Enabled Onboard SCSI Mode: IM/IME PCI Priority Arbitration: Disabled MMI/O Above4GB: Disabled
	Memory Configuration	DIMM 1A, 1B, 2A, 2B should be installed External Memory Test: Disabled Memory Re-test: Disabled Memory Re-Map feature: Enabled Memory Mirroring/Sparring: **MIRRORING**

Copyright © 2007-2009, Nortel Networks

Boot	Boot Settings Configuration	Quick Boot: Enabled Quiet Boot: **DISABLED** Boot Up Num Lock: Off PS2 Mouse Support: Auto Post Error Pause: Enabled Hit F2 message Display: Enabled Scan User Flash Area: Disabled
	Boot Device Priority	CD/DVD PCI Bus 03 Device 9 RAID Adapter
	Hard Disk Drives	PCI Bus 03 Device 09 RAID Adapter
	Removable Media	There should be no removable media
	ATAPI CD-ROM Drive	Sony CD-ROM/DVD-ROM
Security	All Features Disabled	
Server	This is a view only menu	
	Serial Power Console	BIOS Redirection Port: Disabled Baud Rate 19.2k Flow Control: CTS/RTS Terminal Type: VT100+ ACPI Redirection: Disabled Serial Port Console: Serial B
	Event Log Configuration	Clear All Event Logs: Disabled Clear event Log When Full: Disabled BIOS Event Logging: Enabled Critical Event Logging: Enabled ECC Event Logging: Enabled PCI Error Logging: Enabled FSB Error Logging: Enabled Hublink Error Logging: Enabled Time Stamp clock sync Event: Enabled
	Power Management Features	Wake On LAN (S5 Only): Enabled
	Assert NMI on SERR: **DISABLED**	
	Assert NMI on PERR: Enabled	
	Resume on AC Power Loss: **POWER ON**	
	FRB -2 Policy: Disable BSP	
	Late POST Timeout: Disabled	
	Hard Disk OS Boot Timeout: Disabled	
	PXE OSBoot Timeout: Disabled	
	OS Watchdog Timer policy: **RESET**	

Copyright © 2007-2009, Nortel Networks

Platform Event Filtering: Enabled

Using system event logs

The system event logs record all the hardware events that take place while the system boots up and functions. You can view these logs even when the system is not operational through the utilities on the CallPilot Image DVD.

ATTENTION

This tool is only intended for use by authorized level 2 support personnel under Nortel supervision.

The system event logs can only hold 2000 events and display a warning message when full. You must clear the logs to turn off the warning message. Refer to "To clear system event logs" (page 142).

Even if your system is not operational, you can save the system event logs to an optional USB media drive. Your support representative can use the logs to diagnose hardware faults. Refer to "To save system event logs to a USB media drive" (page 142).

To view system event logs

Step	Action
1	Boot from the CallPilot Image DVD and display the Nortel CallPilot Image Menu that lists the utilities. Refer to "To display the Nortel CallPilot Image Menu" (page 136).
2	Enter 5 to run the 1005r system utility and SEL viewer from the Nortel CallPilot Image Menu.
3	Enter Y to confirm that you want to run the utility. **Result:** The Intel GUI screen appears. ***Note:*** The Intel GUI is not a Windows-based screen.
4	Click Continue.
5	Choose Server Configuration Utilities and click Continue.
6	Choose Run SEL Viewer Utility and click Continue. **Result:** The SEL Viewer screen appears.
7	Use the arrow keys to scroll through the system events. The details of the currently selected event appear on the bottom of the screen.
8	When you finish viewing events, select **File > Exit** from the menu bar.

Copyright © 2007-2009, Nortel Networks

Result: The Intel GUI appears.

9 Click Exit to close the GUI.

—End—

To save system event logs to a USB media drive

Step	Action
1	Connect a USB drive media to the USB port on the front of the server.
2	Restart the server.
3	Display the SEL Viewer. Refer to "To view system event logs" (page 141).
4	Select **File > Save** as.
5	Enter the file name and destination (usually a:) to save the system event logs to the USB media drive.

—End—

To clear system event logs

Step	Action
1	Display the SEL Viewer. Refer to "To view system event logs" (page 141).
2	Select **SEL > Clear SEL** from the menu bar. **Result:** The list of events is now empty.
3	After clicking Clear SEL, the system asks the following: `Are you sure you want to clear the SEL?` Select **OK**.
4	Select **File > Exit** from the menu bar. **Result:** The Intel GUI appears.
5	Click Exit to close the GUI.

—End—

Copyright © 2007-2009, Nortel Networks

If you do not have the image DVD, you can clear the system event logs from BIOS with the following procedure:

Step	Action
1	Restart the PC, and press F2 when prompted.
2	When the BIOS window appears, select **Server > Event Log configuration > Clear All Event Logs**.

—End—

Maintaining the onboard video and network cards

Network card failure

The network cards are integrated into the server board. If the network cards fail, you must replace the server.

Video card failure

The video card is integrated into the server board. If the video card fails, you must replace the server.

Indicators for video card failure

If the monitor appears to be functioning but no display is visible, look for the following indicators of video card malfunction:

- Brightness and contrast are set at normal level.
- The server is powered on, and one long beep is followed by two short beeps.
- The DVD combo drive light goes on when the server is powered, but no display is visible on the monitor.
- The DVD combo drive light comes on when you type dir D: and press Enter, but no display is visible on the monitor.

Copyright © 2007-2009, Nortel Networks

Index

A

alarm board
  replacement of 92
Alarm Monitor 45
alarms
  about 44, 45
  investigating 45
alert icons, component states 52
application event log
  definition 28
arp command 35
  parameters and descriptions 35
  running from Windows 36
  syntax 35

B

bezel, front 75
  removal of 74
  replacement of 74
BIOS
  requirements for upgrading 135
boot failure
  CallPilot
    what to do 24
  Windows
    what to do 24

C

call channels
  disabling 48
  working with 60, 61
CallPilot
  utilities
    Diagnostics Tool 63
    PEP Maintenance 63, 65
    Session Trace 66
    System Monitor 64
CallPilot Manager
  alarms
    about 44, 45
    investigating 45
  alert icons, component states 52
  Channel Monitor, using 48, 60, 61
  Event Browser, using 46, 48
  events
    about 43, 46
    investigating 47
  fault management
    alarm notification 44
    event processing 43
  Maintenance screen
    Diagnostics section 50
    General section 50
    Maintenance section 50
    purpose 48
  Multimedia Monitor, using 48, 59, 60
CallPilot services
  Channel Monitor tab 69
Channel Monitor tab 68
  CallPilot services 69
    critical 69
  DS30X links pane in 70
  DSP pane in 70
Channel Monitor, using 48, 60, 61
channels
  call, working with 60, 61
  disabling 48

Copyright © 2007-2009, Nortel Networks

multimedia, working with 59, 60
chkdsk utility 38
parameters and descriptions 39
running from Windows 39
syntax 39
commands, TCP/IP
arp 35
ipconfig 31
nbtstat 36
netstat 37
ping 32
tracert 33
components
CallPilot Manager maintenance activities 50
dependencies 44
diagnostics that can be run 56
diagnostics-eligible 56
replacing 14
states
Alert icons 52
description 51, 52
viewing 52
Courtesy stop, description 53
critical services, CallPilot 69

D

diagnostics
integrated
running 55, 57, 57
troubleshooting failures 56
when to run 55
last results
viewing 58, 58
TCP/IP 31
arp 35
ipconfig 31
nbtstat 36
netstat 37
ping 32
tracert 33
Diagnostics section, Maintenance screen 50
diagnostics tool
TCP/IP 31
Diagnostics Tool 63
diagram
rear panel
slot locations 12

E

Event Browser, using 46, 48
event log
application 28
security 28
system 28
event logs
types, description 28
viewing 28
events
about 43, 46
investigating 47

F

fan, hot-swap 83
fault management
alarm notification 44
event processing 43
Firmware revision
verifying 98
flashing the 99

G

General section, Maintenance screen 50

H

hardware problems, detecting 44

I

indicators 143
integrated diagnostics
running 57, 57
troubleshooting failures 56
when to run 55
ipconfig command 31
flags and descriptions 32
running from Windows 32
syntax 31
ipconfig default 31

Copyright © 2007-2009, Nortel Networks

L

LED, non-illumination of 79
Legend/Help tab 71
location
  MPB96 DSP 117
logs
  event types
    viewing 28
  event, viewing 28

M

maintenance
  activities by component 50
  preparing for 14
Maintenance screen, CallPilot Manager
  Diagnostics section 50
  General section 50
  Maintenance section 50
  purpose 48
MPB96 board 117
  replacing or adding 119, 127
multimedia channels, working with 59, 60
Multimedia Monitor, using 48, 59, 60

N

nbtstat command 36
  parameters and descriptions 36
  running from Windows 37
  syntax 36
netstat command 37
  parameters and descriptions 38
  syntax 37
network card
  failure 143

P

parts, obtaining replacement 14
PEP Maintenance utility 63, 65
ping command 32
  parameters and descriptions 33
  running from Windows 33
  syntax 32
POST error codes and messages 21
POST message formats 19
power supply, hot-swap 78
Power-On Self-Test
  See POST 19

R

RAID 97
  upgrading 99
RAID system
  configuring 101
Redundant Array of Independent Disks
    (RAID) 97
replacement parts, obtaining 14

S

SCSI controller
  error messages 21
security event log
  definition 28
server cover 75
  removal of 75
Session Trace utility 66
startup problems
  what to do 24, 24
Stop, description 53
system event log
  definition 28
System Info tab 71
System Monitor 64
  Channel Monitor tab 68
  Legend/Help tab 71
  System Info tab 71
System Monitor utility 68
system utilities
  System Monitor 68

T

TCP/IP diagnostics 31
  arp 35
  ipconfig 31
  nbtstat 36
  netstat 37
  ping 32
  tracert 33
tracert command 33
  parameters and descriptions 34
  running from Windows 34

Copyright © 2007-2009, Nortel Networks

syntax 34

U

utilities
chkdsk 38
Diagnostics Tool 63
PEP Maintenance 63, 65
Session Trace 66
System Monitor 64, 68

V

video card, failure 143
viewing 28

W

Windows
viewing 28

Copyright © 2007-2009, Nortel Networks

Copyright © 2007-2009, Nortel Networks

Nortel CallPilot

1005r Server Maintenance and Diagnostics

Copyright © 2007-2009, Nortel Networks
All Rights Reserved.

Publication: NN44200-704
Document status: Standard
Document version: 01.09
Document date: 11 August 2009

To provide feedback or report a problem in this document, go to www.nortel.com/documentfeedback.

Sourced in Canada

While the information in this document is believed to be accurate and reliable, except as otherwise expressly agreed to in writing NORTEL PROVIDES THIS DOCUMENT "AS IS" WITHOUT WARRANTY OR CONDITION OF ANY KIND, EITHER EXPRESS OR IMPLIED. The information and/or products described in this document are subject to change without notice.

Nortel, Nortel Networks, the Nortel logo, and the Globemark are trademarks of Nortel Networks.

All other trademarks are the property of their respective owners.

