

HP ROM-Based Setup Utility User Guide



Part Number 306105-003
March 2003 (Third Edition)

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About This Guide

This guide provides step-by-step instructions for running ROM-Based Setup Utility (RBSU) and reference information for operation of RBSU.

Audience Assumptions

This guide is for the person who installs, administers, and troubleshoots servers. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

Important Safety Information

Before installing this product, read the *Important Safety Information* document included with the server.

Symbols on Equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:



WARNING: This symbol, in conjunction with any of the following symbols, indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult the documentation for specific details.



This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.



This symbol on an RJ-45 receptacle indicates a network interface connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.



This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

Weight in kg
Weight in lb

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

Rack Stability



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled together in multiple-rack installations.
 - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
-

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents essential information to explain a concept or complete a task.

NOTE: Text set off in this manner presents additional information to emphasize or supplement important points of the main text.

Related Documents

For additional information on the topics covered in this guide, refer to the *HP BIOS Serial Console User Guide* or to the server setup and installation guide.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Technical Support

In North America, call the HP Technical Support Phone Center at 1-800-652-6672. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored. Outside North America, call the nearest HP Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed on the HP website, www.hp.com.

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP Website

The HP website has information on this product as well as the latest drivers and flash ROM images. You can access the HP website at www.hp.com.

Authorized Reseller

For the name of the nearest authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the HP website for locations and telephone numbers.

Reader's Comments

HP welcomes your comments on this guide. Please send your comments and suggestions by e-mail to ServerDocumentation@hp.com.

Overview

HP ProLiant Generation 2 and later servers have a configuration utility embedded in the system ROM. Pressing the **F9** key from the startup sequence starts this configuration utility, which is known as HP ROM-Based Setup Utility (RBSU). Configuring system parameters should be done through RBSU instead of through the System Configuration Utility, which was run by pressing the **F10** key for previous ProLiant servers.

RBSU is machine-specific and customized for each type of server. RBSU performs a wide variety of configuration activities including the following:

- Viewing system information
- Selecting the operating system (OS)
- Configuring system devices and installed options
- Selecting the primary boot controller

Running RBSU

On a 32-bit server:

1. To run RBSU and modify configuration settings, press the **F9** key when prompted during the startup sequence.
2. Modify configuration settings as desired.

3. Exit RBSU by pressing the **Esc** key at the main menu. The system must be restarted when exiting RBSU to confirm configuration setting changes.

A confirmation to exit is displayed on the screen, and the current boot controller is also displayed for reference purposes.

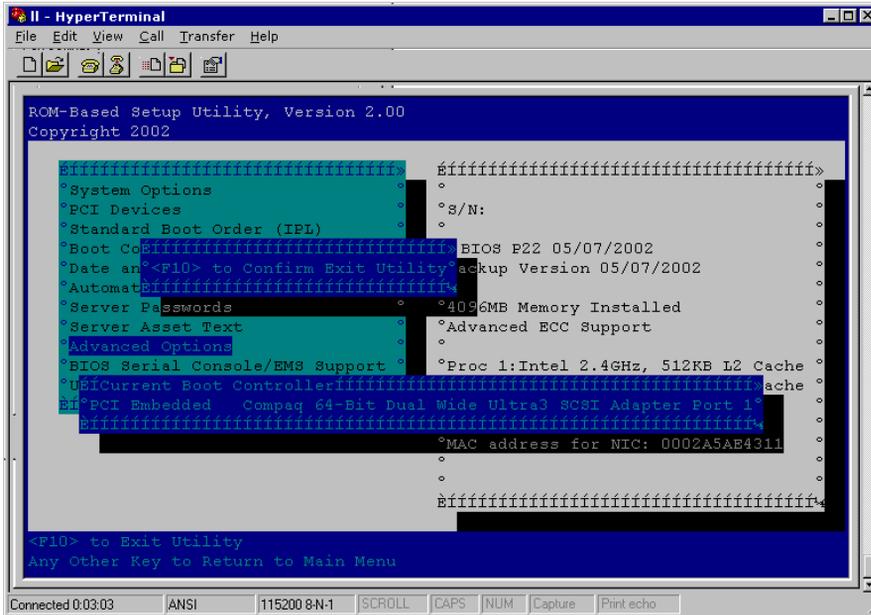


Figure 1-1: Exiting RBSU on a 32-bit server

4. To confirm exiting RBSU, press the **F10** key.
The server restarts using the new configuration settings.

On a 64-bit server:

1. To run RBSU and modify configuration settings, select **System Maintenance** from the **Boot** menu.
2. Select **ROM-Based Setup Utility**.
3. Modify configuration settings as desired.
4. Exit RBSU by pressing the **Esc** key. If you have made any changes that require the system to be restarted, a box is displayed stating that the system must be restarted.
5. Restart the server.

The server powers up using the new configuration settings.

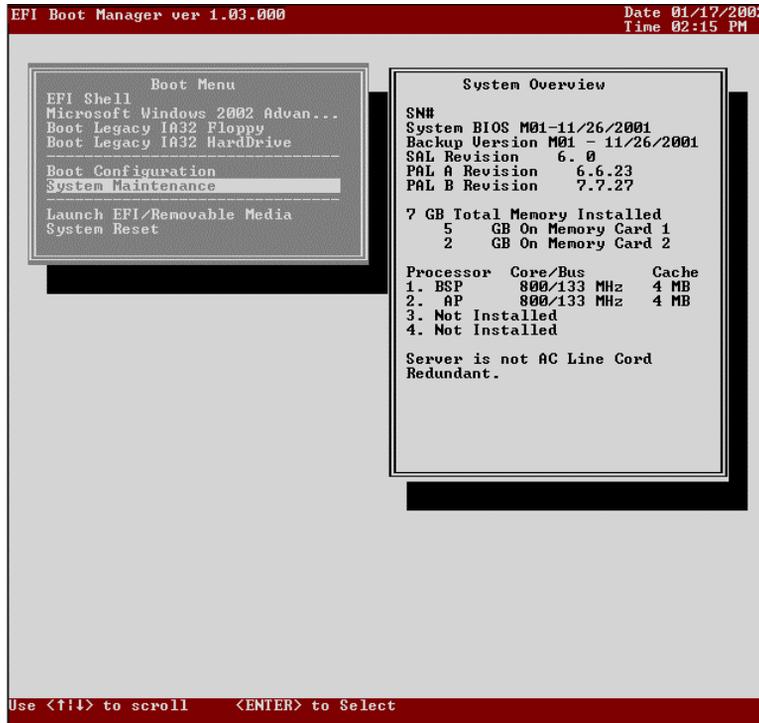


Figure 1-2: Starting RBSU on a 64-bit server

RBSU Menu

The RBSU menu is displayed when RBSU is launched.

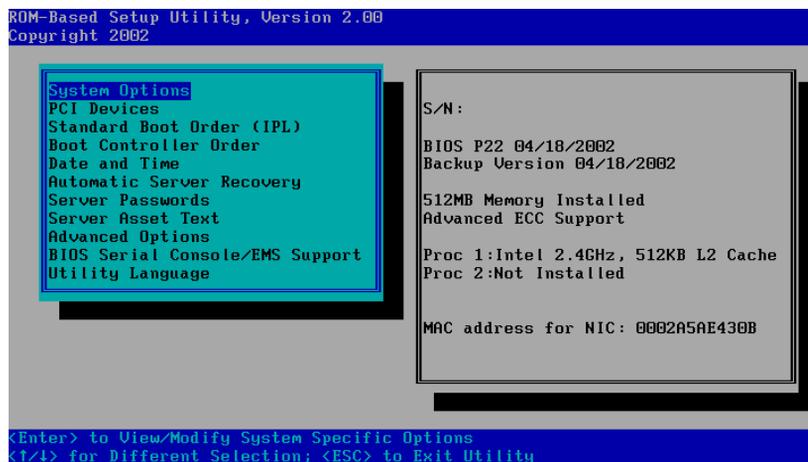


Figure 2-1: RBSU main menu

This menu, located on the left-hand side of the screen, allows you to select which configuration setting to view or modify. The selections are:

- System Options
- PCI Devices
- Standard Boot Order (IPL) (applies only to 32-bit servers)

- Boot Controller Order
- Date and Time
- Automatic Server Recovery
- Server Passwords
- Server Asset Text (and IMD Text—applies only to 64-bit servers)
- Advanced Options
- BIOS Serial Console/EMS Support (applies only to 32-bit servers)
- Utility Language

Each option is discussed in detail in this chapter.

On the right-hand side of the screen, a window displays basic information about the server. This information includes the server model, serial number, BIOS version, backup BIOS version, memory installed, and processors installed.

NOTE: A service number is reported below the serial number on the HP ProLiant DL760 server only.

Pressing the **F1** key when any sub-menu option is highlighted allows you to view a description of that feature.

Select new servers, which use Command Line Interface (CLI) and are configured using BIOS Serial Console, will display a command prompt screen similar to Figure 2-2.

```
ROM-Based Setup Utility, Version 2.00
Copyright 2002 Hewlett-Packard Development Company, L.P.

Type HELP to display a list of valid commands.
HELP [ <command> | <TREE> ] displays detailed information about a given command
or lists a given TREE of commands.

rbsu> █
```

Figure 2-2: RBSU screen using CLI through BIOS Serial Console

The CLI mode of RBSU is a command-prompted interface that provides equivalent functionality to the menu-based mode. Refer to Chapter 4, “Command Line Interface” for more information on CLI.

System Options

The **System Options** menu includes options that allow you to configure the basic I/O of the server and specify the OS.

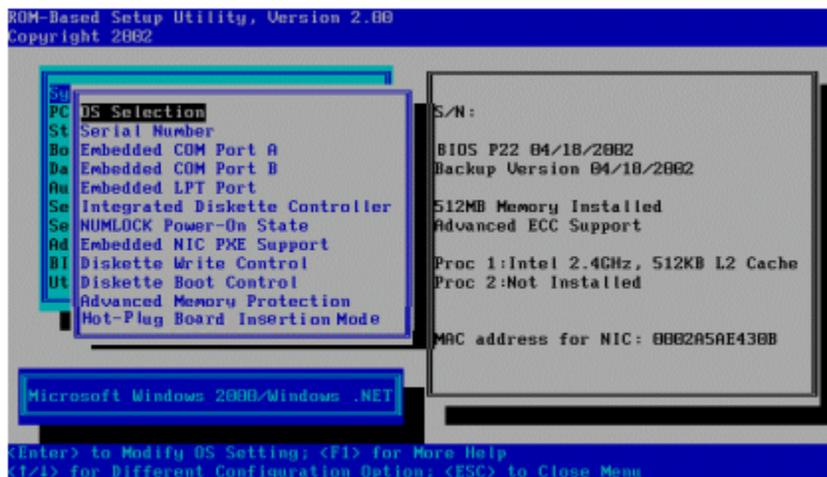


Figure 2-3: System Options menu

System options are:

- OS Selection
- Serial Number
- Embedded COM Port A (if applicable)
- Embedded COM Port B (if applicable)
- Embedded LPT Port
- Integrated Diskette Controller
- NUMLOCK Power-On State
- Embedded NIC PXE (Pre-Boot Execution Environment) Support (applies to 32-bit servers only)
- Diskette Write Control
- Diskette Boot Control

- Advanced Memory Protection

Each option is discussed in detail in this chapter.

OS Selection

The **OS Selection** option allows you to select the primary OS for the server. A list of supported OSs for the server displays on the menu, with the ROM defaulting to Microsoft® Windows® 2000 when the server supports it. Default server Multi Processor (MP) settings and PCI Hot Plug reservation settings are automatically set based on the OS selected.

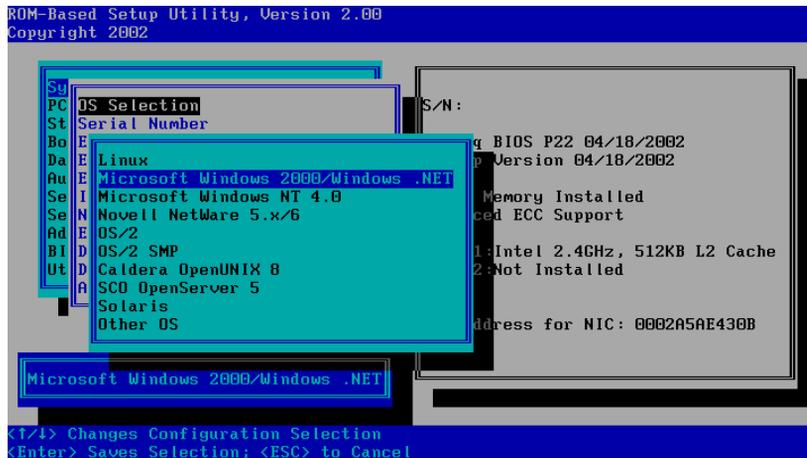


Figure 2-4: OS Selection menu option

Serial Number

The **Serial Number** option allows you to change the serial number. HP does not recommend that you change this number.

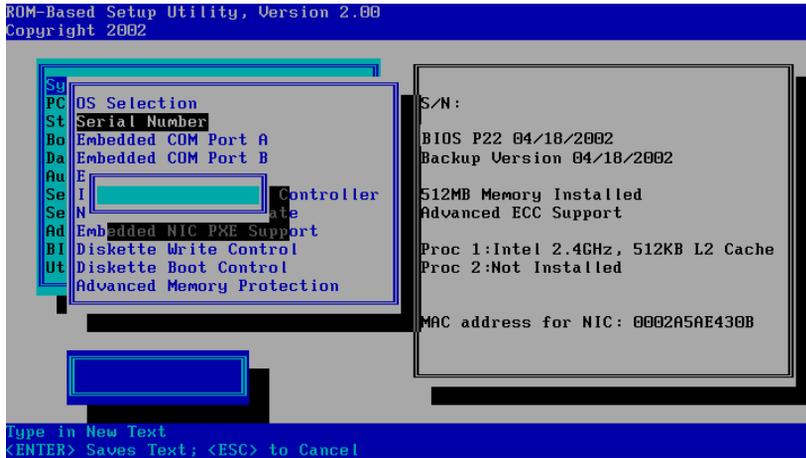


Figure 2-5: Serial Number menu option

When you select this menu option, the following warning is displayed:

WARNING! WARNING! WARNING! The serial number is loaded into the system during the manufacturing process and should NOT be modified. This option should ONLY be used by qualified service personnel. This value should always match the serial number sticker located on the chassis.

Embedded COM Port A

The **Embedded COM Port A** option sets the configuration for the internal serial port A. The settings include the address and IRQ. This option can also disable the port.

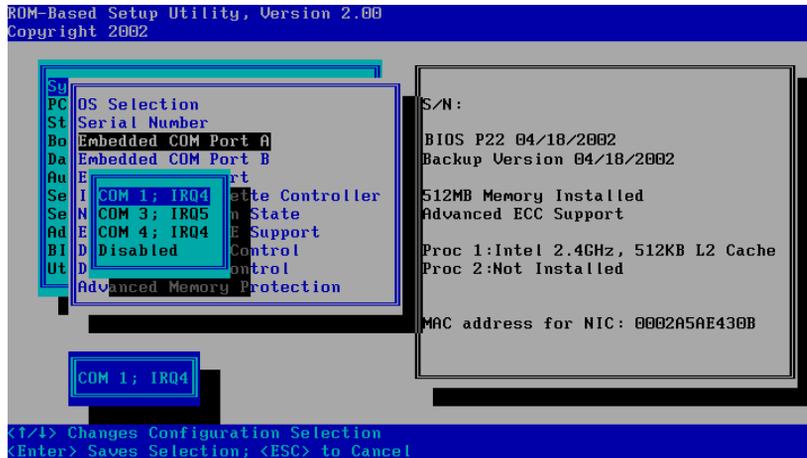


Figure 2-6: Embedded COM Port A menu option

Embedded COM Port B

The **Embedded COM Port B** option sets the configuration for the internal serial port B. The settings include the address and IRQ. This option can also disable the port.

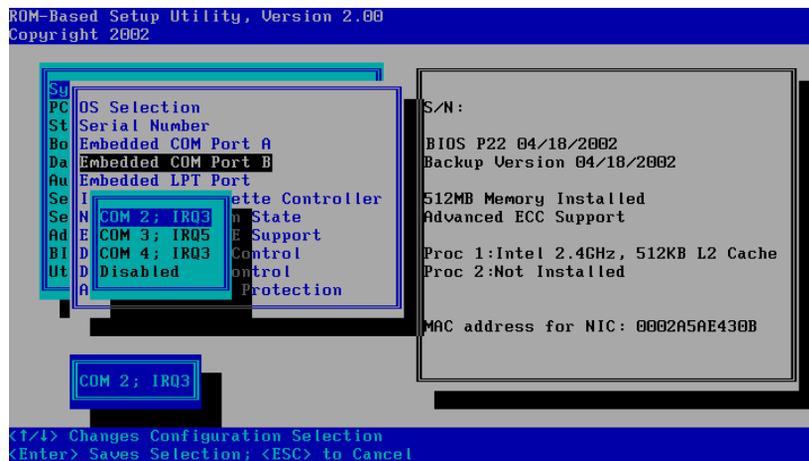


Figure 2-7: Embedded COM Port B menu option

Embedded LPT Port

The **Embedded LPT Port** option sets the configuration for the internal serial LPT port. The settings include the address and IRQ. This option can also disable the port.

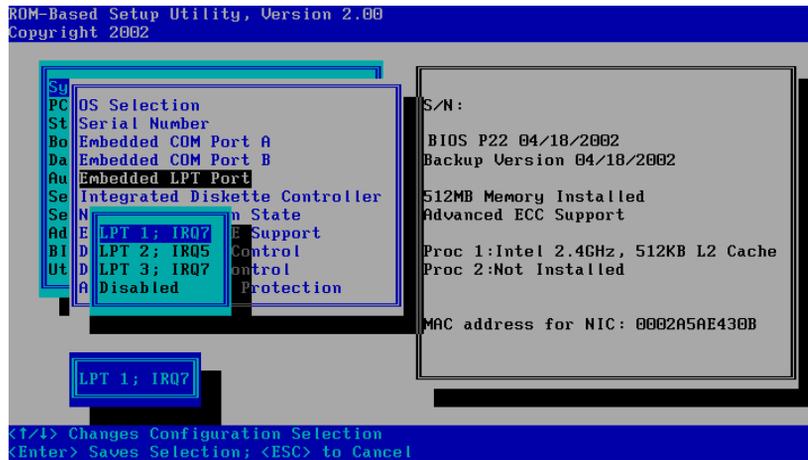


Figure 2-8: Embedded LPT Port menu option

Integrated Diskette Controller

NOTE: 1.44-MB diskettes can be read from 64-bit servers, but they are not supported.

The **Integrated Diskette Controller** option is a simple toggle setting that enables or disables the diskette drive. When this option is disabled, the drive cannot be read from or written to. Therefore, Diskette Write Control and Diskette Boot Control are irrelevant when Integrated Diskette Controller is disabled.

NUMLOCK Power-On State

The **NUMLOCK Power-On State** option is a simple toggle setting that enables or disables the power-up state of the **NUMLOCK** key. When the **NUMLOCK** key is enabled, the machine powers up with the **NUMLOCK** key active.

Embedded NIC PXE Support

IMPORTANT: Embedded NIC PXE Support applies only to 32-bit servers.

The **Embedded NIC PXE Support** option enables the PXE support. This option, which is a simple toggle setting, allows the server to boot to the network (embedded NIC only) and attach to a PXE server with boot images. This setting is enabled by default, which allows the NIC port to be displayed in the Initial Program Load (IPL) list. For more information on PXE technology, go to:

ftp://ftp.compaq.com/pub/products/servers/management/pxe_wp.pdf

Diskette Write Control

IMPORTANT: Diskette Write Control applies only to 32-bit servers.

The **Diskette Write Control** option is a simple toggle setting that sets the write controls for the diskette drive. The available configuration settings are either **Read and Write** or **Read Only**. When **Read and Write** is selected, the server can both read data from and write data to the diskette drive.

Diskette Boot Control

IMPORTANT: Sixty-four-bit servers boot only Legacy IA32 diskettes, which are accessed from the **Boot Configuration** menu.

The **Diskette Boot Control** option is a simple toggle setting that enables the diskette drive to be used as a boot device. When this option is disabled, the server cannot boot from the diskette drive. This configuration setting is used as a security feature.

Advanced Memory Protection

IMPORTANT: Advanced Memory Protection applies only to select 32-bit servers.

The **Advanced Memory Protection** option provides additional memory protection beyond error checking and correcting (ECC).

For more information on Advanced Memory Protection, go to:

ftp://ftp.compaq.com/pub/products/servers/management/pxe_wp.pdf

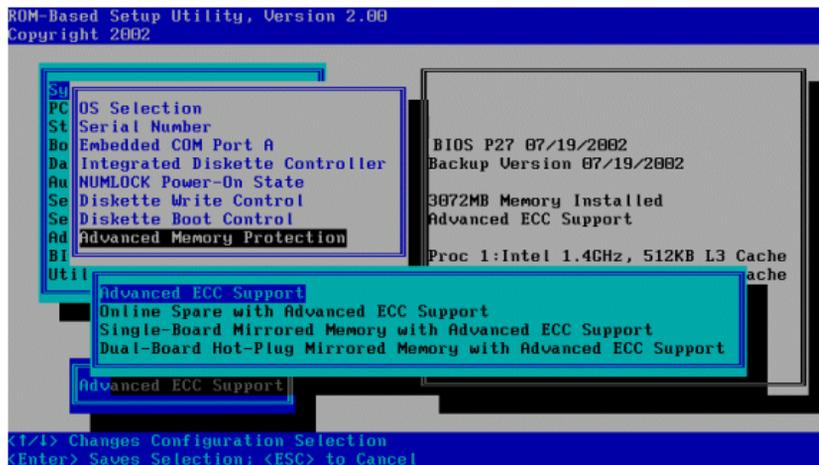


Figure 2-9: Advanced Memory Protection menu option

The **Advanced ECC Support** (maximum memory) setting disables additional resiliency and provides the largest memory capacity to the OS.

The **Online Spare with Advanced ECC Support** setting requires a single group of spare modules and provides automatic failover of degraded modules in the system while it is running.

The **Single-Board Mirrored Memory with Advanced ECC Support** option provides protection against modular failure to systems with one memory board. DIMM banks A and B are mirrored by DIMM banks C and D on the same memory board. Single-board mirrored memory is similar to dual-board mirrored memory, except the failed memory board may not be replaced while the system is running.

Mirrored DIMM pairs must be the same size to allow selection of single-board mirrored memory or dual-board mirrored memory. Pairing different size DIMMs results in the following caution:

Current memory configuration does not support Online Spare.

The **Dual-Board Hot-Plug Mirrored Memory with Advanced ECC Support** setting provides protection to the system in the event of memory module failure. The memory on one board mirrors the data on the other, so in the event of a multi-bit error, the board without failure is used. The board with failed memory may be replaced while the system is running.

PCI Devices

IMPORTANT: For 64-bit servers, devices can only be viewed, and no changes can be made.

The **PCI Devices** option displays the configuration settings of the PCI devices installed in the server and allows you to modify the IRQ. Multiple PCI devices can share an interrupt.

NOTE: Only IRQs that are modified in RBSU will retain the change during the next reboot. IRQs on PCI devices that have not been modified are subject to change during reboot.

To disable a device, press the **Enter** key while the device is selected. A menu is displayed with options to change the IRQ, as well as to disable the device. If the device cannot be disabled on the system, only IRQs are available to change.

IMPORTANT: Disabling a PCI controller on a server with the PCI hot-plug driver installed disables all controllers on that PCI bus if the server is running Microsoft Windows 2000 or Windows Server 2003 OS. To avoid this issue, remove the controller instead of disabling it.

```

ROM-Based Setup Utility, Version 2.00
Copyright 2002

PCI Embedded      Advanced Server Management ASIC      IRQ: 5
PCI Embedded      NC3163 Fast Ethernet NIC                 IRQ: 10
PCI Embedded      64-Bit Dual Wide Ultra3 SCSI Adapter Port 1  IRQ: 11
PCI Embedded      64-Bit Dual Wide Ultra3 SCSI Adapter Port 2  IRQ: 15
PCI Embedded      PCI USB Controller                       IRQ: 10
PCI Embedded      PCI Hot-Plug Controller                  IRQ: 5
PCI Embedded      PCI Hot-Plug Controller                  IRQ: 5

<Enter> to View/Modify PCI IRQ Selection
<↑/↓> for Different PCI Device; <ESC> to Close Menu

```

Figure 2-10: PCI Devices menu option

Standard Boot Order (IPL)

IMPORTANT: Standard Boot Order (IPL) applies to 32-bit servers only.

The **Standard Boot Order (IPL)** option configures the Initial Program Load (IPL) device and controls the search order the server uses to look for a bootable device.

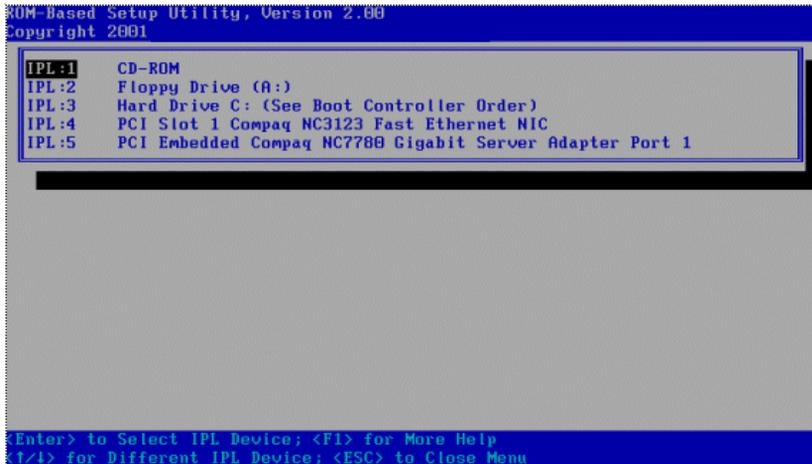


Figure 2-11: Standard Boot Order (IPL) option

NOTE: If you enable or disable a device, restart the server to update the list. Devices that have been enabled since the last reboot are not displayed on the list.

Boot Controller Order

The **Boot Controller Order** option selects which of the installed mass storage devices is used as the primary boot controller. The server attempts to power up with the OS on this device.

The primary boot controller is set to controller 1.

NOTE: If you change the **Boot Controller Order** in the Option ROM Configuration Array (ORCA) Utility, the change is reflected in this menu.

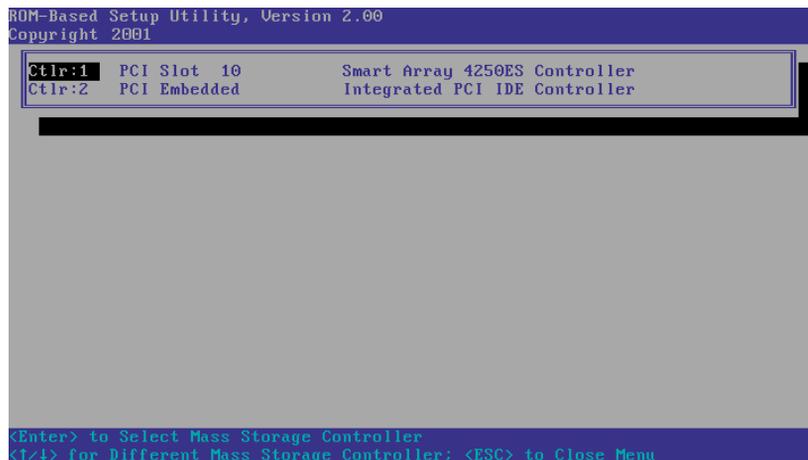


Figure 2-12: Boot Controller Order option

NOTE: PCI devices that have been disabled in the **PCI Devices** menu will still be visible on the **Boot Controller Order** screen.

Date and Time

The **Date and Time** option sets the system time and date. Enter the date in an mm-dd-yyyy (month-day-year) format. Enter the time in a 24-hour (hh:mm:ss) format.

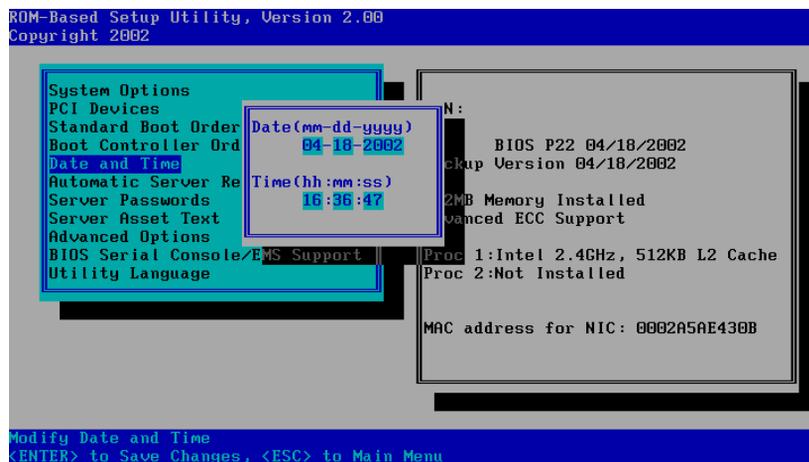


Figure 2-13: Date and Time option

Automatic Server Recovery

The **Automatic Server Recovery** menu includes options that configure the Automatic Server Recovery (ASR) features.

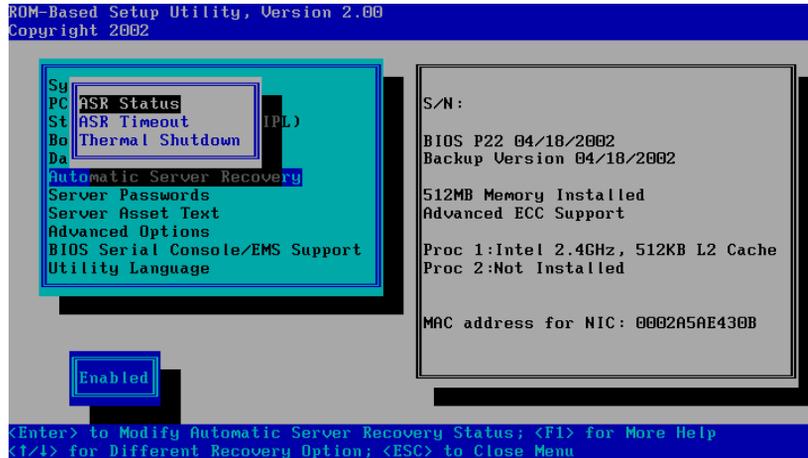


Figure 2-14: Automatic Server Recovery menu

The ASR menu may include the following options:

- ASR Status
- ASR Timeout
- Thermal Shutdown

Each option is discussed in detail in this chapter.

ASR Status

The **ASR Status** option is a simple toggle setting that either enables or disables ASR. When set to **Disabled**, no ASR features function.

ASR Timeout

The **ASR Timeout** option sets a timeout limit for resetting a server that is not responding. When the server has not responded in the selected amount of time, it automatically resets.

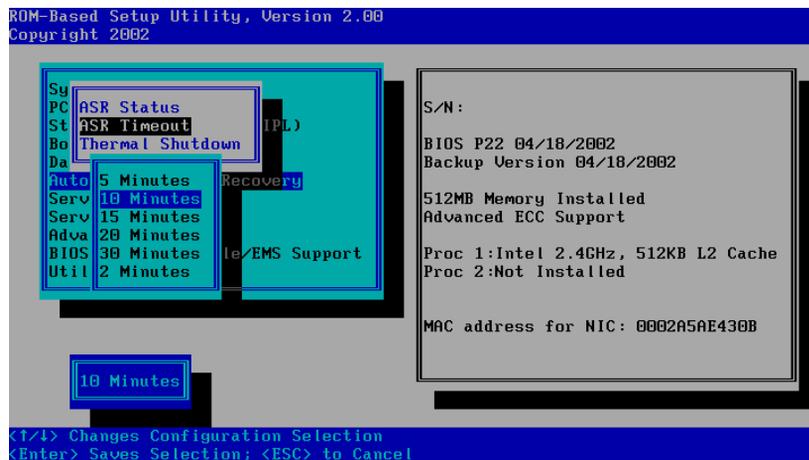


Figure 2-15: ASR Timeout option

The available timeout settings are:

- 5 minutes
- 10 minutes
- 15 minutes
- 20 minutes
- 30 minutes
- 2 minutes (available only for 32-bit servers)

Thermal Shutdown

The **Thermal Shutdown** option is a simple toggle setting that determines when the server automatically powers down due to dangerous temperatures. When the setting is enabled (default), the HP Health Driver initiates a system shutdown when the temperature reaches 5 degrees of critical level. When the setting is disabled, the HP Health Driver shuts down the system at critical level.

Server Passwords

The **Server Passwords** menu includes options that configure the password environment of the server.

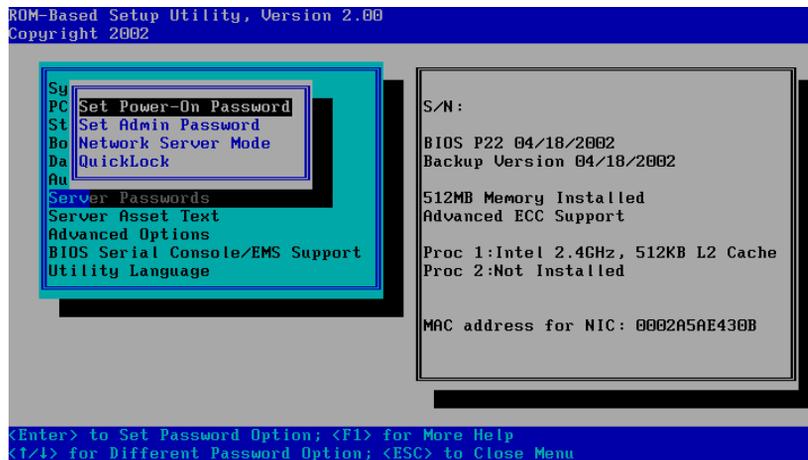


Figure 2-16: Server Passwords menu

The available options are:

- Set Power-On Password
- Set Admin Password
- Network Server Mode
- QuickLock

Each of these options is discussed in detail in this chapter.

Set Power-On Password

The **Set Power-On Password** option sets a password that controls access to the server during power-up. The server cannot be powered up until the correct password is entered. The **Set Power-On Password** option uses a simple character string with a maximum of seven characters. To disable or clear the password, enter the password followed by / (slash) when prompted to enter the password.

Set Admin Password

The **Set Admin Password** option sets a password to control access to the administrative features of the server. The **Set Admin Password** option is a simple character string with a maximum of seven characters. To disable or clear the password, enter the password followed by / (slash) when prompted to enter the password.

Network Server Mode

The **Network Server Mode** option is a simple toggle setting that sets the server to operate in network server mode. This feature works in conjunction with the power-on password. When set to **Disabled**, the server operates normally. When it is set to **Enabled**, the following actions occur:

- The local keyboard remains locked until the power-on password is entered.
- The power-on password prompt is bypassed.
- When a diskette is in the diskette drive, the server does not start unless the power-on password is entered locally.

NOTE: Network server mode cannot be enabled until the power-on password has been established.

QuickLock

The **QuickLock** option is a simple toggle setting that either enables or disables the **QuickLock** feature. When set to **Enabled**, the keyboard is locked by pressing the **Ctrl+Alt+L** keys. The keyboard remains locked until the power-on password is typed.

NOTE: If the power-on password is disabled at the power-on key prompt, the QuickLock feature remains inactive until the password is changed in RBSU.

Server Asset Text

The **Server Asset Text** menu includes options that customize the system-specific text for the server. This information is reported on the **Integrated Management Display (IMD)**, an option for ProLiant servers.

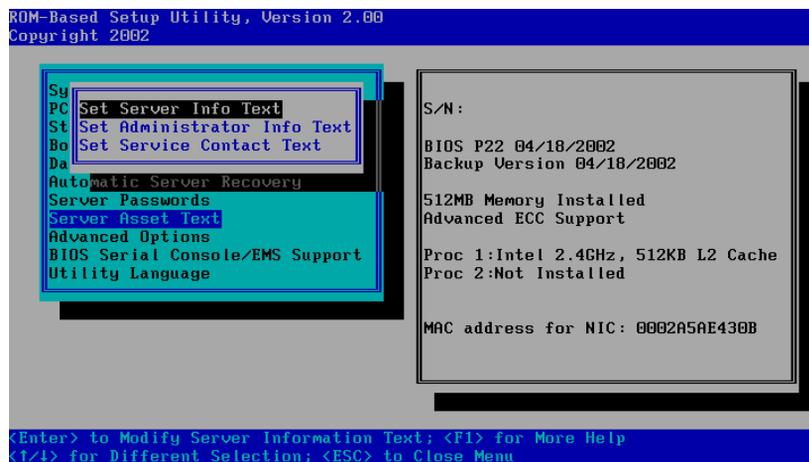


Figure 2-17: Server Asset Text menu

The available options are:

- Set Server Info Text
- Set Administrator Info Text
- Set Service Contact Text
- Set IMD Custom Text (available only for 64-bit servers)

Each of these options is discussed in detail in this chapter.

Set Server Info Text

The **Set Server Info Text** option defines reference information for the server.

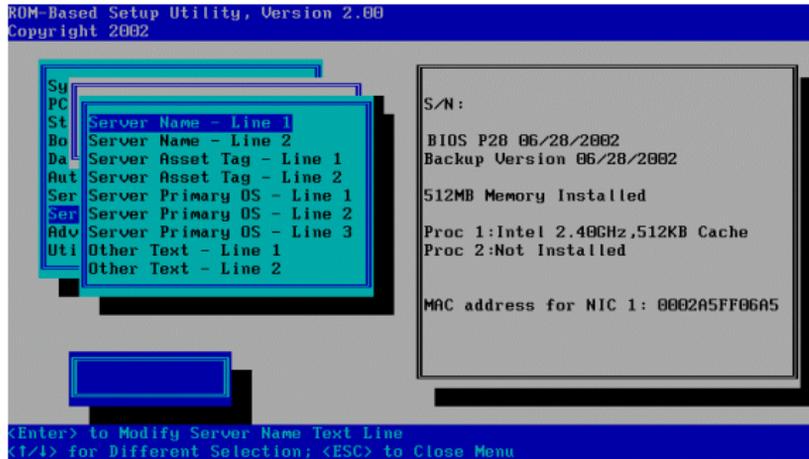


Figure 2-18: Set Server Info Text menu option

Server Name—defines a two-line name identifying the server. A maximum of 14 characters can be entered on each line.

Server Asset Tag—defines a two-line asset tag to identify the server. A maximum of 16 characters can be entered on each line.

Server Primary OS—defines a three-line description of the primary OS of the server. A maximum of 14 characters can be entered on each line.

Other Text—defines two lines of additional text describing the server. A maximum of 14 characters can be entered on each line.

Set Administrator Info Text

The **Set Administrator Info Text** option defines reference information for the server administrator.

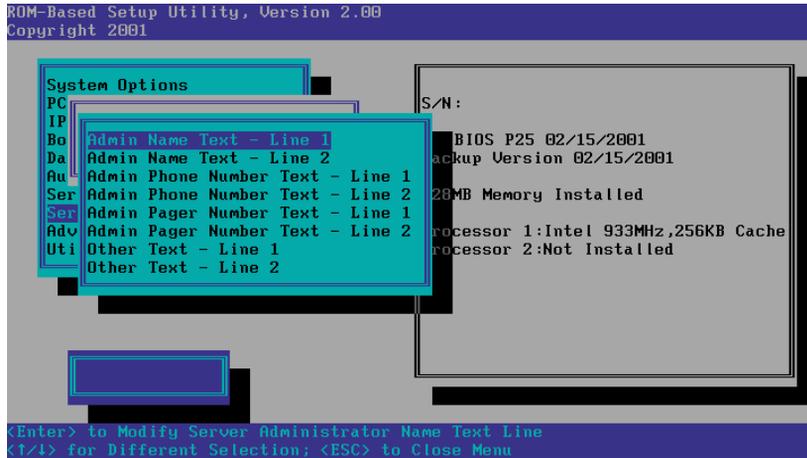


Figure 2-19: Set Administrator Info Text menu option

Admin Name Text—defines a two-line description for the server administrator name. A maximum of 14 characters can be entered on each line.

Admin Phone Number Text—defines two lines of text for the server administrator's phone number. A maximum of 14 characters can be entered on each line.

Admin Pager Number Text—defines two lines of text for the server administrator's pager number. A maximum of 14 characters can be entered on each line.

Other Text—defines two lines of additional text relating to the server administrator. A maximum of 14 characters can be entered on each line.

Set Service Contact Text

The **Set Service Contact Text** option defines reference information for the service contact of the server.

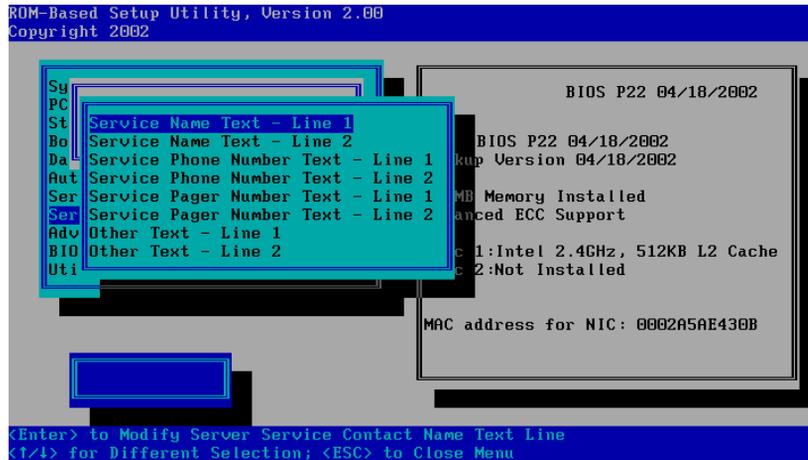


Figure 2-20: Set Service Contact Text menu option

Service Name Text—defines a two-line description for the service contact name. A maximum of 14 characters can be entered on each line.

Service Phone Number Text—defines two lines of text for the service contact phone number. A maximum of 14 characters can be entered on each line.

Service Pager Number Text—defines two lines of text for the service contact pager number. A maximum of 14 characters can be entered on each line.

Other Text—defines two lines of additional text relating to the service contact. A maximum of 14 characters can be entered on each line.

Set IMD Custom Text

The **Set IMD Custom Text** option allows a custom description to be entered.

IMPORTANT: **Set IMD Text** applies only to 64-bit servers.

Set IMD Text: IMD Idle Screen Text—defines a three-line description. A maximum of 16 characters can be entered on each line.

Set IMD Text: IMD Custom Menu Screen Text—defines a four-line description. A maximum of 14 characters can be entered on each line.

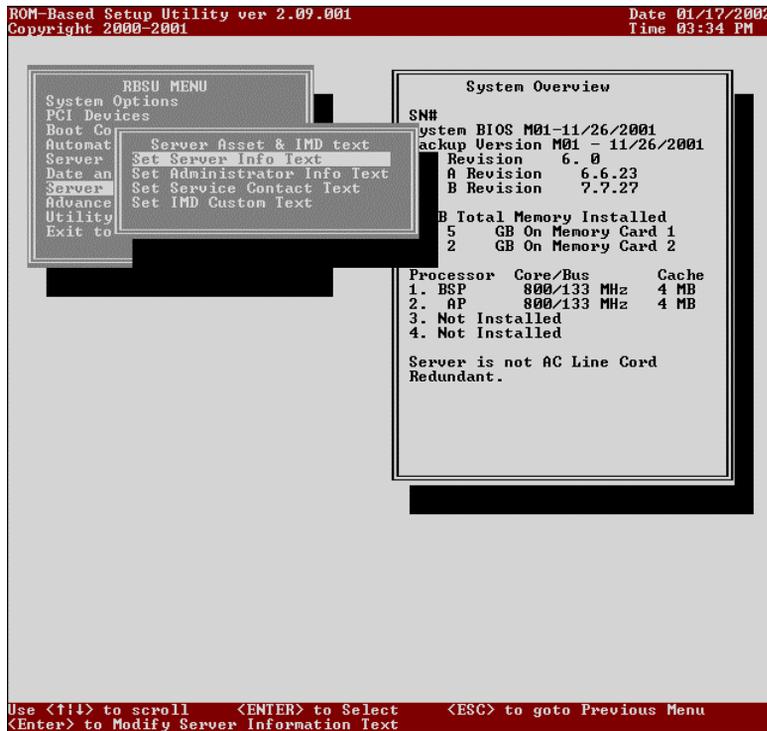


Figure 2-21: Set IMD Custom Text menu option

Advanced Options

The **Advanced Options** menu includes options that allow you to configure the advanced features of the server. Refer to Chapter 3, “ROM-Based Enhancements,” for information on additional options that may be available.

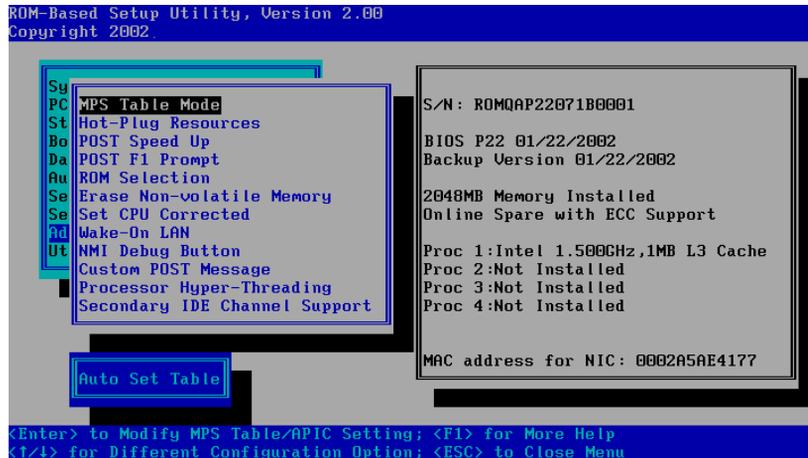


Figure 2-22: Advanced Options menu

The options are:

- MPS Table Mode (applies only to 32-bit servers)
- Hot-Plug Resources (applies only to 32-bit servers)
- POST Speed Up (applies only to 32-bit servers)
- POST F1 Prompt
- Redundant ROM Selection
- Erase Non-volatile Memory
- Set CPU Corrected
- Wake-On LAN (applies only to 32-bit servers)
- IDE EDD 3.0 (applies only to 64-bit servers)

- NMI Debug Button (applies only to 32-bit servers)
- Custom POST Message
- Processor Hyper-Threading
- Secondary IDE Channel Support (applies only to the ProLiant ML530 G2 server)

Each option is discussed in detail in this chapter.

Multi-Processor Specification (MPS) Table Mode

IMPORTANT: MPS Table Mode applies only to 32-bit servers.

The **MPS Table Mode** option is automatically set based on the OS selected and is used for interrupt routing.

IMPORTANT: This setting is pre-selected. You can override the default setting at this menu, but successful OS operation is dependent upon the correct (default) setting.

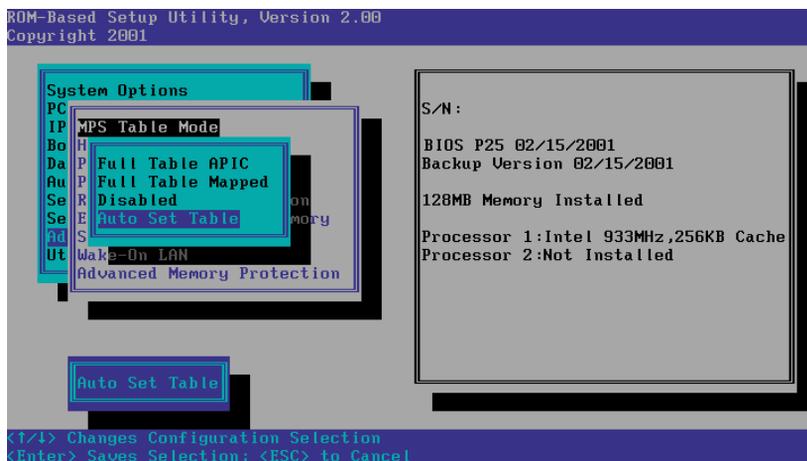


Figure 2-23: MPS Table Mode option

Hot-Plug Resources

IMPORTANT: Hot-Plug Resources applies only to 32-bit servers.

The **Hot-Plug Resources** option sets the hot-plug reservation mode. When the **Hot-Plug Resources** option is set to **Normal**, the server reserves extra memory and I/O space for possible future PCI Hot Plug add operations. Set the **Hot-Plug Resources** menu option to **Disabled** when no PCI Hot Plug operations are planned.

IMPORTANT: This setting is pre-selected. Changing the setting is not recommended.

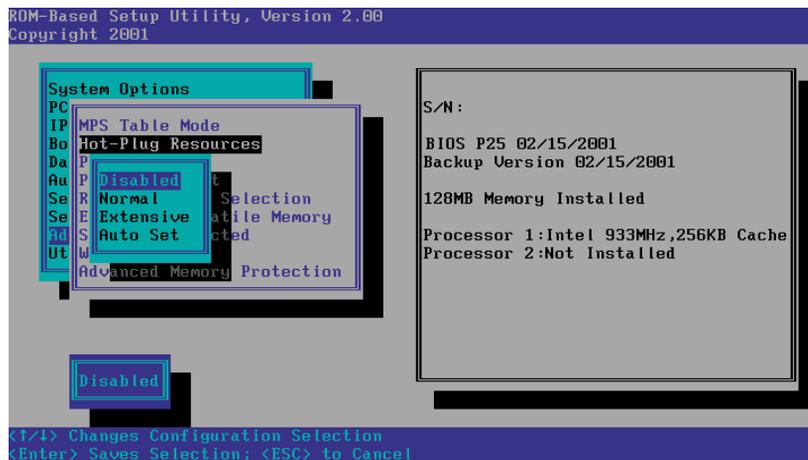


Figure 2-24: Hot-Plug Resources option

POST Speed Up

IMPORTANT: POST Speed Up applies only to 32-bit servers.

The **POST Speed Up** option is a simple toggle setting that enables or disables the extended power-up memory test. When **POST Speed Up** is set to **Enabled**, the extended power-up memory test is not executed, and the server powers up more quickly.

POST F1 Prompt

The **POST F1 Prompt** option is a simple toggle setting that configures the server so that you must press the **F1** key to proceed when an error is encountered during the power-up sequence. A series of system tests executes during POST before continuing with the following:

- If failures occur that allow the system to continue operating, the system continues to boot but posts a message.
- If critical components fail or are missing, the server attempts to boot. If it can boot, it posts a message and an **F1** prompt.
 - If **Enabled** is selected and an error occurs, the system stops at the **F1** prompt until the **F1** key is pressed, before continuing to boot.
 - If **Delayed** is selected and an error occurs, the system pauses for 20 seconds at the **F1** prompt, and then continues to boot the OS.
- If the system cannot run with the missing or failed components, it halts until those components are replaced.

NOTE: The **POST F1 Prompt** setting is enabled by default in ProLiant ML and DL servers, and delayed by default in BL servers.

Redundant ROM Selection

The **Redundant ROM Selection** option toggles the server ROM between the current ROM and the backup ROM. All servers with redundant ROMs allow you to switch to the backup ROM.

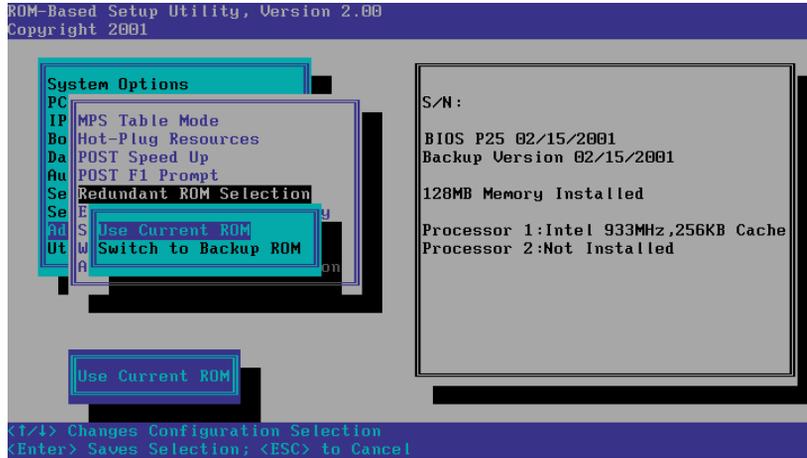


Figure 2-25: Redundant ROM Selection option

Erase Non-Volatile Memory

The **Erase Non-volatile Memory** option resets the non-volatile memory of the server to an initial, factory state when **Yes, Select to Erase** is selected. The following pop-up message is displayed:

Are you sure you want to erase NVRAM? You will lose all System Configuration Settings. {Y/N}

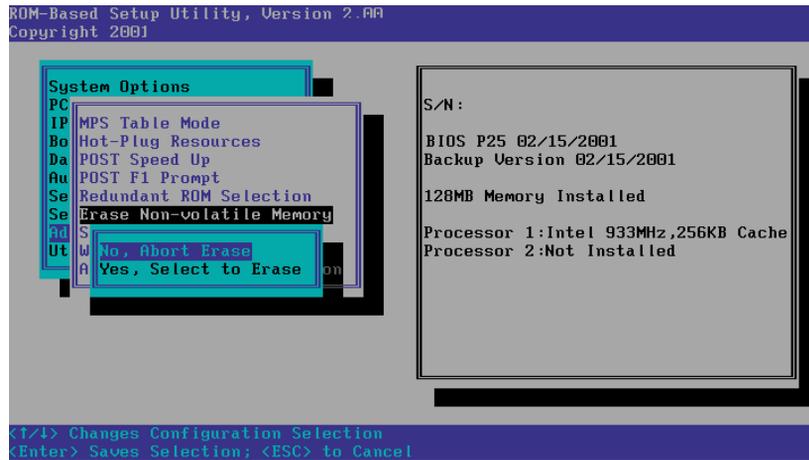


Figure 2-26: Erase Non-volatile Memory option

Set CPU Corrected

During normal operation, a CPU can fail. When a CPU fails, the **Set CPU Corrected** option is used to indicate that the previously failed CPU has been corrected.

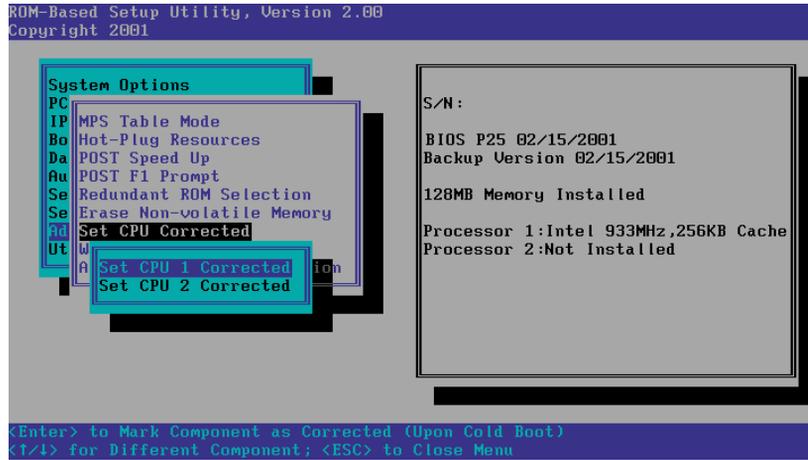


Figure 2-27: Set CPU Corrected option

Wake-On LAN

IMPORTANT: Wake-On LAN applies only to 32-bit servers.

The **Wake-On LAN** option is a simple toggle setting that enables or disables the Wake-On LAN feature. When set to **Enabled**, the server can be powered up remotely using a network controller.

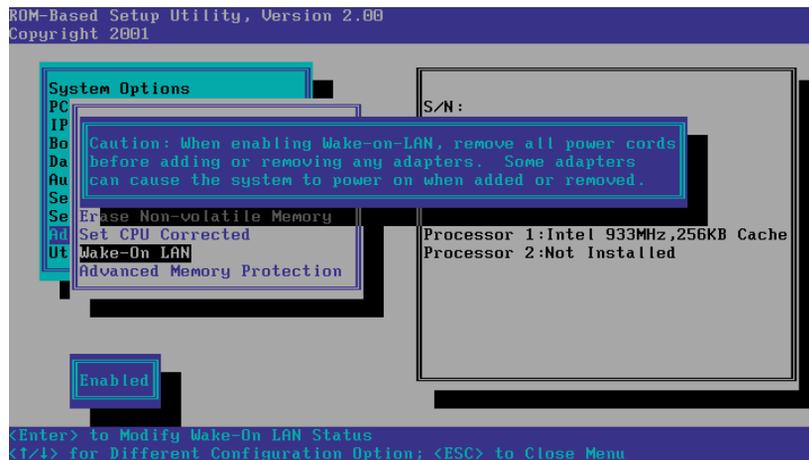


Figure 2-28: Wake-On LAN option

IDE EDD 3.0

IMPORTANT: IDE EDD 3.0 applies only to 64-bit servers.

The **IDE EDD 30** feature is a simple toggle setting. When enabled, **IDE EDD 3.0** uses the embedded EFI driver for the IDE (LS 240 CD-ROM). When disabled, **IDE EDD 3.0** uses the IA32 IDE option ROM.

NMI Debug Button

IMPORTANT: The **NMI Debug Button** applies only to 32-bit servers.

The **NMI Debug Button** option is a simple toggle setting that allows you to enable debug functionality when the system has experienced a software lock-up. The **NMI Debug Button** generates a Non-Maskable Interrupt to allow the use of the OS debugger.



WARNING: When enabled, pressing the **NMI Debug Button** on the system board during normal OS operation generates a Blue Screen Trap, ABEND, or Panic, and halts the system.

Custom POST Message

The **Custom POST Message** option allows you to input a message that can be viewed during POST.

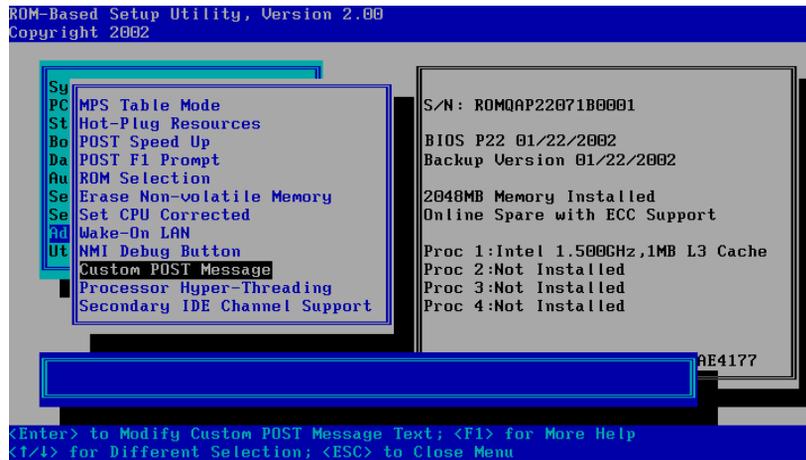


Figure 2-29: Custom POST Message option

Processor Hyper-Threading

The **Processor Hyper-Threading** option is a toggle setting that allows Intel® Hyper-Threading Technology to be enabled or disabled, though it is enabled by default. **Processor Hyper-Threading** delivers two logical processors that can execute multiple tasks simultaneously using shared hardware resources of a single processor. It is supported through the system BIOS. For more information on **Processor Hyper-Threading**, go to

issgweb:2200/products/servers/technology/hyper-threading.html

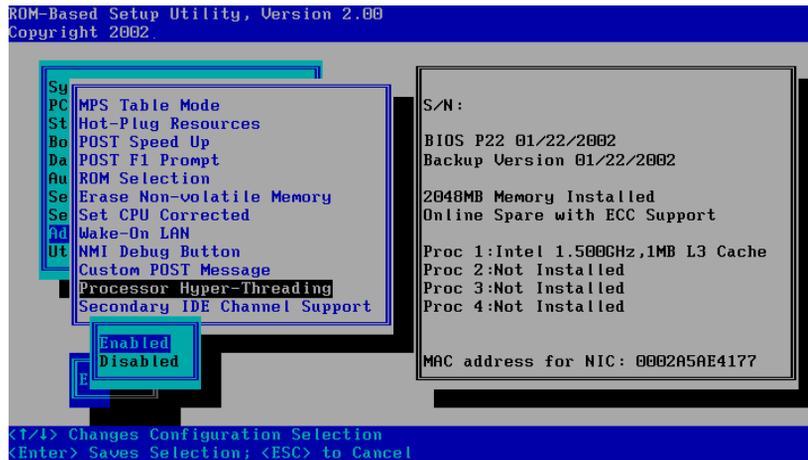


Figure 2-30: Processor Hyper-Threading option

Secondary IDE Channel Support

The **Secondary IDE Channel Support** option is a toggle setting that enables or disables the secondary IDE channel. When enabled, an additional IDE CD can be connected to the secondary IDE channel.

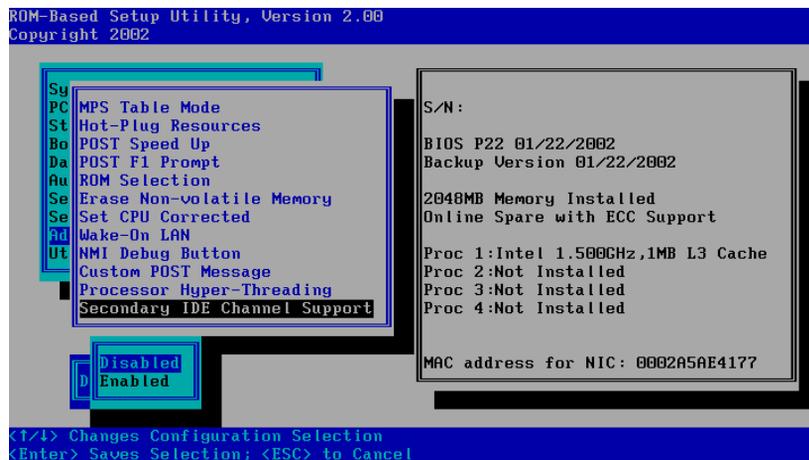


Figure 2-31: Secondary IDE Channel Support option

BIOS Serial Console/EMS Support

IMPORTANT: BIOS Serial Console applies only to select 32-bit servers.

Some languages or characters may require a specific emulation mode.

Through BIOS Serial Console, RBSU can be run remotely through a serial connection to the server COM port. A keyboard and monitor on the machine that you are remotely configuring are not required. For details about using BIOS Serial Console, refer to the *HP BIOS Serial Console User Guide* at <ftp://ftp.compaq.com/pub/products/servers/management/smartstart/bios-serialconsole.pdf>

BIOS Serial Console design supports VT100+ protocol, and ANSI and VT100 terminal emulation. VT100 is supported by all terminal emulation programs. However, ANSI supports enhanced graphics and is more aesthetically appealing. ANSI is the recommended choice if it meets your system requirements. Command Line Interface (CLI) support is available on select new servers for faster, more compatible display when configuring a server using VT100 emulation. Refer to Chapter 4, “Command Line Interface,” for more information.

When running RBSU through BIOS Serial Console, the main menu looks slightly different than it looks when running from the local server.

Figure 2-32 shows the BIOS Serial Console menu in ANSI mode.

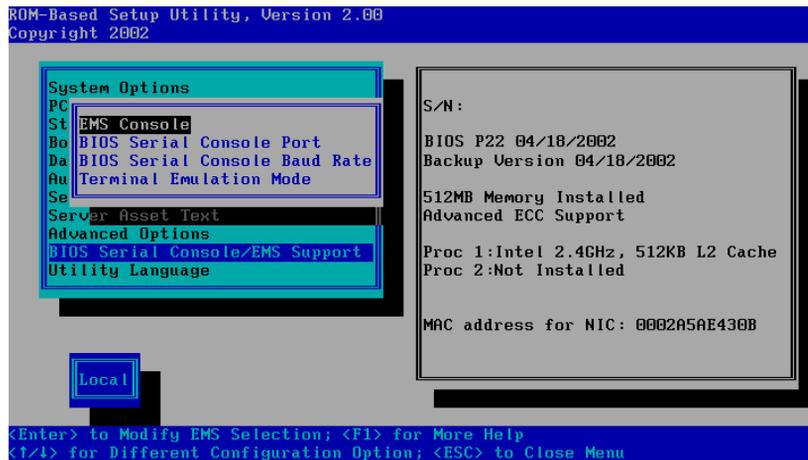


Figure 2-32: BIOS Serial Console main menu in ANSI mode

Utility Language

IMPORTANT: Not all languages are currently supported on 64-bit servers.

The **Utility Language** option sets the language in which RBSU is displayed.

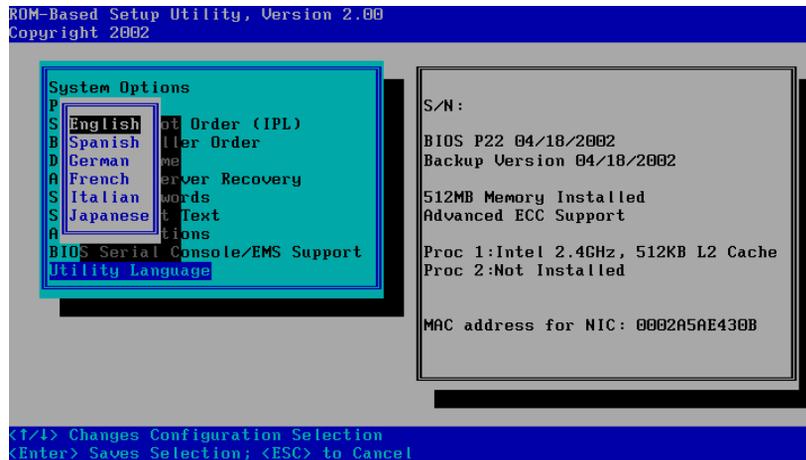


Figure 2-33: Utility Language option

The available languages are:

- English
- Spanish
- German
- French
- Italian
- Japanese

ROM-Based Enhancements

Several new ROM-based enhancements are available on some HP ProLiant servers, including:

- An auto-configuration process that, in most cases, automatically configures the entire system without intervention
- The **System Maintenance Menu**, which provides embedded server diagnostics and Inspect information through Embedded Server Setup
- A new erase option for RBSU, which erases the system configuration and boot drive.

For more information on whether the server includes these new features, refer to the server-specific setup and installation guide, which mentions these features if available for the server. The following ROM-based enhancements are described in this chapter:

- Embedded Server Setup
- Auto-Configuration Process
- Boot Options
- Operating System Installation

Embedded Server Setup

NOTE: This menu is not available on all servers.

The Embedded Server Setup feature consists of the **System Maintenance Menu**, which provides access to server diagnostics, the setup utility (RBSU), and, on some systems, the Inspect Utility. Embedded in the system ROM, the menu feature replaces the legacy system-partition functionality supported on some HP servers.

To access the **System Maintenance Menu**, press the **F10** key when prompted from the boot option screen, as described in the “Boot Options” section of this chapter.

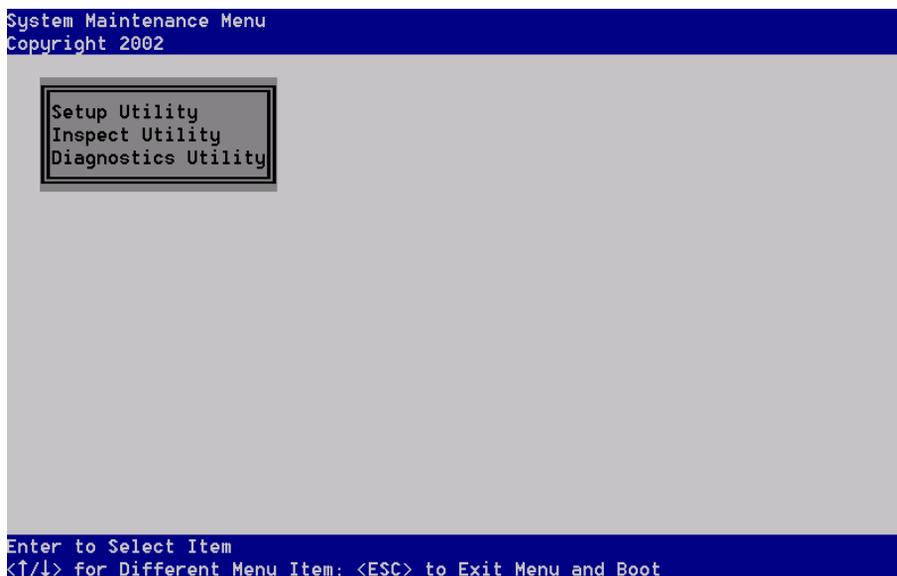


Figure 3-1: System Maintenance Menu

The following options are displayed on the **System Maintenance Menu**:

- **Setup Utility**—Runs RBSU, described in Chapters 1 and 2 of this guide
- **Inspect Utility**—Runs the embedded Inspect Utility, described in the “ROM-Based Inspect Utility” section of this chapter

- **Diagnostics Utility**—Runs the embedded Diagnostic Utility, described in the “ROM-Based Diagnostic Utility” section of this chapter

Setup Utility

To run the Setup Utility, select **Setup Utility** from the **System Maintenance Menu**. Running **Setup Utility** exits the System Maintenance Menu and runs RBSU.

RBSU Erase Option

The new RBSU Erase option replaces the Erase Utility feature that existed previously on the SmartStart CD. The option allows you to erase the system configuration and boot drive. On versions of RBSU without this new feature, the **Erase Non-volatile Memory** option is available in the **Advanced Options** menu of RBSU, allowing you to erase the system configuration by resetting the non-volatile memory (NVRAM) to an initial, factory state. The new option, **Erase NVRAM/Boot Disk**, also erases the system configuration by resetting the NVRAM, but erases the boot disk as well.

This option should only be used when you are redeploying a server and are required to erase the NVRAM and boot drive to reinstall the operating system. If available for the server, the **Erase NVRAM/Boot Disk** option is listed under the **Advanced Options** menu of the main RBSU menu. For more information on these menus, refer to Chapter 1 of this guide.

Virtual Install Disk

The Virtual Install Disk is a holding place within the system ROM that contains embedded boot drivers (such as SCSI or RAID controller drivers) that may be necessary to complete the operating system installation. Typically, boot drivers that are placed in the Virtual Install Disk are either not included as part of the operating system media or are updated for new controllers. Supported operating systems automatically find these drivers, eliminating the need for user intervention. HP recommends updating these boot drivers to the latest version after the OS install to further optimize the system. The Virtual Install Disk option can be enabled or disabled in RBSU.

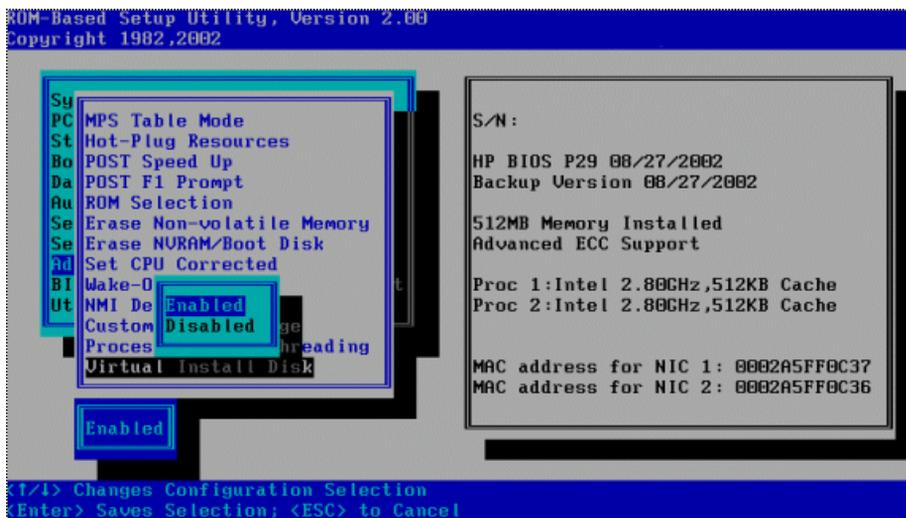


Figure 3-2: Virtual Install Disk option

Inspect Utility

Some systems will have the Inspect Utility. If your system has this feature, select **Inspect Utility** from the **System Maintenance Menu**.

```
ROM-Based System Inspect Version 1.00
Copyright 2002

System Overview
Primary Boot Controller
Array Configuration Info
System Configuration
PCI Device Info
SMBIOS System Info
System Memory Map
IML Dump
ISA CMOS Data
System EU Data

<Enter> to View Item; <F2> to Save All Inspect information to Drive A:
<↑/↓> for Different Menu Item; <ESC> to Exit Utility
```

Figure 3-3: Inspect Utility menu

The Inspect Utility is embedded in the system ROM and allows you to view system configuration information and save the information to a file on a diskette. This utility replaces the version of the Inspect Utility that is a part of the legacy system-partition functionality supported on some HP servers.

Diagnostics Utility

To run the Diagnostics Utility, select **Diagnostics Utility** from the **System Maintenance Menu**.

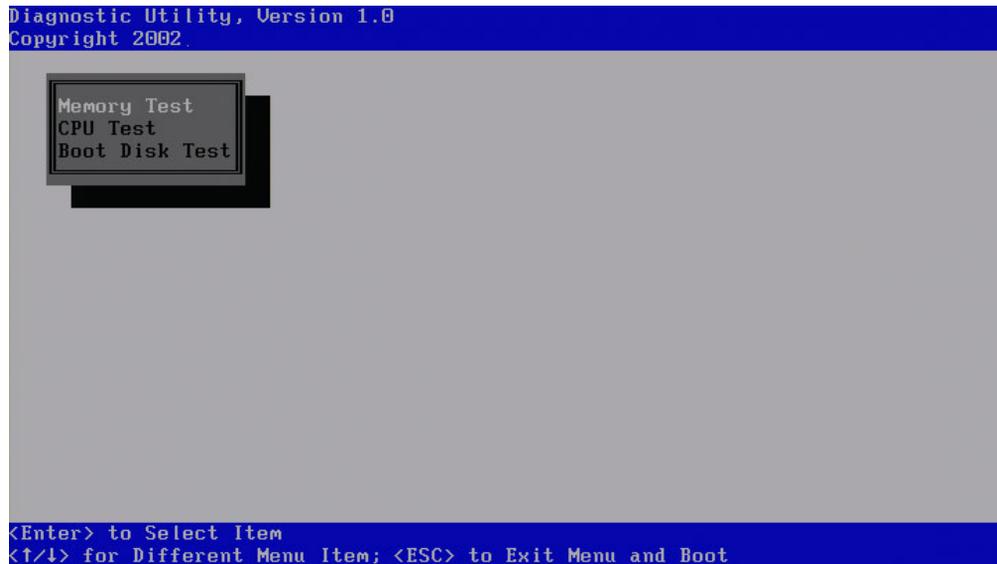


Figure 3-4: Diagnostics Utility menu

The Diagnostics Utility is embedded in the system ROM, and provides a pre-boot method for quickly checking the validity of the three major subsystems of the server needed to boot an operating system.

NOTE: A complete server diagnostics is available on the SmartStart CD.

The three test options provided are:

- **Memory Test**—Tests all memory in the system, described in the “Memory Diagnostic Test” section of this chapter
- **CPU Test**—Tests all processors in the system, described in the “CPU Diagnostic Test” section of this chapter

- **Boot Disk Test**—Tests the boot drive for its readiness to boot, described in the “Boot Disk Diagnostic Test” section of this chapter

Memory Diagnostic Test

To run the memory diagnostic test, select **Memory Test** from the **Diagnostics Utility** menu. The test, an example of which is displayed in Figure 3-5, runs until completion or until you press the **Esc** key to exit.

NOTE: Your screen may look different than the one shown in Figure 3-5.

The screenshot shows the Compaq BIOS Memory Diagnostic utility. The title bar reads "Compaq BIOS Memory Diagnostic Copyright (c) 2002" and "Testing Memory Using 2 Processor(s)". The main display is a table with columns for Status, Socket, and Module Information. The status of each module is indicated by red arrows: two arrows for successful modules and one arrow for failed modules. The bottom of the screen shows a summary: "344 MB OK / 7680 MB Detected / 1536 MB Redundant".

Status	Socket	Module Information
→→	Cart 1 - DIMM 01	512 MB SDRAM
→→	Cart 1 - DIMM 02	512 MB SDRAM
→→	Cart 1 - DIMM 03	512 MB SDRAM
→→	Cart 1 - DIMM 04	512 MB SDRAM
→→	Cart 1 - DIMM 05	512 MB SDRAM
→→	Cart 1 - DIMM 06	Not Installed
→→	Cart 1 - DIMM 07	Not Installed
→→	Cart 1 - DIMM 08	Not Installed
→→	Cart 1 - DIMM 09	512 MB SDRAM
→→	Cart 1 - DIMM 10	512 MB SDRAM
→→	Cart 1 - DIMM 11	512 MB SDRAM
→→	Cart 1 - DIMM 12	512 MB SDRAM
→→	Cart 1 - DIMM 13	512 MB SDRAM
→→	Cart 1 - DIMM 14	512 MB SDRAM
→→	Cart 1 - DIMM 15	512 MB SDRAM
→→	Cart 1 - DIMM 16	512 MB SDRAM
→→	Cart 1 - DIMM 17	512 MB SDRAM
→→	Cart 1 - DIMM 18	512 MB SDRAM
→→	Cart 1 - DIMM 19	512 MB SDRAM
→→	Cart 1 - DIMM 20	512 MB SDRAM
→→	Cart 1 - DIMM 21	512 MB SDRAM
→→	Cart 1 - DIMM 22	512 MB SDRAM
→→	Cart 1 - DIMM 23	512 MB SDRAM
→→	Cart 1 - DIMM 24	512 MB SDRAM
→→	Cart 1 - DIMM 25	512 MB SDRAM
→→	Cart 1 - DIMM 26	512 MB SDRAM
→→	Cart 1 - DIMM 27	512 MB SDRAM
→→	Cart 1 - DIMM 28	512 MB SDRAM
→→	Cart 1 - DIMM 29	512 MB SDRAM
→→	Cart 1 - DIMM 30	512 MB SDRAM
→→	Cart 1 - DIMM 31	512 MB SDRAM
→→	Cart 1 - DIMM 32	512 MB SDRAM
→→	Cart 1 - DIMM 33	512 MB SDRAM
→→	Cart 1 - DIMM 34	512 MB SDRAM
→→	Cart 1 - DIMM 35	512 MB SDRAM
→→	Cart 1 - DIMM 36	512 MB SDRAM
→→	Cart 1 - DIMM 37	512 MB SDRAM
→→	Cart 1 - DIMM 38	512 MB SDRAM
→→	Cart 1 - DIMM 39	512 MB SDRAM
→→	Cart 1 - DIMM 40	512 MB SDRAM
→→	Cart 1 - DIMM 41	512 MB SDRAM
→→	Cart 1 - DIMM 42	512 MB SDRAM
→→	Cart 1 - DIMM 43	512 MB SDRAM
→→	Cart 1 - DIMM 44	512 MB SDRAM
→→	Cart 1 - DIMM 45	512 MB SDRAM
→→	Cart 1 - DIMM 46	512 MB SDRAM
→→	Cart 1 - DIMM 47	512 MB SDRAM
→→	Cart 1 - DIMM 48	512 MB SDRAM
→→	Cart 1 - DIMM 49	512 MB SDRAM
→→	Cart 1 - DIMM 50	512 MB SDRAM
→→	Cart 1 - DIMM 51	512 MB SDRAM
→→	Cart 1 - DIMM 52	512 MB SDRAM
→→	Cart 1 - DIMM 53	512 MB SDRAM
→→	Cart 1 - DIMM 54	512 MB SDRAM
→→	Cart 1 - DIMM 55	512 MB SDRAM
→→	Cart 1 - DIMM 56	512 MB SDRAM
→→	Cart 1 - DIMM 57	512 MB SDRAM
→→	Cart 1 - DIMM 58	512 MB SDRAM
→→	Cart 1 - DIMM 59	512 MB SDRAM
→→	Cart 1 - DIMM 60	512 MB SDRAM
→→	Cart 1 - DIMM 61	512 MB SDRAM
→→	Cart 1 - DIMM 62	512 MB SDRAM
→→	Cart 1 - DIMM 63	512 MB SDRAM
→→	Cart 1 - DIMM 64	512 MB SDRAM
→→	Cart 1 - DIMM 65	512 MB SDRAM
→→	Cart 1 - DIMM 66	512 MB SDRAM
→→	Cart 1 - DIMM 67	512 MB SDRAM
→→	Cart 1 - DIMM 68	512 MB SDRAM
→→	Cart 1 - DIMM 69	512 MB SDRAM
→→	Cart 1 - DIMM 70	512 MB SDRAM
→→	Cart 1 - DIMM 71	512 MB SDRAM
→→	Cart 1 - DIMM 72	512 MB SDRAM
→→	Cart 1 - DIMM 73	512 MB SDRAM
→→	Cart 1 - DIMM 74	512 MB SDRAM
→→	Cart 1 - DIMM 75	512 MB SDRAM
→→	Cart 1 - DIMM 76	512 MB SDRAM
→→	Cart 1 - DIMM 77	512 MB SDRAM
→→	Cart 1 - DIMM 78	512 MB SDRAM
→→	Cart 1 - DIMM 79	512 MB SDRAM
→→	Cart 1 - DIMM 80	512 MB SDRAM
→→	Cart 1 - DIMM 81	512 MB SDRAM
→→	Cart 1 - DIMM 82	512 MB SDRAM
→→	Cart 1 - DIMM 83	512 MB SDRAM
→→	Cart 1 - DIMM 84	512 MB SDRAM
→→	Cart 1 - DIMM 85	512 MB SDRAM
→→	Cart 1 - DIMM 86	512 MB SDRAM
→→	Cart 1 - DIMM 87	512 MB SDRAM
→→	Cart 1 - DIMM 88	512 MB SDRAM
→→	Cart 1 - DIMM 89	512 MB SDRAM
→→	Cart 1 - DIMM 90	512 MB SDRAM
→→	Cart 1 - DIMM 91	512 MB SDRAM
→→	Cart 1 - DIMM 92	512 MB SDRAM
→→	Cart 1 - DIMM 93	512 MB SDRAM
→→	Cart 1 - DIMM 94	512 MB SDRAM
→→	Cart 1 - DIMM 95	512 MB SDRAM
→→	Cart 1 - DIMM 96	512 MB SDRAM
→→	Cart 1 - DIMM 97	512 MB SDRAM
→→	Cart 1 - DIMM 98	512 MB SDRAM
→→	Cart 1 - DIMM 99	512 MB SDRAM
→→	Cart 1 - DIMM 100	512 MB SDRAM

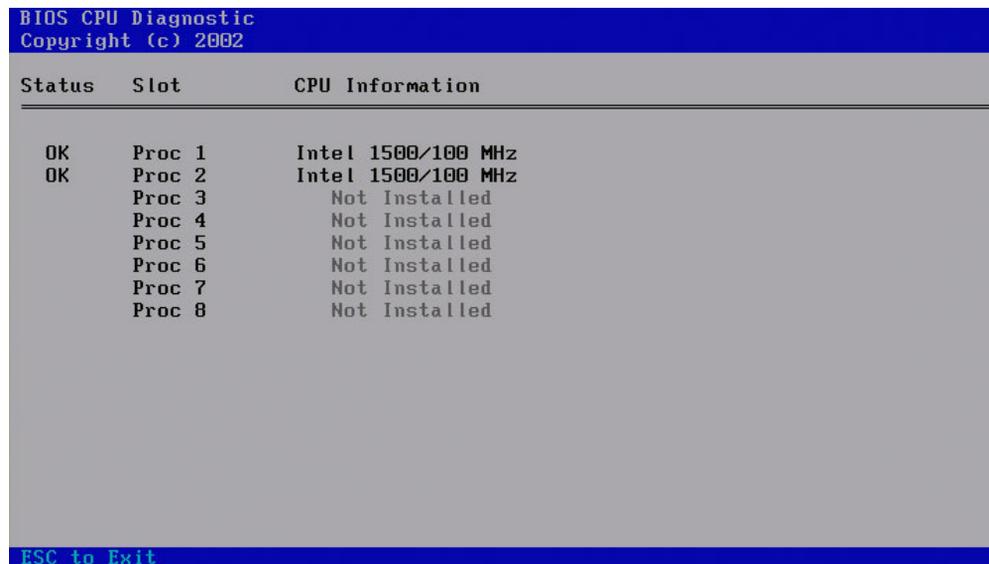
344 MB OK / 7680 MB Detected / 1536 MB Redundant

Figure 3-5: Memory diagnostic test

The memory diagnostic test uses all the processors installed in the system to test all installed memory. The dual inline memory modules (DIMMs) that are installed are displayed by the cartridge and socket (or the bank and socket) in which they are located, and errors are reported with a reference to the failed DIMM.

CPU Diagnostic Test

To run the CPU diagnostic test, select **CPU Test** from the **Diagnostics Utility** menu. The test runs and a screen similar to Figure 3-6 is displayed if all processors are functional.



Status	Slot	CPU Information
OK	Proc 1	Intel 1500/100 MHz
OK	Proc 2	Intel 1500/100 MHz
	Proc 3	Not Installed
	Proc 4	Not Installed
	Proc 5	Not Installed
	Proc 6	Not Installed
	Proc 7	Not Installed
	Proc 8	Not Installed

ESC to Exit

Figure 3-6: CPU Diagnostic Test

The CPU diagnostic test checks the registers and MP capability of each processor. The test first checks all the 16-bit and 32-bit registers, and then checks all the flags for all processors. If no errors are found, OK is displayed under the Status column for each processor. If errors are found, X is displayed under the Status column for each processor with errors.

Boot Disk Diagnostic Test

To run the boot disk diagnostic test, select **Boot Disk Test** from the **Diagnostics Utility** menu. The test runs and a screen similar to Figure 3-7 is displayed.

```
Boot Disk Test
Copyright 2002

Boot Disk Status:    Pass - Disk Present.

Boot Disk Ready:    Pass - Disk Ready.

Verify Boot sector:  Pass - Valid OS Boot Sector Present.

Primary Partition 01
  State : Boot Partition      File system type: Fat16
Primary Partition 02
  State : non active          File system type: Empty
Primary Partition 03
  State : non active          File system type: Empty
Primary Partition 04
  State : non active          File system type: Empty _

<Any Key> to Exit Menu.
```

Figure 3-7: Boot Disk Diagnostic Test

The boot disk diagnostic test verifies the presence and readiness of a primary boot controller. If a controller is present and ready, the test checks for a valid operating system boot sector. All three of these tests should pass if a bootable operating system is installed on the server. If any test fails, there may be a problem booting the server.

Auto-Configuration Process

The auto-configuration process automatically runs when you boot the server for the first time. During the power-up sequence, in many cases the system ROM automatically configures the entire system without needing any intervention. During this process, the Option ROM Configuration for Arrays (ORCA) Utility in most cases automatically configures the array with a default setting based on the number of drives connected to the server. The settings are listed in Table 3-1.

Table 3-1: ORCA RAID Level Settings

Drives Installed	Drives Used	RAID Level
1	1	RAID 0
2	2	RAID 1
3, 4, 5, or 6	3, 4, 5, or 6	RAID 5
More than 6	0	None

NOTE: If the boot drive contains logical volumes, or if more than six drives are installed on the system, ORCA does not automatically configure the array. If this occurs, you must run ORCA to configure the array settings. For more information on running ORCA, refer to the server-specific setup and installation guide.

By default, the auto-configuration process configures the system for a default operating system, as shown in Figure 3-8. To change any default settings in the auto-configuration process, such as the settings for language, operating system, and primary boot controller, execute RBSU by pressing the **F9** key after system POST. After the settings are selected according to your preference, exit RBSU and reboot the server. For more information on using RBSU, refer to Chapter 1 of this guide.

```
System currently defaulted to Windows 2000. Run RBSU to modify OS settings.  
Press "F10" key for System Maintenance Menu  
Press "F9" for ROM-Based Setup Utility  
System will boot in 9 seconds.
```

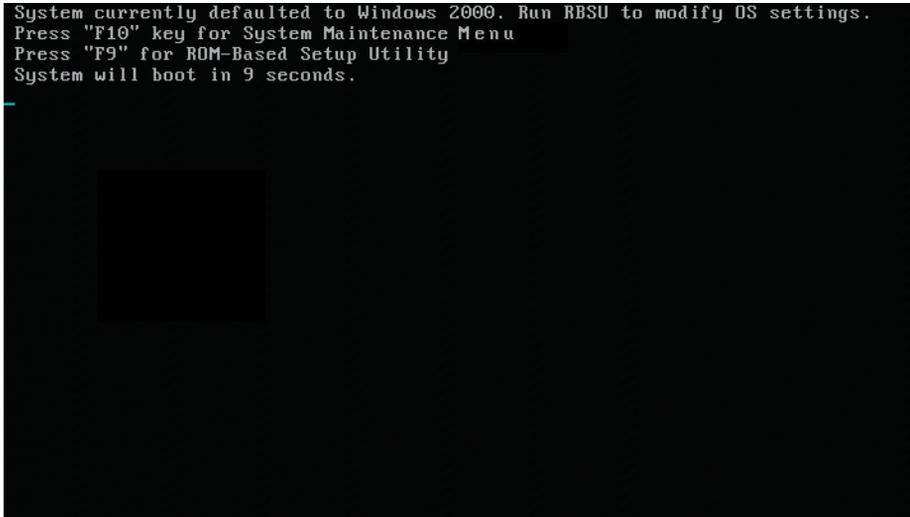
The image shows a black terminal window with white text. The text provides instructions on how to access the ROM-Based Setup Utility (RBSU) by pressing the F9 key. It also indicates that the system is currently defaulted to Windows 2000 and will boot in 9 seconds. The rest of the screen is black.

Figure 3-8: Auto-configuration screen

Boot Options

After the auto-configuration process completes, or after the server reboots upon exit from RBSU, the Power-On Self-Test (POST) sequence runs, and then the boot option screen is displayed.

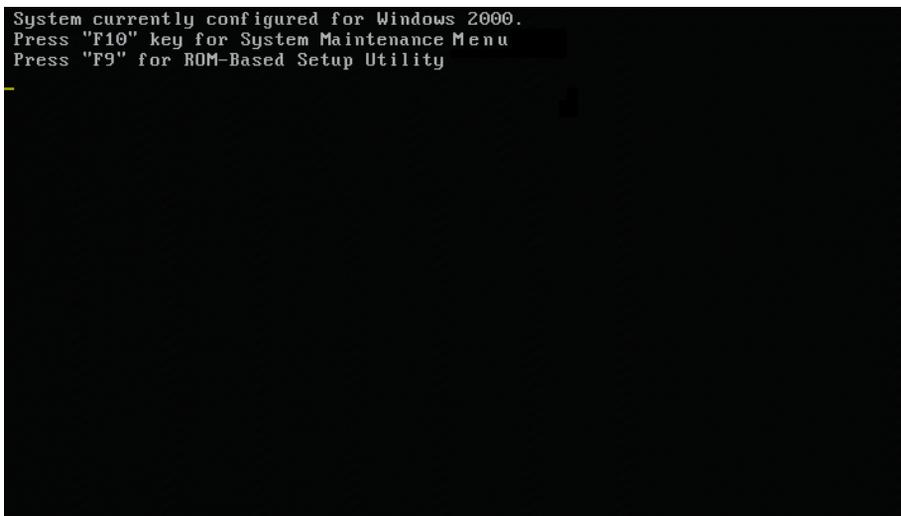


Figure 3-9: Boot option screen

This screen is visible for several seconds before the system attempts to boot from either a bootable CD or the hard drive. During this time, the menu on the screen allows you to do one of the following:

- Install an operating system by inserting the operating system CD or the SmartStart CD. Refer to the “Operating System Installation” section of this chapter for more information.
- Make changes to the server configuration in RBSU by pressing the **F9** key. Refer to Chapters 1 and 2 of this guide for more information on using RBSU.
- Run the **System Maintenance Menu** by pressing the **F10** key. Refer to the “Embedded Server Setup” section of this chapter for more information.

If no action is taken, the system attempts to boot first from a bootable CD before booting from the hard drive.

Boot Options with POST Error

If a POST error occurs, the system displays a screen similar to the example error screen shown in Figure 3-10 and halts, pending a selection from the menu. To acknowledge the error and continue the boot process, press the **F1** key or select one of the other options from the menu.

```

6144 MB Initialized / 7680 MB Detected / 1536 MB Redundant
System BIOS - P44 (01/08/2002)
Copyright 1982,2002
Processor 1 Initialized at 1500/100/100 MHz with 1 MB Cache
Processor 2 Initialized at 1500/100/100 MHz with 1 MB Cache
Slot 0 Smart Array 5i Controller                               1 Logical Drive
1/77-Slot 0 Drive Array - ProLiant Storage Enclosure Problem Detected
SCSI Port 1: Interrupt Signal Inoperative - Check SCSI Cables

Insert OS CD for Unassisted OS Installation.
Insert SmartStart CD for Assisted Installation.
System currently configured for Other OS.

Press "F1" key to continue
      "F9" key for ROM-Based Setup Utility
      "F10" key for System Maintenance Menu

```

Figure 3-10: Boot option screen after POST error

Operating System Installation

For an assisted operating system installation, insert the SmartStart CD into the CD-ROM drive to begin the installation process. The operating system and server support software are installed upon completion of this process. Refer to the SmartStart installation poster for more information on the operating systems that support this feature.

For a manual OS installation, put the operating system CD into the CD-ROM to begin the installation process.

Command Line Interface

Both a full-screen menu-driven user interface and a command line interface are required to support both a Windows/PC background and a terminal/VT100 background. Full-screen menu-driven utilities do not display correctly on a VT100 interface because menus that get paged in and out require the entire screen to be redrawn. Command Line Interface (CLI) is being added to select newer servers because it provides a faster, more compatible solution for VT100 compatible serial connections to servers using the BIOS Serial Console support.

Two basic commands, SET and SHOW, provide the foundation of the command tree wherever possible. In addition, HELP can be accessed for commands, and EXIT or QUIT is used to exit the utility.

Dual-Mode ROM-Based Utilities

ROM-based utilities generically switch to run in one mode or the other to provide maximum user benefit. RBSU also provides a user-configurable method for viewing and setting the console mode, which is set before launching an Embedded ROM Utility remotely, through either a serial port connection or iLO. The mode can also be set automatically. Refer to “CLI Mode Selection” for details.

CLI Mode Selection

On select newer servers, the BIOS will automatically determine whether to run in CLI mode or full-screen, menu-based mode for ROM embedded utilities. If a VT100-compatible terminal is being using with BIOS Serial Console option, CLI mode will be selected for that boot. If BIOS Serial Console is disabled or not in use, the full-screen, menu-based interface will be used. You can force the utilities to always run in CLI mode by selecting **Always** in the RBSU menu displayed in Figure 4-1.

Table 4-1: Mode Selection Values

CQHCLI EV Value	Description
0 = Auto	Auto determine CLI mode
1 = Always (CLI mode)	Always enables CLI mode

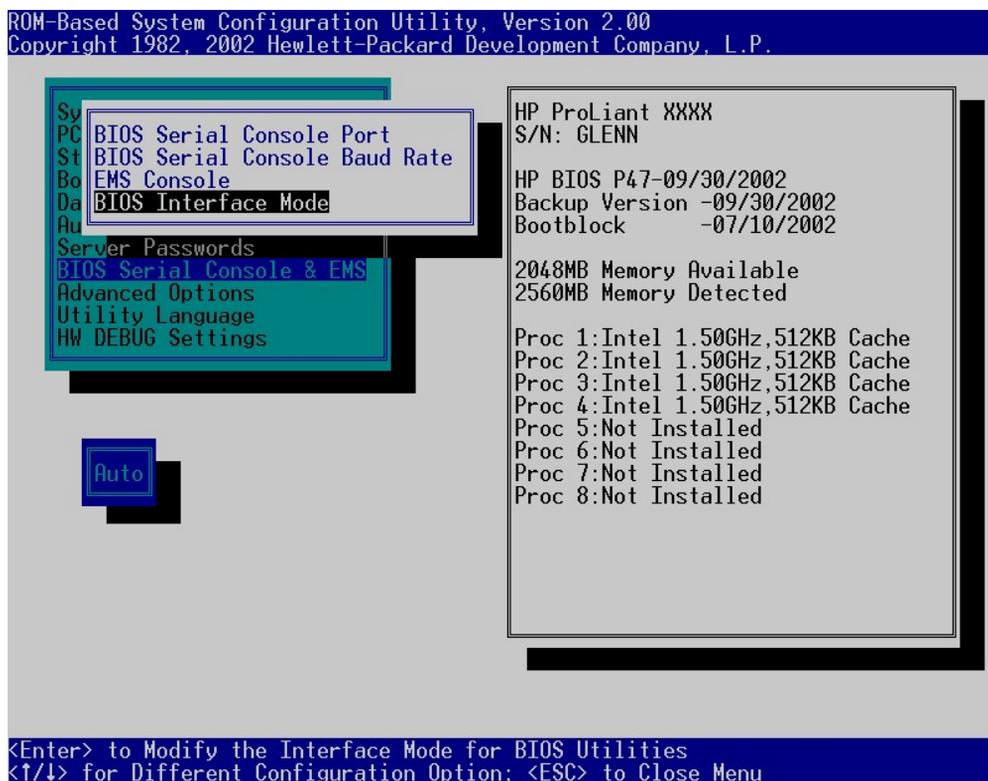


Figure 4-1: BIOS Interface Mode selection

The **BIOS Serial Console & EMS** menu selection of the RBSU main menu displays a **BIOS Interface Mode** selection that, equivalent to the CQHCLI EV values, toggles between **Auto** and **Always**.

RBSU CLI Commands

The CLI mode of RBSU is a different interface that provides equivalent functionality to the menu-based mode.

Table 4-2: RBSU CLI Commands

Command	Usage	Description
HELP	HELP or HELP <command>	Displays all supported commands or usage and descriptions of a specific command.
EXIT, QUIT	EXIT, QUIT	Exits RBSU and resets or power-cycles system.
SHOW CONFIG	SHOW CONFIG SHOW CONFIG <option>	SHOW CONFIG displays all available <options>. SHOW CONFIG <option> displays current setting and all other setting choices for <option> specified. SHOW CONFIG SCRIPT displays the script required to recreate the settings of the server.
SET CONFIG	SET CONFIG <choice> <option>	Sets config option setting to choice specified by <choice> that corresponds to the # of the choice listed by SHOW CONFIG for that particular option.
SHOW SN	SHOW SN	Displays current serial number value.
SET SN	SET SN <serial #>	Set serial number to the value specified.
SHOW BOOT	SHOW BOOT	Displays currently configured boot controller order list.
SET BOOT	SET BOOT <controller #>	Sets new primary boot controller to controller # in list displayed by SHOW BOOT command and then displays the new list.
SHOW IPL	SHOW IPL	Displays current standard boot order device list of IPL devices in priority order.

continued

Table 4-2: RBSU CLI Commands *continued*

Command	Usage	Description
SET IPL	SET IPL [A: C: CD PXE] <new IPL Priority>	Sets standard boot order priority for the IPL device specified to new priority # specified. The device specified must be represented in the current IPL list displayed by SHOW IPL.
SHOW PCI	SHOW PCI	Displays a list all PCI devices and their current IRQ settings or disabled status. Also, displays a list of IRQs available for PCI devices to use.
SET PCI	SET PCI <device #> <IRQ>	Sets an override IRQ value (1 – 15) for the PCI device selected where <#> corresponds to the # of the PCI device in the list displayed by the SHOW PCI command. Use 0 for the <IRQ> value to disable a PCI device.
SHOW SYS	SHOW SYS	Displays overview of System from SMBIOS info.
SET PASSWORD POWERON	SET PASSWORD POWERON	Sets the Power-on password. Password must be entered twice for verification and must be 7 chars or less.
SET PASSWORD ADMIN	SET PASSWORD ADMIN	Sets the Admin password. Password must be entered twice for verification and must be 7 chars or less.
SHOW DATE	SHOW DATE	Displays date <mm/dd/yy>.
SHOW TIME	SHOW TIME	Displays time <hh:mm>
SET DATE	SET DATE <mm/dd/yy>	Sets date to new value specified. Century value assumed to be 20.
SET TIME	SET TIME <hh:mm>	Sets time to new value specified. Seconds value set to 0.
SHOW TEXT SERVER	SHOW TEXT SERVER	Displays current server info text strings.

continued

Table 4-2: RBSU CLI Commands *continued*

Command	Usage	Description
SET TEXT SERVER	SET TEXT SERVER [N A P O] [1 2 3 4] <string>	Sets server info text string specified to <string> where: ‘N’: Server Name (28) ‘A’: Server Asset Tag (32) ‘P’: Server Primary OS (42) ‘O’: Server Other (28) and # is the line number.
SHOW TEXT ADMIN	SHOW TEXT ADMIN	Displays current administrator contact text strings.
SET TEXT ADMIN	SET TEXT ADMIN [N P G O] [1 2 3 4] <string>	Sets administrator contact text string specified by <string> where: ‘N’: Admin Name (28) ‘P’: Admin Phone # (28) ‘G’: Admin Pager # (28) ‘O’: Admin Other (28) and the # is the line number.
SHOW TEXT SERVICE	SHOW TEXT SERVICE	Displays current service contact text strings.
SET TEXT SERVICE	SET TEXT SERVICE [N P G O] [1 2 3 4] <string>	Sets service contact text string specified by <X> <#> to <string> where X can be: ‘N’: Service Name (28) ‘P’: Service Phone # (28) ‘G’: Service Pager # (28) ‘O’: Service Other (28) and the # is the line number.
SHOW TEXT IMD	SHOW TEXT IMD	Displays current IMD custom text strings.

continued

Table 4-2: RBSU CLI Commands *continued*

Command	Usage	Description
SET TEXT IMD	SET TEXT IMD [I M S] [1 2 3 4] <string>	Sets IMD Custom text string specified by <X> <#> to <string> where: 'I': Idle Screen (48) 'M': Custom Menu Item (14) 'S': Custom Menu Screen (56) and the # is the line number.

Inspect CLI Commands

Table 4-3: Inspect CLI Commands

Command	Usage	Description
HELP	HELP or HELP <command>	Displays all supported commands or usage and descriptions of a specific command.
EXIT	EXIT	Exits Inspect and reboots.
QUIT	QUIT	Exits Inspect and reboots.
EXPORT	EXPORT	Exports ALL info to a text file on floppy drive A.
SHOW CONFIG	SHOW CONFIG	Displays all RBSU options and current settings.
SHOW CMOS	SHOW CMOS	Displays all ISA CMOS.
SHOW IML	SHOW IML	Displays all system event log records.
SHOW SMBIOS	SHOW SMBIOS	Displays all SMBIOS record info.
SHOW PCI	SHOW PCI	Displays all PCI devices and PCI header info.
SHOW EVS	SHOW EVS	Displays all System EVs.
SHOW MEM	SHOW MEM	Displays system memory map.

continued

Table 4-3: Inspect CLI Commands *continued*

Command	Usage	Description
SHOW SYS	SHOW SYS	Displays overview of System from SMBIOS info.
SHOW BOOT	SHOW BOOT	Displays Primary Boot controller.
SHOW ACC	SHOW ACC	Displays Primary Array Controller Configuration info.

System Maintenance CLI Commands

Table 4-4: System Maintenance CLI Commands

Command	Usage	Description
HELP	HELP or HELP <command>	Displays all supported commands or usage and descriptions of a specific command.
EXIT	EXIT	Exits Menu and continues booting.
RBSU	RBSU	Executes RBSU utility (has CLI).
INSPECT	INSPECT	Executes Inspect utility (has CLI).
PXE	PXE	Attempts PXE Boot.
MEMDIAG	MEMDIAG	Executes DIAG Utility specified. (Diag utility has CLI output as well.)
CPUDIAG	CPUDIAG	Executes DIAG Utility specified. (Diag utility has CLI output as well.)
DISKDIAG	DISKDIAG	Executes DIAG Utility specified. (Diag utility has CLI output as well.)

Command Buffering Support

The CLI mode support buffers the previous five commands entered from the command line, accessible using the **up arrow** key and the **down arrow** key.

Additional CLI Support

The CLI mode support will automatically handle output to the screen that scrolls off the screen by implementing a **—More—** prompt at the bottom of the screen and waiting for user input to scroll to the next page of data as follows:

Table 4-5: Display Scroll Keys

Key	Function
Space	Scroll to next page
Enter	Scroll to next line
Q	Quit display

RBSU Configuration Flow

Introduction

RBSU can be used in two ways to configure a server. Each method has its own flow of procedures, as illustrated in Figure A-1 and Figure A-2. A manual flow and a scripted installation flow for working with SmartStart software are shown. This information is of a technical nature and intended for reference purposes only.

Manual Path Flow

IMPORTANT: For 64-bit servers, select **System Maintenance** from the **Boot** menu, and then select **ROM-Based Setup Utility** to execute RBSU.

NOTE: Manual Path flow does not apply for servers with an Integrated ATA RAID IDE Controller.

Manual Path flow is not necessary for servers with Embedded Server Setup. For more information on Embedded Server Setup, refer to Chapter 3, "ROM-Based Enhancements."

RBSU can be used to configure HP servers without the use of SmartStart. When the server is powered up in an unconfigured state, RBSU executes for 32-bit servers when the **F9** key is pressed, allowing the server to be configured. After the server has been configured using RBSU:

1. Restart the system.
2. Press the **F8** key to execute ORCA.
3. After the primary array controller has been configured with ORCA, restart the system.
4. Install the operating system, and install any necessary applications.
5. Use the Array Configuration Utility (ACU) to configure any remaining array controllers.

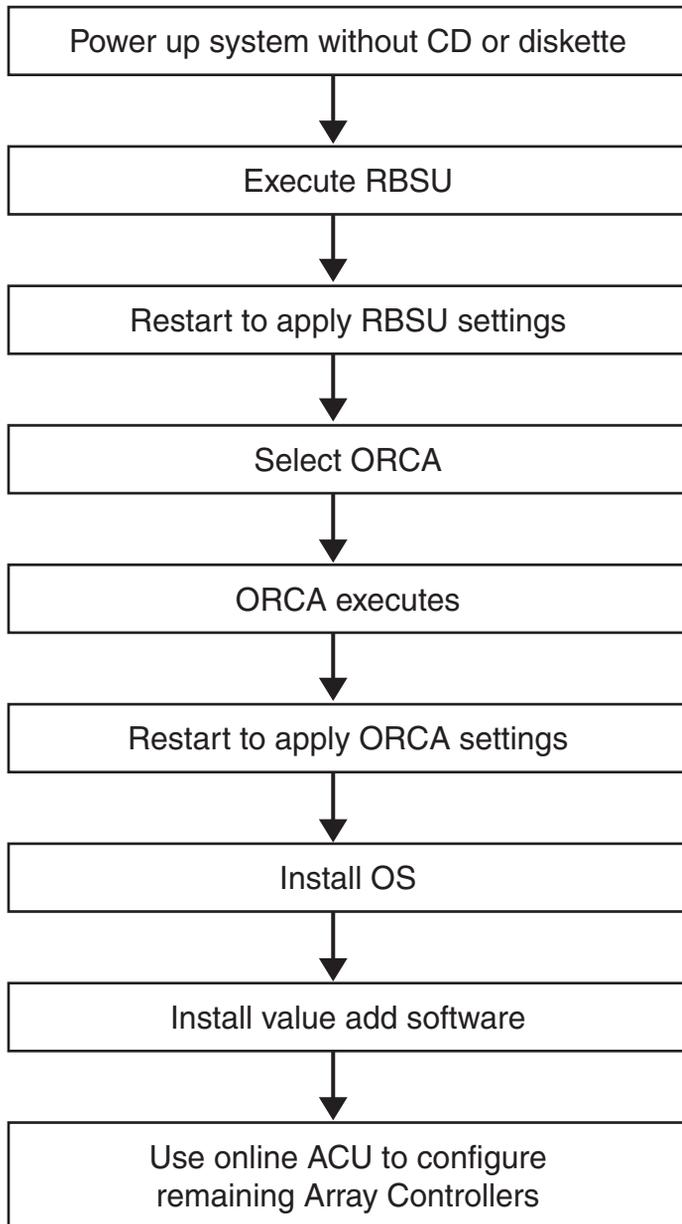


Figure A-1: Manual path flow

Scripted Installation Flow

RBSU can be used with the SmartStart Scripting Toolkit to configure the server. The SmartStart Scripting Toolkit can be found at

www.compaq.com/smartstart/toolkit

Configuration Replication Utility

IMPORTANT: Configuration Replication Utility applies only to 32-bit servers.

Configuration Replication Utility (ConRep) is shipped in the SmartStart Scripting Toolkit and is a program that works with RBSU to replicate hardware configuration on ProLiant servers. This utility is run during State 0, **Run Hardware Configuration Utility**, when doing a scripted server deployment. ConRep reads the state of the system environment variables to determine the configuration and then writes the results on an editable script file. This file can then be deployed across multiple servers with similar hardware and software components. For more information, go to

www.compaq.com/manage/deployment.html

Array Configuration Replication Utility

IMPORTANT: Because SmartStart is not used on 64-bit servers, Array Configuration Replication Utility applies only to 32-bit servers.

Array Configuration Replication Utility (ACR) is shipped in the SmartStart Scripting Toolkit and is a replication utility used for RAID arrays. ACR is used during State 0, **Run Array Configuration Utility**, when doing a scripted server deployment. It duplicates the host array controller configuration utilities and writes them onto an editable script file. This file is then loaded onto a startup diskette for deployment to other servers.

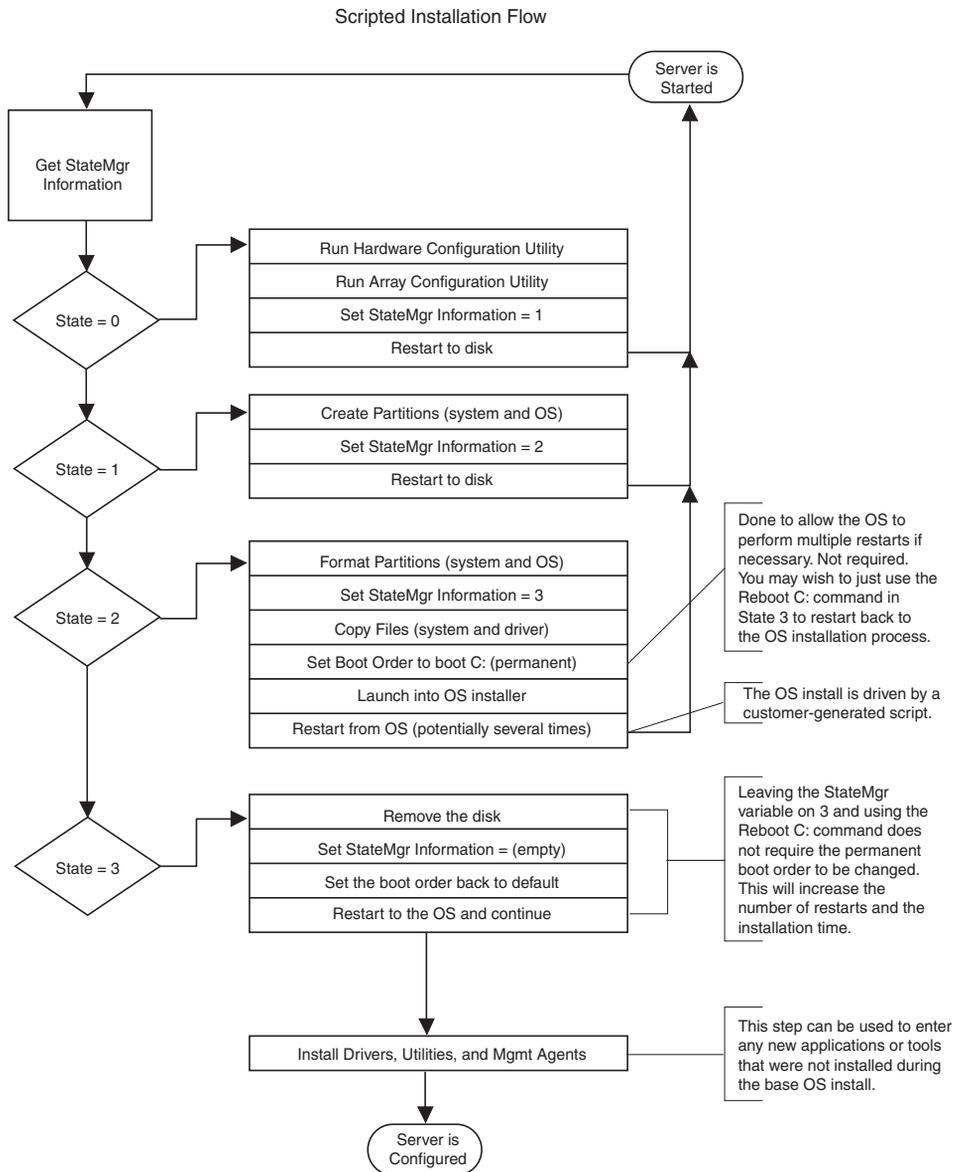


Figure A-2: Scripted installation flow

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