IBM Z

Service Guide for 2461 Hardware Management Console (Base Service)

Level 01a

GC28-6990-01

Note:

Before using this information and the product it supports, read the information in "Safety" on page v, Appendix C, "Notices," on page 163, and *Environmental Notices and User Guide*, Z125–5823.

This edition, GC28-6990-01a, applies to the 2461 Hardware Management Console (FC 0095), 2461 Hardware Management Console (FC 0096), 2461 Hardware Management Console (FC 0082), 2461 Hardware Management Console (FC 0083), 2461 Hardware Management Console (FC 0062), and 2461 Hardware Management Console (FC 0063). This edition replaces GC28-6990-01.

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Safety

Safety notices

Safety notices may be printed throughout this guide. **DANGER** notices warn you of conditions or procedures that can result in death or severe personal injury. **CAUTION** notices warn you of conditions or procedures that can cause personal injury that is neither lethal nor extremely hazardous. **Attention** notices warn you of conditions or procedures that can cause damage to machines, equipment, or programs.

Danger notices

DANGER: Heavy equipment — personal injury or equipment damage might result if mishandled. (D006)

World trade safety information

Several countries require the safety information contained in product publications to be presented in their translation. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the translated safety information with references to the US English source. Before using a US English publication to install, operate, or service this product, you must first become familiar with the related safety information in the *Systems Safety Notices*, G229-9054. You should also refer to the booklet any time you do not clearly understand any safety information in the US English publications.

Laser safety information

All IBM Z® (Z) and IBM LinuxONE™ (LinuxONE) models can use I/O cards such as FICON®, Open Systems Adapter (OSA), InterSystem Channel-3 (ISC-3), RoCE Express, Integrated Coupling Adapter (ICA SR), zHyperLink Express, or other I/O features which are fiber optic based and utilize lasers (short wavelength or long wavelength lasers).

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CAUTION: Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION: This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

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About this publication

This guide is for service representatives who perform isolation and repair actions on the 2461 Hardware Management Console:

- FC 00095 and FC 0096
- FC 0082 and FC 0083
- FC 0062 and FC 0063

Note: Throughout the rest of this document, *2461 HMC* refers to the 2461 HMC (FC 0083), 2461 HMC (FC 0096), 2461 HMC (FC 0063), 2461 HMC (FC 0082), 2461 HMC (FC 0095), and 2461 HMC (FC 0062), unless otherwise stated.

- Chapter 1, “Introduction,” on page 1 provides a brief description of the 2461 HMC and shows the components located in the front and rear of the 2461 HMC.
- Chapter 2, “Parts list,” on page 7 provides a list of the components that can be exchanged, the location of the component in the 2461 HMC, and the part number of each component.
- Chapter 3, “Troubleshooting,” on page 17 provides information in helping to determine what needs to be removed and replaced.
- Chapter 4, “Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096),” on page 43 provides information how to remove defective components from and install replacement components into the 2461 HMC.
- Chapter 5, “Removing and replacing 2461 HMC components (FC 0062 and FC 0063),” on page 63 provides information how to remove defective components from and install replacement components into the 2461 HMC (FC 0062/0063).
- The Appendices provide hard disk reload information, configuration information, general notice information, and trademark information.

Revisions

A technical change from the previous edition of this document is indicated by a vertical line (|) to the left of the change.

Related publications

Publications that you will find helpful and that you should use along with this publication are in the following list. You can access these books from Resource Link® at *http://www.ibm.com/servers/resourcelink*, and click **Library** from the navigation bar on the left. Then select the server product.

- *Service Guide for Hardware Management Consoles and Support Elements*, GC28-6983
- *z13® Service Guide*, GC28-6937
- *z13s® Service Guide*, GC28-6955
- *3906 Service Guide*, GC28-6966
- *3907 Service Guide*, GC28-6975
- *8561 Service Guide*, GC28-6998

Related HMC and SE console information

Hardware Management Console (HMC) and Support Element (SE) information can be found on the console help system.

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Accessibility

Accessible publications for this product are offered in EPUB format and can be downloaded from Resource Link at http://www.ibm.com/servers/resourcelink.

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Accessibility features

The following list includes the major accessibility features in IBM Z and IBM LinuxONE documentation, and on the Hardware Management Console and Support Element console:

- Keyboard-only operation
- Interfaces that are commonly used by screen readers
- Customizable display attributes such as color, contrast, and font size
- Communication of information independent of color
- Interfaces commonly used by screen magnifiers
- Interfaces that are free of flashing lights that could induce seizures due to photo-sensitivity.

Keyboard navigation

This product uses standard Microsoft Windows navigation keys.

Consult assistive technologies

Assistive technology products such as screen readers function with our publications, the Hardware Management Console, and the Support Element console. Consult the product information for the specific assistive technology product that is used to access the EPUB format publication or console.

IBM and accessibility

See http://www.ibm.com/able for more information about the commitment that IBM® has to accessibility.

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Summary of changes

Summary of changes for the *Service Guide for 2461 Hardware Management Console*, GC28-6990.

Table 1. Summary of changes

Release Level	Date	Changes in Level
01	05/2018	This revision contains editorial changes and the following technical changes: • Updated 2461 configuration information.
01a	07/2018	This revision contains editorial changes and the following technical changes: • Updated instructions for removing and replacing the system board.
01b	12/2018	This revision contains editorial changes and the following technical changes: • Updated instructions on removing and replacing the system battery.
01c	12/2018	This revision contains editorial changes and the following technical changes: • Updated the note about disabling the HMC 2.13.1 BIOS setting for **Security - Secure Boot menu - Secure Boot** in “2461 HMC (FC 0095/FC 0096) configuration” on page 93 and “2461 HMC (FC 0082/FC 0083) configuration” on page 102.
02	09/2019	• Added information about the HMC 2461 FC 0062 and FC 0063 throughout this document. • Made minor updates to “Features and specifications for 2461 HMC (FC 0082/FC 0083 and FC 0095/ FC 0096) ” on page 2. • Updated “What you should know before exchanging any component” on page 3. • Updated “General guidelines for the 2461 HMC ” on page 5 to revise existing information and add information about the 2461 0062/0063. • Made minor updates to Chapter 4, “Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096),” on page 43. • Updated the instructions for reloading the hard disk drive in “Hard disk errors for FC 0095 and FC 0096 (with Driver D41)” on page 82 and “Hard disk errors for FC 0082 and FC 0083 (with Driver D41)” on page 87.
02a	2/2020	This revision contains editorial changes and the following technical changes: • For systems being serviced in California, added information about a change to the password for the SERVICE default user ID. A notice was added to “What you should know before exchanging any component” on page 3.

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Chapter 1. Introduction

The 2461 HMC is available as a 1U-high or tower unit. The following table lists the various 2461 feature codes and models.

2461 HMC feature code	Chassis type	2461 model
FC 0096	1U-high	SE1
FC 0095	Tower	TW1
FC 0083	1U-high	SE2
FC 0082	Tower	TW2
FC 0063	1U-high	SE3
FC 0062	Tower	TW3

Note: 2461 HMC (FC 0096) and 2461 HMC (FC 0095) can only be carried forward.

The HMC provides an interface to control and monitor the status of the console or the Support Element. The HMC communicates with each Central Processor Complex (CPC) through the CPC's Support Element.

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Features and specifications for 2461 HMC (FC 0082/FC 0083 and FC 0095/ FC 0096)

Table 2. 2461 HMC (FC 0083, FC 0096, FC 0082, and FC 0095) features and specifications

CPU:	Environment:	Electrical input:
• 3.2 GHz Intel Xeon E3-1225 v3 **Memory:** • Minimum: 32 GB • Maximum: 32 GB • Type: DDR3, ECC • Slots: 4 • Supports: 32 GB **Optical drive:** • Slim-line DVD drive **Hard drive:** • 1 TB SATA hard drive **Video:** • AST2400 **Fans:** • Five front-removable hot-swap fans (2461 HMC FC 0083 and 2461 HMC FC 0096) • Two side-removable hot-swap fans (2461 HMC FC 0082 and 2461 HMC FC 0095) **Power® supply:** • One 900-watt AC (FC 0082 and FC 0095) • Two 900-watt AC (FC 0083 and FC 0096) **Integrated function:** • Six Intel I350 Ethernet ports • One Intel I210 management Ethernet port • Eight USB ports	**Operating:** • Temperature: 0°C - 40°C (32°F - 104°F) • Altitude: 3050 m (~10,000 ft) • Relative humidity: 5% - 90% @ -12°C (10.4°F) dew point, non-condensing **Storage (non-operating):** • Temperature: -40°C - 70°C (-40°F - 158°F) • Relative humidity: 5% - 100% **Air flow:** • 350LFM continuous airflow **Size:** 2461 HMC FC 0083/0096 - • Height: 4.45 cm (1.75 in) • Depth: 71.12 cm (28.00 in) • Width: 48.26 cm (19 in) • Weight: approximately 15.97 kg (35.2 lb) 2461 HMC FC 0082/0095 - • Height: 439.2 mm (17.29 in) • Depth: 492.25 mm (19.38 in) • Width: 215.9 mm (8.5 in) • Weight: approximately 18.59 kg (41.0 lb)	• Sine-wave input (47-63 Hz) required • Input voltage low range: – Minimum: 90 Vrms – Maximum: 137 Vrms • Input voltage high range: – Minimum: 180 Vrms – Maximum: 265 Vrms • Input kilovolt-amperes (kVA), approximately: – Minimum: 0.134 kVA – Maximum: 0.988 kVA

Features and specifications for 2461 HMC (FC 0062/0063)

Table 3. 2461 HMC (FC 0062 and FC 0063) and features and specifications

CPU:	Environment:	Electrical input:
• 3.3 GHz Intel Xeon E3-1225 v5 • 3.8 GHz Intel Xeon E3-1275 v6 (Hardware Management Appliance only) **Memory:** • Minimum: 32 GB (HMC), 64 GB (Hardware Management Appliance) • Maximum: 32 GB (HMC), 64 GB (Hardware Management Appliance) • Type: DDR4, ECC • Slots: 4 • Supports: 32 GB (HMC), 64 GB (Hardware Management Appliance) **Hard drive:** • 2 TB SATA hard drive **Video:** • AST2500 **Fans:** • Three front-removable hot-swap fans (FC 0063) • Two side-removable hot-swap fans (FC 0062) **Power supply:** • One 900-watt AC (FC 0062) • Two 900-watt AC (FC 0063) **Integrated function:** • Six Intel I350 Ethernet ports • Two Intel I210 management Ethernet ports • Eight USB ports (USB 2.0 and USB 3.0)	• **Operating:** – Temperature: 0°C - 40°C (32°F - 104°F) – Altitude: 3050 m (~10,000 ft) – Relative humidity: 5% - 90% @ -12°C (10.4°F) dew point, non-condensing • **Storage (non-operating):** – Temperature: -40°C - 70°C (-40°F - 158°F) – Relative humidity: 5% - 100% **Air flow:** • 350LFM continuous airflow **Size:** 2461 HMC FC 0062 - • Height: 4.45 cm (1.75 in) • Depth: 71.12 cm (28.00 in) • Width: 48.26 cm (19 in) • Weight: approximately 14.88 kg (35.8 lb) 2461 HMC FC 0063 - • Height: 439.2 mm (17.29 in) • Depth: 492.25 mm (19.38 in) • Width: 215.9 mm (8.5 in) • Weight: approximately 17.96 kg (39.6 lb)	• Sine-wave input (47-63 Hz) required • Input voltage low range: – Minimum: 90 Vrms – Maximum: 137 Vrms • Input voltage high range: – Minimum: 180 Vrms – Maximum: 265 Vrms • Input kilovolt-amperes (kVA), approximately: – Minimum: 0.134 kVA – Maximum: 0.988 kVA

What you should know before exchanging any component

Before exchanging any component, you should be aware of the following:

- **Important:** Do not use this document to service the IBM Z Hardware Management Appliance (2461-VA3, FC 0100). Instead, use the information in the online **Repair & Verify** panels to service the Hardware Management Appliance.
- For systems being serviced in the state of California, U.S.A., the **SERVMODE** default password is no longer supported. You must obtain the current password from the customer to continue logging in.
- When replacing the entire 2461 HMC (FC 0083, FC 0096,, or FC 0063), you must remove the power supplies and the slide rails from the defective 2461 HMC 2461 HMC (FC 0083, FC 0096,, or FC 0063) and install them on the replacement 2461 HMC 2461 HMC (FC 0083, FC 0096,, or FC 0063).

  Before removing the entire 2461 HMC (FC 0083, FC 0096,, or FC 0063) from the rack, if the 2461 HMC (FC 0083, FC 0096,, or FC 0063) is installed in the rack in a position that is shoulder height or higher, it is recommended that you remove the system board to reduce the HMC's weight.
- When replacing the entire HMC 2461 (FC 0082/0083 or FC 0095/0096), you must remove the power supply and install it on the replacement HMC 2461 (FC 0082/0083 or FC 0095/0096).
- The field stock for the system board will be only the system board and battery. The repair action for the system board will require the service representative to swap the DIMMs.
- For 2461 HMC (FC 0082/0083 and FC 0095/0096), if the error being repaired is on a 2461 HMC that is an ensemble pair, do the following:
  - Ensure that service is being performed on the logical alternate 2461 HMC. Review the "Switching Hardware Management Consoles" information in the *8561 Service Guide* to perform a concurrent switch that makes the suspect 2461 HMC the logical alternate 2461 HMC.
  - Before starting the repair, ensure that "Service Status" is enabled. This prevents the primary 2461 HMC, if available, from performing recovery actions to power cycle the alternate 2461 HMC. Service Status prevents the primary 2461 HMC from reporting any errors due to the alternate being unavailable.
- To manually power off the 2461 HMC, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button immediately after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.
- When replacing the system board in the 2461 HMC, you need to know which model you will be servicing (2461-SE1, 2461-SE2, 2461-SE3, 2461-TW1, 2461-TW2, or 2461-TW3). To identify the model, refer to the PMR data in the *call home* about the defective part. The VPD within the call home data identifies the machine type and model of your 2461 HMC.

  Some other hints that might help you identify the machine type and model of the customer's 2461 HMC include the following.

  Note: It is important to understand that *SE1*, *SE2* and *SE3* identify a 1U rackmounted 2461 HMC. *TW1*, *TW2* and *TW3* identify a Tower (deskside) 2461 HMC.
  - Check the rear side of the HMC. If you see a Displayport connector, the machine is either a 2461-SE3 or a 2461-TW3.
  - Check the front side of the HMC. If you do not find a DVD slot, the machine is either a 2461-SE3 or a 2461-TW3.
  - If the 2461 HMC does not have a Displayport connector and has a DVD slot, then it is a 2461-SE1, 2461-TW1, 2461-SE2, or 2461-TW2.
  - It is not possible to visually distinguish between a 2461-SE1/2461-TW1 and a 2461-SE2/2461-TW2, but if you are able to power on the HMC, then you can use the BIOS information. Check the BIOS level on the first Setup screen. If the BIOS level shown is:
    - BIOS 0ACHT 0.10, 0ACHT 0.11, or 0ACHT 0.14, then the HMC is a 2461-SE1 or 2461-TW1.
    - BIOS 0ACIR 0.07 or 0ACIR 0.12, then the HMC is a 2461-SE2 or 2461-TW2.

- When replacing the system board (on a 2461-SE1 or 2461-TW1) or when replacing the system battery or whole server (on a 2461-SE1, 2461-TW1, 2461-SE2, or 2461-TW2), the service representative must review, and possibly change, some of the configuration settings.

  The remove and repair steps provide information on how to review or change the necessary configuration settings. A complete list of configuration settings is available in Appendix B, “2461 configuration,” on page 93.
- When replacing the system board, hard disk drive, system battery or whole server on the 2461-SE1, 2461-TW1, 2461-SE2, 2461-TW2, 2461-SE3, or 2461-TW3, the service representative must review the hard disk reload information.

  This information is available in Appendix A, “Reloading the hard disk drive,” on page 81. You will be directed to the information in the remove and repair steps.
- Before removing any component, make sure a replacement component is available.

General guidelines for the 2461 HMC

General guidelines for the 2461 HMC (FC 0083, FC 0096, and FC 0063)

Review the following guidelines about the 2461 HMC (FC 0083, FC 0096, and FC 0063):

- Do not block any air vents; usually 15 cm (6 in) of space provides proper airflow.
- Do not leave open spaces above or below an installed server in your rack cabinet. To help prevent damage to server components, always install a blank filler panel to cover the open space and to help ensure proper air circulation.
- Install the server only in a rack cabinet with perforated doors.
- Plan the device installation starting from the bottom of the rack cabinet.
- Install the heaviest device in the bottom of the rack cabinet.
- Do not extend more than one device out of the rack cabinet at the same time.
- Connect the server to a properly grounded outlet.
- Do not overload the power outlet when you install multiple devices in the rack cabinet.
- Install the server in a rack that has a minimum depth of 22 (558.8 mm) inches and 34 (863.6 mm) inches.
- The weight of the 2461 HMC 1U (FC 0083, FC 0096, and FC 0063) is as follows. Use proper lifting techniques when moving and installing the system.

2461 HMC Feature Code	Weight
FC 0096	35.2 lb (15.97 kg)
FC 0083	35.2 lb (15.97 kg)
FC 0063	32.8 lb (14.88 kg)

General guidelines for the 2461 HMC (FC 0082, 0095, and FC 0062)

Review the following guidelines about the 2461 HMC (FC 0083, FC 0095, and FC 0062):

- When installing the chassis, ensure that a minimum free air space is available around the system. The installation should have a minimum of 4 in -6 in (101 mm -152 mm) behind the chassis and 7 in - 8 in (178 mm - 203 mm) in front of the chassis. Any front cabinet doors or access aisles must accommodate a 2461 HMC (FC 0082, FC 0095, or FC 0062) front chassis clearance of at least 7.0 in (178 mm) in order to provide proper clearance for the fan FRU. Ideally, a chassis clearance of 0.5 in -1.5 in (13 mm -38 mm) above the system is desirable.
- The 2461 HMC (FC 0082, FC 0095, and FC 0062) systems are designed with ruggedness in mind, however, precautions should be observed to ensure safe and reliable performance. Place the chassis on

a flat, stable surface capable of supporting both the system weight and any anticipated peripherals. Installation area should be secure and free from danger of liquid or airborne contaminants that could damage internal components as well as supporting all airflow requirements.

- To protect internal components from electrostatic damage, be sure to observe the following precautions when handling or storing the system:
  - The weight of the 2461 HMC (FC 0082, FC 0095, and FC 0062) tower unit is as follows. Use proper lifting techniques when moving and installing the system.

2461 HMC Feature Code	**Weight**
FC 0095	41.0 lb (18.59 kg)
FC 0082	41.0 lb (18.59 kg)
FC 0062	39.6 lb (17.96 kg)

  - When removing or installing boards and sub-components, keep these components in their static-shielded bag and/or packaging until you are ready to for component installation.
  - Handle the sub-components by their edges.
  - Do not touch any sub-component I/O connector pins. Do not apply pressure or attach labels to the board-level sub-components.
  - Use a personal grounding system, such as a wrist or heel strap(s) or ground yourself frequently by touching the metal chassis of the system before handling any sub-components.
  - Ensure the systems external power source has a solid connection to an earth ground.
  - Use antistatic padding on all work surfaces when installing or removing sub-components.
  - Avoid static-inducing carpeted areas.

Chapter 2. Parts list

This chapter lists the replaceable components and power cords that are available for the 2461 HMC.

Refer to the one of the following sections:

- “Replaceable parts for the 2461 HMC (FC 0082/FC 0083 and FC 0095/FC 0096)” on page 7
- “Replaceable parts for 2461 HMC (FC 0062/FC 0063)” on page 10.

Replaceable parts for the 2461 HMC (FC 0082/FC 0083 and FC 0095/FC 0096)

The following figures and tables identify the replaceable parts on the 2461 HMC (FC 0082/ FC 0083) and 2461 HMC (FC 0095/ FC 0096).

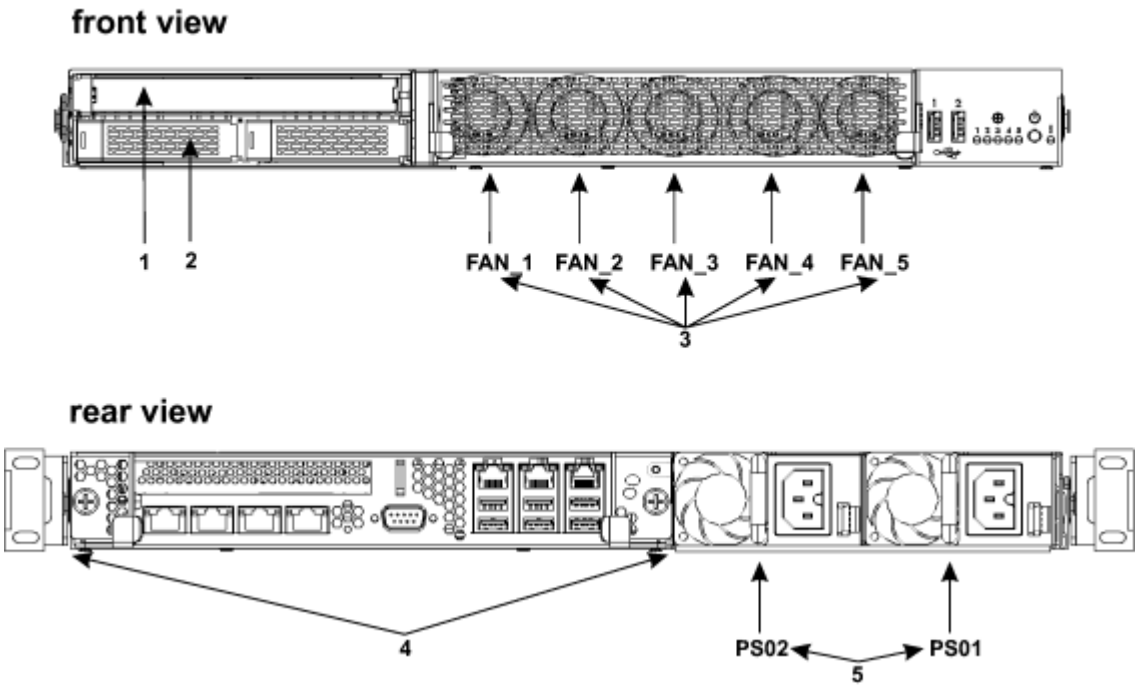

Figure 1. 2461 HMC (FC 0083 or FC 0096) - replaceable FRUs and FRU locations

Table 4. 2461 HMC (FC 0083 or FC 0096) - Front and rear replaceable FRUs

Index	Description	FRU location
1	DVD	A00M_OPTICAL_DRIVE
2	hard disk drive	A00M_FIXED_DISK
3	individual fans - for 2461-SE1 or 2461-SE2	A00M_FAN_1 A00M_FAN_2 A00M_FAN_3 A00M_FAN_4 A00M_FAN_5
4	system board	A00MSBC1

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Table 4. 2461 HMC (FC 0083 or FC 0096) - Front and rear replaceable FRUs (continued)		
Index	**Description**	**FRU location**
5	AC power supply - for 2461-SE1 or 2461-SE2	A00MPS01 A00MPS02

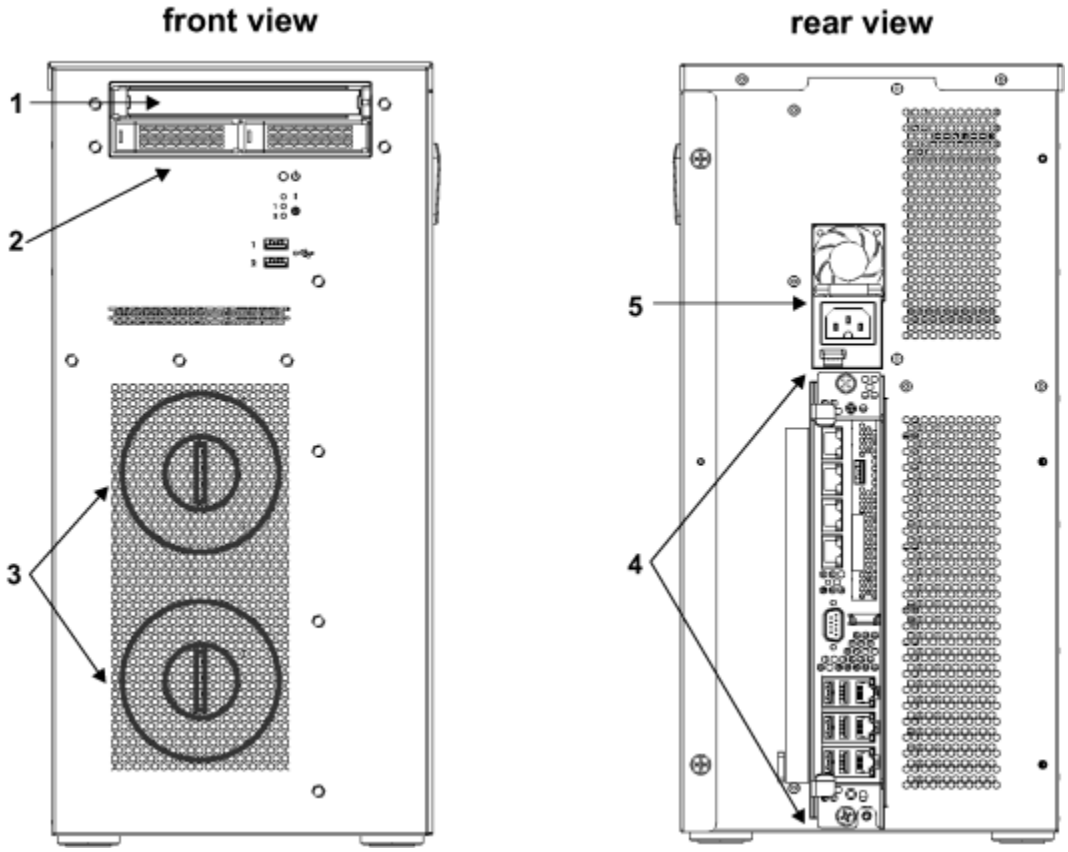


Figure 2. 2461 HMC (FC 0083 or FC 0096) - replaceable FRUs and FRU locations

Table 5. 2461 HMC (FC 0083 or FC 0096). - Front, rear, and side replaceable FRUs		
Index	**Description**	**FRU location**
1	DVD	A00M_OPTICAL_DRIVE
2	hard disk drive	A00M_FIXED_DISK
3	individual fans - for 2461-TW1 or 2461-TW2	A00M_FAN_1 A00M_FAN_2
4	system board	A00MSBC1
5	AC power supply - for 2461-TW1 or 2461-TW2	A00MPS01

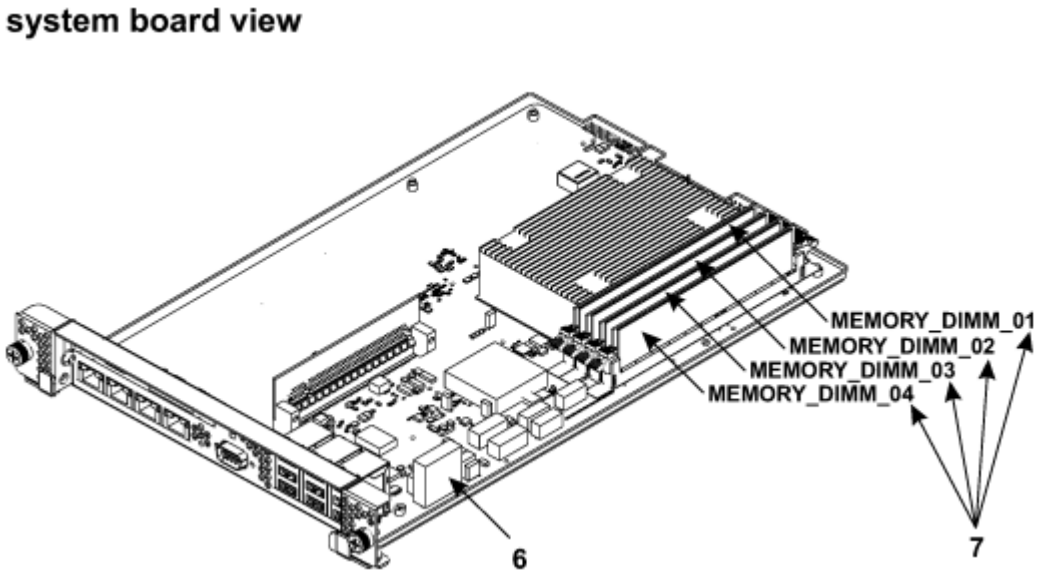


Figure 3. System board - replaceable FRU and FRU locations

Table 6. System board replaceable FRUs

Index	Description	FRU location
6	battery	A00M_BATTERY
7	DIMMs	A00M_MEMORY_DIMM_01 A00M_MEMORY_DIMM_02 A00M_MEMORY_DIMM_03 A00M_MEMORY_DIMM_04

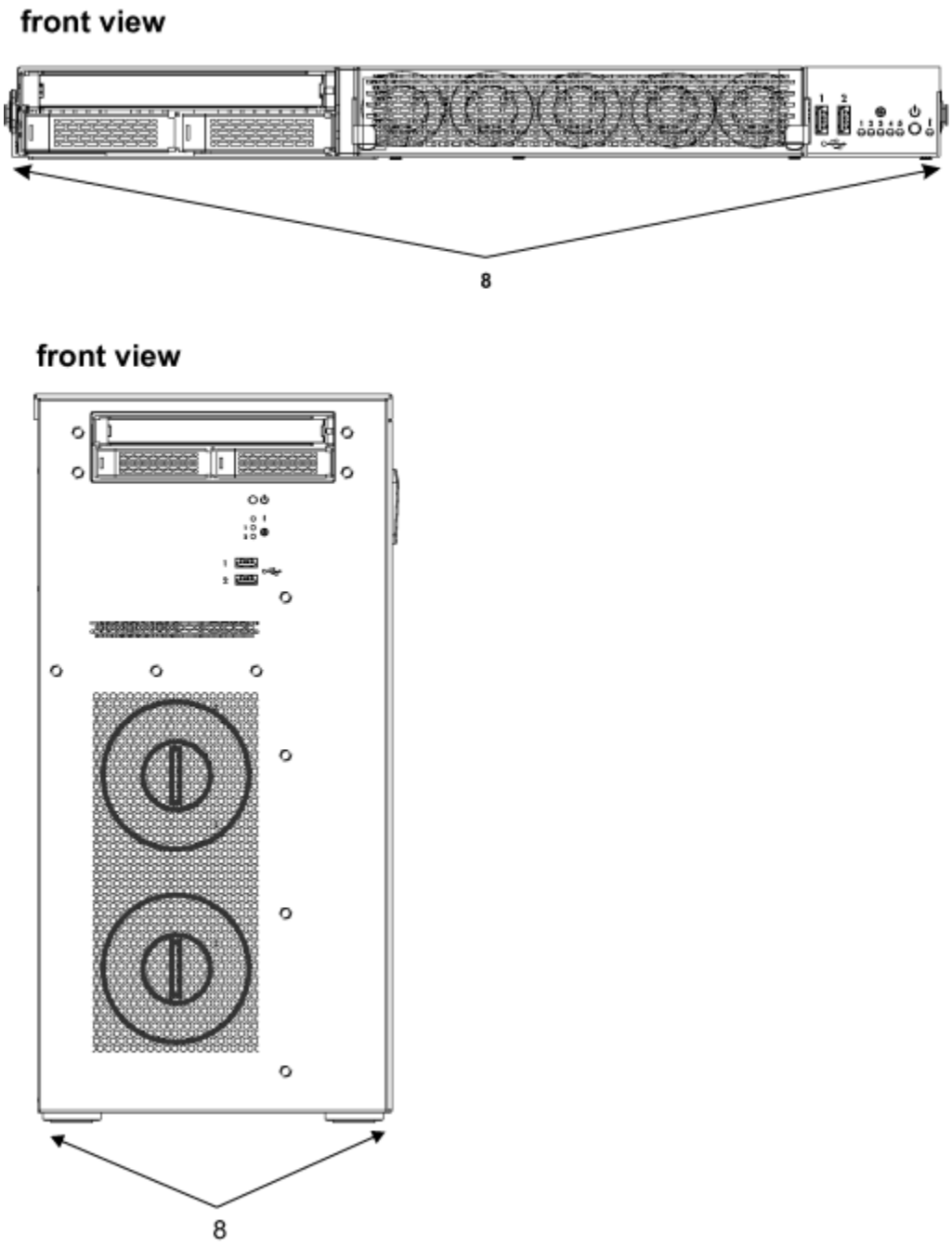


Figure 4. 2461 HMC (FC 0082/FC 0083 and FC 0095/FC 0096) - full-chassis replaceable FRU location

Table 7. 2461 HMC (FC 0082/FC 0083 and FC 0095/FC 0096) - full-replacement FRU

Index	Description	FRU location
8	2461 HMC (FC 0082/FC 0083 and FC 0095/FC 0096) - whole unit chassis	A00MWHU1

Replaceable parts for 2461 HMC (FC 0062/FC 0063)

The following figures and tables identify the replaceable parts on the 2461 HMC (FC 0062 and FC 0063).

Figure 5. 2461 HMC (FC 0063) - replaceable FRUs and FRU locations

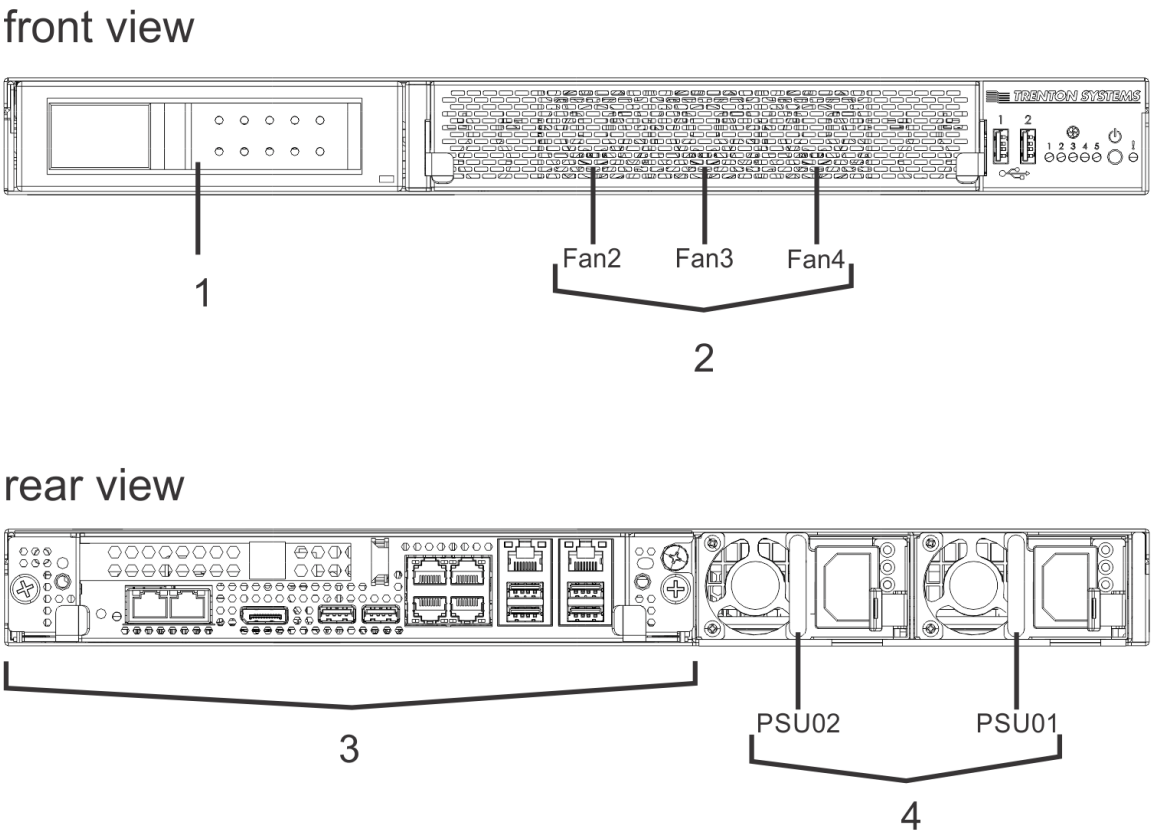


Table 8. 2461 HMC (FC 0063) - Front and rear replaceable FRUs		
Index	**Description**	**FRU location**
1	hard disk drive	A00M_FIXED_DISK
2	individual fans	A00M_FAN_1 A00M_FAN_2 A00M_FAN_3
3	system board	A00MSBC1
4	power supply	A00MPS01 A00MPS02

Figure 6. 2461 HMC (FC 0062) - replaceable FRUs and FRU locations

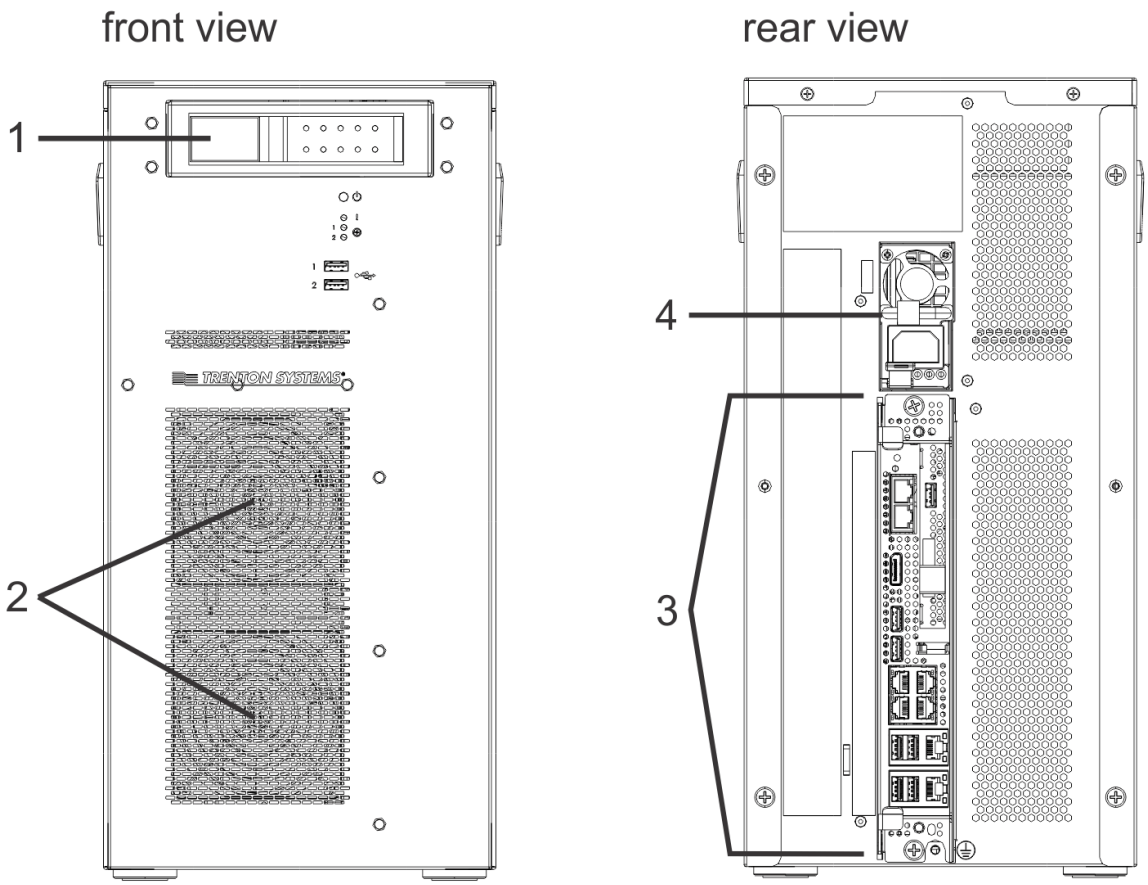


Table 9. 2461 HMC (FC 0062). - Front, rear, and side replaceable FRUs		
Index	**Description**	**FRU location**
1	hard disk drive	A00M_FIXED_DISK
2	individual fans	A00M_FAN_1 A00M_FAN_2
3	system board	A00MSBC1
4	power supply	A00MPS01

Figure 7. System board - replaceable FRU and FRU locations

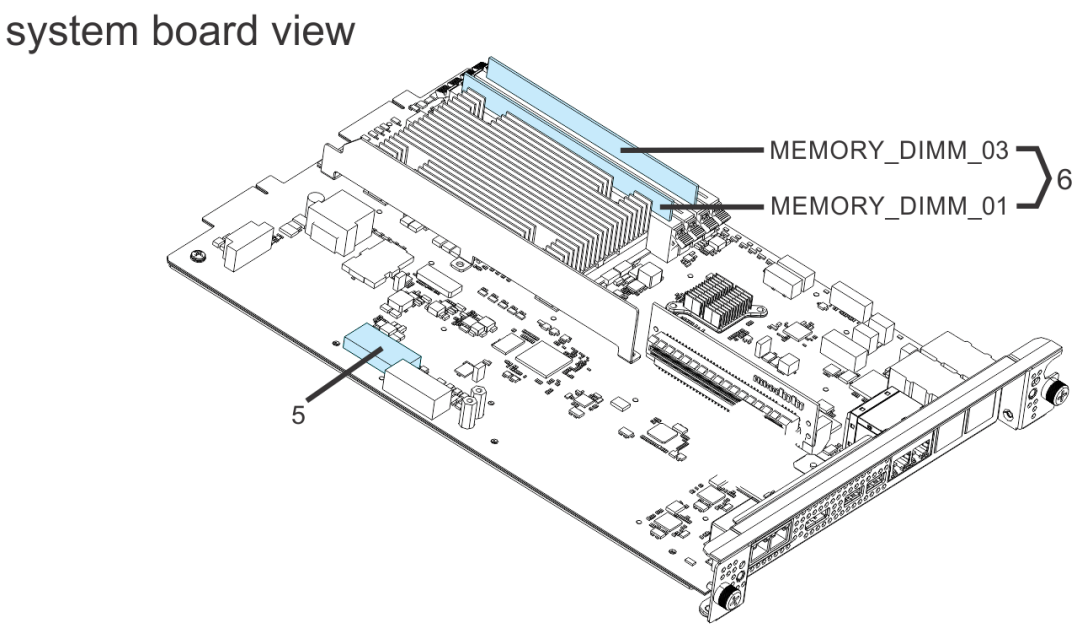
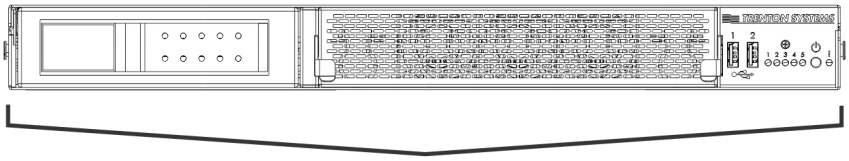


Table 10. System board replaceable FRUs		
Index	**Description**	**FRU location**
5	battery	A00M_BATTERY
6	DIMMs	A00M_MEMORY_DIMM_01 A00M_MEMORY_DIMM_03

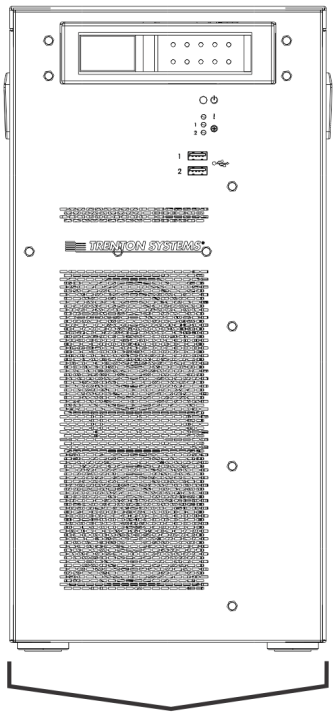
Figure 8. 2461 HMC (FC 0062/FC 0063) - full-chassis replaceable FRU location

front view



7

front view



7

Table 11. 2461 HMC (FC 0062/FC 0063) - full-replacement FRU		
Index	**Description**	**FRU location**
7	2461 HMC (FC 0062/FC 0063) - whole unit chassis	A00MWHU1

Power cords

For your safety, a power cord with a grounded attachment plug is provided to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

Table 12. Power cords

Power cord part number		
39M5081	110 - 120 V	for use with single-phase 110/120 V outlets
39M5095	220 - 240 V	for use with single-phase 208/220/240 V outlets
39M5509	125 - 250 V	for use with PDUs that have C14 receptacles
39M5392	125 - 250 V	for use with PDUs that have C20 receptacles

Chapter 3. Troubleshooting

This chapter describes troubleshooting information to help you solve problems that might occur in the 2461 HMC.

Notes:

- The term *reseat* in the following tables means to follow the procedure as if you were going to replace the part, but you are just reinstalling the same part.
- As you go through the steps in each troubleshooting section in Table 13 on page 21, for each step replacing a FRU, proceed with either of the following:
  - Continue the repair with a different FRU if you have one by continuing to the appropriate step.
  - Delay the repair until this FRU is available.

Front and rear views of the 2461 HMC (FC 0083 or FC 0096)

The following illustration shows the front and rear views of the 2461 HMC (FC 0083 or FC 0096).

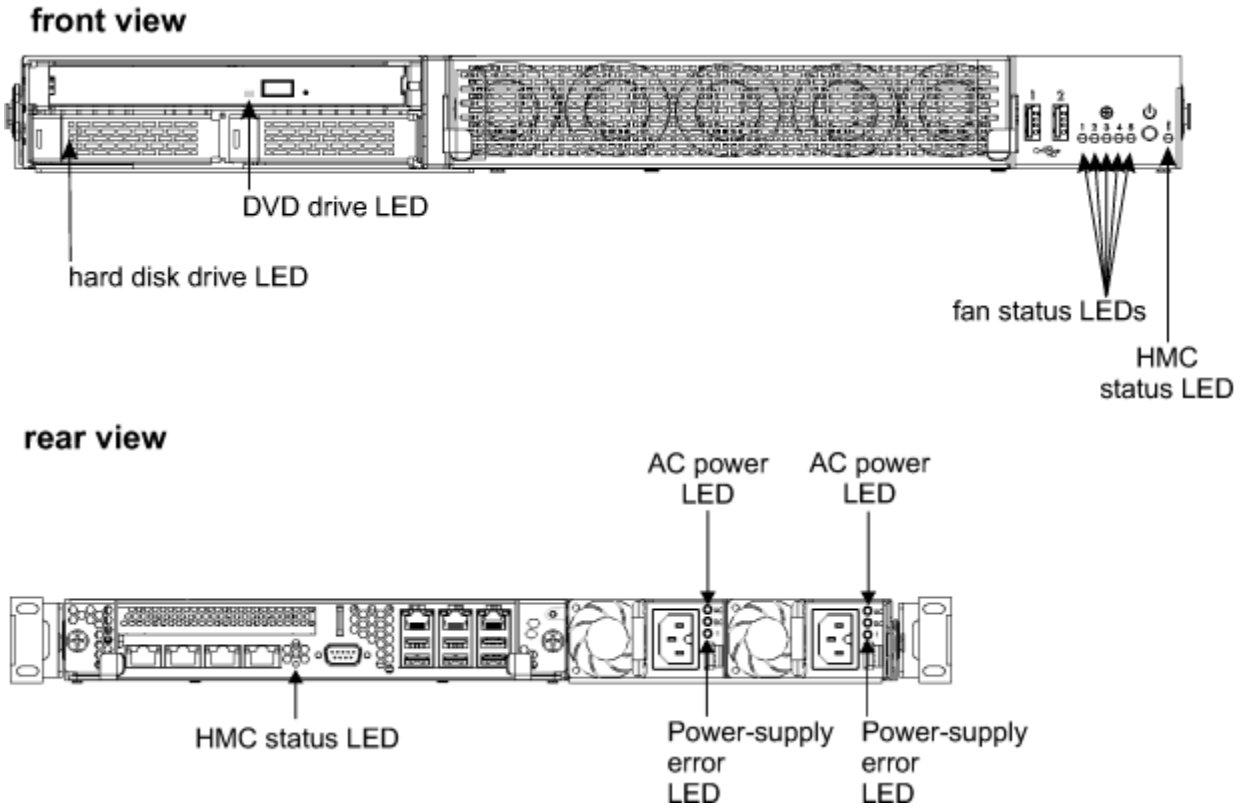


Figure 9. 2461 HMC (FC 0083 or FC 0096) - LEDs

Front and rear views of the 2461 HMC (FC 0063)

The following illustration shows the front and rear views of the 2461 HMC (FC 0063).

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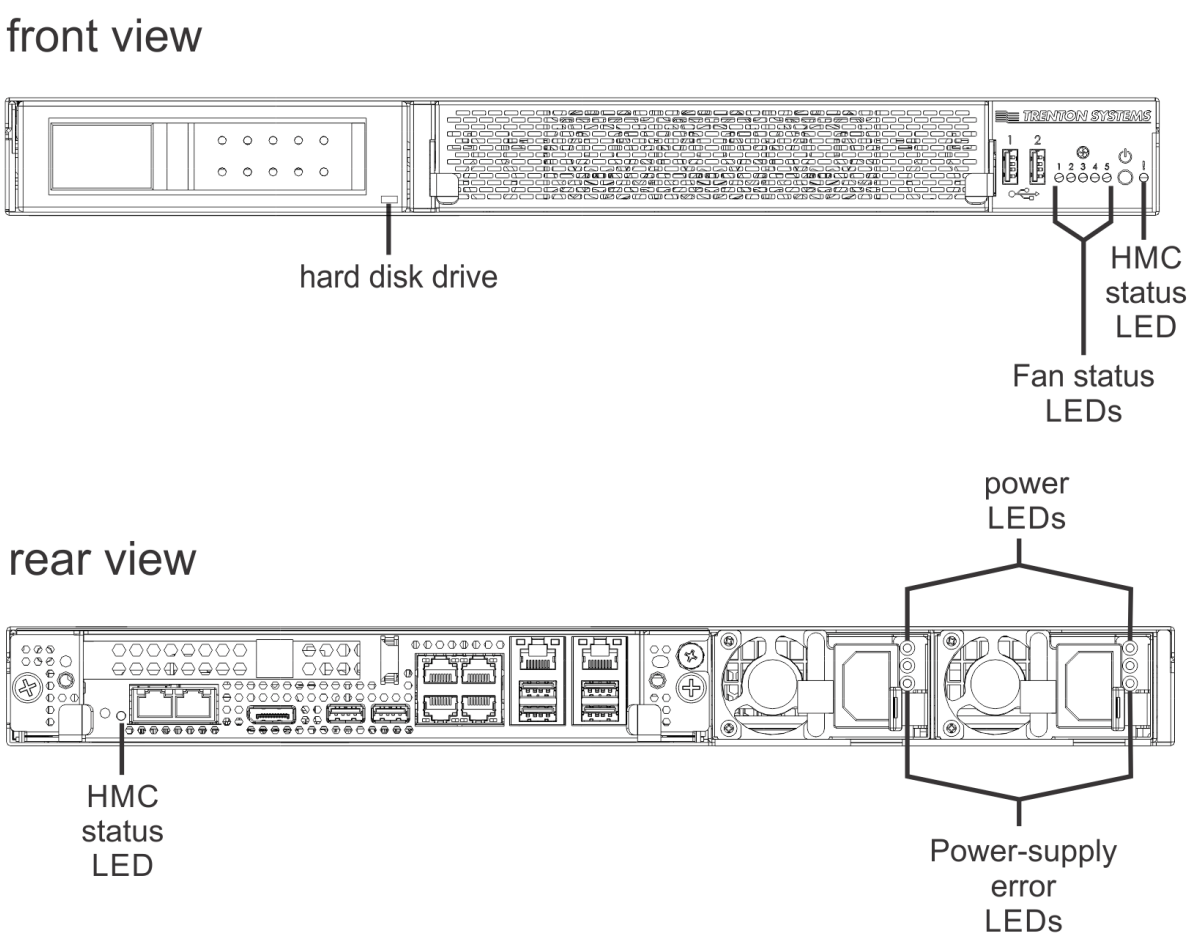


Figure 10. 2461 HMC (FC 0063) - LEDs

Front and rear views of the 2461 HMC (FC 0082 or FC 0095)

The following illustration shows the front and rear views of the 2461 HMC (FC 0082 or FC 0095).

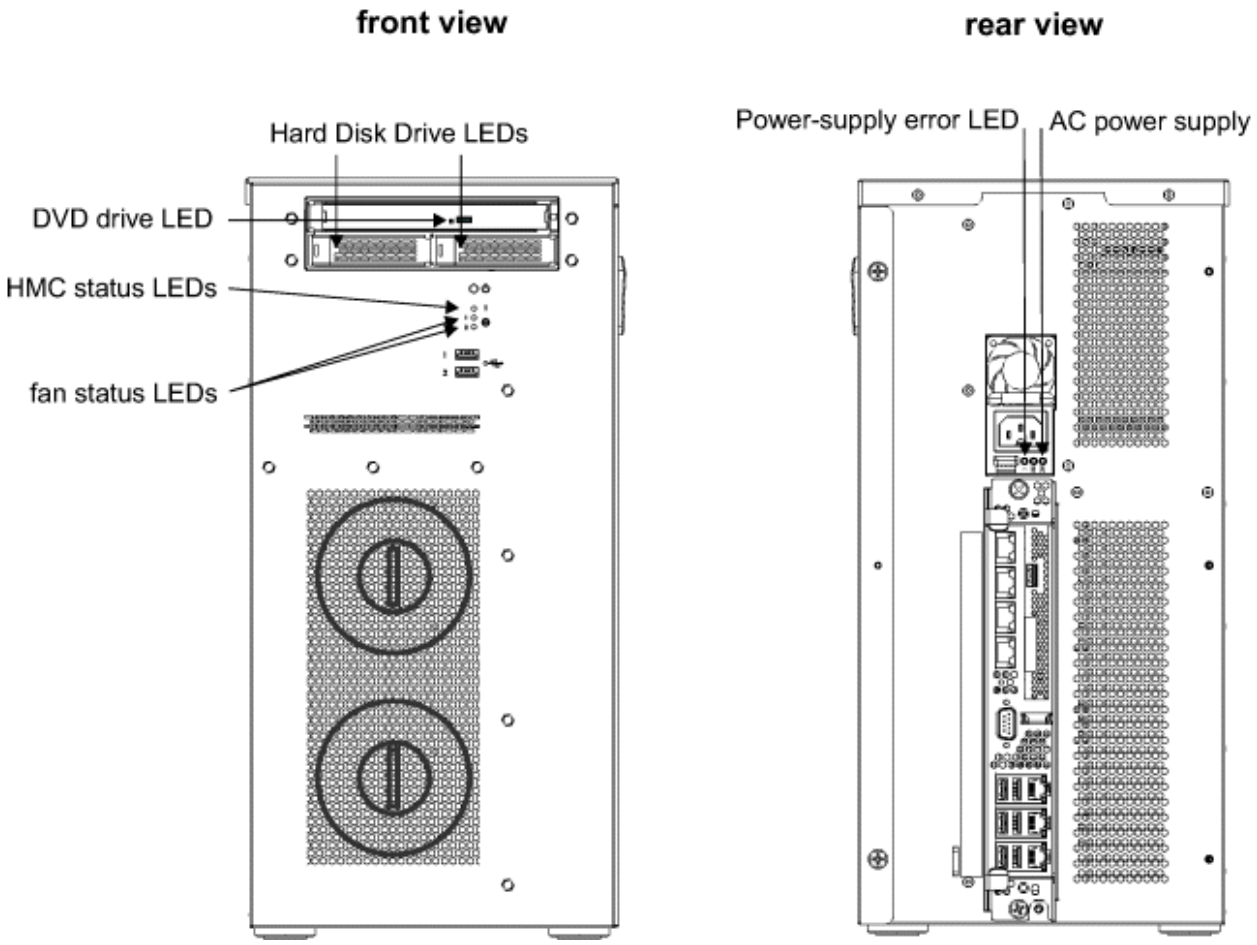


Figure 11. 2461 HMC (FC 0082 or FC 0095) - LEDs

Front and rear views of the 2461 HMC (FC 0062)

The following illustration shows the front and rear views of the 2461 HMC (FC 0062).

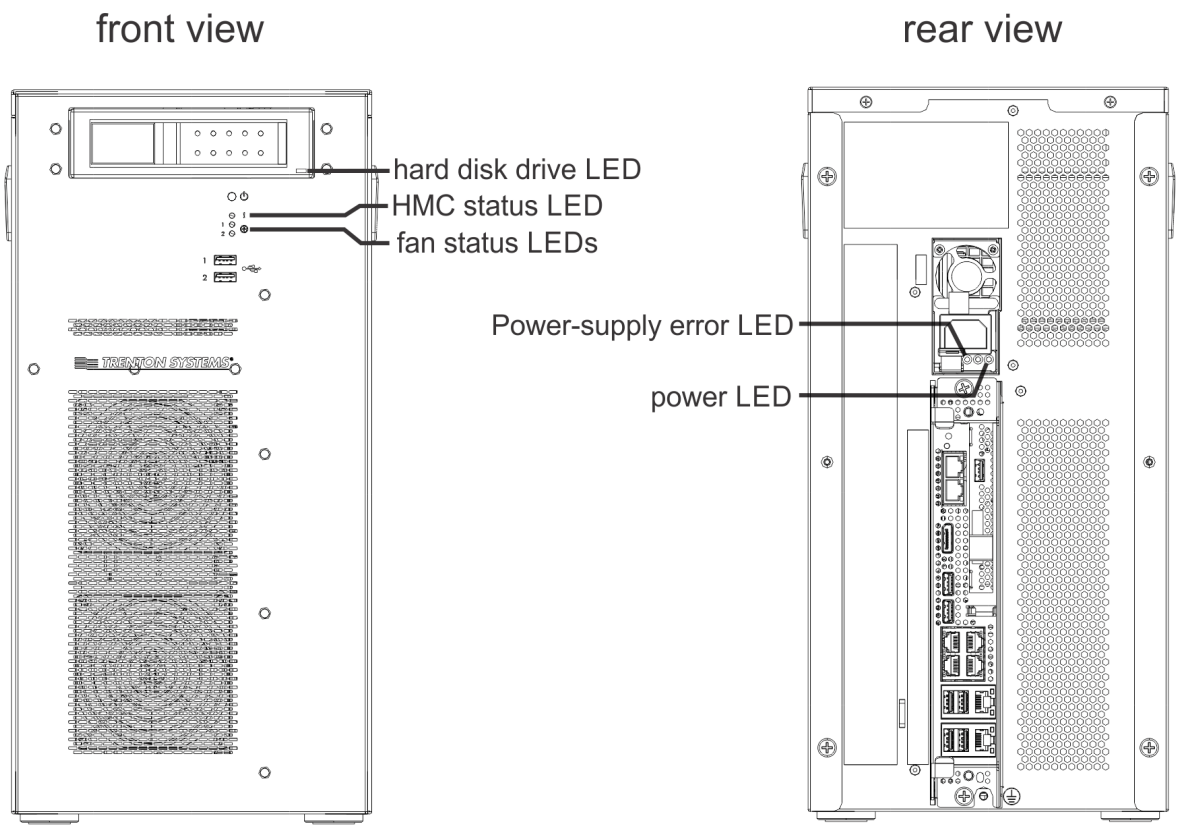


Figure 12. 2461 HMC (FC 0062) - LEDs

Table 13. Symptoms and corrective actions

Symptoms	Corrective actions
A - The 2461 HMC does not power up **Note:** 2461 HMC (FC 0083, FC 0096, and FC 0063) have two power supplies. 2461 HMC (FC 0082, FC 0095, and FC 0062) have one power supply.	**Step 1 --** Using the information in Table 14 on page 41, check the LEDs on one of the AC power supplies on the rear of the 2461 HMC. **a --** If the AC power LED is not lit (indicating no power), Go to Step 2. **b --** If the Power-supply error LED is lit (indicating power supply is defective), go to Step 5. **c --** For 2461 HMC (FC 0083, FC 0096, and FC 0063), if the AC power LED is lit and the Power-supply error LED is not lit (indicating normal operation) and you have only checked one AC supply, repeat Step 1a - Step 1c for the other AC supply. Otherwise, go to Step 6. For 2461 HMC (FC 0082, FC 0095, and FC 0062), if the AC power LED is lit and the Power-supply error LED is not lit (indicating normal operation), go to Step 6.
	Step 2 -- Verify with the customer that there is power at the source. Is there power at the source? • Yes ... Go to Step 3. • No ... Have the customer correct the power at the source. Did the 2461 HMC power up? – Yes ... done – No ... Go to Step 3.
	Step 3 -- Check the power cords. Are the power cords connected at both ends? • Yes ... Disconnect the power cords and check both ends of the power cords to ensure they are not damaged. Are any power cord ends damaged? – Yes ... Go to Step 4. – No ... Connect the power cords, and go to Step 5. • No ... Check both ends of the power cords to ensure they are not damaged. Are any power cord ends damaged? – Yes ... Go to Step 4. – No ... Connect the power cords. Did the 2461 HMC power up? - Yes ... done - No ... Go to Step 5.
	Step 4 -- Replace the damaged power cord. Did the 2461 HMC power up? • Yes ... done • No ... Go to Step 5.
	Step 5 -- Reseat the power supplies using the information in "Power supply (FC 0082/0083 and FC 0095/0096) " on page 52 or "Power supply (FC 0062 and FC 0063)" on page 70. Did the 2461 HMC power up? • Yes ... done • No ... Go to Step 6.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
A - The 2461 HMC does not power up (... continued)	**Step 6 --** If new power supplies are available, replace the existing power supplies with the new power supplies using the information in "Power supply (FC 0082/0083 and FC 0095/0096) " on page 52 or "Power supply (FC 0062 and FC 0063)" on page 70. Did the 2461 HMC power up? • Yes ... done • No ... Reinstall the original power supplies using the information in "Power supply (FC 0082/0083 and FC 0095/0096) " on page 52 or "Power supply (FC 0062 and FC 0063)" on page 70, then go to Step 7. If new power supplies are not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 7. • Delay the repair until this FRU is available. When available, replace the power supplies using the information in "Power supply (FC 0082/0083 and FC 0095/0096) " on page 52 or "Power supply (FC 0062 and FC 0063)" on page 70. Did the 2461 HMC power up? – Yes ... done – No ... Reinstall the original power supplies using the information in "Power supply (FC 0082/0083 and FC 0095/0096) " on page 52 or "Power supply (FC 0062 and FC 0063)" on page 70, then go to Step 7.
	Step 7 -- If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Did the 2461 HMC power up? • Yes ... done • No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 8. If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 8. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Did the 2461 HMC power up? – Yes ... done – No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 8.

Table 13. Symptoms and corrective actions (continued)	
Symptoms	**Corrective actions**
A - The 2461 HMC does not power up (... continued)	**Step 8 --** Replace the entire 2461 HMC using the information in one of the following sections: • “2461 HMC (FC 0083 and FC 0096)” on page 58 • “2461 HMC (FC 0063)” on page 77 • “2461 HMC (FC 0082 and FC 0095)” on page 60 • “2461 HMC (FC 0062)” on page 76

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
B - The 2461 HMC will not boot up	**Step 1 --** Check the hard disk drive LED. Is the hard disk drive LED blinking? • Yes ... Do you see hard disk errors during the boot sequence? – Yes ... Go to section C, then return here. – No ... Go to Step 3. • No ... Go to Step 2.
	Step 2 -- Reseat the hard disk drive using the information in “Hard disk drive (FC 0082/0083 and FC 0095/0096)” on page 48 or “Hard disk drive (FC 0062 and FC 0063)” on page 63. Did the 2461 HMC boot up? • Yes ... done • No ... Go to Step 3.
	Step 3 -- If a new hard disk drive is available, replace the existing hard disk drive with the new hard disk drive using the information in “Hard disk drive (FC 0082/0083 and FC 0095/0096)” on page 48 or “Hard disk drive (FC 0062 and FC 0063)” on page 63. Did the 2461 HMC boot up? • Yes ... done • No ... Reinstall the original hard disk drive using the information in “Hard disk drive (FC 0082/0083 and FC 0095/0096)” on page 48 or “Hard disk drive (FC 0062 and FC 0063)” on page 63, then go to Step 4. If a new hard disk drive is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 4. • Delay the repair until this FRU is available. When available, replace the hard disk drive using the information in “Hard disk drive (FC 0082/0083 and FC 0095/0096)” on page 48 or “Hard disk drive (FC 0062 and FC 0063)” on page 63. Did the 2461 HMC boot up? – Yes ... done – No ... Reinstall the original hard disk drive using the information in “Hard disk drive (FC 0082/0083 and FC 0095/0096)” on page 48 or “Hard disk drive (FC 0062 and FC 0063)” on page 63, then go to Step 4.
	Step 4 -- Ensure each memory DIMM is seated properly using the information in “Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56 or “Memory DIMM (FC 0062 and FC 0063)” on page 75. Did the 2461 HMC boot up? • Yes ... done • No ... Go to Step 5.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
B - The 2461 HMC will not boot up (... continued)	**Step 5 --** If a new memory DIMM is available, starting with memory DIMM_01, replace the original memory DIMM using the information in "Memory DIMM (FC 0082/0083 and FC 0095/0096)" on page 56 or "Memory DIMM (FC 0062 and FC 0063)" on page 75. Did the 2461 HMC boot up? • Yes ... done • No ... Reinstall the original memory DIMM back into its original connector using the information in "Memory DIMM (FC 0082/0083 and FC 0095/0096)" on page 56 or "Memory DIMM (FC 0062 and FC 0063)" on page 75. If you have not replaced all of the original memory DIMMs yet, repeat Step 2 to replace one of the other original memory DIMMs. Otherwise, go to Step 6. If a new memory DIMM is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 6. • Delay the repair until this FRU is available. When available, replace the memory DIMM using the information in "Memory DIMM (FC 0082/0083 and FC 0095/0096)" on page 56 or "Memory DIMM (FC 0062 and FC 0063)" on page 75. Did the 2461 HMC boot up? – Yes ... done – No ... Reinstall the original memory DIMM back into its original connector using the information in "Memory DIMM (FC 0082/0083 and FC 0095/0096)" on page 56 or "Memory DIMM (FC 0062 and FC 0063)" on page 75. If you have not replaced all of the original memory DIMMs yet, repeat Step 2 to replace one of the other original memory DIMMs. Otherwise, go to Step 6.
	Step 6 -- If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Did the 2461 HMC boot up? • Yes ... done • No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 7. If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 7. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Did the 2461 HMC boot up? – Yes ... done – No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 7.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
B - The 2461 HMC will not boot up (... continued)	**Step 7 --** Replace the entire 2461 HMC using the information in one of the following sections: • “2461 HMC (FC 0083 and FC 0096)” on page 58 • “2461 HMC (FC 0063)” on page 77 • “2461 HMC (FC 0082 and FC 0095)” on page 60 • “2461 HMC (FC 0062)” on page 76

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
C - You are receiving hard drive errors	**Step 1 --** If a new hard disk drive is available, replace the existing hard disk drive with the new hard disk drive using the information in "Hard disk drive (FC 0082/0083 and FC 0095/0096)" on page 48 or "Hard disk drive (FC 0062 and FC 0063)" on page 63. Are you still receiving hard drive errors? • Yes ... Reinstall the original hard disk drive using the information in "Hard disk drive (FC 0082/0083 and FC 0095/0096)" on page 48 or "Hard disk drive (FC 0062 and FC 0063)" on page 63, then go to Step 2. • No ... done If a new hard disk drive is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 2. • Delay the repair until this FRU is available. When available, replace the hard disk drive using the information in "Hard disk drive (FC 0082/0083 and FC 0095/0096)" on page 48 or "Hard disk drive (FC 0062 and FC 0063)" on page 63. Are you still receiving hard drive errors? – Yes ... Reinstall the original hard disk drive using the information in "Hard disk drive (FC 0082/0083 and FC 0095/0096)" on page 48 or "Hard disk drive (FC 0062 and FC 0063)" on page 63, then go to Step 2. – No ... done
	Step 2 -- If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Are you still receiving hard drive errors? • Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 3. • No ... done If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 3. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Are you still receiving hard drive errors? – Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 3. – No ... done

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
C - The 2461 HMC You are receiving hard drive errors (... continued)	**Step 3 --** Replace the entire 2461 HMC using the information in one of the following sections:: • “2461 HMC (FC 0083 and FC 0096)” on page 58 • “2461 HMC (FC 0063)” on page 77 • “2461 HMC (FC 0082 and FC 0095)” on page 60 • “2461 HMC (FC 0062)” on page 76

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
D - DVD tray will not eject	**Step 1 --** Check the DVD light. Is the DVD light on? • Yes ... Go to Step 2. • No ... Go to Step 3.
	Step 2 -- Log onto the console to check if there is a running task still accessing the DVD or if a task has failed. Does the task appear to be hung? • Yes ... Shutdown and restart the 2461 HMC. Will the DVD tray eject now? – Yes ... done – No ... Go to Step 3. • No ... Go to Step 3.
	Step 3 -- Insert the end of a straightened paper clip into the manual tray-release opening (a hole located to the right of the eject button on the DVD drive). Will the DVD tray eject now? • Yes ... done • No ... Go to Step 4.
	Step 4 -- Reseat the DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43. Will the DVD tray eject now? • Yes ... done • No ... Go to Step 5.
	Step 5 -- If a new DVD drive is available, replace the existing DVD drive with the new DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43. Will the DVD tray eject now? • Yes ... done • No ... Reinstall the original DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43, then go to Step 6. If a new DVD drive is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 6. • Delay the repair until this FRU is available. When available, replace the DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43. Will the DVD tray eject now? – Yes ... done – No ... Reinstall the original DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43, then go to Step 6.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
D - DVD tray will not eject (... continued)	**Step 6 --** If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49. Will the DVD tray eject now? • Yes ... done • No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49, then go to Step 7. If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 7. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49. Will the DVD tray eject now? – Yes ... done – No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49, then go to Step 7.
	Step 7 -- Replace the entire 2461 HMC using the information in "2461 HMC (FC 0083 and FC 0096)" on page 58 or "2461 HMC (FC 0082 and FC 0095)" on page 60.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
E - You are receiving DVD mount or read errors	**Step 1 --** Check the DVD media. Is it scratched or smudged on the underside? • Yes ... Clean the media or obtain a new one. Are you still receiving DVD mount or read errors? – Yes ... Go to Step 2. – No ... done • No ... Go to Step 2.
	Step 2 -- Reseat the DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43. Are you still receiving DVD mount or read errors? • Yes ... Go to Step 3. • No ... done
	Step 3 -- If a new DVD drive is available, replace the existing DVD drive with the new DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43. Are you still receiving DVD mount or read errors? • Yes ... Reinstall the original DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43, then go to Step 4. • No ... done If a new DVD drive is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 4. • Delay the repair until this FRU is available. When available, replace the DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43. Are you still receiving DVD mount or read errors? – Yes ... Reinstall the original DVD drive using the information in “DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43, then go to Step 4. – No ... done

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
E - You are receiving DVD mount or read errors (... continued)	**Step 4 --** If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49. Are you still receiving DVD mount or read errors? • Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49, then go to Step 5. • No ... done If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 5. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49. Are you still receiving DVD mount or read errors? – Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49, then go to Step 5. – No ... done
	Step 5 -- Replace the entire 2461 HMC using the information in "2461 HMC (FC 0083 and FC 0096)" on page 58 or "2461 HMC (FC 0082 and FC 0095)" on page 60.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
F - A fan LED is lit	**Step 1 --** Reseat the appropriate fan using the information in "Fan (FC 0082/0083 and FC 0095/0096)" on page 46 or "Fan (FC 0062 and FC 0063)" on page 65. Is the fan LED off? • Yes ... done • No ... Go to Step 2.
	Step 2 -- If a new fan is available, replace the existing fan with the new fan using the information in "Fan (FC 0082/0083 and FC 0095/0096)" on page 46 or "Fan (FC 0062 and FC 0063)" on page 65. Is the fan LED off? • Yes ... done • No ... Reinstall the original fan using the information in "Fan (FC 0082/0083 and FC 0095/0096)" on page 46 or "Fan (FC 0062 and FC 0063)" on page 65, then go to Step 3. If a new fan is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 3. • Delay the repair until this FRU is available. When available, replace the fan using the information in "Fan (FC 0082/0083 and FC 0095/0096)" on page 46 or "Fan (FC 0062 and FC 0063)" on page 65. Is the fan LED off? – Yes ... done – No ... Reinstall the original fan using the information in "Fan (FC 0082/0083 and FC 0095/0096)" on page 46 or "Fan (FC 0062 and FC 0063)" on page 65, then go to Step 3.
	Step 3 -- If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Is the fan LED off? • Yes ... done • No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 4. If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 4. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Is the fan LED off? – Yes ... done – No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 4.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
F - A fan LED is lit (... continued)	**Step 4 --** Replace the entire 2461 HMC using the information in one of the following sections: • “2461 HMC (FC 0083 and FC 0096)” on page 58 • “2461 HMC (FC 0063)” on page 77 • “2461 HMC (FC 0082 and FC 0095)” on page 60 • “2461 HMC (FC 0062)” on page 76
G - The display is blank	**Step 1 --** Ensure the display video cable is connected properly. Is the display video cable connected? • Yes ... Go to Step 2. • No ... Connect the display video cable. Is the display working? – Yes ... done – No ... Go to Step 2
	Step 2 -- Ensure the display power cable is connected properly. Is the display power cable connected? • Yes ... Go to Step 3. • No ... Connect the display power cable. Is the display working? – Yes ... done – No ... Go to Step 3.
	Step 3 -- Replace and connect the display power cable. Is the display working? • Yes ... done • No ... Go to Step 4.
	Step 4 -- Replace the display and connect the display video cable and the display power cable. Is the display working? • Yes ... done • No ... Contact the next level of support.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
H - Keyboard is not responding	**Step 1 --** Check that the keyboard cable is connected to the 2461 HMC. Is the keyboard cable connected? • Yes ... Go to Step 2. • No ... Connect the cable. Is the keyboard working? – Yes ... done – No ... Go to Step 2.
	Step 2 -- Plug the keyboard cable into a different USB port on the 2461 HMC. Is the keyboard working? • Yes ... done • No ... Go to Step 3.
	Step 3 -- If applicable, check the connectors on the extensions Are the connectors damaged? • Yes ... Replace the extension cable. Is the keyboard working? – Yes ... done – No ... Go to Step 4. • No ... Go to Step 4.
	Step 4 -- Replace the keyboard. Is the keyboard working? • Yes ... done • No ... Contact the next level of support.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
I - The console is reporting memory problems	**Step 1 --** Starting with DIMM_01, ensure the memory DIMMs are seated properly using the information in “Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56 or “Memory DIMM (FC 0062 and FC 0063)” on page 75. Is the console still reporting memory problems? • Yes ... Go to Step 2. • No ... done
	Step 2 -- If a new memory DIMM is available, starting with memory DIMM_01, replace the original memory DIMM using the information in “Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56 or “Memory DIMM (FC 0062 and FC 0063)” on page 75. Is the console still reporting memory problems? • Yes ... Reinstall the original memory DIMM back into its original connector using the information in “Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56 or “Memory DIMM (FC 0062 and FC 0063)” on page 75. If you have not replaced all of the original memory DIMMs yet, repeat Step 2 to replace one of the other original memory DIMMs. Otherwise, go to Step 3. • No ... done If a new memory DIMM is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 3. • Delay the repair until this FRU is available. When available, replace the memory DIMM using the information in “Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56 or “Memory DIMM (FC 0062 and FC 0063)” on page 75. Is the console still reporting memory problems? – Yes ... Reinstall the original memory DIMM back into its original connector using the information in “Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56 or “Memory DIMM (FC 0062 and FC 0063)” on page 75. If you have not replaced all of the original memory DIMMs yet, repeat Step 2 to replace one of the other original memory DIMMs. Otherwise, go to Step 3. – No ... done

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
I - The console is reporting memory problems (... continued)	**Step 3 --** If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Is the console still reporting memory problems? • Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 4. • No ... done If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 4. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Is the console still reporting memory problems? – Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 4. – No ... done
	Step 4 -- Replace the entire 2461 HMC using the information in one of the following sections: • "2461 HMC (FC 0083 and FC 0096)" on page 58 • "2461 HMC (FC 0063)" on page 77 • "2461 HMC (FC 0082 and FC 0095)" on page 60 • "2461 HMC (FC 0062)" on page 76

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
J - Configuration settings are not saved across reboots	**Step 1 --** Using the information in "System battery (FC 0082/0083 and FC 0095/0096)" on page 54 or "System battery (FC 0062 and FC 0063)" on page 72, check that the battery retaining clip is making contact with the battery. Is the retaining clip making contact with the battery? • Yes ... Go to Step 2. • No ... Using the information in "System battery (FC 0082/0083 and FC 0095/0096)" on page 54 or "System battery (FC 0062 and FC 0063)" on page 72, remove the battery, gently bend the clip back towards where the battery sits, then reinstall the battery. Is the retaining clip making contact with the battery? – Yes ... Were the configuration settings saved across reboots? - Yes ... done - No ... Go to Step 2. – No ... Go to Step 3.
	Step 2 -- If a new battery is available, replace the existing battery with the new battery using the information in "System battery (FC 0082/0083 and FC 0095/0096)" on page 54 or "System battery (FC 0062 and FC 0063)" on page 72. Were the configuration settings saved across reboots? • Yes ... done • No ... Reinstall the original battery using the information in "System battery (FC 0082/0083 and FC 0095/0096)" on page 54 or "System battery (FC 0062 and FC 0063)" on page 72, then go to Step 3. If a new battery is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 3. • Delay the repair until this FRU is available. When available, replace the battery using the information in "System battery (FC 0082/0083 and FC 0095/0096)" on page 54 or "System battery (FC 0062 and FC 0063)" on page 72. Were the configuration settings saved across reboots? – Yes ... done – No ... Reinstall the original battery using the information in "System battery (FC 0082/0083 and FC 0095/0096)" on page 54 or "System battery (FC 0062 and FC 0063)" on page 72, then go to Step 3.

Table 13. Symptoms and corrective actions (continued)

Symptoms	Corrective actions
J - Configuration settings are not saved across reboots (... continued)	**Step 3 --** If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Were the configuration settings saved across reboots? • Yes ... done • No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 4. If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 4. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Are you still receiving DVD mount or read errors? – Yes ... done – No ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 4.
	Step 4 -- Replace the entire 2461 HMC using the information in one of the following sections: • "2461 HMC (FC 0083 and FC 0096)" on page 58 • "2461 HMC (FC 0063)" on page 77 • "2461 HMC (FC 0082 and FC 0095)" on page 60 • "2461 HMC (FC 0062)" on page 76

Table 13. Symptoms and corrective actions (continued)

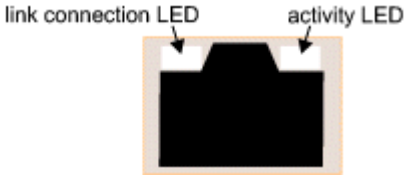
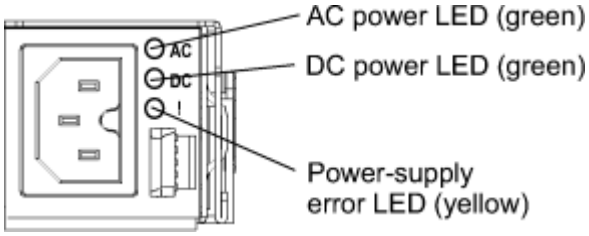
Symptoms	Corrective actions
K - The console is reporting communication errors or the console cannot be contacted remotely.	**Step 1 --** At the rear of the console, check that all the Ethernet cables are properly seated at both ends. Are the Ethernet cables properly seated? • Yes ... Go to Step 2. • No ... Reseat the Ethernet cables. Is the console still reporting errors or is the console still unable to be contacted remotely? – Yes ... Go to Step 2. – No ... done
	Step 2 -- Check the cables to ensure they are not damaged or bent. Are the Ethernet cables bent or damaged? • Yes ... Replace the Ethernet cable. Is the console still reporting errors or is the console still unable to be contacted remotely? – Yes ... Go to Step 3. – No ... done • No ... Go to Step 3.
	Step 3 -- Check the 2461 HMC Ethernet port. Is the left link light on?  • Yes ... Go to Step 4. • No ... Replace the Ethernet cable. Is the console still reporting errors or is the console still unable to be contacted remotely? – Yes ... Go to Step 4. – No ... done
	Step 4 -- Verify with the customer that the customer port is OK. Is the customer port OK? • Yes ... Go to Step 5. • No ... Have the customer fix their port. Is the console still reporting errors or is the console still unable to be contacted remotely? – Yes ... Go to Step 5. – No ... done

Table 13. Symptoms and corrective actions (continued)	
Symptoms	**Corrective actions**
K - The console is reporting communication errors or the console cannot be contacted remotely (... continued)	**Step 5 --** If a new system board is available, replace the existing system board with the new system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Are there still problems reading/writing to the Smart Card? • Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 6. • No ... done If a new system board is not available, proceed with one of the following: • Continue the repair with a different FRU if you have one. Go to Step 6. • Delay the repair until this FRU is available. When available, replace the system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67. Are there still problems reading/writing to the Smart Card? – Yes ... Reinstall the original system board using the information in "System board (FC 0082/0083 and FC 0095/0096)" on page 49 or "System board (FC 0062 and FC 0063)" on page 67, then go to Step 6. – No ... done
	Step 6 -- Replace the entire 2461 HMC using the information in one of the following sections: • "2461 HMC (FC 0083 and FC 0096)" on page 58 • "2461 HMC (FC 0063)" on page 77 • "2461 HMC (FC 0082 and FC 0095)" on page 60 • "2461 HMC (FC 0062)" on page 76

AC power LEDs



Note: 2461 HMC (FC 0083, FC 0096, and FC 0063) have two power supplies. 2461 HMC (FC 0082, FC 0095, and FC 0062) have one power supply.

Table 14. AC power supply LEDs					
AC power supply LEDs			**Description**	**Action**	**Notes**
AC	**DC**	**Error (!)**			
On	On	Off	Normal operation.		

Table 14. AC power supply LEDs (continued)

AC power supply LEDs			Description	Action	Notes
AC	**DC**	**Error (!)**			
Off	Off	Off	No AC power to the server or a problem with the AC power source.	1. Check the AC power to the server. 2. Make sure that the power cord is connected to a functioning power source. 3. Restart the server. If the error remains, check the power supply LEDs. 4. If the problem remains, replace the power supply.	This is a normal condition when no AC power is present.
Off	Off	On	The power supply has failed.	Replace the power supply.	
Off	On	Off	The power supply has failed.	Replace the power supply.	
Off	On	On	The power supply has failed.	Replace the power supply.	
On	Off	Off	Power supply not fully seated, faulty system board, or the power supply has failed.	1. Reseat the power supply. 2. Replace the power supply. 3. Reseat the system board. 4. Replace the system board.	Typically indicates a power-supply is not fully seated.
On	Off	On	The power supply has failed.	Replace the power supply.	
On	On	On	The power supply has failed.	Replace the power supply.	
On	blinking	Off	If the system is powered down, this is normal. If you try to power on and it will not power on.	Reseat or replace the power supply.	

Chapter 4. Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096)

This chapter describes and steps required to remove and replace the 2461 HMC components.

Table 15. 2461 HMC components to replace

Action or Topic	**Go to**
Removing and replacing the DVD drive	“DVD drive (FC 0082/0083 and FC 0095/0096) ” on page 43
Removing and replacing the hard disk drive	“Hard disk drive (FC 0082/0083 and FC 0095/0096)” on page 48
Removing and replacing a fan	“Fan (FC 0082/0083 and FC 0095/0096)” on page 46
Removing and replacing the system board	“System board (FC 0082/0083 and FC 0095/0096)” on page 49
Removing and replacing the AC power supply	“Power supply (FC 0082/0083 and FC 0095/0096) ” on page 52
Removing and replacing the system battery	“System battery (FC 0082/0083 and FC 0095/0096)” on page 54
Removing and replacing a DIMM	“Memory DIMM (FC 0082/0083 and FC 0095/0096)” on page 56
Removing and replacing the 2461 HMC (FC 0083, FC 0096, and FC 0063)	“2461 HMC (FC 0083 and FC 0096)” on page 58
Removing and replacing the 2461 HMC (FC 0082, FC 0095, and FC 0062)	“2461 HMC (FC 0082 and FC 0095)” on page 60

DVD drive (FC 0082/0083 and FC 0095/0096)

Use the following steps to remove and replace the DVD drive.

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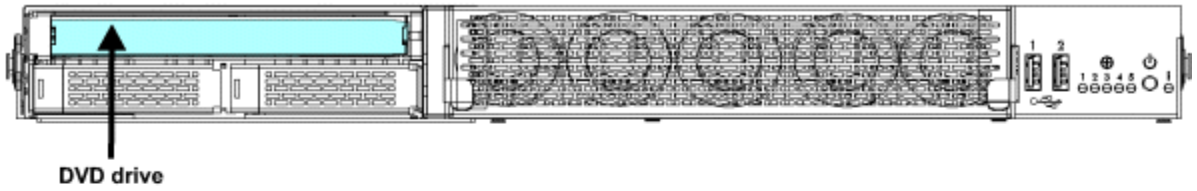
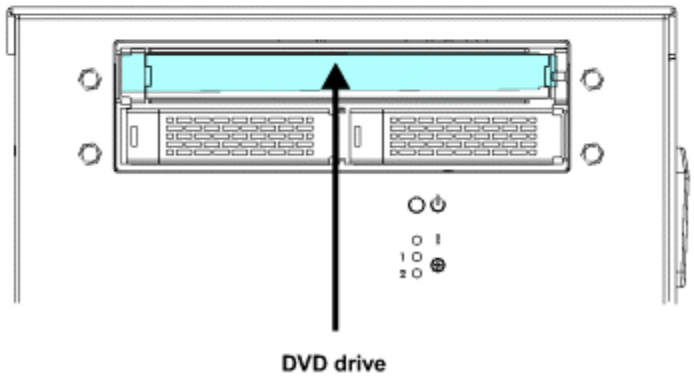
2461-SE1 and 2461-SE2



2461-TW1 and 2461-TW2



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

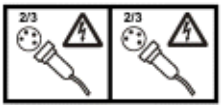
__ 2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

__ 3. Read the following safety notices before removing the AC power cords.

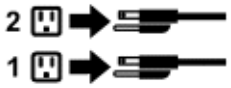
DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



or



__ 4. Disconnect the AC power cables from the rear of the 2461 HMC being serviced.

Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

__ 5. Read the following safety notices before removing the DVD drive.

CAUTION: This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive or laser module, which are Class 1 laser products. Note the following information:

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of the procedures other than those specified herein might result in hazardous radiation exposure. (C026)**

CAUTION: Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION: Some laser products contain an embedded Class3A or Class3B laser diode. Note the following information:

- **Laser radiation when open.**
- **Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)**

__ 6. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC (FC 0083 or FC 0096).

__ 7. Remove the defective DVD drive from the front of the 2461 HMC.

__ 8. Install the replacement DVD drive into the front of the 2461 HMC.

__ 9. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

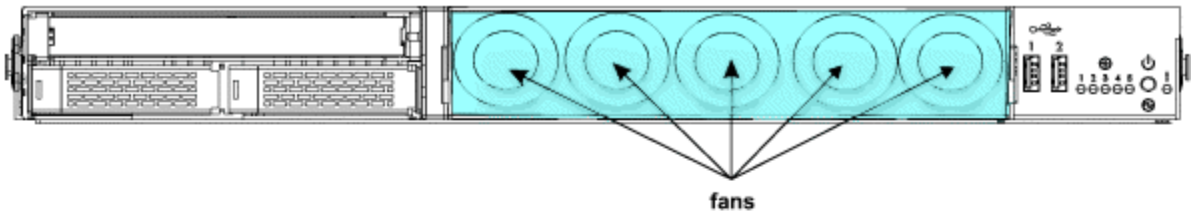
__ 10. Connect the AC power cables to the rear of the 2461 HMC being serviced.

__ 11. Press and release the power ON/OFF button on the front of the 2461 HMC to power on the 2461 HMC.

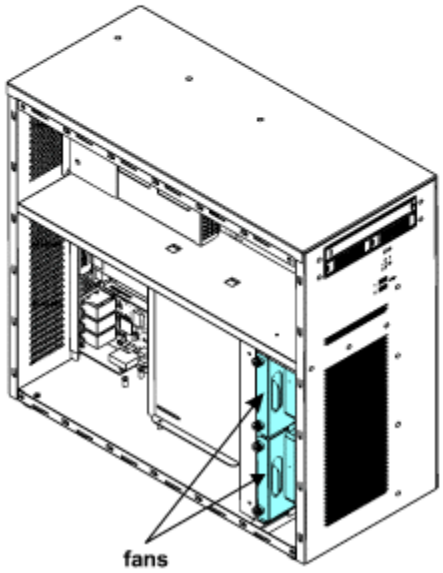
Fan (FC 0082/0083 and FC 0095/0096)

Use the following steps to remove and replace a fan assembly.

2461-SE1 and 2461-SE2



2461-TW1 and 2461-TW2



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement might result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

__ 2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive or laser module, which are Class 1 laser products. Note the following information:

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of the procedures other than those specified herein might result in hazardous radiation exposure. (C026)**

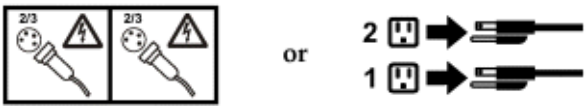
CAUTION: Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION: Some laser products contain an embedded Class3A or Class3B laser diode. Note the following information:

- **Laser radiation when open.**
- **Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)**

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source. (C047)



__ 4. Disconnect the AC power cables from the rear of the 2461 HMC being serviced.

__ 5. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC (FC 0083 or FC 0096).

__ 6. If you are exchanging a fan on the 2461 HMC (FC 0082 or FC 0095), continue to Step "7" on page 48.

If you are exchanging a fan on the 2461 HMC (FC 0083 or FC 0096), complete the following steps:

__ a. Remove the fan guard from the front of the 2461 HMC.

__ b. Gently slide the defective fan assembly out of the by pulling the ring.

Note: Be careful not to dislodge any other fans adjacent to the one you are removing.

__ c. Align the replacement fan assembly with the fan slot and gently push the fan assembly into the 2461 HMC.

__ d. Install the fan guard into the front of the 2461 HMC.

__ e. Continue to Step “8” on page 48.

__ 7. To exchange a fan on the 2461 HMC (FC 0082 or FC 0095), complete the following steps:

__ a. Remove the side panel from the 2461 HMC (FC 0082 or FC 0095).

__ b. Remove the defective fan assembly from the 2461 HMC.

__ c. Install the replacement fan assembly into the 2461 HMC.

__ d. Attach the side panel onto the 2461 HMC (FC 0082 or FC 0095).

__ 8. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

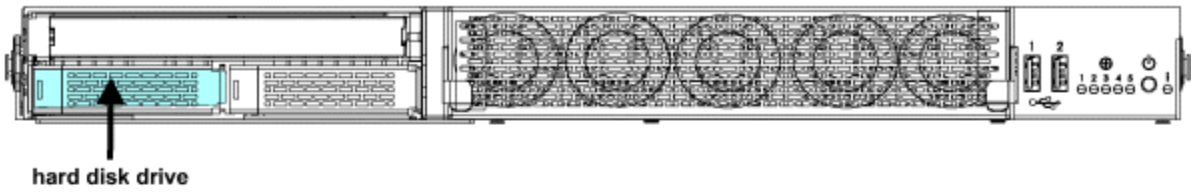
__ 9. Connect the AC power cables to the rear of the 2461 HMC.

__ 10. Press and release the power ON/OFF button on the front of the 2461 HMC.

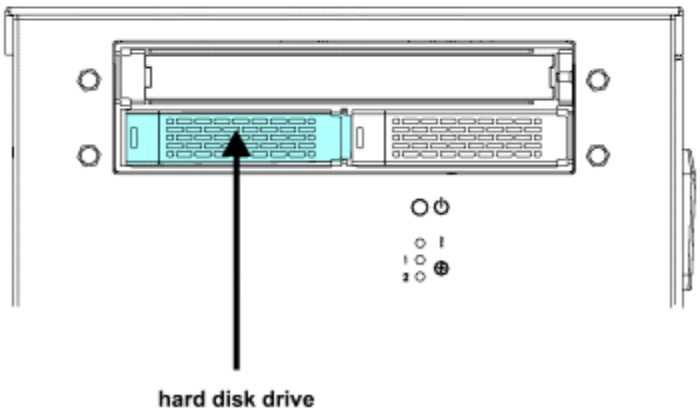
Hard disk drive (FC 0082/0083 and FC 0095/0096)

Use the following steps to remove and replace the hard disk drive.

2461-SE1 and 2461-SE2



2461-TW1 and 2461-TW2



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.
2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).
3. Read the following safety information before disconnecting the AC power cables.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

4. Disconnect the AC power cables from the rear of the 2461 HMC being serviced.

   Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

5. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC (FC 0083 or FC 0096).
6. Remove the defective hard disk drive from the front of the 2461 HMC.
7. Install the replacement hard disk drive into the front of the 2461 HMC.
8. **Review** the information in Appendix A, "Reloading the hard disk drive," on page 81 to determine how to reload the hard disk drive. Then return here. You will reload the hard disk drive in Step "12" on page 49.

   Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

9. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).
10. Connect the AC power cables to the rear of the 2461 HMC being serviced.
11. Press and release the power ON.OFF button on the front of the 2461 HMC to power on the 2461 HMC.
12. **Reload** the hard disk drive using the information identified in Step "8" on page 49.

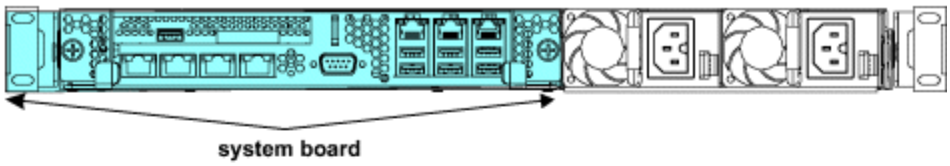
    If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

System board (FC 0082/0083 and FC 0095/0096)

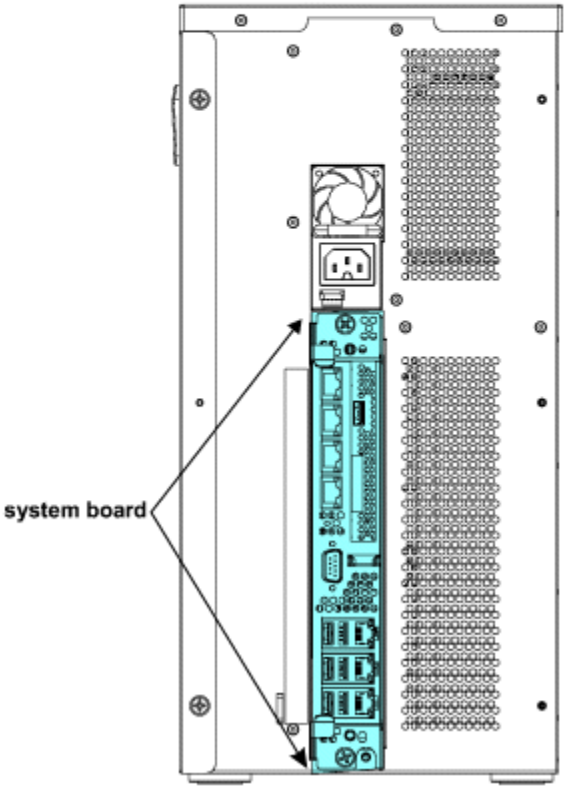
Use the following steps to remove and replace the system board.

Note: When replacing the system board in the 2461 HMC, you need to know which model you will be servicing (2461-SE3 or 2461-TW3). To identify the model, refer to the PMR data in the *call home* about the defective part. The VPD within the call home data identifies the machine type and model of your 2461 HMC. For additional hints about how to identify a 2461 HMC model, see "What you should know before exchanging any component" on page 3.

2461-SE1 and 2461-SE2



2461-TW1 and 2461-TW2



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

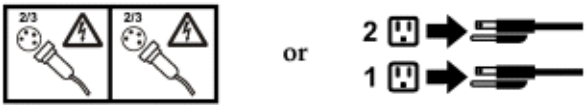
__ 2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source. (C047)



__ 4. Disconnect the AC power cables from the rear of the 2461 HMC being serviced.

__ 5. Disconnect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.

__ 6. Remove the defective system board from the rear of the 2461 HMC.

__ 7. Unpack the replacement system board and place on an ESD protected surface.

__ 8. Remove the memory DIMMs from the defective system board and install them on the replacement system board.

__ 9. Install the replacement system board into the rear of the 2461 HMC.

__ 10. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.

__ 11. **Review** the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. Then return here. You will reload the hard disk drive in Step “11” on page 51.

Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 12. Connect the AC power cables to the rear of the 2461 HMC being serviced.

__ 13. Press and release the power ON/OFF button on the front of the 2461 HMC to power on the 2461 HMC.

__ 14. Use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting and **Boot Option** settings.

Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. If you are replacing the system board on a 2461-SE2 or 2461-TW2, continue to Step “14.l” on page 52. Otherwise, continue to Step “14.h” on page 51.

__ h. Use the arrow keys to navigate to the **Boot** tab.

__ i. Use the arrow keys to highlight **Boot Option #1** and press **Enter**. If necessary, change the setting to **P0: ST1000NX0313**.

__ j. Use the arrow keys to highlight **Boot Option #2** and press **Enter**. If necessary, change the setting to **Disabled**.

__ k. Use the arrow keys to highlight **Boot Option #3** and press **Enter**. If necessary, change the setting to **Disabled**.

__ l. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

__ m. If the configuration was successful, continue to Step “11” on page 51 .

If the configuration was not successful, call your next level of support.

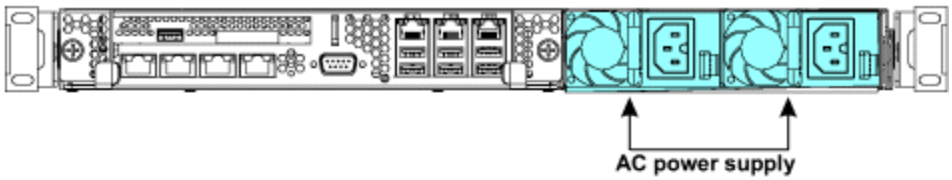
__ 15. Reload the hard disk drive using the information identified in Step “11” on page 51.

If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

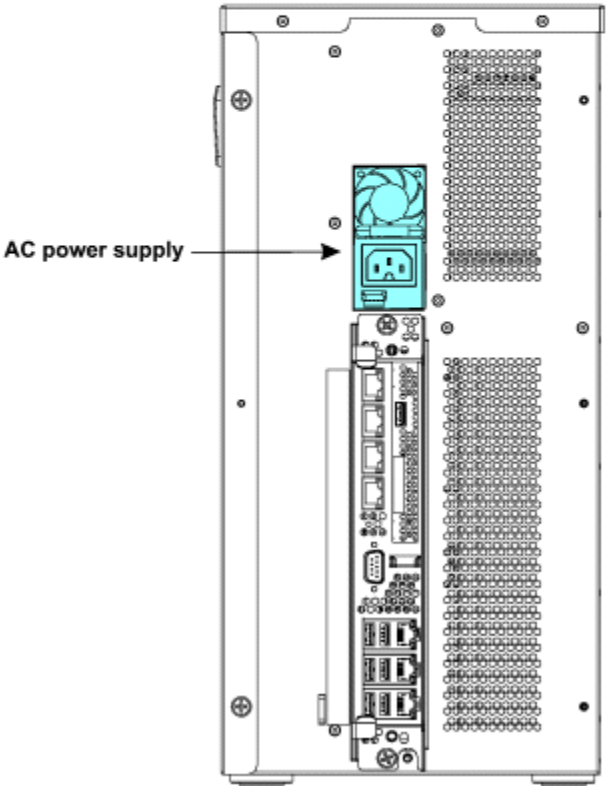
Power supply (FC 0082/0083 and FC 0095/0096)

Use the following steps to remove and replace the AC power supply.

2461-SE1 and 2461-SE2



2461-TW1 and 2461-TW2



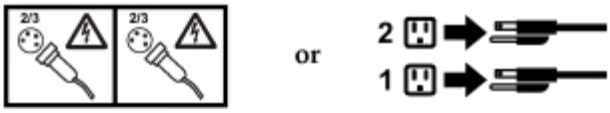
Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.
2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).
3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only.
(C032)

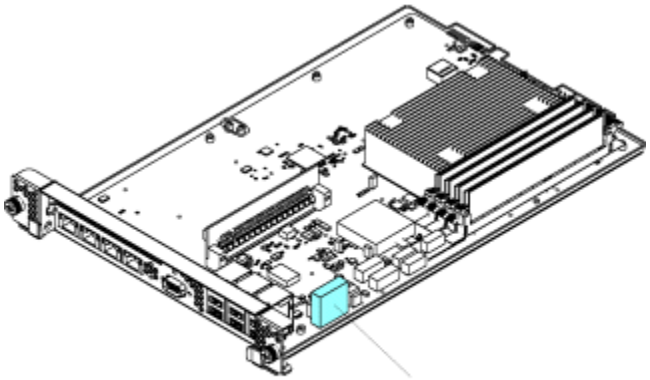
CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



4. Disconnect the AC power cables from the rear of the 2461 HMC being serviced.
5. Remove the defective AC power supply from the front of the 2461 HMC.
6. Install the replacement AC power supply into the front of the 2461 HMC being serviced.
7. Connect the AC power cables to the rear of the 2461 HMC.
8. Press and release the power ON/OFF button on the front of the 2461 HMC being serviced.

System battery (FC 0082/0083 and FC 0095/0096)

Use the following steps to remove and replace the system battery.



battery
(on the system board)

Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

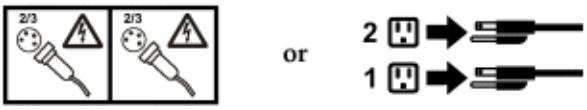
__ 2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 4. Disconnect the AC power cables from the rear of the 2461 HMC.

__ 5. Disconnect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.

__ 6. Read the following safety notice before removing the system battery.

CAUTION: Only trained service personnel may replace this battery. The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.
Do not: Throw or immerse into water, heat to more than 100°C (212°F), repair or disassemble. (C002)

__ 7. Remove the system board from the 2461 HMC.

__ 8. Remove the defective battery from the system board.

__ 9. Install the replacement battery into the system board.

__ 10. Install the system board into the 2461 HMC.

__ 11. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.

__ 12. Review the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. Then, return there. You will reload the hard disk drive in Step “17” on page 56.

Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 13. Connect the AC power cables to the rear of the 2461 HMC being serviced.

__ 14. Press and release the power ON/OFF button on the front of the 2461 HMC.

__ 15. If you are replacing the system battery on a 2461-SE2 or 2461-TW2, continue to Step “16” on page 56.

If you are replacing the system battery on a 2461-SE1 or 2461-TW1, use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting and **Boot Option** settings.

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. Use the arrow keys to navigate to the **Boot** tab.

__ h. Use the arrow keys to highlight **Boot Option #1** and press **Enter**. If necessary, change the setting to **P0: ST1000NX0313**.

__ i. Use the arrow keys to highlight **Boot Option #2** and press **Enter**. If necessary, change the setting to **Disabled**.

__ j. Use the arrow keys to highlight **Boot Option #3** and press **Enter**. If necessary, change the setting to **Disabled**.

__ k. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

__ l. If the configuration was successful, continue to Step "17" on page 56.

If the configuration was not successful, call your next level of support.

__ 16. If you are replacing the system battery on a 2461-SE2 or 2461-TW2, use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting.

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

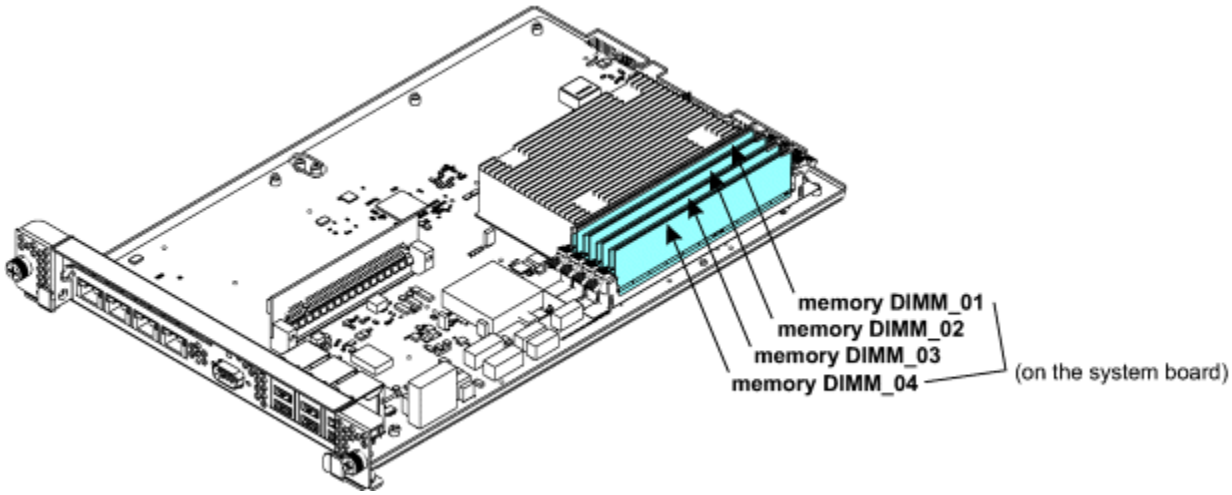
__ h. If the configuration was successful, continue to Step "17" on page 56.

If the configuration was not successful, call your next level of support.

__ 17. Reload the hard disk drive using the information identified in Step "12" on page 55. If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

Memory DIMM (FC 0082/0083 and FC 0095/0096)

Use the following steps to remove and replace a memory DIMM.



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

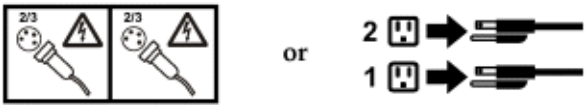
__ 2. For 2461 HMC (FC 0083 or FC 0096), if necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0083 or FC 0096).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 4. Disconnect the AC power cables from the rear of the 2461 HMC.

__ 5. Disconnect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.

__ 6. Remove the system board from the 2461 HMC.

__ 7. Remove the defective memory DIMM from the system board.
__ 8. Install the replacement memory DIMM into the system board.
__ 9. Install the system board into the 2461 HMC.
__ 10. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.
__ 11. Connect the AC power cables to the rear of the 2461 HMC being serviced.
__ 12. Press and release the power ON/OFF button on the front of the 2461 HMC to power on the 2461 HMC.

2461 HMC (FC 0083 and FC 0096)

Use the following steps to remove and replace the 2461 HMC (FC 0083) or 2461 HMC (FC 0096).

Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

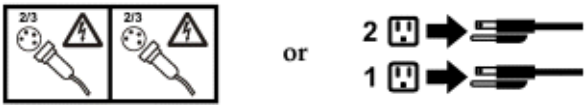
__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

__ 2. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 3. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC.
__ 4. Disconnect the AC power cables from the rear of the 2461 HMC being serviced.
__ 5. Disconnect any video, keyboard, mouse, and Ethernet cables from the rear of the 2461 HMC.
__ 6. Remove both AC power supplies from the 2461 HMC.
__ 7. If the 2461 HMC is installed in the rack in a position lower than shoulder height, continue to Step “8” on page 59.

If the 2461 HMC is installed in the rack in a position shoulder height or higher, remove the system board.

__ 8. If necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC.

__ 9. Read the following safety notices before pulling out the 2461 HMC from the rack.

DANGER: Rack-mounted devices are not to be used as shelves or work spaces. (L002)

CAUTION: Pinch hazard. (L012)

__ 10. Slide out and remove the defective 2461 HMC.

__ 11. If the system board was not removed from the defective 2461 HMC, continue to step "12" on page 59. Otherwise, install the system board back into the defective 2461 HMC.

__ 12. Unpack the replacement 2461 HMC from the shipping package.

__ 13. Remove the mounting brackets from the defective 2461 HMC.

__ 14. Attach the mounting brackets to the replacement 2461 HMC.

__ 15. Remove the slide brackets from the defective 2461 HMC.

__ 16. Attach the slide brackets to the defective 2461 HMC.

__ 17. If the replacement 2461 HMC will be installed in the rack in a position lower than shoulder height, continue to Step "18" on page 59.

If the replacement 2461 HMC will be installed in the rack in a position higher than shoulder height, remove the system board.

__ 18. Slide the replacement 2461 HMC into the rack.

__ 19. If necessary, move the step ladder (P/N 46G5947) to the rear of the replacement 2461 HMC.

__ 20. If the system board was not removed from the replacement 2461 HMC, continue to "21" on page 59. Otherwise, install the system board back into the replacement 2461 HMC.

__ 21. Install both AC power supplies, that were saved from the defective 2461 HMC, into the replacement 2461 HMC.

__ 22. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the replacement 2461 HMC.

__ 23. **Review** the information in Appendix A, "Reloading the hard disk drive," on page 81 to determine how to reload the hard disk drive. You will reload the hard disk drive in Step "28" on page 60.

Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 24. Connect the AC power cables to the rear of the replacement 2461 HMC being serviced.

__ 25. Press and release the power ON/OFF button on the front of the replacement 2461 HMC to power on the replacement 2461 HMC.

__ 26. If you are replacing the 2461-SE2, continue to Step "27" on page 60.

If you are replacing the 2461-SE1, use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting and **Boot Option** settings.

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. Use the arrow keys to navigate to the **Boot** tab.

__ h. Use the arrow keys to highlight **Boot Option #1** and press **Enter**. If necessary, change the setting to **P0: ST1000NX0313**.

__ i. Use the arrow keys to highlight **Boot Option #2** and press **Enter**. If necessary, change the setting to **Disabled**.

__ j. Use the arrow keys to highlight **Boot Option #3** and press **Enter**. If necessary, change the setting to **Disabled**.

__ k. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

__ l. If the configuration was successful, continue to Step "28" on page 60.

If the configuration was not successful, call your next level of support.

__ 27. If you are replacing the 2461-SE2, use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting:

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

__ h. If the configuration was successful, continue to Step "28" on page 60 .

If the configuration was not successful, call your next level of support.

__ 28. **Reload** the hard disk drive using the information identified in Step "23" on page 59.

If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

2461 HMC (FC 0082 and FC 0095)

Use the following steps to remove and replace the 2461 HMC (FC 0082) or 2461 HMC (FC 0095).

Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

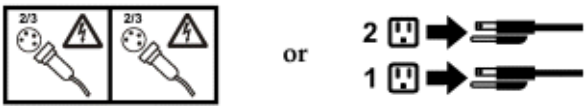
__ 1. If you are able to log on to the 2461 HMC, run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

__ 2. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 3. Disconnect the AC power cable from the rear of the 2461 HMC being serviced.

__ 4. Disconnect any video, keyboard, mouse, and Ethernet cables from the rear of the 2461 HMC.

__ 5. Remove the AC power supply from the 2461 HMC.

__ 6. Unpack the replacement 2461 HMC from the shipping package.

__ 7. Install the AC power supply, that was saved from the defective 2461 HMC, into the replacement 2461 HMC.

__ 8. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the replacement 2461 HMC.

__ 9. **Review** the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. You will reload the hard disk drive in Step “14” on page 62 .

Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 10. Connect the AC power cable to the rear of the 2461 HMC being serviced.

__ 11. Press and release the power ON/OFF button on the front of the replacement 2461 HMC to power on the replacement 2461 HMC.

__ 12. If you are replacing the 2461-TW2, continue to Step “13” on page 62.

If you are replacing the 2461-TW1, use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting and **Boot Option** settings.

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. Use the arrow keys to navigate to the **Boot** tab.

__ h. Use the arrow keys to highlight **Boot Option #1** and press **Enter**. If necessary, change the setting to **P0: ST1000NX0313**.

__ i. Use the arrow keys to highlight **Boot Option #2** and press **Enter**. If necessary, change the setting to **Disabled**.

__ j. Use the arrow keys to highlight **Boot Option #3** and press **Enter**. If necessary, change the setting to **Disabled**.

__ k. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

__ l. If the configuration was successful, continue to Step "14" on page 62.

If the configuration was not successful, call your next level of support.

__ 13. If you are replacing the 2461-TW2, use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **Restore AC Power Loss** setting:

__ a. Power on the display.

__ b. Power on or reboot the HMC.

__ c. When you see the American Megatrends splash screen, press the **DEL** or **ESC** key to enter the Setup Utility.

__ d. Use the arrow keys to navigate to the **Chipset** tab.

__ e. Highlight **PCI-IO configuration** and press **Enter**.

__ f. Use the arrow keys to highlight **Restore AC Power Loss** and press **Enter**. If necessary, change the setting to **Last State**.

__ g. Press **F4** (Save & Exit), and select **Yes** for save configuration and exit.

__ h. If the configuration was successful, continue to Step "14" on page 62.

If the configuration was not successful, call your next level of support.

__ 14. **Reload** the hard disk drive using the information identified in Step "9" on page 61.

If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

Chapter 5. Removing and replacing 2461 HMC components (FC 0062 and FC 0063)

This chapter describes the steps required to remove and replace the 2461 HMC (FC 0062/FC 0063) its components.

Table 16. 2461 HMC (FC 0062/FC 0063) components to replace

Action or Topic	**Go to**
Removing and replacing the hard disk drive	“Hard disk drive (FC 0062 and FC 0063)” on page 63
Removing and replacing a fan	“Fan (FC 0062 and FC 0063)” on page 65
Removing and replacing the system board	“System board (FC 0062 and FC 0063)” on page 67
Removing and replacing the power supply	“Power supply (FC 0062 and FC 0063)” on page 70
Removing and replacing the system battery	“System battery (FC 0062 and FC 0063)” on page 72
Removing and replacing a DIMM	“Memory DIMM (FC 0062 and FC 0063)” on page 75
Removing and replacing the 2461 HMC (FC 0062)	“2461 HMC (FC 0062)” on page 76
Removing and replacing the 2461 HMC (FC 0063)	“2461 HMC (FC 0063)” on page 77

Hard disk drive (FC 0062 and FC 0063)

Use the following steps to remove and replace the hard disk drive of the 2461 HMC (FC 0062/FC 0063).

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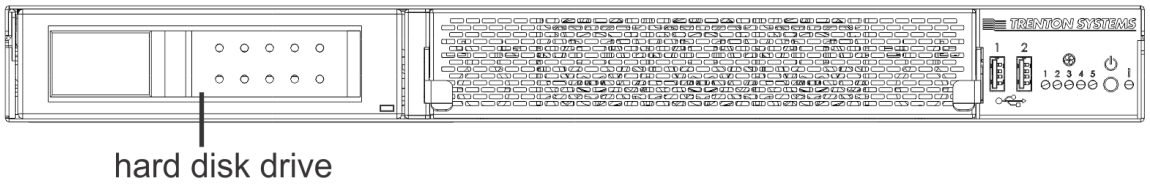
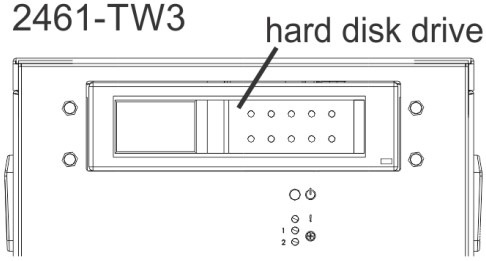
2461-SE3



2461-TW3



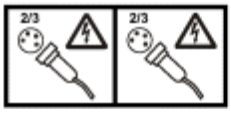
Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

1. If you are able to log on to the 2461 HMC (FC 0062/FC 0063), run the Shutdown or Restart task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062/FC 0063) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.
2. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).
3. Before performing this FRU exchange, read the following safety information.

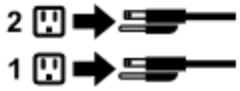
DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



or



4. Disconnect the power cables from the rear of the 2461 HMC (FC 0062/FC 0063).

   Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

__ 1. If necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC (FC 0063).

__ 2. Remove the defective hard disk drive from the front of the 2461 HMC (FC 0062) (2461-TW3) or 2461 HMC (FC 0063) (2461-SE3).

__ 3. Install the replacement hard disk drive in the front of the 2461 HMC (FC 0062/FC 0063).

__ 4. **Review** the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. Then return here. You will reload the hard disk drive in Step “8” on page 65.

Attention: The display for the 2461 HMC being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 5. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).

__ 6. Connect the power cables to the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

__ 7. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0062/FC 0063) to power on the 2461 HMC (FC 0062/FC 0063).

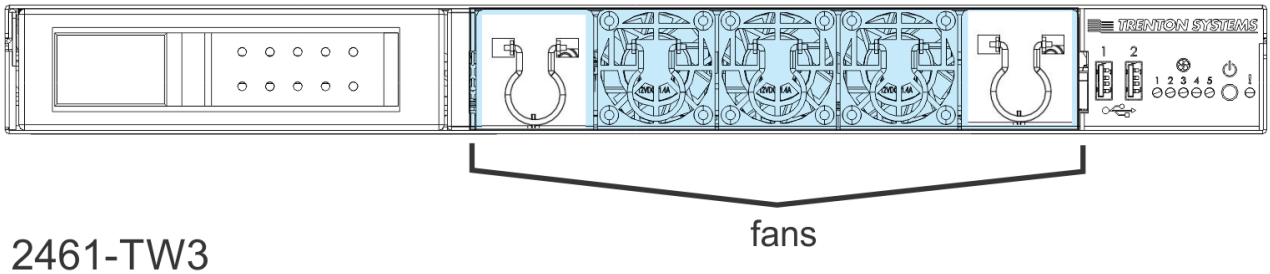
__ 8. **Reload** the hard disk drive using the information identified in Appendix A, “Reloading the hard disk drive,” on page 81.

If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

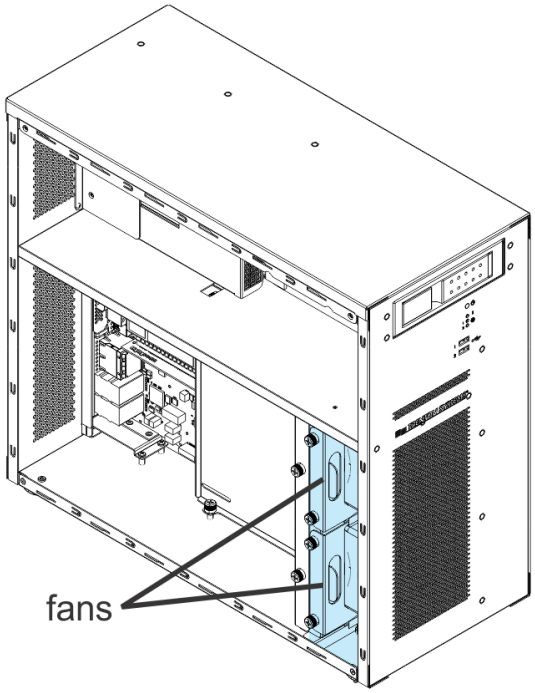
Fan (FC 0062 and FC 0063)

Use the following steps to remove and replace a fan assembly in the 2461 HMC (FC 0062/FC 0063).

2461-SE3



2461-TW3



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC (FC 0062/FC 0063), run the **Shutdown** or **Restart** task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062/FC 0063) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

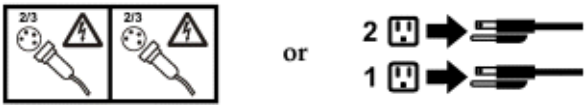
__ 2. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0062/FC 0063).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source. (C047)



__ 4. Disconnect the power cables from the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

__ 5.

__ 6. If necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC (FC 0063).

__ 7. If you are exchanging a fan on the 2461 HMC (FC 0062), continue to Step "8" on page 67.

If you are exchanging a fan on the 2461 HMC (FC 0063), complete the following steps:

__ a. Remove the fan guard from the front of the 2461 HMC (FC 0063) using the following steps:

__ b. Gently slide the defective fan assembly out of the 2461 HMC (FC 0063) by pulling the ring **(A)**.

Note: Be careful not to dislodge any other fans that are adjacent to the one you are removing.

__ c. Align the fan assembly with the fan slot **(A)** in the 2461 HMC (FC 0063). Ensure that the fan is level with the HMC so that it does not ride up on top of the fan slot when it is installed.

__ d. Gently push the fan assembly into the HMC.

__ e. Install the fan guard using the following steps:

__ 1) Ensure that both latches **(A)** are in the upper position.

__ 2) Place the fan guard onto the front of the 2461 HMC (FC 0063).

__ 3) Push down on both latches **(A)** to secure the fan guard to the front of the 2461 HMC (FC 0063).

__ f. Continue to Step "9" on page 67.

__ 8. To exchange a fan on the 2461 HMC (FC 0062), complete the following steps:

__ a. Remove the side panel from the 2461 HMC (FC 0062).

__ b. Remove the defective fan assembly (upper or lower) from the 2461 HMC (FC 0062).

__ c. Install the replacement fan assembly (upper or lower) into the 2461 HMC (FC 0062).

__ d. Attach the side panel onto the 2461 HMC (FC 0062).

__ 9. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).

__ 10. Connect the power cables to the rear of the 2461 HMC (FC 0063) being serviced.

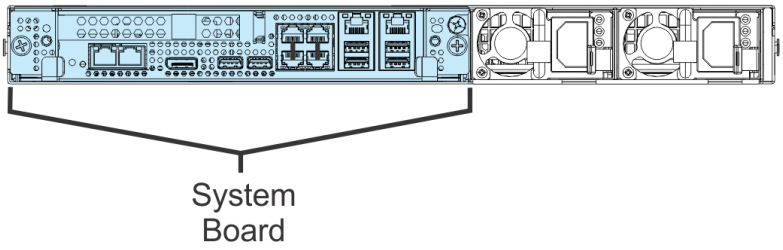
__ 11. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0063).

System board (FC 0062 and FC 0063)

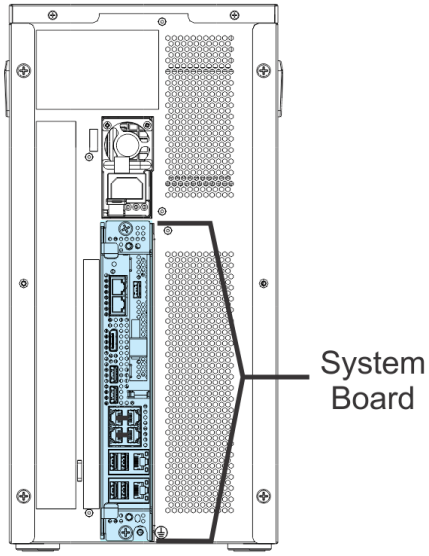
Use the following steps to remove and replace the system board.

Note: When replacing the system board in the 2461 HMC, you need to know which model you will be servicing (2461-SE3 or 2461-TW3). To identify the model, refer to the PMR data in the *call home* about the defective part. The VPD within the call home data identifies the machine type and model of your 2461 HMC. For additional hints about how to identify a 2461 HMC model, see "What you should know before exchanging any component" on page 3.

2461 SE3



2461 TW3



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC (FC 0062/FC 0063), run the Shutdown or Restart task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062/FC 0063) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

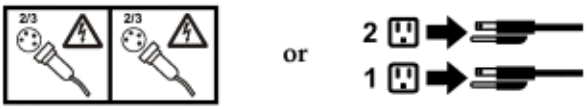
__ 2. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0062/FC 0063).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 4. Disconnect the power cables from the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

__ 5. Disconnect any video, keyboard, USB and Ethernet cables from the rear of the 2461 HMC (FC 0062/FC 0063).

__ 6. Remove the defective system board from the rear of the 2461 HMC (FC 0062/FC 0063).

__ 7. Unpack the replacement system board and place it on an ESD protected surface.

__ 8. Remove all memory DIMMs from the defective system board.

Attention: During removal of the memory DIMMs, mishandling can cause damage to surface mount components on the memory DIMM. Ensure proper handling procedures are followed for the following steps.

Attention: All memory DIMMs that are removed from the defective system board must be installed in the same location on the replacement system board. Ensure that each memory DIMM is labeled according to the location from which it is being removed.

__ 9. Install the memory DIMMs onto the replacement system board.

Attention: During installation of the memory DIMMs, mishandling can cause damage to surface mount components on the memory DIMM. Ensure proper handling procedures are followed for the following steps.

Attention: When installing the memory DIMMs, ensure they are installed in the labeled location. The memory DIMMs must be installed in the same location on the replacement system board as on the defective system board.

__ 10. Install the replacement system board into the rear of the 2461 HMC (FC 0062/FC 0063).

__ 11. Connect any video, keyboard, USB and Ethernet cables to the rear of the 2461 HMC (FC 0062/FC 0063).

__ 12. **Review** the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. Then return here. You will reload the hard disk drive in Step “16” on page 70.

Attention: The display for the 2461 HMC (FC 0062/FC 0063) being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 13. Connect the power cables to the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

__ 14. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0062/FC 0063) to power on the 2461 HMC.

__ 15. Use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **State After G3** setting.

a. When you see the *Insyde* splash screen, press **ESC** to enter the menu, then select **Setup Utility**.

b. Use the arrow keys to navigate to the Advanced tab.

c. Select **PCH-IO configuration**.

d. Use the arrow keys to highlight **State After G3** and, if necessary, change the setting to **Last State**.

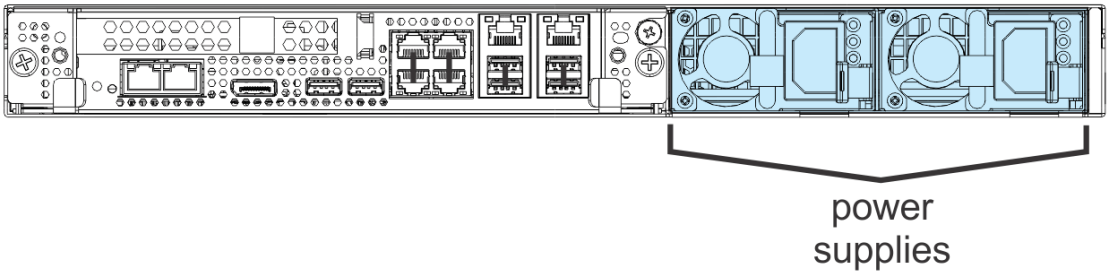
e. Press **F10** (Save & Exit) and then select **Yes** for save configuration and exit.

__ 16. Reload the hard disk drive using the information in Appendix A, “Reloading the hard disk drive,” on page 81. If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

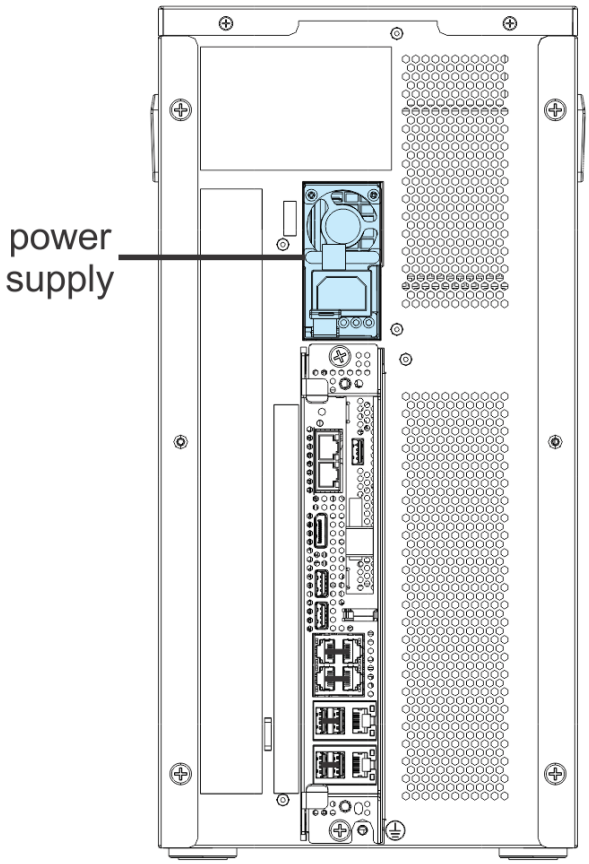
Power supply (FC 0062 and FC 0063)

Use the following steps to remove and replace the power supply.

2461-SE3



2461-TW3



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC (FC 0062/FC 0063), run the Shutdown or Restart task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062/FC 0063) power button is a reset/power button. If you release the button right after the LED

goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

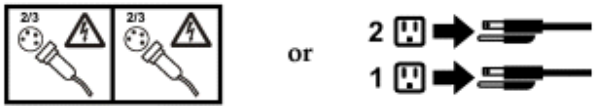
__ 2. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 4. Disconnect the power cables from the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

__ 5. Remove the defective power supply from the rear of the 2461 HMC (FC 0062/FC 0063).

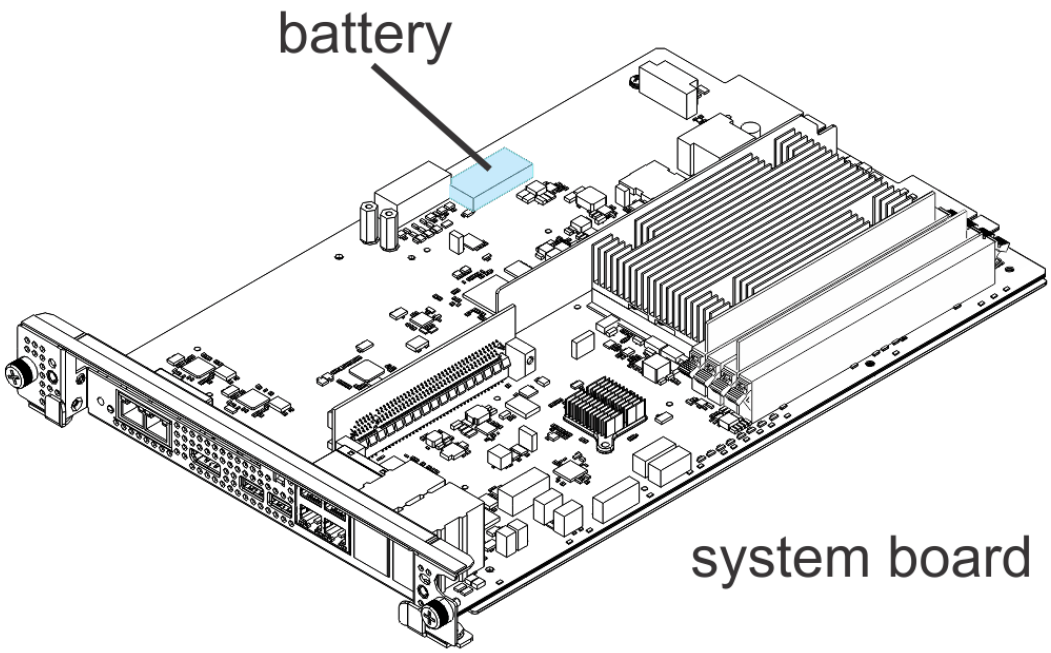
__ 6. Install the replacement power supply in the rear of the 2461 HMC (FC 0062/FC 0063).

__ 7. Connect the power cables to the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

__ 8. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0062/FC 0063).

System battery (FC 0062 and FC 0063)

Use the following steps to remove and replace the system battery.



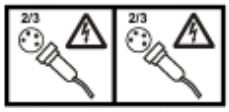
Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

1. If you are able to log on to the 2461 HMC (FC 0062/FC 0063), run the Shutdown or Restart task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062/FC 0063) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.
2. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).
3. Before performing this FRU exchange, read the following safety information.

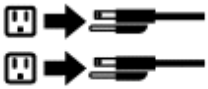
DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



or



4. Disconnect the power cables from the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

   Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.
5. Disconnect any video, keyboard, mouse, and Ethernet cables from the rear of the 2461 HMC (FC 0062/FC 0063).
6. Remove the system board from the rear of the 2461 HMC (FC 0062/FC 0063).
7. Read the following safety notice before removing the system battery.

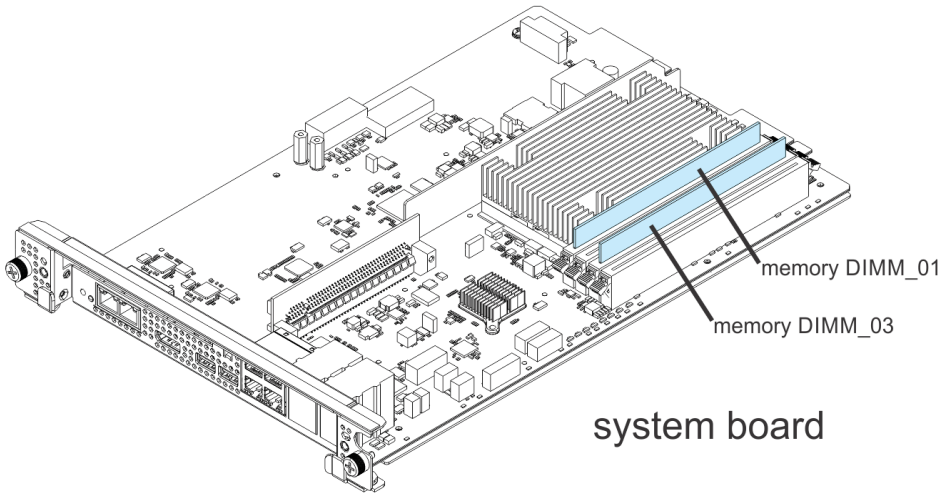
   CAUTION: Only trained service personnel may replace this battery. The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.
   Do not: Throw or immerse into water, heat to more than 100°C (212°F), repair or disassemble. (C002)
8. Remove the defective battery from the system board.
9. Install the replacement battery onto the system board.
10. Install the system board into the 2461 HMC (FC 0062/FC 0063).
11. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC.
12. Review the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. Then, return there. You will reload the hard disk drive in Step “16” on page 74.

    Attention: The display for the 2461 HMC (FC 0062/FC 0063) being repaired must be accessible so the hard disk drive reload procedure can be completed.

    .
13. Connect the power cables to the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.
14. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0062/FC 0063) to power on the 2461 HMC (FC 0062/FC 0063).
15. Use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **State After G3** setting.
    a. When you see the *Insyde* splash screen, press **ESC** to enter the menu, then select **Setup Utility**.
    b. Use the arrow keys to navigate to the Advanced tab.
    c. Select **PCH-IO configuration**.
    d. Use the arrow keys to highlight **State After G3** and, if necessary, change the setting to **Last State**.
    e. Press **F10** (Save & Exit) and then select **Yes** for save configuration and exit.
16. Reload the hard disk drive using the information identified in Appendix A, “Reloading the hard disk drive,” on page 81. If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

Memory DIMM (FC 0062 and FC 0063)

Use the following steps to remove and replace a memory DIMM.



Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

__ 1. If you are able to log on to the 2461 HMC (FC 0062/FC 0063), run the Shutdown or Restart task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062/FC 0063) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

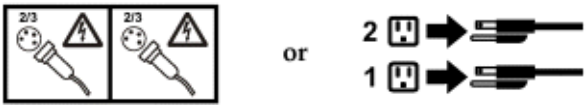
__ 2. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).

__ 3. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 4. Disconnect the power cables from the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

__ 5. Disconnect any video, keyboard, mouse, and Ethernet cables from the rear of the 2461 HMC (FC 0062/FC 0063).

__ 6. Remove the system board from the rear of the 2461 HMC (FC 0062/FC 0063).

__ 7. Remove the defective memory DIMM from the system board.

__ 8. Remove the defective memory DIMM from the system board.

Attention: During removal of the memory DIMM, mishandling can cause damage to surface mount components on the memory DIMM. Ensure proper handling procedures are followed for the following steps.

__ 9. Install the replacement memory DIMM onto the system board.

Attention: During installation of the memory DIMM, mishandling can cause damage to surface mount components on the memory DIMM. Ensure proper handling procedures are followed for the following steps.

__ 10. Install the system board in the rear of the 2461 HMC (FC 0062/FC 0063).

__ 11. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC (FC 0062/FC 0063).

__ 12. Connect the power cables to the rear of the 2461 HMC (FC 0062/FC 0063) being serviced.

__ 13. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0062/FC 0063) to power on the 2461 HMC (FC 0062/FC 0063).

2461 HMC (FC 0062)

Use the following steps to remove and replace the 2461 HMC (FC 0062).

Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

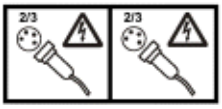
__ 1. If you are able to log on to the 2461 HMC (FC 0062), run the Shutdown or Restart task and choose the Power-off console option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0062) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

__ 2. Before performing this FRU exchange, read the following safety information.

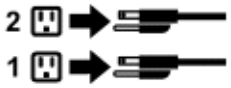
DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source. (C047)



or



__ 3. Disconnect any video, keyboard, mouse, and Ethernet cables from the rear of the 2461 HMC (FC 0062).

__ 4. Disconnect the power cable from the rear of the 2461 HMC (FC 0062).

__ 5. Unpack the replacement 2461 HMC (FC 0062) from the shipping package.

__ 6. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the replacement 2461 HMC (FC 0062).

__ 7. **Review** the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. You will reload the hard disk drive in Step.

Attention: The display for the 2461 HMC (FC 0062) being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 8. Connect the power cable to the rear of the 2461 HMC (FC 0062) being serviced.

__ 9. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0062) to power on the 2461 HMC (FC 0062).

__ 10. Use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **State After G3** setting.

a. When you see the *Insyde* splash screen, press **ESC** to enter the menu, then select **Setup Utility**.

b. Use the arrow keys to navigate to the Advanced tab.

c. Select **PCH-IO configuration**.

d. Use the arrow keys to highlight **State After G3** and, if necessary, change the setting to **Last State**.

e. Press **F10** (Save & Exit) and then select **Yes** for save configuration and exit.

__ 11. **Reload** the hard disk drive using the information identified in Step “7” on page 77.

If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

2461 HMC (FC 0063)

Use the following steps to remove and replace the or 2461 HMC (FC 0063).

Attention: Failure to follow the step-by-step sequence for this FRU removal and replacement may result in FRU or system damage.

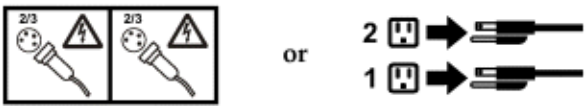
__ 1. If you are able to log on to the 2461 HMC (FC 0063), run the **Shutdown or Restart** task and choose the **Power-off console** option to prevent console software from running. Otherwise, press and hold the power button for four seconds AFTER the power LED turns off. The 2461 HMC (FC 0063) power button is a reset/power button. If you release the button right after the LED goes out, it will reset (power cycle) the machine after a short delay. Holding down the power button for a full four seconds after the power LED turns off tells the system to stay in the power off state.

__ 2. Before performing this FRU exchange, read the following safety information.

DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

CAUTION: Servicing of this product or unit is to be performed by trained service personnel only. (C032)

CAUTION: The power control button or switch, if present on the device, does not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the device or from the power source.
(C047)



__ 3. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).

__ 4. Disconnect any video, keyboard, mouse, and Ethernet cables from the rear of the 2461 HMC (FC 0063).

__ 5. Disconnect both power cables from the rear of the 2461 HMC (FC 0063) being serviced.

Note: Do not reconnect the AC power cords until instructed to do so after you have completed the FRU exchange.

__ 6. If the 2461 HMC (FC 0063) is installed in the rack in a position lower than shoulder height, continue to Step "7" on page 78. If the 2461 HMC (FC 0063) is installed in the rack in a position shoulder height or higher, remove the system board.

__ 7. If necessary, move the step ladder (P/N 46G5947) to the front of the 2461 HMC (FC 0063).

__ 8. Read the following safety notices before pulling the 2461 HMC (FC 0063) out of the rack.

DANGER: Rack-mounted devices are not to be used as shelves or work spaces. (L002)

CAUTION: Pinch hazard. (L012)

__ 9. Slide out and remove the defective 2461 HMC (FC 0063).

__ 10. If the system board was not removed from the defective 2461 HMC (FC 0063), continue to Step “11” on page 79 . Otherwise, install the system board back into the defective 2461 HMC (FC 0063).

__ 11. Unpack the replacement 2461 HMC (FC 0063) from the shipping package.

__ 12. Remove the slide brackets from the defective 2461 HMC (FC 0063).

__ 13. Install the slide brackets onto the replacement 2461 HMC (FC 0063).

__ 14. If the 2461 HMC (FC 0063) is installed in the rack in a position shoulder height or higher, continue to Step “15” on page 79. If the 2461 HMC (FC 0063) is installed in the rack in a position lower than shoulder height, remove the system board.

__ 15. Slide the replacement 2461 HMC (FC 0063) into the rack.

__ 16. If necessary, move the step ladder (P/N 46G5947) to the rear of the 2461 HMC (FC 0063).

__ 17. If the system board was not removed from the replacement 2461 HMC (FC 0063), continue to Step “18” on page 79. Otherwise, install the system board back into the replacement 2461 HMC (FC 0063).

__ 18. Connect any video, keyboard, mouse, and Ethernet cables on the rear of the 2461 HMC (FC 0063).

__ 19. **Review** the information in Appendix A, “Reloading the hard disk drive,” on page 81 to determine how to reload the hard disk drive. You will reload the hard disk drive in Step “23” on page 79.

Attention: The display for the 2461 HMC (FC 0063) being repaired must be accessible so the hard disk drive reload procedure can be completed.

__ 20. Connect the power cables to the rear of the 2461 HMC (FC 0063) being serviced.

__ 21. Press and release the power ON/OFF button on the front of the 2461 HMC (FC 0063) to power on the 2461 HMC (FC 0063) .

__ 22. Use the following steps to interrupt the boot sequence to verify and, if necessary, to change the **State After G3** setting.

a. When you see the *Insyde* splash screen, press **ESC** to enter the menu, then select **Setup Utility**.

b. Use the arrow keys to navigate to the Advanced tab.

c. Select **PCH-IO configuration**.

d. Use the arrow keys to highlight **State After G3** and, if necessary, change the setting to **Last State**.

e. Press **F10** (Save & Exit) and then select **Yes** for save configuration and exit.

__ 23. **Reload** the hard disk drive using the information in Appendix A, “Reloading the hard disk drive,” on page 81.

If the hard disk drive restore was successful, this procedure is complete. If the hard disk drive restore was not successful, contact your next level of support.

Appendix A. Reloading the hard disk drive

This section provides procedures that support different levels of hardware and drivers. Do one of the following:

- If the hardware being serviced is an HMC 2461 1U (FC 0095) or Tower (FC 0096), see “Hard disk errors for 2461 HMC (FC 0095 and FC 0096)” on page 81.
- If the hardware being serviced is an HMC 2461 1U (FC 0082) or Tower (FC 0083), see “Hard disk errors for 2461 HMC (FC 0082 and FC 0083)” on page 85.
- If the hardware being serviced is an HMC 2461 1U (FC 0062) or Tower (FC 0063), see “Hard disk errors for 2461 HMC (FC 0062/FC 0063)” on page 90.

Hard disk errors for 2461 HMC (FC 0095 and FC 0096)

- If the 2461 HMC (FC 0095 or FC 0096) is running Driver D27 and/or Driver D36, see “Hard disk errors for FC 0095 and FC 0096 (with Drivers D27 or D36)” on page 81
- If the 2461 HMC (FC 0095 or FC 0096) was upgraded to Driver 41, see “Hard disk errors for FC 0095 and FC 0096 (with Driver D41)” on page 82.

Hard disk errors for FC 0095 and FC 0096 (with Drivers D27 or D36)

1. Use the information in “ Testing 2461 HMC (FC 0095 and FC 0096) ” on page 84 to test the 2461 HMC. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.
2. Did the hard disk tests fail?
   - If **YES**, go to Step “3” on page 81.
   - If **NO**, go to Step “5” on page 81.
3. Exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the appropriate section in Chapter 4, “Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096),” on page 43.

   If you exchanged the hard disk, check to see if there are jumpers or tab settings on the new hard disk. **Ensure any jumper or tab settings are the same as on the old drive**.

   After the FRU is exchanged, test the repair using the procedure in “ Testing 2461 HMC (FC 0095 and FC 0096) ” on page 84. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.
4. Did the hard disk tests continue to fail?

   If **YES**, call for assistance.

   If **NO**, continue with the next step to restore the licensed internal code.
5. You must **RESTORE the LICENSED INTERNAL CODE** and back up critical data to the new hard disk **USING the FOLLOWING PROCEDURES:**

   a. Find the **HWMCA DVD-R** and the **Backup Critical Data USB flash memory drive** for this 2461 HMC.

   Note: HMC code level 2.13.0 has introduced backup to a FTP server as an alternative to USB flash memory drive backup. If the HMC code level is 2.13.0 or higher and backup to an FTP server is selected, first ensure you have access to that server.

   b. Insert the **HWMCA DVD-R** into the 2461 HMC DVD drive.

   c. To enable booting from the DVD drive, perform the following steps to enable:

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1) Press the **DEL** or **ESC** key to enter SETUP when you see the American Megatrends splash screen appear on the display.

   Note: Note that a machine in the field may have a customer-assigned admin password. If this is the case, the customer will need to provide the password (or temporarily remove the admin password). If the customer has set an admin password, you will be prompted for it in order to change the uEFI settings.

2) Once you are on the **Aptio Setup Utility** screen, select the **Boot** tab, select **Boot Option #1** and press **Enter**, then select **HL-DT-ST DVDRAM** and press **Enter**.

3) Press **F4** to save and select **Yes** to reboot.

d. The 2461 HMC will boot from the **HWMCA DVD-R**.

e. Follow the **Hard Disk Reload/Restore** prompts on the 2461 HMC to restore the Licensed Internal Code.

f. After the Licensed Internal Code is loaded, you will be directed to insert the **Backup Critical Data USB flash memory drive**. Select the location of the backup file: USB or FTP server.

- If the backup is stored in the USB backup, then the process is the same as the one described above.
- If the backup file is stored in an external FTP server, then select this option. On the next panel, complete the information for the network settings (IP address, gateway). Once this information is completed, then click **OK**. The next panel that is displayed is the FTP Backup server where you'll enter the information required to access the external backup server (IP address, userid, password, directory where the backup file is located). Once a communication is established to the FTP server, a list of backup files is displayed. Select the appropriate backup file and click **OK**.

g. Follow the prompts on the 2461 HMC to complete the restore.

h. After the restore is complete, perform the following steps to remove the DVD drive from the boot list:

1) Press the **DEL** or **ESC** key to enter **SETUP** when you see the American Megatrends splash screen appear on the display. Enter the admin password if one is set.

2) Once you are back to the **Aptio Setup Utility** screen, select the **Boot** tab, then select **Boot Option #1** and change it to **P0: ST1000NX0313...**. Select **Boot Option #2** and change it to **Disabled**, leave Boot Option #3 as **Disabled**.

3) Press **F4** to save and select **Yes** to reboot.

6. Test using the procedure in " Testing 2461 HMC (FC 0095 and FC 0096) " on page 84. Select **Run All Selected** problem area.

   Return here when the test is complete, then continue below.

   Did any of the hard disk tests fail?

   - If **YES**, exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the HMM for the appropriate machine type on the Diagnostic CD-ROM. When the problem is resolved, go to "7" on page 82.
   - If **NO**, continue with the next step to close the call.
   - If the tests do not fail and the problem remains, call for assistance.

7. Close the call. For instructions, refer to the *Service Guide* for the server to which this console is connected.

END OF PROCEDURE.

Hard disk errors for FC 0095 and FC 0096 (with Driver D41)

1. Use the information in " Testing 2461 HMC (FC 0095 and FC 0096) " on page 84 to test the 2461 HMC. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.

2. Did the hard disk tests fail?
   - If **YES**, go to Step "3" on page 83.
   - If **NO**, go to Step "5" on page 83.
3. Exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the appropriate section in Chapter 4, "Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096)," on page 43.

   If you exchanged the hard disk, check to see if there are jumpers or tab settings on the new hard disk. **Ensure any jumper or tab settings are the same as on the old drive**.

   After the FRU is exchanged, test the repair using the procedure in " Testing 2461 HMC (FC 0095 and FC 0096) " on page 84. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.
4. Did the hard disk tests continue to fail?

   If **YES**, call for assistance.

   If **NO**, continue with the next step to restore the licensed internal code.
5. You must **RESTORE the LICENSED INTERNAL CODE** and back up critical data to the new hard disk **USING the FOLLOWING PROCEDURES:**

   a. Find the **HWMCA USB AROM** and the **Backup Critical Data USB flash memory drive** for this 2461 HMC.

   Note: HMC code level 2.13.0 has introduced backup to a FTP server as an alternative to USB flash memory drive backup. If the HMC code level is 2.13.0 or higher and backup to an FTP server is selected, first ensure you have access to that server.

   b. Insert the **HWMCA USB AROM** into the 2461 HMC USB port.

   c. To enable booting from the USB port, perform the following steps to enable:

      1) Press the **DEL** or **ESC** key to enter SETUP when you see the American Megatrends splash screen appear on the display.

         Note: Note that a machine in the field may have a customer-assigned admin password. If this is the case, the customer will need to provide the password (or temporarily remove the admin password). If the customer has set an admin password, you will be prompted for it in order to change the uEFI settings.

      2) Once you are on the **Aptio Setup Utility** screen, select the **Boot** tab, select **Boot Option #1** and press **Enter**, then select **USB** and press **Enter**.

      3) Press **F4** to save and select **Yes** to reboot.

   d. The 2461 HMC will boot from the **HWMCA USB**.

   e. Follow the **Hard Disk Reload/Restore** prompts on the 2461 HMC to restore the Licensed Internal Code.

   f. After the Licensed Internal Code is loaded, you will be directed to insert the **Backup Critical Data USB flash memory drive**. Select the location of the backup file: USB or FTP server.

      - If the backup is stored in the USB backup, then the process is the same as the one described above.
      - If the backup file is stored in an external FTP server, then select this option. On the next panel, complete the information for the network settings (IP address, gateway). Once this information is completed, then click **OK**. The next panel that is displayed is the FTP Backup server where you'll enter the information required to access the external backup server (IP address, userid, password, directory where the backup file is located). Once a communication is established to the FTP server, a list of backup files is displayed. Select the appropriate backup file and click **OK**.

   g. Follow the prompts on the 2461 HMC to complete the restore.

6. Test using the procedure in " Testing 2461 HMC (FC 0095 and FC 0096) " on page 84. Select **Run All Selected** problem area.

   Return here when the test is complete, then continue below.

   Did any of the hard disk tests fail?

   - If **YES**, exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the HMM for the appropriate machine type on the Diagnostic CD-ROM. When the problem is resolved, go to "7" on page 84.
   - If **NO**, continue with the next step to close the call.
   - If the tests do not fail and the problem remains, call for assistance.
7. Close the call. For instructions, refer to the *Service Guide* for the server to which this console is connected.

END OF PROCEDURE.

Testing 2461 HMC (FC 0095 and FC 0096)

Use the information in this section when you are directed to test the 2461 HMC (FC 0096) and 2461 HMC (FC 0095) to isolate a problem or verify a repair.

The following procedure tests the 2461 HMC (FC 0096) and 2461 HMC (FC 0095) system unit:

__ 1. Running the prediagnostics:

   __ a. Power on the display.

   __ b. Power on or reboot the machine.

   __ c. Press **ESC** or **DEL** when prompted at the BIOS splash screen to enter the setup screens.

   __ d. Go to the **Advanced** tab, navigate to **Network Stack Configuration**, and press **Enter** to expand it.

   __ e. Change **Network Stack** to "Enabled."

   __ f. Change **Ipv4 PXE Support** to "Disabled."

   __ g. Change **Ipv6 PXE Support** to "Disabled."

   __ h. Press **F4** to save these values.

   __ i. Select **Yes** to reboot.

   __ j. Press **ESC** or **DEL** when prompted at the AMI splash screen.

      Note: It takes a long time to enter the setup screens now that the Network Stack is enabled.

   __ k. Select the **Save & Exit** tab, then select **AMIDiag for UEFI**.

__ 2. Running the diagnostics:

   __ a. Go to the **Options** tab, navigate to **Toggle All Tests**, and press **Enter**.

      Note: Note that it says that all tests are selected.

   __ b. Go to the **Memory** tab and deselect **Walking 1's Test**, **"Walking 0's Test"**, and **Random Memory Test** because each requires hours to run. To deselect an item, use the arrow keys to navigate to the item and then press the space bar. (The * to the left of each item will disappear indicating it is deselected.)

   __ c. Go to the **System** tab and deselect **CMOS Validity Test** because it will abort.

   __ d. Go to the **HDD/CD** tab and deselect **CD-DVD Tests** because they will all fail to find media in the DVD drive.

   __ e. Go to the **KBD** tab and deselect **KBD Layout Test** because it will not run in batch mode.

   __ f. Go to the **USB** tab, navigate to **USB Controller Test**, press **Enter**, and deselect **HotPlug/ Removal Test** because it will not run in batch mode.

   __ g. Go to the **Misc** tab and complete the following:

1) Navigate to **ACPI Tests**, press **Enter**, and deselect **ACPI Power Button Test** and **ACPI Sleep Test**.
2) Press **ESC**.
3) Navigate to **Mouse Tests**, press **Enter**, and deselect **Mouse Access Test**.
4) Press **ESC** and deselect **Ping Test**.
5) Navigate to **IPMI Tests**, press **Enter**, and deselect **IPMI Event Log Test**, **Event Log Stress Test**, and **Event Log Erase Test** because these tests do not run in batch mode.

Note: If you want to run the keyboard (KBD) or mouse tests, they must be run separately with manual intervention.

__ 3. If you want to get a full report at the end of the diagnostic run, complete the following steps:

__ a. Insert a formatted USB flash memory drive into one of the USB ports.
__ b. Go to the **Options** tab, navigate to **Generate Report**, and press **Enter**.
__ c. Select **I still want to change log device**, press **Enter**.
__ d. Change **Report destination** from ""None"" to "File," pick the long entry that shows USB in the name, keep or change the default filename, and add your choice of words in the Heading field.
__ e. Change **Log device info on fail** from "NO" to "YES."
__ f. Change **Log device info on abort**"from "NO" to "YES."
__ g. Then select **CONTINUE**, press **Enter**.

__ 4. Press **F10** to start running the tests. The tests will run for about 30 minutes. As the tests run, the **Total Errors** and **Errors in Current Test** right-side columns should have no entries in them.

__ 5. If you inserted a USB flash memory drive to capture a report, you must close the file using the following steps:

__ a. Go to the **Options** tab, navigate to **Generate Report**, and press **Enter**.
__ b. Select **I still want to change log device**, press **Enter**.
__ c. Change **Report destination** from "File" to "None."
__ d. Select **CONTINUE**, and press **Enter**.
__ e. Remove the USB flash memory drive.

__ 6. Exit the diagnostics by pressing **ESC** and selecting **"YES**.

__ 7. After running diagnostics, complete the following steps:

__ a. Go to the **Advanced** tab, navigate to **Network Stack Configuration**, and press **Enter** to expand it.
__ b. Change **Network Stack** to "Disabled."
__ c. Press **F4** to save these values.
__ d. Select **Yes** to reboot.

END OF PROCEDURE

Hard disk errors for 2461 HMC (FC 0082 and FC 0083)

- If the 2461 HMC (FC 0082 or FC 0083) is running Driver D27 and/or Driver D36, see “Hard disk errors for FC 0082 and FC 0083 (with Drivers D27 or D36)” on page 85
- If the 2461 HMC (FC 0082 or FC 0083) was upgraded to Driver 41, see “Hard disk errors for FC 0082 and FC 0083 (with Driver D41)” on page 87.

Hard disk errors for FC 0082 and FC 0083 (with Drivers D27 or D36)

1. Use the information in “ Testing 2461 HMC (FC 0083 and FC 0082)” on page 88 to test the 2461 HMC (FC 0083) and 2461 HMC (FC 0082). Select **Hard Disk** problem area.

Return here when the test is complete, then continue below.

2. Did the hard disk tests fail?
   - If **YES**, go to Step "3" on page 86.
   - If **NO**, go to Step"5" on page 86.
3. Exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the appropriate section in Chapter 4, "Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096)," on page 43.

   If you exchanged the hard disk, check to see if there are jumpers or tab settings on the new hard disk. **Ensure any jumper or tab settings are the same as on the old drive**.

   After the FRU is exchanged, test the repair using the procedure in " Testing 2461 HMC (FC 0083 and FC 0082)" on page 88. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.
4. Did the hard disk tests continue to fail?

   If **YES**, call for assistance.

   If **NO**, continue with the next step to restore the licensed internal code.
5. You must **RESTORE the LICENSED INTERNAL CODE** and back up critical data to the new hard disk **USING the FOLLOWING PROCEDURES:**

   a. Find the **HWMCA DVD-R** and the **Backup Critical Data USB flash memory drive** for this 2461 HMC.

   Note: HMC code level 2.13.0 has introduced backup to a FTP server as an alternative to USB flash memory drive backup. If the HMC code level is 2.13.0 or higher and backup to an FTP server is selected, first ensure you have access to that server.

   b. Insert the **HWMCA DVD-R** into the 2461 HMC DVD drive.

   c. To enable booting from the DVD drive, perform the following steps:

      1) Power on the display.
      2) Power on or reboot the HMC.
      3) Press the **Del** or **ESC** key to enter the Setup Utility when you see the American Megatrends splash screen appear on the display.

         Note: A machine in the field may have a customer-assigned admin password. If this is the case, the customer will need to provide the password (or temporarily remove the admin password). If the customer has set an admin password, you will be prompted for it in order to change the uEFI settings.
      4) Use the arrow keys to navigate to the **Save & Exit** tab.
      5) Use the arrow keys to highlight the **UEFI DVD** selection (for example, "UEFI: (FAT) HL-DT-ST DVDRAM GTC0N").
      6) Press **Enter**. It will automatically boot from the DVD drive selection.

   d. The 2461 HMC will boot from the **HWMCA DVD-R**.

   e. Follow the **Hard Disk Reload/Restore** prompts on the 2461 HMC to restore the Licensed Internal Code.

   f. After the Licensed Internal Code is loaded, you will be directed to insert the **Backup Critical Data USB flash memory drive**. Select the location of the backup file: USB or FTP server.

      - If the backup is stored in the USB backup, then the process is the same as the one described above.
      - If the backup file is stored in an external FTP server, then select this option. On the next panel, complete the information for the network settings (IP address, gateway). Once this information is completed, then click **OK**. The next panel that is displayed is the FTP Backup server where you'll enter the information required to access the external backup server (IP address, userid,

password, directory where the backup file is located). Once a communication is established to the FTP server, a list of backup files is displayed. Select the appropriate backup file and click **OK**.

g. Follow the prompts on the 2461 HMC to complete the restore.

6. Test using the procedure in " Testing 2461 HMC (FC 0083 and FC 0082)" on page 88. Select **Run All Selected** problem area.

   Return here when the test is complete, then continue below.

   Did any of the hard disk tests fail?

   - If **YES**, exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the HMM for the appropriate machine type on the Diagnostic CD-ROM. When the problem is resolved, go to "7" on page 87.
   - If **NO**, continue with the next step to close the call.
   - If the tests do not fail and the problem remains, call for assistance.

7. Close the call. For instructions, refer to the *Service Guide* for the server to which this console is connected.

END OF PROCEDURE.

Hard disk errors for FC 0082 and FC 0083 (with Driver D41)

1. Use the information in " Testing 2461 HMC (FC 0083 and FC 0082)" on page 88 to test the 2461 HMC (FC 0083) and 2461 HMC (FC 0082). Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.

2. Did the hard disk tests fail?

   - If **YES**, go to Step "3" on page 87.
   - If **NO**, go to Step "5" on page 87.

3. Exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the appropriate section in Chapter 4, "Removing and replacing 2461 HMC components (FC 0082/0083 and FC 0095/0096)," on page 43.

   If you exchanged the hard disk, check to see if there are jumpers or tab settings on the new hard disk. **Ensure any jumper or tab settings are the same as on the old drive**.

   After the FRU is exchanged, test the repair using the procedure in " Testing 2461 HMC (FC 0083 and FC 0082)" on page 88. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.

4. Did the hard disk tests continue to fail?

   If **YES**, call for assistance.

   If **NO**, continue with the next step to restore the licensed internal code.

5. You must **RESTORE the LICENSED INTERNAL CODE** and back up critical data to the new hard disk **USING the FOLLOWING PROCEDURES:**

   Note: In some cases, you might need to reload the licensed internal code from a network instead of USB media. (For example, if you have feature code 0845). For information about *loading images to a system from a network*, refer to the *8561 Service Guide*, GC28-6998.

   a. Find the **HWMCA USB AROM** USB stick and the **Backup Critical Data USB flash memory drive** for this 2461 HMC.

      Note: HMC code level 2.13.0 has introduced backup to a FTP server as an alternative to USB flash memory drive backup. If the HMC code level is 2.13.0 or higher and backup to an FTP server is selected, first ensure you have access to that server.

   b. Insert the **HWMCA USB AROM** into the 2461 HMC USB port.

   c. To enable booting from the USB drive, perform the following steps:

1) Power on the display.
2) Power on or reboot the HMC.
3) Press the **Del** or **ESC** key to enter the Setup Utility when you see the American Megatrends splash screen appear on the display.

   Note: A machine in the field may have a customer-assigned admin password. If this is the case, the customer will need to provide the password (or temporarily remove the admin password). If the customer has set an admin password, you will be prompted for it in order to change the UEFI settings.
4) Use the arrow keys to navigate to the **Save & Exit** tab.
5) Use the arrow keys to select (highlight) the USB brand listed.
6) Press **Enter**. It will automatically boot from the USB drive selection.

d. The 2461 HMC will boot from the **HWMCA USB**.

e. Follow the **Hard Disk Reload/Restore** prompts on the 2461 HMC to restore the Licensed Internal Code.

f. After the Licensed Internal Code is loaded, you will be directed to insert the **Backup Critical Data USB flash memory drive**. Select the location of the backup file: USB or FTP server.

- If the backup is stored in the USB backup, then the process is the same as the one described above.
- If the backup file is stored in an external FTP server, then select this option. On the next panel, complete the information for the network settings (IP address, gateway). Once this information is completed, then click **OK**. The next panel that is displayed is the FTP Backup server where you'll enter the information required to access the external backup server (IP address, userid, password, directory where the backup file is located). Once a communication is established to the FTP server, a list of backup files is displayed. Select the appropriate backup file and click **OK**.

g. Follow the prompts on the 2461 HMC to complete the restore.

6. Test using the procedure in " Testing 2461 HMC (FC 0083 and FC 0082)" on page 88. Select **Run All Selected** problem area.

   Return here when the test is complete, then continue below.

   Did any of the hard disk tests fail?

   - If **YES**, exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the HMM for the appropriate machine type on the Diagnostic CD-ROM. When the problem is resolved, go to "7" on page 88.
   - If **NO**, continue with the next step to close the call.
   - If the tests do not fail and the problem remains, call for assistance.
7. Close the call. For instructions, refer to the *Service Guide* for the server to which this console is connected.

END OF PROCEDURE.

Testing 2461 HMC (FC 0083 and FC 0082)

Use the information in this section when you are directed to test the 2461 HMC (FC 0083) and 2461 HMC (FC 0082) to isolate a problem or verify a repair.

The following procedure tests the 2461 HMC (FC 0083) and 2461 HMC (FC 0082) system unit:

__ 1. Running the prediagnostics:

__ a. Power on the display.

__ b. Power on or reboot the machine.

__ c. Press **ESC** or **DEL** when prompted at the BIOS splash screen to enter the setup screens.

__ d. Go to the **Advanced** tab, navigate to **Network Stack Configuration**, and press **Enter** to expand it.

__ e. Change **Network Stack** to "Enabled."

__ f. Change **Ipv4 PXE Support** to "Disabled."

__ g. Change **Ipv6 PXE Support** to "Disabled."

__ h. Press **F4** to save these values.

__ i. Select **Yes** to reboot.

__ j. Press **ESC** or **DEL** when prompted at the AMI splash screen.

Note: It takes a long time to enter the setup screens now that the Network Stack is enabled.

__ k. Select the **Save & Exit** tab, then select **AMIDiag for UEFI**.

__ 2. Running the diagnostics:

__ a. Go to the **Options** tab, navigate to **Toggle All Tests**, and press **Enter**.

Note: Note that it says that all tests are selected.

__ b. Go to the **Memory** tab and deselect **Walking 1's Test**, **"Walking 0's Test"**, and **Random Memory Test** because each requires hours to run. To deselect an item, use the arrow keys to navigate to the item and then press the space bar. (The * to the left of each item will disappear indicating it is deselected.)

__ c. Go to the **System** tab and deselect **CMOS Validity Test** because it will abort.

__ d. Go to the **HDD/CD** tab and deselect **CD-DVD Tests** because they will all fail to find media in the DVD drive.

__ e. Go to the **KBD** tab and deselect **KBD Layout Test** because it will not run in batch mode.

__ f. Go to the **USB** tab, navigate to **USB Controller Test**, press **Enter**, and deselect **HotPlug/ Removal Test** because it will not run in batch mode.

__ g. Go to the **Misc** tab and complete the following:

1) Navigate to **ACPI Tests**, press **Enter**, and deselect **ACPI Power Button Test** and **ACPI Sleep Test**.
2) Press **ESC**.
3) Navigate to **Mouse Tests**, press **Enter**, and deselect **Mouse Access Test**.
4) Press **ESC** and deselect **Ping Test**.
5) Navigate to **IPMI Tests**, press **Enter**, and deselect **IPMI Event Log Test**, **Event Log Stress Test**, and **Event Log Erase Test** because these tests do not run in batch mode.

Note: If you want to run the keyboard (KBD) or mouse tests, they must be run separately with manual intervention.

__ 3. If you want to get a full report at the end of the diagnostic run, complete the following steps:

__ a. Insert a formatted USB flash memory drive into one of the USB ports.

__ b. Go to the **Options** tab, navigate to **Generate Report**, and press **Enter**.

__ c. Select **I still want to change log device**, press **Enter**.

__ d. Change **Report destination** from ""None"" to "File," pick the long entry that shows USB in the name, keep or change the default filename, and add your choice of words in the Heading field.

__ e. Change **Log device info on fail** from "NO" to "YES."

__ f. Change **Log device info on abort**"from "NO" to "YES."

__ g. Then select **CONTINUE**, press **Enter**.

__ 4. Press **F10** to start running the tests. The tests will run for about 30 minutes. As the tests run, the **Total Errors** and **Errors in Current® Test** right-side columns should have no entries in them.

__ 5. If you inserted a USB flash memory drive to capture a report, you must close the file using the following steps:

__ a. Go to the **Options** tab, navigate to **Generate Report**, and press **Enter**.

__ b. Select **I still want to change log device**, press **Enter**.

__ c. Change **Report destination** from "File" to "None."

__ d. Select **CONTINUE**, and press **Enter**.

__ e. Remove the USB flash memory drive.

__ 6. Exit the diagnostics by pressing **ESC** and selecting **"YES**.

__ 7. After running diagnostics, complete the following steps:

__ a. Go to the **Advanced** tab, navigate to **Network Stack Configuration**, and press **Enter** to expand it.

__ b. Change **Network Stack** to "Disabled."

__ c. Press **F4** to save these values.

__ d. Select **Yes** to reboot.

END OF PROCEDURE

Hard disk errors for 2461 HMC (FC 0062/FC 0063)

1. Use the information in “ Testing 2461 HMC (FC 0062 and FC 0063)” on page 91 to test the 2461 HMC (FC 0063) and 2461 HMC (FC 0062). Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.

2. Did the hard disk tests fail?

   - If **YES**, go to Step “3” on page 90.
   - If **NO**, go to Step “5” on page 90.

3. Exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the appropriate section in Chapter 5, “Removing and replacing 2461 HMC components (FC 0062 and FC 0063),” on page 63.

   If you exchanged the hard disk, check to see if there are jumpers or tab settings on the new hard disk. **Ensure any jumper or tab settings are the same as on the old drive**.

   After the FRU is exchanged, test the repair using the procedure in “ Testing 2461 HMC (FC 0062 and FC 0063)” on page 91. Select **Hard Disk** problem area.

   Return here when the test is complete, then continue below.

4. Did the hard disk tests continue to fail?

   If **YES**, call for assistance.

   If **NO**, continue with the next step to restore the licensed internal code.

5. You must **RESTORE the LICENSED INTERNAL CODE** and back up critical data to the new hard disk **USING the FOLLOWING PROCEDURES:**

   Note: In some cases, you might need to reload the licensed internal code from a network instead of USB media. (For example, if you have feature code 0846). For information about *loading images to a system from a network*, refer to the *8561 Service Guide*, GC28-6998.

   a. Find the **HWMCA USB AROM** USB stick and the **Backup Critical Data USB flash memory drive** USB stick for this 2461 HMC.

      Note: HMC code level 2.13.0 has introduced backup to a FTP server as an alternative to USB flash memory drive backup. If the HMC code level is 2.13.0 or higher and backup to an FTP server is selected, first ensure you have access to that server.

   b. Insert the **HWMCA USB AROM** into the 2461 HMC USB port.

   c. To enable booting from the USB drive, perform the following steps:

1) Power on the display.
2) Power on or reboot the HMC.
3) Press the **ESC** key to enter SETUP when you see the *Insyde* BIOS logo appear on the display.

   Note: A machine in the field may have a customer-assigned admin password. If this is the case, the customer will need to provide the password (or temporarily remove the admin password). If the customer has set an admin password, you will be prompted for it in order to change the UEFI settings.
4) Use the arrow keys to navigate to the **Boot Manager**, then select the USB brand listed.
5) Press **Enter**. It will automatically boot from the USB drive selection.

d. The 2461 HMC will boot from the **HWMCA USB**.

e. Follow the **Hard Disk Reload/Restore** prompts on the 2461 HMC to restore the Licensed Internal Code.

f. After the Licensed Internal Code is loaded, you will be directed to insert the **Backup Critical Data USB flash memory drive**. Select the location of the backup file: USB or FTP server.

- If the backup is stored in the USB backup, then the process is the same as the one described above.
- If the backup file is stored in an external FTP server, then select this option. On the next panel, complete the information for the network settings (IP address, gateway). Once this information is completed, then click **OK**. The next panel that is displayed is the FTP Backup server where you'll enter the information required to access the external backup server (IP address, userid, password, directory where the backup file is located). Once a communication is established to the FTP server, a list of backup files is displayed. Select the appropriate backup file and click **OK**.

g. Follow the prompts on the 2461 HMC to complete the restore.

6. Test using the procedure in " Testing 2461 HMC (FC 0062 and FC 0063)" on page 91. Select **Run All Selected** problem area.

   Return here when the test is complete, then continue below.

   Did any of the hard disk tests fail?

   - If **YES**, exchange the FRUs called by the diagnostics one at a time. For FRU removal and replacement instructions, refer to the HMM for the appropriate machine type on the Diagnostic CD-ROM. When the problem is resolved, go to "7" on page 91.
   - If **NO**, continue with the next step to close the call.
   - If the tests do not fail and the problem remains, call for assistance.
7. Close the call. For instructions, refer to the *Service Guide* for the server to which this console is connected.

END OF PROCEDURE.

Testing 2461 HMC (FC 0062 and FC 0063)

The Insyde H2ODST diagnostics are embedded in the system BIOS firmware. To run the H2ODST diagnostics, do the following.

1. Power on or reboot the machine.
2. Press **ESC** when prompted at the Insyde screen to enter the setup screen.
3. Select H2ODST Tool.
4. Select the orange box for **All Device** in the diagnostics window.
5. Pres **ESC** to exit the H2ODST diagnostics.

Note: The Audio and Hard Drive tests will fail when running the H2ODST diagnostics because Support Element 2461-SE3 has no audio device and the data transfer test will fail.

Appendix B. 2461 configuration

This appendix contains configuration settings for the 2461 HMC.

This is reference information.

- For 2461 HMC (FC 0096) and 2461 HMC (FC 0095), continue to “2461 HMC (FC 0095/FC 0096) configuration” on page 93.
- For 2461 HMC (FC 0083) and 2461 HMC (FC 0082), continue to “2461 HMC (FC 0082/FC 0083) configuration” on page 102
- For 2461 HMC (FC 0062) and 2461 HMC (FC 0063), continue to “2461 HMC (FC 0062/FC 0063) configuration” on page 110.

2461 HMC (FC 0095/FC 0096) configuration

Notes:

- The "BIOS Setup Utility" (CMOS Settings) has been replaced with the "Unified Extensible Firmware Interface" (UEFI). This "Setup Utility" is invoked by pressing ESC or DEL at the prompt that is displayed during a cold boot.
- For the HMC 2.13.1 code level, the BIOS setting for **Security - Secure Boot menu - Secure Boot** must be **Disabled**. If a replacement system board has this value set as **Enabled**, change it to **Disabled**. To activate this change, select **Save and Exit** to restart UEFI. Then, re-enter the BIOS setting menu to confirm that the change is validated. Most likely, you will also need to verify that all parameters are properly set to cause the DVD Boot option to appear on the Boot order list. To activate this change, restart UEFI by selecting **Save and Exit**.

The following is a list of the configuration settings for the 2461 HMC (FC 0096) and 2461 HMC (FC 0095).

```
BIOS Information
BIOS Vendor                          American Megatrends
Core Version                         4.6.5.5
Compliancy                           UEFI 2.3.1; PI 1.2
Project Version                      0ACHT 0.11 x64
Build Date and Time                  04/06/2017 18:00:00
Customer Ref. Number                 006250

System Language                      [English]

System Date                 [Day mm/dd/yyyy]       (varies)
System Time                 [hh:mm:ss]             (varies - make sure seconds advance)

Access Level                          Administrator

Processor Information
Name                                  Haswell
Brand String                          Intel(R) Xeon(R) CPU E3-
Frequency                             3400 MHz
Processor ID                          306c3
Stepping                              C
Number of Processors                  4Core(s) / 4Thread(s)
Microcode Revision                    1d
GT Info                               Not Applicable

IGFX VBIOS Version                    N/A
Memory RC Version                     1.8.0.3
Total Memory                          32768MB (DDR3)
Memory Frequency                      1600 Mhz

PCH Information
Name                                  LynxPoint
PCH SKU                               C226
Stepping                              05/C2
LAN PHY Revision                      N/A
```

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```
ME FW Verison                           N/A
ME Firmware SKU                         N/A

SPI Clock Frequency
DOFR Support                            Unsupported
Read Status Clock Frequency             20 MHz
Write Status Clock Frequency            20 MHz
Fast Read Status Clock Frequency        20 MHz


{Advanced Tab}

PCI Subsystem Settings (hit ENTER to expand)

PCI Bus Driver Version                  V 2.05.02

PCI 64bit Resources Handling
Above 4G Decoding                       [Disabled]

PCI Express Settings (hit ENTER to expand)

PCI Express Device Register Settings
Relaxed Ordering                        [Disabled]
Extended Tag                            [Disabled]
No Snoop                                [Enabled]
Maximum Payload                         [Auto]
Maximum Read Request                    [Auto]

PCI Express Link Register Settings
ASPM Support                            [Disabled]
WARNING: Enabling ASPM may cause some
     PCI-E devices to fail
Extended Synch                          [Disabled]
Clock Power Management                  [Disabled]

Link Training Retry                     [5]
Link Training Timeout (uS)              100
Unpopulated Links                       [Keep Link ON]
Restore PCIE Registers                  [Disabled]

{hit ESC twice}

ACPI Settings (hit ENTER to expand)

Enable ACPI Auto Configuration          [Disabled]

Enable Hibernation                      [Disabled]
ACPI Sleep State                        [Suspend Disabled]
Lock Legacy Resources                   [Disabled]
S3 Video Repost                         [Disabled]

{hit ESC}

Trusted Computing (hit ENTER to expand)

Configuration
  Security Device Support               [Enable]
  TPM State                             [Disabled]
Pending operation                       [None]

Current Status Information
  TPM Enabled Status:                   [Disabled]
  TPM Active Status:                    [Deactivated]
  TPM Owner Status:                     [Unowned]

{hit ESC}

SATA Configuration (hit ENTER to expand)

SATA Controller(s)                      [Enabled]
SATA Mode Selection                     [AHCI]
SATA Test Mode                          [Disabled]
Aggressive LPM Support                  [Enabled]

Serial ATA Port 0                       ST1000NX0313 (1000.2GB
  Software Preserve                     SUPPORTED
  Port 0                                [Enabled]
  Hot Plug                              [Enabled]
  Mechanical Presence Switch            [Disabled]
  External SATA                         [Enabled]
  SATA Device Type                      [Hard Disk Drive]
```

```
  Spin Up Device                          [Disabled]
Serial ATA Port 1                         Empty
  Software Preserve                       Unknown
  Port 1                                  [Enabled]
  Hot Plug                                [Enabled]
  Mechanical Presence Switch              [Disabled]
  External SATA                           [Enabled]
  SATA Device Type                        [Hard Disk Drive]
  Spin Up Device                          [Disabled]
Serial ATA Port 2                         HL-DT-ST DVDRA ATAPI
  Software Preserve                       N/A
  Port 2                                  [Enabled]
  Hot Plug                                [Enabled]
  Mechanical Presence Switch              [Disabled]
  External SATA                           [Enabled]
  SATA Device Type                        [Hard Disk Drive]
  Spin Up Device                          [Disabled]
Serial ATA Port 3                         Empty
  Software Preserve                       Unknown
  Port 3                                  [Enabled]
  Hot Plug                                [Disabled]
  External SATA                           [Disabled]
  SATA Device Type                        [Hard Disk Drive]
  Spin Up Device                          [Disabled]
Serial ATA Port 4                         Empty
  Software Preserve                       Unknown
  Port 4                                  [Enabled]
  Hot Plug                                [Disabled]
  External SATA                           [Disabled]
  SATA Device Type                        [Hard Disk Drive]
  Spin Up Device                          [Disabled]
Serial ATA Port 5                         Empty
  Software Preserve                       Unknown
  Port 5                                  [Enabled]
  Hot Plug                                [Disabled]
  External SATA                           [Disabled]
  SATA Device Type                        [Hard Disk Drive]
  Spin Up Device                          [Disabled]

{hit ESC}

PCH-FW Configuration (hit ENTER to expand)

ME FW Version                             N/A
Firmware Update Configuration (hit ENTER to expand)

Me PW Image Re-Flash                      [Disabled]

{hit ESC twice}

USB Configuration (hit ENTER to expand)

USB Module Version                        8.10.34

USB Controllers:
       2 EHCIs, 1 XHCI
USB Devices:
       1 Keyboard, 1 Mouse, 3 Hubs        {varies}

Legacy USB Support                        [Enabled]
XHCI Hand-Off                             [Enabled]
EHCI Hand-Off                             [Disabled]
USB Mass Storage Driver Support           [Enabled]

USB hardware delays and time-outs:
USB transfer time-out                     [20 sec]
Device reset time-out                     [20 sec]
Device power-up delay                     [Auto]

{hit ESC}

Network Stack Configuration (hit ENTER to expand)

Network Stack                             [Disabled]

{hit ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:93 {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)
```

```
Link Speed                              [Auto Negotiated]
Wake On LAN                             [Disabled]

{hit ESC}

Blink LEDs                              0

PORT CONFIGURATION INFORMATION
UEFI Driver:                            Intel(R) PRO/1000 6.1.16
Adapter PBA:                            106100-000
Chip Type                               Intel i350
PCI Device ID                  1521
PCI Address                             02:00:00
Link Status                             [Disconnected]        {varies}
MAC Address                             00:10:6F:0D:5A:93     {varies}
Virtual MAC Address                     00:10:6F:0D:5A:93     {varies}

{hit ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:94 {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)

Link Speed                             [Auto Negotiated]
Wake On LAN                            [Disabled]

{hit ESC}

Blink LEDs                             0

PORT CONFIGURATION INFORMATION
UEFI Driver:                           Intel(R) PRO/1000 6.1.16
Adapter PBA:                           106100-000
Chip Type                              Intel i350
PCI Device ID                          1521
PCI Address                            02:00:01
Link Status                            [Disconnected]        {varies}
MAC Address                            00:10:6F:0D:5A:94     {varies}
Virtual MAC Address                    00:10:6F:0D:5A:94     {varies}

{hit ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:95 {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)

Link Speed                            [Auto Negotiated]
Wake On LAN                           [Disabled]

{hit ESC}

Blink LEDs                            0

PORT CONFIGURATION INFORMATION
UEFI Driver:                          Intel(R) PRO/1000 6.1.16
Adapter PBA:                          106100-000
Chip Type                             Intel i350
PCI Device ID                         1521
PCI Address                           02:00:02
Link Status                           [Disconnected]        {varies}
MAC Address                           00:10:6F:0D:5A:95     {varies}
Virtual MAC Address                   00:10:6F:0D:5A:95     {varies}

{hit ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:96 {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)

Link Speed                            [Auto Negotiated]
Wake On LAN                           [Disabled]

{hit ESC}

Blink LEDs                            0

PORT CONFIGURATION INFORMATION
UEFI Driver:                          Intel(R) PRO/1000 6.1.16
Adapter PBA:                          106100-000
```

```
Chip Type                          Intel i350
PCI Device ID                      1521
PCI Address                        02:00:03
Link Status                        [Disconnected]       {varies}
MAC Address                        00:10:6F:0D:5A:96    {varies}
Virtual MAC Address                00:10:6F:0D:5A:96    {varies}

{hit ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:97 {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)

Link Speed                         [Auto Negotiated]
Wake On LAN                        [Disabled]

{hit ESC}

Blink LEDs                         0

PORT CONFIGURATION INFORMATION
UEFI Driver:                       Intel(R) PRO/1000 6.1.16
Adapter PBA:                       106100-000
Chip Type                          Intel i350
PCI Device ID                      1521
PCI Address                        03:00:00
Link Status                        [Disconnected]       {varies}
MAC Address                        00:10:6F:0D:5A:97    {varies}
Virtual MAC Address                00:10:6F:0D:5A:97    {varies}

{hit ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:98 {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)

Link Speed                         [Auto Negotiated]
Wake On LAN                        [Disabled]

{hit ESC}

Blink LEDs                         0

PORT CONFIGURATION INFORMATION
UEFI Driver:                       Intel(R) PRO/1000 6.1.16
Adapter PBA:                       106100-000
Chip Type                          Intel i350
PCI Device ID                      1521
PCI Address                        03:00:01
Link Status                        [Disconnected]       {varies}
MAC Address                        00:10:6F:0D:5A:98    {varies}
Virtual MAC Address                00:10:6F:0D:5A:98    {varies}

{hit ESC}

Intel(R) I210 Gigabit  Network Connection - 00:10:6F:0D:... {varies} (hit ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (hit ENTER to expand)

Link Speed                         [Auto Negotiated]
Wake On LAN                        [Disabled]

{hit ESC}

Blink LEDs                         0

PORT CONFIGURATION INFORMATION
UEFI Driver:                       Intel(R) PRO/1000 6.1.16
Adapter PBA:                       000300-000
Chip Type                          Intel i210
PCI Device ID                      1533
PCI Address                        06:00:00
Link Status                        [Disconnected]       {varies}
MAC Address                        00:10:6F:0D:5A:99    {varies}
Virtual MAC Address                00:10:6F:0D:5A:99    {varies}

{hit ESC}

{Chipset Tab}
```

```
PCH-IO Configuration (hit ENTER to expand)

Intel PCH RC Version                2.7.0.0
Intel PCH SKU Name                  C226
Intel PCH Rev ID                    05/C2

USB Configuration (press ENTER to expand)

USB Precondition                    [Enabled]

USB Ports Per-Port Disable Control  [Disabled]

{hit ESC}

BIOS Security Configuration (press ENTER to expand)

SMI Lock                            [Enabled]
BIOS Lock                           [Enabled]
GPIO Lock                           [Disabled]
BIOS Interface Lock                 [Enabled]
RTC Lock                            [Enabled]

{hit ESC}

PCH LAN Controller                  [Disabled]
SLP_S4 Assertion Width              [Disabled]
Restore AC Power Loss               [Last State]

{hit ESC}

System Agent (SA) Configuration (hit ENTER to expand)

VT-d Capability                     Supported

VT-d                                [Enabled]

{hit ESC}

{Boot Tab}

Boot Configuration
Setup Prompt Timeout                5
Bootup NumLock State                [Off]

Quiet Boot                          [Disabled]
Fast Boot                           [Disabled]
 SATA Support                       [HDD Only]
 VGA Support                        [EFI Driver]
 USB Support                        [Partial Initial]
 PS2 Devices Support                [Enabled]
 NetWork Stack Driver Support       [Disabled]

Driver Option Priorities

Boot Option Priorities
Boot Option #1                      [P0: ST1000NX0313...]    Changed from default of "P2:"
Boot Option #2                      [Disabled]               Changed from default of "P0:"
Boot Option #3                      [Disabled]               Changed from default of "UEFI:"

CD/DVD ROM Drive BBS Priorities (hit ENTER to expand)

Boot Option #1                      [P2: HL-DT-ST DVDRAM...]

{hit ESC}

Hard Drive BBS Priorities (hit ENTER to expand)

Boot Option #1                      [P0: ST1000NX0313   ...]

{hit ESC}

Per Port Boot Option Control (hit ENTER to expand)

SATA 0 - Midplane P1 - Internal     [Enabled]
SATA 1 - Midplane P2 - Internal     [Disabled]
SATA 2 - Midplane P3 - Internal     [Disabled]
SATA 3 - P14 - Internal SATA 3      [Disabled]
SATA 4 - P13 - Internal SATA 4      [Disabled]
SATA 5 - P11 - Internal SATA 5      [Disabled]

USB 0 - P6 Bottom - USB 5           [Disabled]
```

```
USB 1 - P6 Top - USB 4                [Disabled]
USB 2 - P3 Bottom - USB 7             [Disabled]
USB 3 - P3 Top - USB 6                [Disabled]
USB 4 - P4 Bottom - USB 9             [Disabled]
USB 5 - P4 Top - USB 8                [Disabled]
USB 6 - P24 [1,3,5,7] - Internal      [Disabled]
USB 7 - P24 [2,4,6,8] - Internal      [Disabled]
USB 8 - P25 [1,3,5,7] - Internal      [Disabled]
USB 9 - P36 - Internal USB 3          [Disabled]
USB 10 - N/A - BMC                    [Disabled]
USB 11 - N/A - BMC                    [Disabled]
USB 12 - Midplane USB 0 P3 - USB 1    [Disabled]
USB 13 - Midplane USB 1 P2 - USB 2    [Disabled]

{hit ESC}

CSM16 Parameters (hit ENTER to expand)

CMS16 Module Version                  07.79

GateA20 Active                        [Upon Request]
Option ROM Messages                   [Force BIOS]
INT19 Trap Response                   [Immediate]

{hit ESC}

CSM parameters (hit ENTER to expand)

Launch CSM                            [Enabled]
Boot option filter                    [UEFI and Legacy]
Launch PXE OpROM policy               [Do not launch]
Launch Storage OpROM policy           [Legacy Only]
Launch Video OpROM policy             [Legacy Only]

Other PCI device ROM priority         [UEFI OpROM]

{hit ESC}


{Security Tab}

Password Description

If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup.  In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length                        3
Maximum length                        20

Administrator Password (hit ENTER to create password, must confirm new password)

Secure Boot menu (hit ENTER to expand)

System Mode                           Setup
Secure Boot                           Not Active

Secure Boot                           [Disabled]
Secure Boot Mode                      [Custom]
Key Management (hit ENTER to expand)

Default Key Provision                 [Disabled]

Enroll All Factory Default Keys
Save   All Secure Boot Variables

Platform Key (PK)                     NOT INSTALLED
Delete  PK
Set new PK

Key Exchange Key (KEK)                NOT INSTALLED
Delete  KEK
Set New KEK
Append  KEK
Authorized Signatures                 NOT INSTALLED
Delete  DB
Set new DB
```

```
Append  DB
Authorized TimeStamps                NOT INSTALLED
Delete  DBT
Set new DBT
Append  DBT
Forbidden Signatures                 NOT INSTALLED
Delete  DBX
Set new DBX
Append  DBX

{hit ESC twice}

HDD Security Configuration:
P0:ST1000NX0313 (hit ENTER to expand)

HDD Password Description:

Allows  Access to  Set, Modify  and  Clear
HardDisk User and Master Passwords.
User Password need to be installed for
Enabling Security. Master Password can
be Modified only when successfully unlocked
with Master Password in POST.
If the 'Set HDD Password' option is greyed out,
do power cycle to enable the option again.

HDD PASSWORD CONFIGURATION:

Security Supported      :          Yes
Security Enabled        :          No
Security Locked         :          No
Security Frozen         :          Yes     (varies)
HDD User Pwd Status     :          NOT INSTALLED
HDD Master Pwd Status   :          INSTALLED

Set User Password

{hit ESC}


{Save & Exit Tab}

Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset

Save Options
Save Changes
Discard Changes

Restore Defaults
Save as User Defaults
Restore User Defaults

Boot Override
P2: HL-DT-ST DVDRAM GTB0N         (the order of these choices may vary)
UEFI: Built-in EFI Shell
P0: ST1000NX0313

AMIDiag for UEFI


{Event Logs Tab}

Change Smbios Event Log Settings (hit ENTER to expand)

Enabling/Disabling Options
Smbios Event Log                  [Enabled]

Erasing Settings
Erase Event Log                   [No]
When Log is Full                  [Do Nothing]

Smbios Event Log Standard Settings
Log System Boot Event             [Enabled]
MECI                              1
METW                              60

Custom Options
Log OEM Codes                     [Enabled]
Convert OEM Codes                 [Disabled]
```

```
NOTE: All values changed here do not take effect
      until computer is restarted.

{hit ESC}

View Smbios Event Log (hit ENTER to view log)

{hit ESC}


{Server Mgmt Tab}

BMC Self Test Status               PASSED

BMC Support                        [Enabled]
Wait For BMC                       [Enabled]
FRB-2 Timer                        [Enabled]
FRB-2 Timer timeout                [6 minutes]
FRB-2 Time Policy                  [Reset]
OS Watchdog Timer                  [Disabled]
OS Wtd Timer Timeout               [10 minutes]
OS Wtd Timer Policy                [Reset]
Serial Mux                         [Disabled]
Bmc self test log (hit ENTER to expand)

Log area usage = 00 out of 20 logs

Erase Log                          [Yes, On every reset]
When log is full                   [Clear Log]

Log Empty

{hit ESC}

System Event Log (hit ENTER to expand)

Enabling/Disabling Options
SEL Components                     [Enabled]

Erasing Settings
Erase SEL                          [No]
When SEL is Full                   [Do Nothing]

Custom EFI Logging Options
Log EFI Status Codes               [Both]

NOTE:  All values changed here do not take effect
       until computer is restarted.

{hit ESC}

View FRU information (hit ENTER to expand)

FRU Information  (all of the values in this section can vary)

System Manufacturer                Trenton Systems
System Product Name                SBC, 1U, E3-1225v3,32GB 19
System Version                     RDH-04
System Serial Number               xxxxx
Board Manufacturer                 Trenton Systems
Board Product Name                 MBC8240
Board Version                      92-508240-E-02
Board Serial Number                xxxxx
Chassis Manufacturer               Trenton Systems
Chassis Product Name               xxxxx
Chassis Serial Number              xxxxx
SDR Revision                       -

{hit ESC}

BMC network configuration (hit ENTER to expand)

BMC network configuration

Lan channel 1
Configuration Address source        [Unspecified]
Station IP address                  00.00.00.00            (varies)
Subnet mask                         00.00.00.00            (varies)
Station MAC address                 00-10-6f-18-0b-47      (varies)
Router IP address                   00.00.00.00            (varies)
Router MAC address                  00-00-00-00-00-00      (varies)
```

```
Lan channel 2
Configuration Address source         [Unspecified]
Station IP address                   00.00.00.00
Subnet mask                          00.00.00.00
Station MAC address                  00-00-00-00-00-00
Router IP address                    00.00.00.00
Router MAC address                   00-00-00-00-00-00
```

2461 HMC (FC 0082/FC 0083) configuration

Notes:

- The "BIOS Setup Utility" (CMOS Settings) has been replaced with the "Unified Extensible Firmware Interface" (UEFI). This "Setup Utility" is invoked by pressing ESC or DEL at the prompt displayed during a cold boot.
- For the HMC 2.13.1 code level, the BIOS setting for **Security - Secure Boot menu - Secure Boot** must be **Disabled**. If a replacement system board has this value set as **Enabled**, change it to **Disabled**. To activate this change, select **Save and Exit** to restart UEFI. Then, re-enter the BIOS setting menu to confirm that the change is validated. Most likely, you will also need to verify that all parameters are properly set to cause the DVD Boot option to appear on the Boot order list. To activate this change, restart UEFI by selecting **Save and Exit**.

The following is a list of the configuration settings for the 2461 HMC (FC 0083) and 2461 HMC (FC 0082).

```
BIOS Information
BIOS Vendor                          American Megatrends
Core Version                         4.6.5.5
Compliancy                           UEFI 2.3.1; PI 1.2
Project Version                      0ACIR 0.07 x64
Build Date and Time                  04/27/2017 11:00:00
Customer Ref. Number                 006250

System Language                      [English]

System Date                          [Day mm/dd/yyyy]    {varies}
System Time                          [hh:mm:ss]          (varies - make sure seconds advance)

Access Level                         Administrator

Processor Information
Name                                 Haswell
Brand String                         Intel(R) Xeon(R) CPU E3-
Frequency                            3400 MHz
Processor ID                         306c3
Stepping                             C
Number of Processors                 4Core(s) / 4Thread(s)
Microcode Revision                   1d
GT Info                              Not Applicable

IGFX VBIOS Version                   N/A
Memory RC Version                    1.8.0.3
Total Memory                         32768MB (DDR3)
Memory Frequency                     1600 Mhz

PCH Information
Name                                 LynxPoint
PCH SKU                              C226
Stepping                             05/C2
LAN PHY Revision                     N/A

ME FW Verison                        9.1.20.1035
ME Firmware SKU                      5MB

SPI Clock Frequency
DOFR Support                         Unsupported
Read Status Clock Frequency          20 MHz
Write Status Clock Frequency         20 MHz
Fast Read Status Clock Frequency     20 MHz


{Advanced Tab}
```

```
PCI Subsystem Settings (press ENTER to expand)

PCI Bus Driver Version               V 2.05.02

PCI 64bit Resources Handling
Above 4G Decoding                    [Disabled]

PCI Express Settings (press ENTER to expand)

PCI Express Device Register Settings
Relaxed Ordering                     [Disabled]
Extended Tag                         [Disabled]
No Snoop                             [Enabled]
Maximum Payload                      [Auto]
Maximum Read Request                 [Auto]

PCI Express Link Register Settings
ASPM Support                         [Disabled]
WARNING: Enabling ASPM may cause some
     PCI-E devices to fail
Extended Synch                       [Disabled]
Clock Power Management               [Disabled]

Link Training Retry                  [5]
Link Training Timeout (uS)           100
Unpopulated Links                    [Keep Link ON]
Restore PCIE Registers               [Disabled]

{press ESC twice}

ACPI Settings (press ENTER to expand)

Enable ACPI Auto Configuration       [Disabled]

Enable Hibernation                   [Disabled]
ACPI Sleep State                     [Suspend Disabled]
Lock Legacy Resources                [Disabled]
S3 Video Repost                      [Disabled]

{press ESC}

Trusted Computing (press ENTER to expand)

Security Device Support              [Enable]
TPM State                            [Enabled]
Pending operation                    [None]

Current Status Information
  TPM Enabled Status:                [Enabled]
  TPM Active Status:                 [Activated]
  TPM Owner Status:                  [Unowned]

{press ESC}

SATA Configuration (press ENTER to expand)

SATA Controller(s)                   [Enabled]
SATA Mode Selection                  [AHCI]
SATA Test Mode                       [Disabled]
Aggressive LPM Support               [Enabled]

Serial ATA Port 0                    ST1000NX0313 (1000.2GB
  Software Preserve                  SUPPORTED
  Port 0                             [Enabled]
  Hot Plug                           [Enabled]
  Mechanical Presence Switch         [Disabled]
  External SATA                      [Enabled]
  SATA Device Type                   [Hard Disk Drive]
  Spin Up Device                     [Disabled]
Serial ATA Port 1             Empty
  Software Preserve                   Unknown
  Port 1                              [Enabled]
  Hot Plug                            [Enabled]
  Mechanical Presence Switch          [Disabled]
  External SATA                       [Enabled]
  SATA Device Type                    [Hard Disk Drive]
  Spin Up Device                      [Disabled]
Serial ATA Port 2                     HL-DT-ST DVDRA ATAPI
  Software Preserve                   N/A
  Port 2                              [Enabled]
  Hot Plug                            [Enabled]
```

```
  Mechanical Presence Switch          [Disabled]
  External SATA                       [Enabled]
  SATA Device Type                    [Hard Disk Drive]
  Spin Up Device                      [Disabled]
Serial ATA Port 3                     Empty
  Software Preserve                   Unknown
  Port 3                              [Enabled]
  Hot Plug                            [Disabled]
  External SATA                       [Disabled]
  SATA Device Type                    [Hard Disk Drive]
  Spin Up Device                      [Disabled]
Serial ATA Port 4                     Empty
  Software Preserve                   Unknown
  Port 4                              [Enabled]
  Hot Plug                            [Disabled]
  External SATA                       [Disabled]
  SATA Device Type                    [Hard Disk Drive]
  Spin Up Device                      [Disabled]
Serial ATA Port 5                     Empty
  Software Preserve                   Unknown
  Port 5                              [Enabled]
  Hot Plug                            [Disabled]
  External SATA                       [Disabled]
  SATA Device Type                    [Hard Disk Drive]
  Spin Up Device                      [Disabled]

{press ESC}

PCH-FW Configuration (press ENTER to expand)

ME FW Version                         9.1.20.1035  {varies}
Firmware Update Configuration (press ENTER to expand)

Me FW Image Re-Flash                  [Disabled]

{press ESC twice}

USB Configuration (press ENTER to expand)

USB Module Version                    8.10.34

USB Controllers:
    2 EHCIs, 1 XHCI
USB Devices:
    1 Keyboard, 1 Mouse, 2 Hubs  {varies}

Legacy USB Support                    [Enabled]
XHCI Hand-Off                         [Enabled]
EHCI Hand-Off                         [Disabled]
USB Mass Storage Driver Support       [Enabled]

USB hardware delays and time-outs:
USB transfer time-out                  [20 sec]
Device reset time-out                  [20 sec]
Device power-up delay                  [Auto]

{press ESC}

Network Stack Configuration (press ENTER to expand)

Network Stack                          [Disabled]

{press ESC}


Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:93 {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (press ENTER to expand)

Link Speed                              [Auto Negotiated]
Wake On LAN                             [Disabled]

{press ESC}

Blink LEDs                              0

PORT CONFIGURATION INFORMATION
UEFI Driver:                            Intel(R) PRO/1000 6.1.16
Adapter PBA:                            106100-000
Chip Type                               Intel i350
PCI Device ID                           1521
```

```
PCI Address                          02:00:00
Link Status                          [Disconnected]          {varies}
MAC Address                          00:10:6F:0D:5A:93       {varies}
Virtual MAC Address                  00:10:6F:0D:5A:93       {varies}

{press ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:94 {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (press ENTER to expand)

Link Speed                           [Auto Negotiated]
Wake On LAN                          [Disabled]

{press ESC}

Blink LEDs                           0

PORT CONFIGURATION INFORMATION
UEFI Driver:                         Intel(R) PRO/1000 6.1.16
Adapter PBA:                         106100-000
Chip Type                            Intel i350
PCI Device ID                        1521
PCI Address                          02:00:01
Link Status                          [Disconnected]         {varies}
MAC Address                          00:10:6F:0D:5A:94      {varies}
Virtual MAC Address                  00:10:6F:0D:5A:94      {varies}

{press ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:95 {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (press ENTER to expand)

Link Speed                           [Auto Negotiated]
Wake On LAN                          [Disabled]

{press ESC}

Blink LEDs                           0

PORT CONFIGURATION INFORMATION
UEFI Driver:                         Intel(R) PRO/1000 6.1.16
Adapter PBA:                         106100-000
Chip Type                            Intel i350
PCI Device ID                        1521
PCI Address                          02:00:02
Link Status                          [Disconnected]        {varies}
MAC Address                          00:10:6F:0D:5A:95     {varies}
Virtual MAC Address                  00:10:6F:0D:5A:95     {varies}

{press ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:96 {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (press ENTER to expand)

Link Speed                           [Auto Negotiated]
Wake On LAN                          [Disabled]

{press ESC}

Blink LEDs                           0

PORT CONFIGURATION INFORMATION
UEFI Driver:                         Intel(R) PRO/1000 6.1.16
Adapter PBA:                         106100-000
Chip Type                            Intel i350
PCI Device ID                        1521
PCI Address                          02:00:03
Link Status                          [Disconnected]         {varies}
MAC Address                          00:10:6F:0D:5A:96      {varies}
Virtual MAC Address                  00:10:6F:0D:5A:96      {varies}

{press ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:97 {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
```

```
NIC Configuration (press ENTER to expand)

Link Speed                              [Auto Negotiated]
Wake On LAN                             [Disabled]

{press ESC}

Blink LEDs                              0

PORT CONFIGURATION INFORMATION
UEFI Driver:                            Intel(R) PRO/1000 6.1.16
Adapter PBA:                            106100-000
Chip Type                               Intel i350
PCI Device ID                           1521
PCI Address                             03:00:00
Link Status                             [Disconnected]         {varies}
MAC Address                             00:10:6F:0D:5A:97      {varies}
Virtual MAC Address                     00:10:6F:0D:5A:97      {varies}

{press ESC}

Intel(R) I350 Gigabit Network Connection - 00:10:6F:0D:5A:98 {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (press ENTER to expand)

Link Speed                              [Auto Negotiated]
Wake On LAN                             [Disabled]

{press ESC}

Blink LEDs                              0

PORT CONFIGURATION INFORMATION
UEFI Driver:                            Intel(R) PRO/1000 6.1.16
Adapter PBA:                            106100-000
Chip Type                               Intel i350
PCI Device ID                           1521
PCI Address                             03:00:01
Link Status                             [Disconnected]         {varies}
MAC Address                             00:10:6F:0D:5A:98      {varies}
Virtual MAC Address                     00:10:6F:0D:5A:98      {varies}

{press ESC}

Intel(R) I210 Gigabit  Network Connection - 00:10:6F:0D:... {varies} (press ENTER to expand)

PORT CONFIGURATION MENU
NIC Configuration (press ENTER to expand)

Link Speed                              [Auto Negotiated]
Wake On LAN                             [Disabled]

{press ESC}

Blink LEDs                              0

PORT CONFIGURATION INFORMATION
UEFI Driver:                            Intel(R) PRO/1000 6.1.16
Adapter PBA:                            000300-000
Chip Type                               Intel i210
PCI Device ID                           1533
PCI Address                             06:00:00
Link Status                             [Disconnected]         {varies}
MAC Address                             00:10:6F:0D:5A:99      {varies}
Virtual MAC Address                     00:10:6F:0D:5A:99      {varies}

{press ESC}

{Chipset Tab}

PCH-IO Configuration (press ENTER to expand)

Intel PCH RC Version                    2.7.0.0
Intel PCH SKU Name                      C226
Intel PCH Rev ID                        05/C2

USB Configuration (press ENTER to expand)

USB Precondition                        [Enabled]

USB Ports Per-Port Disable Control      [Disabled]
```

```
{press ESC}

BIOS Security Configuration (press ENTER to expand)

SMI Lock                                [Enabled]
BIOS Lock                               [Enabled]
GPIO Lock                               [Disabled]
BIOS Interface Lock                     [Enabled]
RTC Lock                                [Enabled]

{press ESC}

PCH LAN Controller                      [Disabled]
SLP_S4 Assertion Width                  [Disabled]
Restore AC Power Loss                   [Last State]

{press ESC}

System Agent (SA) Configuration (press ENTER to expand)

VT-d Capability                         Supported

VT-d                                    [Enabled]

{press ESC}

{Boot Tab}

Boot Configuration
Setup Prompt Timeout                    5
Trenton Release Mode                    [On]
Bootup NumLock State                    [Off]

Quiet Boot                              [Disabled]
Fast Boot                               [Enabled]
 SATA Support                           [HDD Only]
 VGA Support                            [EFI Driver]
 USB Support                            [Partial Initial]
 PS2 Devices Support                    [Enabled]
 NetWork Stack Driver Support           [Disabled]


Boot Option Priorities
Boot Option #1                          [BOOT_EMBEDDED (P0: ...]
Boot Option #2                          [UEFI: Built-in EFI ...]

Note:  It is no longer necessary to change the default boot choices, as the EFI manager
       will control the boot list.

Per Port Boot Option Control (press ENTER to expand)

SATA 0 - Midplane P1 - Internal         [Enabled]
SATA 1 - Midplane P2 - Internal         [Disabled]
SATA 2 - Midplane P3 - Internal         [Disabled]
SATA 3 - P14 - Internal SATA 3          [Disabled]
SATA 4 - P13 - Internal SATA 4          [Disabled]
SATA 5 - P11 - Internal SATA 5          [Disabled]

USB 0 - P6 Bottom - USB 5               [Disabled]
USB 1 - P6 Top - USB 4                  [Disabled]
USB 2 - P3 Bottom - USB 7               [Disabled]
USB 3 - P3 Top - USB 6                  [Disabled]
USB 4 - P4 Bottom - USB 9               [Disabled]
USB 5 - P4 Top - USB 8                  [Disabled]
USB 6 - P24 [1,3,5,7] - Internal        [Disabled]
USB 7 - P24 [2,4,6,8] - Internal        [Disabled]
USB 8 - P25 [1,3,5,7] - Internal        [Disabled]
USB 9 - P36 - Internal USB 3            [Disabled]
USB 10 - N/A - BMC                      [Disabled]
USB 11 - N/A - BMC                      [Disabled]
USB 12 - Midplane USB 0 P3 - USB 1      [Disabled]
USB 13 - Midplane USB 1 P2 - USB 2      [Disabled]

{press ESC}

CSM16 Parameters (press ENTER to expand)

CMS16 Module Version                     00.20

GateA20 Active                           [Upon Request]
Option ROM Messages                      [Force BIOS]
```

```
INT19 Trap Response                     [Immediate]

{press ESC}


{Security Tab}

Password Description

If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup.  In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length                          3
Maximum length                          20

Administrator Password (press ENTER to create password, must confirm new password)

Secure Boot menu (press ENTER to expand)

System Mode                             User
Secure Boot                             Active

Secure Boot                             [Enabled]
Secure Boot Mode                        [Custom]
Key Management (press ENTER to expand)

Default Key Provision                   [Disabled]

Enroll All Factory Default Keys
Save   All Secure Boot Variables

Platform Key (PK)                       INSTALLED
Delete  PK
Set new PK

Key Exchange Key (KEK)                  INSTALLED
Delete  KEK
Set New KEK
Append  KEK
Authorized Signatures                   INSTALLED
Delete  DB
Set new DB
Append  DB
Authorized TimeStamps                   NOT INSTALLED
Delete  DBT
Set new DBT
Append  DBT
Forbidden Signatures                    NOT INSTALLED
Delete  DBX
Set new DBX
Append  DBX

{press ESC}

Preserve variables on BIOS upgrade      [Enabled]
Preserve variables on clear CMOS        [Enabled]

{press ESC}

HDD Security Configuration:
P0:ST1000NX0313 (press ENTER to expand)

HDD Password Description:

Allows  Access to  Set, Modify  and  Clear
HardDisk User and Master Passwords.
User Password need to be installed for
Enabling Security. Master Password can
be Modified only when successfully unlocked
with Master Password in POST.
If the 'Set HDD Password' option is greyed out,
do power cycle to enable the option again.

HDD PASSWORD CONFIGURATION:

Security Supported      :               Yes
```

```
Security Enabled        :               No
Security Locked         :               No
Security Frozen         :               Yes       {varies}
HDD User Pwd Status     :               NOT INSTALLED
HDD Master Pwd Status   :               INSTALLED

Set User Password

{press ESC}


{Save & Exit Tab}

Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset

Save Options
Save Changes
Discard Changes

Restore Defaults
Save as User Defaults
Restore User Defaults

Boot Override
UEFI: Built-in EFI Shell    {the order and number of these choices may vary}
BOOT_EMBEDDED (P0: ST1000NX0313)

AMIDiag for UEFI


{Event Logs Tab}

Change Smbios Event Log Settings (press ENTER to expand)

Enabling/Disabling Options
Smbios Event Log                        [Enabled]

Erasing Settings
Erase Event Log                         [No]
When Log is Full                        [Do Nothing]

Smbios Event Log Standard Settings
Log System Boot Event                   [Enabled]
MECI                                    1
METW                                    60

Custom Options
Log OEM Codes                           [Enabled]
Convert OEM Codes                       [Disabled]

NOTE: All values changed here do not take effect
      until computer is restarted.

{press ESC}

View Smbios Event Log (press ENTER to view log)

{press ESC}


{Server Mgmt Tab}

BMC Self Test Status                    PASSED

BMC Support                             [Enabled]
Wait For BMC                            [Enabled]
FRB-2 Timer                             [Enabled]
FRB-2 Timer timeout                     [6 minutes]
FRB-2 Time Policy                       [Reset]
OS Watchdog Timer                       [Disabled]
OS Wtd Timer Timeout                    [10 minutes]
OS Wtd Timer Policy                     [Reset]
Serial Mux                              [Disabled]
Bmc self test log (press ENTER to expand)

Log area usage = 00 out of 20 logs

Erase Log                               [Yes, On every reset]
When log is full                        [Clear Log]
```

```
Log Empty

{press ESC}

System Event Log (press ENTER to expand)

Enabling/Disabling Options
SEL Components                          [Enabled]

Erasing Settings
Erase SEL                               [No]
When SEL is Full                        [Do Nothing]

Custom EFI Logging Options
Log EFI Status Codes                    [Both]

NOTE:  All values changed here do not take effect
       until computer is restarted.

{press ESC}

View FRU information (press ENTER to expand)

FRU Information  {all of the values in this section can vary}

System Manufacturer                     Trenton Systems, Inc.
System Product Name                     MBC8240 Modular Blade Ca
System Version                          N-08
System Serial Number                    11S00RY462YH10DK651112
Board Manufacturer                      Trenton Systems, Inc.
Board Product Name                      MBC8240 Processor Board
Board Version                           92-508240-000
Board Serial Number                     11S00RY462YH10DK651112
Chassis Manufacturer                    Intel
Chassis Product Name                    -
Chassis Serial Number                   -
SDR Revision                            -

{press ESC}

BMC network configuration (press ENTER to expand)

BMC network configuration

Lan channel 1
Configuration Address source            [Unspecified]
Station IP address                      00.00.00.00             {varies}
Subnet mask                             00.00.00.00             {varies}
Station MAC address                     00-10-6f-18-0b-47       {varies}
Router IP address                       00.00.00.00             {varies}
Router MAC address                      00-00-00-00-00-00       {varies}

Lan channel 2
Configuration Address source            [Unspecified]
Station IP address                       00.00.00.00
Subnet mask                              00.00.00.00
Station MAC address                      00-00-00-00-00-00
Router IP address                        00.00.00.00
Router MAC address                       00-00-00-00-00-00
```

2461 HMC (FC 0062/FC 0063) configuration

Notes:

- The "BIOS Setup Utility" (CMOS Settings) has been replaced with the "Unified Extensible Firmware Interface" (UEFI). This "Setup Utility" is invoked by pressing ESC or DEL at the prompt displayed during a cold boot.

For configuration information for the 2461 HMC (FC 0062), see “2461 HMC (FC 0062) configuration” on page 111. For configuration for the 2461 HMC (FC 0063), see “2461 HMC (FC 0063) configuration” on page 136.

2461 HMC (FC 0062) configuration

The following is a list of the configuration settings for the 2461 HMC (FC 0062).

```
InsydeH20 Version        KabyLake.05.12.09.0049
Processor Type        Intel(R) Xeon(R) CPU E3-1225 v5 @ 3.30GHz
System Bus Speed         100 MHz
System Memory Speed      2133 MHz
Cache RAM             1024 KB
Total Memory          32768 MB
Channel A
DIMM 0             16384 MB
Unknown 1            [Not Installed]
Channel B
DIMM 0             16384 MB
Unknown 1            [Not Installed]
Platform Configuration
CPUID:             0x506E3 (SKYLAKE DT HALO)
CPU Speed:            3300 MHz
CPU Stepping:         03 (R0/S0/N0 Stepping)
L1 Data Cache:        32 KB
L1 Instruction Cache:      32 KB
L2 Cache:             256 KB
L3 Cache:             8192 KB
Number of Processors:      4 Core(s) / 4 Thread(s)
Microcode Rev:        000000C2
GT Info:              Unknown (0xFF)
SMX/TXT:              Supported
PCH Rev / SKU         31 (D1 Stepping) / SKL PCH-H C236
GOP Ver:              9.0.1069
EC Ver:             N/A
Board ID:             Zumba Beach Server Crb
FAB ID:             0
Intel ME Version / SKU     UnKnow
LAN PHY Revision         Unknown
Language              <English>
System Time           {varies}
System Date           {varies}

(press right arrow)

[Advanced Tab]

Platform Variable Revision            26
ME Setup Variable Revision            2
CPU Setup Variable Revision           11
SA Setup Variable Revision            9
PCH Setup Variable Revision           10
Boot Configuration (Enter to expand)

Numlock            <Off>

(press ESC)

Peripheral Configuration (Enter to expand)

Serial Port A        <Disabled>
Infrared Port        <Disabled>

(press ESC)

SATA Configuration (Enter to expand)

Serial ATA Port 0    [ST2000NM0008-2F3100]
Serial ATA Port 1    [Not Installed]
Serial ATA Port 2    [Not Installed]
Serial ATA Port 3    [Not Installed]
Serial ATA Port 4    [Not Installed]
Serial ATA Port 5    [Not Installed]
Serial ATA Port 6    [Not Installed]
Serial ATA Port 7    [Not Installed]

(press ESC)

Type C Support          <Disabled>
USB Configuration (Enter to expand)

USB BIOS Support        <Enabled>
Usb Legacy SMI bit Clean     <Disabled>
```

```
(press ESC)

Chipset Configuration (Enter to expand)

Setup Warning:
Setting items on this screen to incorrect values
may cause your system to malfunction!

(press ESC)

ACPI Settings (Enter to expand)

ACPI Settings (Enter to expand)

ACPI Version            5.0
Enable ACPI Auto Configuration    [X]

Native PCIE Enable             <Enabled>
Native ASPM                  <Auto>
BDAT ACPI Table Support          <Disabled>

Low Power S0 Idle Capability     <Disabled>
Lpit Recidency Counter         <SLP S0>

Intel Ready Mode Technology      <Disabled>

SSDT table from file          <Disabled>

PCI Delay Optimization        <Disabled>

(press ESC)

FACP - RTC S4 Wakeup          <Enabled>
APIC - IO APIC Mode           <Enabled>
ACPI Memory Debug             <Disabled>

(press ESC)

CPU Configuration (Enter to expand)

Type                       Intel(R) Xeon(R) CPU E3-1225 v5 @ 3.30GHz
ID                         0x506E3
Speed                      3300 MHz
L1 Data Cache                          32 KB x 4
L1 Instruction Cache            32 KB x 4
L2 Cache                     256 KB x 4
L3 Cache                     8 MB
L4 Cache                     N/A
VMX                        Supported
SMX/TXT                    Supported

SW Guard Extensions (SGX)         <Software Controlled>
Select Owner EPOCH input type       <No Change in Owner EPOCHs>
PRMRR Size                    <INVALID PRMRR>
CPU Flex Ratio Override             <Disabled>
CPU Flex Ratio Settings             [33]
Hardware Prefetcher            <Enabled>
Adjacent Cache Line Prefetch        <Enabled>
Intel (VMX) Virtualization Technology  <Enabled>
PECI                         <Enabled>
Active Processor Cores                 <All>
BIST                         <Disabled>
JTAG C10 Power                 <Disabled>
AP threads Idle Manner            <MWAIT Loop>
AP threads Handoff Manner         <MWAIT Loop>
AES                          <Enabled>
MachineCheck                   <Enabled>
MonitorMWait                   <Enabled>
BIOS Guard                        <Disabled>
Flash Wear Out Protection           <Disabled>
Current Debug Interface Status       Disabled
Debug Interface                <Disabled>
Debug Interface Lock              <Enabled>
Processor trace memory allocation      <Disabled>
FCLK Frequency for Early Power On      <Normal (800Mhz)>
Three Strike Counter              <Enabled>
Voltage Optimization              <Auto>

(press ESC)

Power & Performance (Enter to expand)
```

```
CPU - Power Management Control (Enter to expand)

Boot performance mode            <Max Non-Turbo Performance>
Intel(R) SpeedStep(tm)              <Enabled>
Race To Halt (RTH)               <Enabled>
Intel(R) Speed Shift Technology       <Enabled>
HDC Control                    <Enabled>
  Turbo Mode                   <Enabled>
  View/Configure Turbo Options (Enter to expand)

Current Turbo Settings

Max Turbo Power Limit        4095.875
Min Turbo Power Limit        0.0
Package TDP Limit         80.0
Power Limit 1             80.0
Power Limit 2             100.0
1-core Turbo Ratio        37
2-core Turbo Ratio        36
3-core Turbo Ratio        35
4-core Turbo Ratio        34

Package Power Limit MSR Lock    <Disabled>
Power Limit 1 Override        <Disabled>
Power Limit 2 Override        <Enabled>
Power Limit 2             [0]
1-Core Ratio Limit Override    [37]
2-Core Ratio Limit Override    [36]
3-Core Ratio Limit Override    [35]
4-Core Ratio Limit Override    [34]
Energy Efficient Turbo         <Enabled>

(press ESC)

CPU VR Settings (Enter to expand)

PSYS Slope        [0]
PSYS Offset          [0]
PSYS PMax Power      [0]
Acoustic Noise Settings (Enter to expand)

Acoustic Noise Mitigation        <Disabled>

IA VR Domain
Disable Fast PKG C State Ramp for IA    <False>
Domain
Slow Slew Rate for IA Domain          <Fast/2>

GT VR Domain
Disable Fast PKG C State Ramp for GT    <False>
Domain
Slow Slew Rate for GT Domain          <Fast/2>

SA VR Domain
Disable Fast PKG C State Ramp for SA    <False>
Domain
Slow Slew Rate for SA Domain          <Fast/2>

(press ESC)

Core/IA VR Settings (Enter to expand)

VR Config Enable          <Enabled>
AC Loadline            [0]
DC Loadline            [0]
PS Current Threshold1       [0]
PS Current Threshold2       [0]
PS Current Threshold3       [0]
PS3 Enable             <Enabled>
PS4 Enable             <Enabled>
IMON Slope             [0]
IMON Offset            [0]
  IMON Prefix             <+>
VR Current Limit          [0]
VR Voltage Limit          [0]
TDC Enable             <Enabled>
TDC Current Limit         [0]
TDC Time Window           <1 ms>
TDC Lock               <Disabled>

(press ESC)
```

```
VR Mailbox Command options    [0]
Intersil VR Command         <Disabled>

(press ESC)

Platform PL1 Enable                    <Disabled>
Platform PL2 Enable                    <Disabled>
Power Limit 4 Override               <Disabled>
C states                           <Enabled>
  Enhanced C-states                <Enabled>
  C-State Auto Demotion              <C1 and C3>
  C-State Un-demotion                <C1 and C3>
  Package C-State Demotion           <Auto>
  Package C-State Un-demotion           <Auto>
CState Pre-Wake                    <Enabled>
IO MWAIT Redirection               <Disabled>
Package C State Limit              <Auto>
C3 Latency Control (MSR 0x60A)
Time Unit                          <1024 ns>
Latency                          [78]
C6/C7 Short Latency Control (MSR 0x60B)
Time Unit                          <1024 ns>
Latency                          [118]
C6/C7 Long Latency Control (MSR 0x60C)
Time Unit                          <1024 ns>
Latency                          [148]
Thermal Monitor                       <Enabled>
Interrupt Redirection Mode Selection    <PAIR with Fixed Priority>
Timed MWAIT                        <Disabled>
Custom P-state Table (Enter to expand)

Number of P states              [0]

(press ESC)

Energy Performance Gain              <Disabled>
EPG DIMM Idd3N                  [26]
EPG DIMM Idd3P                  [11]
Power Limit 3 Settings (Enter to expand)

Power Limit 3 Override               <Disabled>

(press ESC)

CPU Lock Configuration (Enter to expand)

CPG Lock                  <Enabled>
Overclocking Lock              <Disabled>

(press ESC twice)

GT - Power Management Control (Enter to expand)

RC6(Render Standby)          <Enabled>
Maximum GT frequency            <Default Max Frequency>

(press ESC twice)

OverClocking Performance Menu (Enter to expand)

OverClocking Feature          <Disabled>
WDT Enable                  <Enabled>

(press ESC)

Memory Configuration (Enter to expand)

Memory Thermal Configuration (Enter to expand)

Memory Power and Thermal Throttling (Enter to expand)

DDR PowerDown and idle counter          <BIOS>
For LPDDR Only: DDR PowerDown and idle     <BIOS>
counter
REFRESH_2X_MODE                      <Disabled>
LPDDR Thermal Sensor                    <Enabled>
SelfRefresh Enable                      <Enabled>
SelfRefresh IdleTimer                  [512]
Throttler CKEMin Defeature              <Disabled>
Throttler CKEMin Timer                 [48]
Dram Power Meter (Enter to expand)
```

```
Use user provided power weights, scale    <Disabled>
factor, and channel power floor values
Energy Scale Factor              [4]

Idle Energy Ch0Dimm0             [10]
PowerDown Energy Ch0Dimm0        [6]
Activate Energy Ch0Dimm0         [172]
Read Energy Ch0Dimm0             [212]
Write Energy Ch0Dimm0            [221]

Idle Energy Ch0Dimm1             [10]
PowerDown Energy Ch0Dimm1        [6]
Activate Energy Ch0Dimm1         [172]
Read Energy Ch0Dimm1             [212]
Write Energy Ch0Dimm1            [221]

Idle Energy Ch1Dimm0             [10]
PowerDown Energy Ch1Dimm0        [6]
Activate Energy Ch1Dimm0         [172]
Read Energy Ch1Dimm0             [212]
Write Energy Ch1Dimm0            [221]

Idle Energy Ch1Dimm1             [10]
PowerDown Energy Ch1Dimm1        [6]
Activate Energy Ch1Dimm1         [172]
Read Energy Ch1Dimm1             [212]
Write Energy Ch1Dimm1            [221]

(press ESC)

Memory Thermal Reporting (Enter to expand)

Lock Thermal Management Registers    <Enabled>

Memory Thermal Reporting

Extern Therm Status             <Disabled>
Closed Loop Therm Manage        <Disabled>
Open Loop Therm Manage          <Disabled>

Thermal Threshold Settings

Warm Threshold Ch0 Dimm0        [255]
Warm Threshold Ch0 Dimm1        [255]
Hot Threshold Ch0 Dimm0            [255]
Hot Threshold Ch0 Dimm1         [255]
Warm Threshold Ch1 Dimm0        [255]
Warm Threshold Ch1 Dimm1        [255]
Hot Threshold Ch1 Dimm0         [255]
Hot Threshold Ch1 Dimm1         [255]

Thermal Throttle Budget Settings

Warm Budget Ch0 Dimm0           [255]
Warm Budget Ch0 Dimm1           [255]
Hot Budget Ch0 Dimm0            [255]
Hot Budget Ch0 Dimm1            [255]
Warm Budget Ch1 Dimm0           [255]
Warm Budget Ch1 Dimm1           [255]
Hot Budget Ch1 Dimm0            [255]
Hot Budget Ch1 Dimm1            [255]

(press ESC)

Memory RAPL (Enter to expand)

Rapl Power Floor Ch0        [0]
Rapl Power Floor Ch1        [0]

RAPL PL Lock              <Disabled>
RAPL PL 1 enable             <Disabled>
RAPL PL 1 Power               [0]
RAPL PL 1 WindowX             [0]
RAPL PL 1 WindowY             [0]

RAPL PL 2 enable            <Disabled>
RAPL PL 2 Power             [222]
RAPL PL 2 WindowX           [1]
RAPL PL 2 WindowY           [10]

(press ESC twice)
```

```
Memory Thermal Management     <Disabled>

(press ESC)

Memory Training Algorithms (Enter to expand)

Early Command Training               <Disabled>
SenseAmp Offset Training               <Enabled>
Early ReadMPR Timing Centering 2D         <Enabled>
Read MPR Training                    <Enabled>
Receive Enable Training              <Enabled>
Jedec Write Levelling                <Enabled>
Early Write Time Centering 2D          <Enabled>
Early Write Drive Strength/Equalization     <Enabled>
Early Read Time Centering 2D           <Enabled>
Write Timing Centering 1D              <Enabled>
Write Voltage Centering 1D             <Enabled>
Read Timing Centering 1D               <Enabled>
Dimm ODT Training*                   <Enabled>
  Max RTT_WR                       <ODT Off>
DIMM RON Training*                     <Enabled>
Write Drive Strength/Equalization 2D*    <Disabled>
Write Slew Rate Training*              <Enabled>
Read ODT Training*                   <Enabled>
Read Equalization Training*            <Enabled>
Read Amplifier Training*               <Enabled>
Write Timing Centering 2D              <Enabled>
Read Timing Centering 2D               <Enabled>
Command Voltage Centering              <Enabled>
Write Voltage Centering 2D             <Enabled>
Read Voltage Centering 2D              <Enabled>
Late Command Training              <Enabled>
Round Trip Latency                 <Enabled>
Turn Around Timing Training            <Enabled>
Rank Margin Tool                     <Disabled>
Memory Test                        <Disabled>
DIMM SPD Alias Test                    <Enabled>
Receive Enable Centering 1D            <Enabled>
Retrain Margin Check                 <Enabled>
Write Drive Strength Up/Dn independently   <Disabled>
CMD Slew Rate Training               <Enabled>
CMD Drive Strength / Tx Equalization    <Enabled>
CMD Normalization                    <Enabled>

(press ESC)

Memory Configuration

Memory RC Version                 2.0.0.6
Memory Frequency                  2133 MHz
Memory Timings (tCL-tRCD-tRP-tRAS)    15-15-15-35

Channel 0 Slot 0                  Populated & Enabled
    Size                        16384 MB (DDR4)
    Number of Ranks               2
    Manufacturer                  Samsung {varies}
Channel 0 Slot 1                  Not Populated / Disabled
Channel 1 Slot 0                  Populated & Enabled
    Size                        16384 MB (DDR4)
    Number of Ranks               2
    Manufacturer                  Samsung {varies}
Channel 1 Slot 1                  Not Populated / Disabled

Memory ratio/reference clock options moved to Overclock->Memory->Custom Profile menu
MRC ULT Safe Config                      <Disabled>
Maximum Memory Frequency                    <Auto>
HOB Buffer Size                          <Auto>
ECC Support                            <Enabled>
Max TOLUD                              <Dynamic>
SA GV                                 <Enabled>
SA GV Low Freq                            <MRC default>
Retrain on Fast Fail                     <Enabled>
Command Tristate                         <Enabled>
Enable RH Prevention                     <Enabled>
Row Hammer Solution                      <Hardware RHP>
RH Activation Probability                  <1/2^11>
Exit On Failure (MRC)                    <Enabled>
MC Lock                              <Enabled>
Probless Trace                          <Disabled>
Enable/Disable IED (Intel Enhanced Debug)     <Disabled>
Ch Hash Support                        <Enabled>
```

```
Ch Hash Mask                          [0]
Ch Hash Interleaved Bit                  <BIT8>
VC1 Read Metering                        <Enabled>
VC1 RdMeter Time Window                  [800]
VC1 RdMeter Threshold                    [280]
Strong Weak Leaker                       [7]
Memory Scrambler                         <Enabled>
Force ColdReset                       <Disabled>
Channel A DIMM Control                   <Enable both DIMMs>
Channel B DIMM Control                   <Enable both DIMMs>
Force Single Rank                        <Disabled>
Memory Remap                          <Enabled>
Time Measure                          <Disabled>
Lpddr Mem WL Set                         <Set B>
EV Loader                             <Disabled>
EV Loader Delay                       <Enabled>

(press ESC)

System Agent (SA) Configuration (Enter to expand)

SA PCIe Code Version          3.1.2.0
VT-d                Supported

Graphics Configuration (Enter to expand)

Skip Scaning of External Gfx Card    <Disabled>

Primary Display                 <Auto>
Internal Graphics               <Auto>
GTT Size                     <8MB>
Aperture Size                <256MB>
DVMT Pre-Allocated              <32M>
DVMT Total Gfx Mem              <256M>
Intel Graphics Pei Display Peim     <Disabled>
PM Support                   <Enabled>
PAVP Enable                  <Enabled>
Cdynmax Clamping Enable          <Enabled>
Cd Clock Frequency            <675 Mhz>
IUER Button Enable            <Disabled>

(press ESC)

DMI/OPI Configuration (Enter to expand)

DMI                      X4  Gen3

DMI Max Link Speed            <Auto>
DMI Gen3 Eq Phase 2              <Auto>
DMI Gen3 Eq Phase 3 Method          <Auto>
DMI Vc1 Control               <Disabled>
DMI Vcm Control               <Enabled>
Program Static Phase1 Eq         <Enabled>
Gen3 Root Port Preset value for each Lane (Enter to expand)

Lane 0        [4]
Lane 1        [4]
Lane 2        [4]
Lane 3        [4]

(press ESC)

Gen3 Endpoint Preset value for each Lane (Enter to expand)

Lane 0        [7]
Lane 1        [7]
Lane 2        [7]
Lane 3        [7]

(press ESC)

Gen3 Endpoint Hint value for each Lane (Enter to expand)

Lane 0        [2]
Lane 1        [2]
Lane 2        [2]
Lane 3        [2]

(press ESC)

Gen3 RxCTLE Control (Enter to expand)
```

```
Bundle0        [3]
Bundle1        [3]

(press ESC)

DMI Link ASPM Control          <L1>
DMI Extended Sync Control        <Disabled>
DMI De-emphasis Control        <-3.5 dB>
DMI IOT                   <Disabled>

(press ESC)

PEG Port Configuration (Enter to expand)

PEG 0:1:0                      Not Present
  Enable Root Port               <Auto>
  Max Link Speed                 <Auto>
  PEG0 Slot Power Limit Value      [75]
  PEG0 Slot Power Limit Scale      <1.0x>
  PEG0 Physical Slot Number        [1]
PEG 0:1:1                      x4  Gen2
  Enable Root Port               <Auto>
  Max Link Speed                 <Auto>
  Max Link Width                 <Auto>
  Power Down Unused Lanes          <Auto>
  Gen3 Eq Phase 2                <Auto>
  Gen3 Eq Phase 3 Method           <Auto>
  ASPM                       <Auto>
  De-emphasis Control          <-3.5 dB>
  OBFF                      <Enabled>
  LTR                       <Enabled>
  PEG1 Slot Power Limit Value     [75]
  PEG1 Slot Power Limit Scale     <1.0x>
  PEG1 Physical Slot Number       [2]
  Max Link Width               <Auto>
  Power Down Unused Lanes        <Auto>
  Gen3 Eq Phase 2              <Auto>
  Gen3 Eq Phase 3 Method         <Auto>
  ASPM                    <Auto>
  De-emphasis Control          <-3.5 dB>
  OBFF                    <Enabled>
  LTR                     <Enabled>
  PEG2 Slot Power Limit Value    [75]
  PEG2 Slot Power Limit Scale    <1.0x>
  PEG2 Physical Slot Number      [3]
PEG1 Max Payload size          <Auto>
PEG2 Max Payload size          <Auto>

Program PCIe ASPM after OpROM    <Disabled>
Program Static Phase1 Eq         <Enabled>
Gen3 Root Port Preset value for each Lane (Enter to expand)

Lane 0        [7]
Lane 1        [7]
Lane 2        [7]
Lane 3        [7]
Lane 4        [7]
Lane 5        [7]
Lane 6        [7]
Lane 7        [7]
Lane 8        [7]
Lane 9        [7]
Lane 10        [7]
Lane 11        [7]
Lane 12        [7]
Lane 13        [7]
Lane 14        [7]
Lane 15        [7]

(press ESC)

Gen3 Endpoint Preset value for each Lane (Enter to expand)

Lane 0        [7]
Lane 1        [7]
Lane 2        [7]
Lane 3        [7]
Lane 4        [7]
Lane 5        [7]
Lane 6        [7]
Lane 7        [7]
Lane 8        [7]
```

```
Lane 9        [7]
Lane 10        [7]
Lane 11        [7]
Lane 12        [7]
Lane 13        [7]
Lane 14        [7]
Lane 15        [7]

(press ESC)

Gen3 Endpoint Hint value for each Lane (Enter to expand)

Lane 0        [2]
Lane 1        [2]
Lane 2        [2]
Lane 3        [2]
Lane 4        [2]
Lane 5        [2]
Lane 6        [2]
Lane 7        [2]
Lane 8        [2]
Lane 9        [2]
Lane 10        [2]
Lane 11        [2]
Lane 12        [2]
Lane 13        [2]
Lane 14        [2]
Lane 15        [2]

(press ESC)

Gen3 RxCTLE Control (Enter to expand)

Bundle0        [0]
Bundle1        [0]
Bundle2        [0]
Bundle3        [0]
Bundle4        [0]
Bundle5        [0]
Bundle6        [0]
Bundle7        [0]
RxCTLE Override      <Disabled>

(press ESC)

Gen3 Adaptive Software Equalization
  Always Attempt SW EQ        <Disabled>
  Number of Presets to test      <Auto>
  Allow PERST# GPIO Usage        <Enabled>
  SW EQ Enable VOC            <Auto>
  Jitter Dwell Time           [3000]
  Jitter Error Target         [2]
  VOC Dwell Time              [10000]
  VOC Error Target            [2]
Generate BDAT PEG Margin Data      <Disabled>
PCIe Rx CEM Test Mode         <Disabled>
PCIe Spread Spectrum Clocking      <Enabled>

(press ESC)

Stop Grant Configuration         <Auto>
VT-d                      <Enabled>
CHAP Device (B0:D7:F0)        <Disabled>
Thermal Device (B0:D4:F0)        <Disabled>
GMM Device (B0:D8:F0)         <Enabled>
CRID Support               <Disabled>
Above 4GB MMIO BIOS assignment     <Disabled>
X2APIC Opt Out             <Disabled>

(press ESC)

PCH-IO Configuration (Enter to expand)

PCI Express Configuration (Enter to expand)

PCI Express Clock Gating        <Enabled>
Legacy IO Low Latency        <Disabled>
DMI Link ASPM Control        <Enabled>
PCIE Port assigned to LAN         Disabled
Port8xh Decode            <Disabled>
Peer Memory Write Enable       <Disabled>
Compliance Test Mode        <Disabled>
```

```
PCIe-USB Glitch W/A         <Disabled>
PCIe function swap          <Enabled>
PCI Express Gen3 Eq Lanes (Enter to expand)

PCIE1  Cm    [6]
PCIE1  Cp    [2]
PCIE2  Cm    [6]
PCIE2  Cp    [2]
PCIE3  Cm    [6]
PCIE3  Cp    [2]
PCIE4  Cm    [6]
PCIE4  Cp    [2]
PCIE5  Cm    [6]
PCIE5  Cp    [2]
PCIE6  Cm    [6]
PCIE6  Cp    [2]
PCIE7  Cm    [6]
PCIE7  Cp    [2]
PCIE8  Cm    [6]
PCIE8  Cp    [2]
PCIE9  Cm    [6]
PCIE9  Cp    [2]
PCIE10 Cm    [6]
PCIE10 Cp    [2]
PCIE11 Cm    [6]
PCIE11 Cp    [2]
PCIE12 Cm    [6]
PCIE12 Cp    [2]
PCIE13 Cm    [6]
PCIE13 Cp    [2]
PCIE14 Cm    [6]
PCIE14 Cp    [2]
PCIE15 Cm    [6]
PCIE15 Cp    [2]
PCIE16 Cm    [6]
PCIE16 Cp    [2]
PCIE17 Cm    [6]
PCIE17 Cp    [2]
PCIE18 Cm    [6]
PCIE18 Cp    [2]
PCIE19 Cm    [6]
PCIE19 Cp    [2]
PCIE20 Cm    [6]
PCIE20 Cp    [2]

Override SW EQ settings    <Disabled>

(press ESC)

PCI Express Root Port 1 (Enter to expand)

PCI Express Root Port 1        <Enabled>
  Topology                    <Unknown>
ASPM                        <Auto>
L1 Substrates                  <L1.1 & L1.2>
Gen3 Eq Phase3 Method             <Software Search>
UPTP                         [5]
DPTP                         [7]
ACS                         <Enabled>
  URR                       <Disabled>
  FER                       <Disabled>
  NFER                      <Disabled>
  CER                       <Disabled>
  CTO                       <Disabled>
  SEFE                      <Disabled>
  SENFE                     <Disabled>
  SECE                      <Disabled>
  PME SCI                      <Enabled>
  Hot Plug                     <Disabled>
  Advanced Error Reporting        <Enabled>
PCIe Speed                    <Auto>
  Transmitter Half Swing           <Disabled>
Detect Timeout                [0]
Extra Bus Reserved               [0]
Reserved Memory               [10]
Reserved I/O                  [4]

PCH PCIe LTR Configuration
PCH PCIE1 LTR              <Enabled>
  Snoop Latency Override       <Auto>
  Non Snoop Latency Override      <Auto>
  Force LTR Override           <Disabled>
```

```
PCIE1 LTR Lock              <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE1 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 5 (Enter to expand)

PCI Express Root Port 5     <Enabled>
  Topology             <Unknown>
ASPM                 <Auto>
L1 Substrates             <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                 [5]
DPTP                 [7]
ACS                  <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                  <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                  <Disabled>
  SENFE                 <Disabled>
  SECE                  <Disabled>
  PME SCI               <Enabled>
  Hot Plug              <Disabled>
  Advanced Error Reporting      <Enabled>
PCIe Speed           <Auto>
  Transmitter Half Swing     <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O              [4]

PCH PCIe LTR Configuration
PCH PCIE5 LTR            <Enabled>
  Snoop Latency Override      <Auto>
  Non Snoop Latency Override     <Auto>
  Force LTR Override        <Disabled>

PCIE5 LTR Lock              <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE5 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 6 (Enter to expand)

PCI Express Root Port 6        <Enabled>
  Topology                  <Unknown>
ASPM                     <Auto>
L1 Substrates                <L1.1 & L1.2>
Gen3 Eq Phase3 Method          <Software Search>
UPTP                     [5]
DPTP                     [7]
ACS                      <Enabled>
  URR                    <Disabled>
  FER                    <Disabled>
  NFER                   <Disabled>
  CER                    <Disabled>
  CTO                    <Disabled>
  SEFE                   <Disabled>
  SENFE                  <Disabled>
  SECE                   <Disabled>
  PME SCI                   <Enabled>
  Hot Plug                  <Disabled>
  Advanced Error Reporting       <Enabled>
PCIe Speed                  <Auto>
  Transmitter Half Swing         <Disabled>
Detect Timeout             [0]
Extra Bus Reserved            [0]
Reserved Memory            [10]
Reserved I/O               [4]

PCH PCIe LTR Configuration
PCH PCIE6 LTR              <Enabled>
  Snoop Latency Override        <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override          <Disabled>
```

```
PCIE6 LTR Lock             <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE6 CLKREQ Mapping Override      <Default>

(press ESC)

PCI Express Root Port 7 (Enter to expand)

PCI Express Root Port 7        <Enabled>
  Topology                  <Unknown>
ASPM                      <Auto>
L1 Substrates               <L1.1 & L1.2>
Gen3 Eq Phase3 Method          <Software Search>
UPTP                      [5]
DPTP                      [7]
ACS                       <Enabled>
  URR                     <Disabled>
  FER                     <Disabled>
  NFER                    <Disabled>
  CER                     <Disabled>
  CTO                     <Disabled>
  SEFE                    <Disabled>
  SENFE                   <Disabled>
  SECE                    <Disabled>
  PME SCI                   <Enabled>
  Hot Plug                  <Disabled>
  Advanced Error Reporting     <Enabled>
PCIe Speed                  <Auto>
  Transmitter Half Swing       <Disabled>
Detect Timeout              [0]
Extra Bus Reserved            [7]
Reserved Memory             [17]
Reserved I/O              [16]

PCH PCIe LTR Configuration
PCH PCIE7 LTR             <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE7 LTR Lock             <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE7 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 8 (Enter to expand)

PCI Express Root Port 8        <Enabled>
  Topology              <Unknown>
ASPM                  <Auto>
L1 Substrates             <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                  [5]
DPTP                  [7]
ACS                  <Enabled>
  URR                  <Disabled>
  FER                  <Disabled>
  NFER                  <Disabled>
  CER                  <Disabled>
  CTO                  <Disabled>
  SEFE                  <Disabled>
  SENFE                  <Disabled>
  SECE                  <Disabled>
  PME SCI              <Enabled>
  Hot Plug              <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed              <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout             [0]
Extra Bus Reserved        [7]
Reserved Memory             [17]
Reserved I/O            [8]

PCH PCIe LTR Configuration
PCH PCIE8 LTR             <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>
```

```
PCIE8 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE8 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 9 (Enter to expand)

PCI Express Root Port 9        <Enabled>
  Topology            <M2>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE9 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE9 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE9 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 10 (Enter to expand)

PCI Express Root Port 10    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE10 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>
```

```
PCIE10 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE10 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 11 (Enter to expand)

PCI Express Root Port 11    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE11 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE11 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE11 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 12 (Enter to expand)

PCI Express Root Port 12    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE12 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>
```

```
PCIE12 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE12 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 13 (Enter to expand)

PCI Express Root Port 13    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE13 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE13 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE13 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 17 (Enter to expand)

PCI Express Root Port 17    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE17 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>
```

```
PCIE17 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE17 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 21 (Enter to expand)

PCI Express Root Port 21    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE21 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE21 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 22 (Enter to expand)

PCI Express Root Port 22    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE22 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>
```

```
PCIE22 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 23 (Enter to expand)

PCI Express Root Port 23    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE23 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE23 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 24 (Enter to expand)

PCI Express Root Port 24    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory            [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE24 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>
```

```
PCIE24 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC twice)

SATA and RST Configuration (Enter to expand)

SATA Controller(s)        <Enabled>
SATA Mode Selection        <AHCI>
SATA Test Mode            <Disabled>
Software Feature Mask Configuration (Enter to expand)

HDD Unlock            <Enabled>
LED Locate            <Enabled>

(press ESC)

Aggressive LPM Support        <Enabled>

Serial ATA Port 0        ST2000NM0008-2 (4000.7GB)
  Software Preserve         SUPPORTED
  Port 0            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Flex>
  SATA Port 0 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 1        Empty
  Software Preserve         Unknown
  Port 1            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Direct Connect>
  SATA Port 1 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 2        Empty
  Software Preserve         Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 2 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 3        Empty
  Software Preserve         Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 3 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 4        Empty
  Software Preserve         Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 4 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
```

```
Serial ATA Port 5        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <M2>
  SATA Port 5 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 6        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 6 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 7        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 7 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]

(press ESC)

USB Configuration (Enter to expand)

XHCI Disable Compliance Mode    <False>

xDCI Support            <Disabled>

USB Port Disable Override    <Disable>

(press ESC)

Security Configuration (Enter to expand)

RTC Lock            <Enabled>
BIOS Lock            <Enabled>

(press ESC)

SerialIo Configuration (Enter to expand)

I2C0 Controller            <Enabled>
I2C1 Controller            <Enabled>
I2C2 Controller            <Disabled>
I2C3 Controller            <Disabled>
SPI0 Controller            <Disabled>
SPI1 Controller            <Disabled>
UART0 Controller        <Enabled>
UART1 Controller        <Disabled>
UART2 Controller        <for debug only>
GPIO Controller            <Enabled>

Serial IO I2C0 Settings (Enter to expand)

I2C IO Voltage Select        <3.3V>

Connected device        <Disabled>

(press ESC)

Serial IO I2C1 Settings (Enter to expand)

I2C IO Voltage Select        <3.3V>

Connected device        <Disabled>
```

```
(press ESC)

Serial IO UART0 Settings (Enter to expand)

Bluetooth Device        <Disabled>
Wireless Charging Mode        <WC Disabled>
Hardware Flow Control        <Enabled>

(press ESC)

Serial IO GPIO Settings (Enter to expand)

GPIO IRQ Route            <IRQ14>

(press ESC)

WITT/MITT Test Device        <Disabled>
UART Test Device        <Disabled>
Additional Serial IO devices    [ ]
SerialIO timing parameters (Enter to expand)

SerialIO timing parameters    [ ]

(press ESC)

UCSI/UCMC device        <Disabled>

(press ESC)

TraceHub Configuration Menu (Enter to expand)

TraceHub Enable Mode        <Disable>
MemRegion 0 Buffer Size        <1MB>
MemRegion 1 Buffer Size        <1MB>

(press ESC)

Pch Thermal Throttling Control (Enter to expand)

Thermal Throttling Level    <Suggested Setting>
DMI Thermal Setting        <Suggested Setting>
SATA Thermal Setting        <Suggested Setting>

(press ESC)

DCI enable (HDCIEN)        <Disabled>
Debug Port Selection        <Legacy UART>
GNSS                <Disabled>
PCH LAN Controller        No GbE Region
DeepSx Power Policies        <Disabled>
LAN Wake From DeepSx        <Enabled>
Wake on WLAN and BT Enable    <Disabled>
Disable DSX ACPRESENT PullDown    <Disabled>
CLKRUN# logic            <Enabled>
Serial IRQ Mode            <Quiet>
Port 61h Bit-4 Emulation    <Enabled>
State After G3            <S0 State>
Port 80h Redirection        <LPC Bus>
Enhance Port 80h LPC Decoding    <Enabled>
Compatible Revision ID        <Disabled>
PCH Cross Throttling        <Enabled>
Disable Energy Reporting    <False>
Enable TCO Timer        <Disabled>
Pcie PII SSC            <Auto>
IOAPIC 24-119 Entries        <Enabled>
Unlock PCH P2SB            <Disabled>
Flash Protection Range Registers (FPRR) <Enabled>
SPD Write Disable        <True>
ChipsetInit HECI Message    [X]
Bypass ChipsetInit sync reset    <Disabled>

(press ESC)

PCH-FW Configuration (Enter to expand)

ME Firmware Version        0.0.0.0
ME Firmware Mode        ME Failed
ME Firmware SKU            Unidentified
ME File System Integrity Value    0
ME Firmware Status 1        0x000F0345
ME Firmware Status 2        0x8A116006
```

```
NFC Support            Disabled

ME State            <Enabled>
Comms Hub Support        <Disabled>
JHI Support            <Disabled>
Core Bios Done Message        <Enabled>

Firmware Update Configuration (Enter to expand)

Me FW Image Re-Flash        <Disabled>

(press ESC)

PTT Configuration (Enter to expand)

PTT Capability / State        0 / 0

PTP aware OS            <PTP Aware>

(press ESC)

ME Debug Configuration (Enter to expand)

HECI Timeouts            [X]

Force ME DID Init Status    <Disabled>
CPU Replaced Polling Disable    <Disabled>
ME DID Message            <Enabled>
HECI Retry Disable        <Disabled>
HECI Message check Disable    <Disabled>
MBP HOB Skip            <Disabled>
HECI2 Interface Communication    [ ]
KT Device            [X]
IDER Device            [X]
End Of Post Message        <Send in DXE>
DOI3 Setting for HECI Disable    <Disabled>

(press ESC twice)

Thermal Configuration (Enter to expand)

CPU Thermal Configuration (Enter to expand)

DTS SMM                <Disabled>
Tcc Activation Offset        [0]
Tcc Offset Time Window        <Disabled>
Tcc Offset Clamp Enable        <Disabled>
Tcc Offset Lock Enable        <Disabled>
Bi-directional PROCHOT#        <Enabled>
Disable PROCHOT# Output        <Enabled>
Disable VR Thermal Alert    <Disabled>
PROCHOT Response        <Disabled>
PROCHOT Lock            <Disabled>
ACPI T-States            [ ]
PECI Reset            <Disabled>
PECI C10 Reset            <Disabled>

(press ESC)

Platform Thermal Configuration (Enter to expand)

Automatic Thermal Reporting    <Disabled>
Critical Trip Point        <119C (POR)>
Active Trip Point 0        <71 C>
Active Trip Point 0 Fan Speed    [100]
Active Trip Point 1        <55 C>
Active Trip Point 1 Fan Speed    [75]
Passive Trip Point        <95 C>
  Passive TC1 Value        [1]
  Passive TC2 Value        [5]
  Passive TSP Value        [10]

Active Trip Points        <Enabled>
Passive Trip Points        <Disabled>
Critical Trip Points        <Enabled>

PCH Thermal Device        <Enabled in PCI mode>
PCH Temp Read            [X]
CPU Energy Read            [X]
CPU Temp Read            [X]
Alert Enable Lock        <Disabled>
CPU Temp            [0]
```

```
CPU Fan Speed            [65]

(press ESC)

DPTF Configuration (Enter to expand)

(press ESC)

Hardware Health Monitor (Enter to expand)

Thermal Sensor 1 Temp        <0 C>
Thermal Sensor 2 Temp        <0 C>
Thermal Sensor 3 Temp        <0 C>
Thermal Sensor 4 Temp        <0 C>
Thermal Sensor 5 Temp        <0 C>
Thermal Sensor 6 Temp        <0 C>
Thermal Sensor 7 Temp        <0 C>
Thermal Sensor 8 Temp        <0 C>
Thermal Thermistor 1 Temp    <0 raw>
Thermal Thermistor 2 Temp    <0 raw>
Thermal Thermistor 3 Temp    <0 raw>
Thermal Thermistor 4 Temp    <0 raw>
Thermal Thermistor 5 Temp    <0 raw>
Thermal Thermistor 6 Temp    <0 raw>
CPU Fan Speed            <0 rpm>
PCH DTS Temp from PCH        <0 C>

(press ESC twice)

Platform Settings (Enter to expand)

UCSI Retry Workaround        <Disabled>
PS2 Keyboard and Mouse        <Enabled>

(press ESC)

RTD3 settings (Enter to expand)

RTD3 Support            <Enabled>

VR Staggering delay            [16]
VR Ramp up delay           [16]
PCIE Slot 5 Device Power-on delay in ms    [100]
PCIE Slot 5 Device Power-off dealy in ms[10]
Audio Delay                [200]
I2C0 Controller                [0]
SensorHub                [68]
I2C1 Controller                [0]
TouchPad                [68]
TouchPanel                [68]
P-state Capping                <Disabled>
USB Port 1                <Disabled>
USB Port 2                <Disabled>
I2C0 Sensor Hub                <Enabled>
WWAN                    <Enabled>
Sata Port 1                <Disabled>
Sata Port 2                <Disabled>
RST Raid Volumes            <Enabled>

(press ESC)

Thunderbolt Device (Enter to expand)

Thunderbolt(TM) Support        <Disabled>
Thunderbolt(TM) PCIe Support    <Disabled>

(press ESC)

Server ME Configuration (Enter to expand)

Operational Firmware Version    4.1.4.54
Backup Firmware Version        0.0.0.0
Recovery Firmware Version    4.1.4.54
Server ME SKU            Silicon Enabling
ME Firmware Status #1        0x000F0345
ME Firmware Status #2        0x8A116006
Current State            Operational
Error Code            No Error

(press ESC)

Intel ICC (Enter to expand)
```

```
ICC/OC Watchdog Timer        <Disabled>
ICC Locks after EOP        <Default>
ICC Profile            [0]

(press ESC)

SIO AST2400 (Enter to expand)

Serial Port A            <AUTO>

(press ESC)

Trenton Systems (Enter to expand)

BIOS Info:
Platform            BIOS_MBC8272
Version               Main.001.012
State                release

SMBIOS OEM Strings:
Trenton BIOS version: BIOS_MBC8272.Main.001.012.release
Insyde  BIOS version: KabyLake.05.12.09.0049
Trenton Notes: Mainline

SPI OEM Contents:
SPI                SYSFLASH_MBC8272.Main.001.006
BIOS                BIOS_MBC8272.Main.001.004.release
ME                SPS_E3_04.01.04.054.0

(press ESC)

Ipmi Sensor Control (Enter to expand)

Per-Sensor Enables
FAN1 Enable        <Disabled>    {Enabled for TKE}
FAN2 Enable        <Enabled>
FAN3 Enable        <Enabled>
FAN4 Enable        <Enabled>
FAN5 Enable        <Disabled>    {Enabled for TKE}

(press ESC)

H2O IPMI Configuration (Enter to expand)

IPMI Support            <Enabled>

System Interface Type        KCS
IPMI Base Address for OS    CA2/CA3
IPMI Base Address for POST    CA2/CA3
IPMI Base Address for SMM    CA2/CA3

BMC Status            OK
BMC Firmware Version        3.03
IPMI Specification Version    2.0
BMC MAC Address            00:10:6F:23:73:B4    {varies}

BMC Warmup Time            [240]
ACPI SPMI Table            <Enabled>
Boot Option Support        <Disabled>
Set BIOS version to BMC        <Disabled>

BMC Configuration (Enter to expand)

Watchdog Timer Support        <Disabled>
Watchdog Timer Timeout        [5]
Watchdog Timer Action        <Hard Reset>

Power Cycle Time Support    <Disabled>
Power Cycle Time        [10]

Power Button            <Enabled>
Reset Button            <Enabled>
NMI Button            <Enabled>

Lan Port Configuration        <Dedicated>

LAN Channel Number        [1]
IPv4 Source            <DHCP>        {varies}
IPv4 IP Address            9.60.15.239    {varies}
IPv4 Subnet Mask        255.255.255.0    {varies}
IPv4 Gateway Address        9.60.15.254    {varies}
```

```
IPv6 Mode            <Disabled>
IPv6 AutoConfig            <Enabled>
IPv6 Prefix Length        [0]
IPv6 IP Address            0:0:0:0:0:0:0:0
IPv6 Gateway Address        0:0:0:0:0:0:0:0

(press ESC)

SDR List (Enter to expand)

SDR List Support        <Disabled>

(press ESC)

Execute H2O IPMI Utility

LOAD IPMI OPTIMAL DEFAULT

(press ESC)

Console Redirection (Enter to expand)

Console Serial Redirect        <Enabled>
Terminal Type            <VT_100>
Baud Rate            <115200>
Data Bits            <8 Bits>
Parity                <None>
Stop Bits            <1 Bit>
Flow Control            <None>
Information Wait Time        < 5 Second>
C.R. After Post            <Yes>
Text Mode Resolution        <AUTO>
AutoRefresh            <Enabled>
FailSafeBaudRate        <Disabled>
COMA (Enter to expand)

PortEnable            <Enabled>
UseGlobalSetting        <Enabled>

(press ESC)

Enable VT-100, 115200, N81

(press ESC)

H2oUve Configuration (Enter to expand)

H2OUVE Support            <Enabled>

(press ESC)

Diagnostics and System Tester (Enter to expand)

H2ODST Tool

(press ESC)

[Security Tab]

Current TPM Device            <TPM 2.0 (DTPM)>
TPM State                All Hierarchies Enabled, UnOwned    {varies}
TPM Active PCR Hash Algorithm        SHA1, SHA256
TPM Hardware Supported Hash Algorithm    SHA1, SHA256
TrEE Protocol Version            <1.1>
TPM Availability            <Available>
TPM Operation                <No Operation>
Clear TPM                [ ]

Supervisor Password            Not Installed
User Password                Not Installed

Set Supervisor Password
Set User Password
Set All Hdd Password
Set All Master Hdd Password

Storage Password Setup Page (Enter to expand)

ST2000NM0008-2F3100 (Enter to expand)

Device Name:        [ST2000NM0008-2F3100]
```

```
Security Mode:        No Accessed

Set Storage Password
Set Master Hdd Password

(press ESC twice)

[Power Tab]

ACPI S3            <Enabled>
Wake on PME        <Enabled>
Wake on Modem Ring    <Disabled>
Auto Wake on S5        <Disabled>
S5 long run test    <Disabled>

[Boot Tab]

Boot Type             <UEFI Boot Type>
Quick Boot             <Enabled>
Quiet Boot             <Enabled>
Network Stack             <Enabled>
PXE Boot capability        <UEFI:IPv4>
Power Up In Standby Support    <Disabled>
Add Boot Options        <Auto>
ACPI Selection             <Acpi5.0>
USB Boot            <Enabled>
EFI Device First        <Enabled>
UEFI OS Fast Boot        <Enabled>
  USB Hot Key Support        <Disabled>
Timeout                [10]
Automatic Failover        <Enabled>

EFI (Enter to expand)

BOOT_EMBEDDED (ST2000NM0008-2F3100)    {This list will vary}
EFI Hard Drive (ST2000NM0008-23F3100)
EFI Network LAN8  for IPv4 (00-10-6F-23-73-B3)
EFI Network LAN7  for IPv4 (00-10-6F-23-73-B2)
EFI Network LAN6  for IPv4 (00-10-6F-23-73-B1)
EFI Network LAN5  for IPv4 (00-10-6F-23-73-B0)
EFI Network LAN4  for IPv4 (00-10-6F-23-73-AF)
EFI Network LAN3  for IPv4 (00-10-6F-23-73-AE)
EFI Network LAN2  for IPv4 (00-10-6F-23-73-AD)
EFI Network LAN1  for IPv4 (00-10-6F-23-73-AC)
Internal EFI Shell

(press ESC)

Per-port boot filer (Enter to expand)

Rear Port1 Enable    <Enabled>
Rear Port2 Enable    <Enabled>
Rear Port3 Enable    <Enabled>
Rear Port4 Enable    <Enabled>
Rear Port5 Enable    <Enabled>
Rear Port6 Enable    <Enabled>
Front Port1 Enable    <Enabled>
Front Port2 Enable    <Enabled>

(press ESC)

[Exit Tab]

Exit Saving Changes
Save Change Without Exit
Exit Discarding Changes
Load Optimal Defaults
Load Custom Defaults
Save Custom Defaults
Discard Changes

(end of BIOS Setup values)


/*********************************************************************/
/* System Unit Test                                                  */
/*     2461-TW3 Global...   Special Bid      02WN845                 */
/*********************************************************************/

The H2ODST diagnostics are embedded in the system BIOS firmware.
```

```
Preparing to run diagnostics:  Power on or reboot the machine
and press ESC when prompted at the Insyde splash screen to
enter the setup screen.  Now select "H2ODST Tool".

Running the diagnostics:  Check the "All Device" orange box in the
upper left corner of the diagnostics window.  Click the "Start Test"
button in the lower right corner of the window.  Yes, the mouse response
and tracking in this program is terrible.  You will get fails in the
Audio and Hard Drive tests, as the Trenton has no audio device and
the data transfer test also fails.  All of the other tests should pass.
Press ESC to exit the diagnostics.
```

2461 HMC (FC 0063) configuration

The following is a list of the configuration settings for the 2461 HMC (FC 0063).

```
InsydeH20 Version    KabyLake.05.12.09.0049
Processor Type        Intel(R) Xeon(R) CPU E3-1225 v5 @ 3.30GHz
System Bus Speed    100 MHz
System Memory Speed    2133 MHz
Cache RAM        1024 KB
Total Memory        32768 MB
Channel A
DIMM 0            16384 MB
Unknown 1        [Not Installed]
Channel B
DIMM 0            16384 MB
Unknown 1        [Not Installed]
Platform Configuration
CPUID:            0x506E3 (SKYLAKE DT HALO)
CPU Speed:        3300 MHz
CPU Stepping:        03 (R0/S0/N0 Stepping)
L1 Data Cache:        32 KB
L1 Instruction Cache:    32 KB
L2 Cache:        256 KB
L3 Cache:        8192 KB
Number of Processors:    4 Core(s) / 4 Thread(s)
Microcode Rev:        000000C2
GT Info:        Unknown (0xFF)
SMX/TXT:        Supported
PCH Rev / SKU        31 (D1 Stepping) / SKL PCH-H C236
GOP Ver:        9.0.1069
EC Ver:            N/A
Board ID:        Zumba Beach Server Crb
FAB ID:           0
Intel ME Version / SKU    UnKnow
LAN PHY Revision    Unknown
Language        <English>
System Time        {varies}
System Date        {varies}

(press right arrow)

[Advanced Tab]

Platform Variable Revision    26
ME Setup Variable Revision    2
CPU Setup Variable Revision    11
SA Setup Variable Revision    9
PCH Setup Variable Revision    10
Boot Configuration (Enter to expand)

Numlock            <Off>

(press ESC)

Peripheral Configuration (Enter to expand)

Serial Port A        <Disabled>
Infrared Port        <Disabled>

(press ESC)

SATA Configuration (Enter to expand)

Serial ATA Port 0    [ST2000NM0008-2F3100]
Serial ATA Port 1    [Not Installed]
Serial ATA Port 2    [Not Installed]
Serial ATA Port 3    [Not Installed]
```

```
Serial ATA Port 4    [Not Installed]
Serial ATA Port 5    [Not Installed]
Serial ATA Port 6    [Not Installed]
Serial ATA Port 7    [Not Installed]

(press ESC)

Type C Support        <Disabled>
USB Configuration (Enter to expand)

USB BIOS Support        <Enabled>
Usb Legacy SMI bit Clean    <Disabled>

(press ESC)

Chipset Configuration (Enter to expand)

Setup Warning:
Setting items on this screen to incorrect values
may cause your system to malfunction!

(press ESC)

ACPI Settings (Enter to expand)

ACPI Settings (Enter to expand)

ACPI Version            5.0
Enable ACPI Auto Configuration    [X]

Native PCIE Enable        <Enabled>
Native ASPM            <Auto>
BDAT ACPI Table Support        <Disabled>

Low Power S0 Idle Capability    <Disabled>
Lpit Recidency Counter        <SLP S0>

Intel Ready Mode Technology    <Disabled>

SSDT table from file        <Disabled>

PCI Delay Optimization        <Disabled>

(press ESC)

FACP - RTC S4 Wakeup        <Enabled>
APIC - IO APIC Mode        <Enabled>
ACPI Memory Debug        <Disabled>

(press ESC)

CPU Configuration (Enter to expand)

Type         Intel(R) Xeon(R) CPU E3-1225 v5 @ 3.30GHz
ID                    0x506E3
Speed                    3300 MHz
L1 Data Cache                32 KB x 4
L1 Instruction Cache            32 KB x 4
L2 Cache                256 KB x 4
L3 Cache                8 MB
L4 Cache                N/A
VMX                    Supported
SMX/TXT                    Supported

SW Guard Extensions (SGX)        <Software Controlled>
Select Owner EPOCH input type        <No Change in Owner EPOCHs>
PRMRR Size                <INVALID PRMRR>
CPU Flex Ratio Override            <Disabled>
CPU Flex Ratio Settings            [33]
Hardware Prefetcher            <Enabled>
Adjacent Cache Line Prefetch        <Enabled>
Intel (VMX) Virtualization Technology    <Enabled>
PECI                    <Enabled>
Active Processor Cores            <All>
BIST                    <Disabled>
JTAG C10 Power                <Disabled>
AP threads Idle Manner            <MWAIT Loop>
AP threads Handoff Manner        <MWAIT Loop>
AES                    <Enabled>
MachineCheck                <Enabled>
MonitorMWait                <Enabled>
BIOS Guard                <Disabled>
```

```
Flash Wear Out Protection        <Disabled>
Current Debug Interface Status        Disabled
Debug Interface               <Disabled>
Debug Interface Lock           <Enabled>
Processor trace memory allocation    <Disabled>
FCLK Frequency for Early Power On    <Normal (800Mhz)>
Three Strike Counter           <Enabled>
Voltage Optimization           <Auto>

(press ESC)

Power & Performance (Enter to expand)

CPU - Power Management Control (Enter to expand)

Boot performance mode            <Max Non-Turbo Performance>
Intel(R) SpeedStep(tm)            <Enabled>
Race To Halt (RTH)            <Enabled>
Intel(R) Speed Shift Technology        <Enabled>
HDC Control                <Enabled>
  Turbo Mode                <Enabled>
  View/Configure Turbo Options (Enter to expand)

Current Turbo Settings

Max Turbo Power Limit        4095.875
Min Turbo Power Limit        0.0
Package TDP Limit        80.0
Power Limit 1            80.0
Power Limit 2            100.0
1-core Turbo Ratio        37
2-core Turbo Ratio        36
3-core Turbo Ratio        35
4-core Turbo Ratio        34

Package Power Limit MSR Lock    <Disabled>
Power Limit 1 Override        <Disabled>
Power Limit 2 Override        <Enabled>
Power Limit 2            [0]
1-Core Ratio Limit Override    [37]
2-Core Ratio Limit Override    [36]
3-Core Ratio Limit Override    [35]
4-Core Ratio Limit Override    [34]
Energy Efficient Turbo        <Enabled>

(press ESC)

CPU VR Settings (Enter to expand)

PSYS Slope        [0]
PSYS Offset        [0]
PSYS PMax Power        [0]
Acoustic Noise Settings (Enter to expand)

Acoustic Noise Mitigation        <Disabled>

IA VR Domain
Disable Fast PKG C State Ramp for IA    <False>
Domain
Slow Slew Rate for IA Domain        <Fast/2>

GT VR Domain
Disable Fast PKG C State Ramp for GT    <False>
Domain
Slow Slew Rate for GT Domain        <Fast/2>

SA VR Domain
Disable Fast PKG C State Ramp for SA    <False>
Domain
Slow Slew Rate for SA Domain        <Fast/2>

(press ESC)

Core/IA VR Settings (Enter to expand)

VR Config Enable        <Enabled>
AC Loadline            [0]
DC Loadline            [0]
PS Current Threshold1        [0]
PS Current Threshold2        [0]
PS Current Threshold3        [0]
PS3 Enable            <Enabled>
```

```
PS4 Enable            <Enabled>
IMON Slope            [0]
IMON Offset            [0]
  IMON Prefix            <+>
VR Current Limit        [0]
VR Voltage Limit        [0]
TDC Enable            <Enabled>
TDC Current Limit        [0]
TDC Time Window            <1 ms>
TDC Lock            <Disabled>

(press ESC)

VR Mailbox Command options    [0]
Intersil VR Command        <Disabled>

(press ESC)

Platform PL1 Enable            <Disabled>
Platform PL2 Enable            <Disabled>
Power Limit 4 Override            <Disabled>
C states                <Enabled>
  Enhanced C-states            <Enabled>
  C-State Auto Demotion            <C1 and C3>
  C-State Un-demotion            <C1 and C3>
  Package C-State Demotion        <Auto>
  Package C-State Un-demotion        <Auto>
CState Pre-Wake                <Enabled>
IO MWAIT Redirection            <Disabled>
Package C State Limit            <Auto>
C3 Latency Control (MSR 0x60A)
Time Unit                <1024 ns>
Latency                    [78]
C6/C7 Short Latency Control (MSR 0x60B)
Time Unit                <1024 ns>
Latency                    [118]
C6/C7 Long Latency Control (MSR 0x60C)
Time Unit                <1024 ns>
Latency                    [148]
Thermal Monitor                <Enabled>
Interrupt Redirection Mode Selection    <PAIR with Fixed Priority>
Timed MWAIT                <Disabled>
Custom P-state Table (Enter to expand)

Number of P states            [0]

(press ESC)

Energy Performance Gain            <Disabled>
EPG DIMM Idd3N                [26]
EPG DIMM Idd3P                [11]
Power Limit 3 Settings (Enter to expand)

Power Limit 3 Override            <Disabled>

(press ESC)

CPU Lock Configuration (Enter to expand)

CPG Lock                <Enabled>
Overclocking Lock            <Disabled>

(press ESC twice)

GT - Power Management Control (Enter to expand)

RC6(Render Standby)        <Enabled>
Maximum GT frequency        <Default Max Frequency>

(press ESC twice)

OverClocking Performance Menu (Enter to expand)

OverClocking Feature        <Disabled>
WDT Enable            <Enabled>

(press ESC)

Memory Configuration (Enter to expand)

Memory Thermal Configuration (Enter to expand)
```

```
Memory Power and Thermal Throttling (Enter to expand)

DDR PowerDown and idle counter        <BIOS>
For LPDDR Only: DDR PowerDown and idle    <BIOS>
counter
REFRESH_2X_MODE                <Disabled>
LPDDR Thermal Sensor            <Enabled>
SelfRefresh Enable            <Enabled>
SelfRefresh IdleTimer            [512]
Throttler CKEMin Defeature        <Disabled>
Throttler CKEMin Timer            [48]
Dram Power Meter (Enter to expand)

Use user provided power weights, scale    <Disabled>
factor, and channel power floor values
Energy Scale Factor            [4]

Idle Energy Ch0Dimm0            [10]
PowerDown Energy Ch0Dimm0        [6]
Activate Energy Ch0Dimm0        [172]
Read Energy Ch0Dimm0            [212]
Write Energy Ch0Dimm0            [221]

Idle Energy Ch0Dimm1            [10]
PowerDown Energy Ch0Dimm1        [6]
Activate Energy Ch0Dimm1        [172]
Read Energy Ch0Dimm1            [212]
Write Energy Ch0Dimm1            [221]

Idle Energy Ch1Dimm0            [10]
PowerDown Energy Ch1Dimm0        [6]
Activate Energy Ch1Dimm0        [172]
Read Energy Ch1Dimm0            [212]
Write Energy Ch1Dimm0            [221]

Idle Energy Ch1Dimm1            [10]
PowerDown Energy Ch1Dimm1        [6]
Activate Energy Ch1Dimm1        [172]
Read Energy Ch1Dimm1            [212]
Write Energy Ch1Dimm1            [221]

(press ESC)

Memory Thermal Reporting (Enter to expand)

Lock Thermal Management Registers    <Enabled>

Memory Thermal Reporting

Extern Therm Status            <Disabled>
Closed Loop Therm Manage        <Disabled>
Open Loop Therm Manage            <Disabled>

Thermal Threshold Settings

Warm Threshold Ch0 Dimm0        [255]
Warm Threshold Ch0 Dimm1        [255]
Hot Threshold Ch0 Dimm0            [255]
Hot Threshold Ch0 Dimm1            [255]
Warm Threshold Ch1 Dimm0        [255]
Warm Threshold Ch1 Dimm1        [255]
Hot Threshold Ch1 Dimm0            [255]
Hot Threshold Ch1 Dimm1            [255]

Thermal Throttle Budget Settings

Warm Budget Ch0 Dimm0            [255]
Warm Budget Ch0 Dimm1            [255]
Hot Budget Ch0 Dimm0            [255]
Hot Budget Ch0 Dimm1            [255]
Warm Budget Ch1 Dimm0            [255]
Warm Budget Ch1 Dimm1            [255]
Hot Budget Ch1 Dimm0            [255]
Hot Budget Ch1 Dimm1            [255]

(press ESC)

Memory RAPL (Enter to expand)

Rapl Power Floor Ch0        [0]
Rapl Power Floor Ch1        [0]
```

```
RAPL PL Lock            <Disabled>
RAPL PL 1 enable        <Disabled>
RAPL PL 1 Power           [0]
RAPL PL 1 WindowX        [0]
RAPL PL 1 WindowY        [0]

RAPL PL 2 enable        <Disabled>
RAPL PL 2 Power           [222]
RAPL PL 2 WindowX        [1]
RAPL PL 2 WindowY        [10]

(press ESC twice)

Memory Thermal Management    <Disabled>

(press ESC)

Memory Training Algorithms (Enter to expand)

Early Command Training            <Disabled>
SenseAmp Offset Training        <Enabled>
Early ReadMPR Timing Centering 2D    <Enabled>
Read MPR Training            <Enabled>
Receive Enable Training            <Enabled>
Jedec Write Levelling           <Enabled>
Early Write Time Centering 2D        <Enabled>
Early Write Drive Strength/Equalization    <Enabled>
Early Read Time Centering 2D        <Enabled>
Write Timing Centering 1D        <Enabled>
Write Voltage Centering 1D        <Enabled>
Read Timing Centering 1D        <Enabled>
Dimm ODT Training*           <Enabled>
  Max RTT_WR               <ODT Off>
DIMM RON Training*            <Enabled>
Write Drive Strength/Equalization 2D*    <Disabled>
Write Slew Rate Training*        <Enabled>
Read ODT Training*           <Enabled>
Read Equalization Training*        <Enabled>
Read Amplifier Training*        <Enabled>
Write Timing Centering 2D        <Enabled>
Read Timing Centering 2D        <Enabled>
Command Voltage Centering        <Enabled>
Write Voltage Centering 2D        <Enabled>
Read Voltage Centering 2D        <Enabled>
Late Command Training            <Enabled>
Round Trip Latency            <Enabled>
Turn Around Timing Training        <Enabled>
Rank Margin Tool           <Disabled>
Memory Test               <Disabled>
DIMM SPD Alias Test            <Enabled>
Receive Enable Centering 1D        <Enabled>
Retrain Margin Check            <Enabled>
Write Drive Strength Up/Dn independently<Disabled>
CMD Slew Rate Training            <Enabled>
CMD Drive Strength / Tx Equalization    <Enabled>
CMD Normalization            <Enabled>

(press ESC)

Memory Configuration

Memory RC Version            2.0.0.6
Memory Frequency             2133 MHz
Memory Timings (tCL-tRCD-tRP-tRAS)    15-15-15-35

Channel 0 Slot 0            Populated & Enabled
    Size                16384 MB (DDR4)
    Number of Ranks            2
    Manufacturer            Samsung {varies}
Channel 0 Slot 1            Not Populated / Disabled
Channel 1 Slot 0            Populated & Enabled
    Size                16384 MB (DDR4)
    Number of Ranks            2
    Manufacturer            Samsung {varies}
Channel 1 Slot 1            Not Populated / Disabled

Memory ratio/reference clock options moved to Overclock->Memory->Custom Profile menu
MRC ULT Safe Config            <Disabled>
Maximum Memory Frequency        <Auto>
HOB Buffer Size               <Auto>
ECC Support                <Enabled>
Max TOLUD                <Dynamic>
```

```
SA GV                     <Enabled>
SA GV Low Freq                 <MRC default>
Retrain on Fast Fail             <Enabled>
Command Tristate            <Enabled>
Enable RH Prevention             <Enabled>
Row Hammer Solution            <Hardware RHP>
RH Activation Probability        <1/2^11>
Exit On Failure (MRC)            <Enabled>
MC Lock                   <Enabled>
Probless Trace               <Disabled>
Enable/Disable IED (Intel Enhanced Debug)<Disabled>
Ch Hash Support               <Enabled>
Ch Hash Mask                [0]
Ch Hash Interleaved Bit           <BIT8>
VC1 Read Metering           <Enabled>
VC1 RdMeter Time Window           [800]
VC1 RdMeter Threshold           [280]
Strong Weak Leaker            [7]
Memory Scrambler            <Enabled>
Force ColdReset               <Disabled>
Channel A DIMM Control           <Enable both DIMMs>
Channel B DIMM Control           <Enable both DIMMs>
Force Single Rank           <Disabled>
Memory Remap                <Enabled>
Time Measure                <Disabled>
Lpddr Mem WL Set            <Set B>
EV Loader                 <Disabled>
EV Loader Delay                <Enabled>

(press ESC)

System Agent (SA) Configuration (Enter to expand)

SA PCIe Code Version        3.1.2.0
VT-d                Supported

Graphics Configuration (Enter to expand)

Skip Scaning of External Gfx Card    <Disabled>

Primary Display               <Auto>
Internal Graphics           <Auto>
GTT Size                <8MB>
Aperture Size               <256MB>
DVMT Pre-Allocated           <32M>
DVMT Total Gfx Mem           <256M>
Intel Graphics Pei Display Peim        <Disabled>
PM Support                <Enabled>
PAVP Enable                <Enabled>
Cdynmax Clamping Enable           <Enabled>
Cd Clock Frequency           <675 Mhz>
IUER Button Enable           <Disabled>

(press ESC)

DMI/OPI Configuration (Enter to expand)

DMI                     X4  Gen3

DMI Max Link Speed           <Auto>
DMI Gen3 Eq Phase 2           <Auto>
DMI Gen3 Eq Phase 3 Method       <Auto>
DMI Vc1 Control               <Disabled>
DMI Vcm Control               <Enabled>
Program Static Phase1 Eq       <Enabled>
Gen3 Root Port Preset value for each Lane (Enter to expand)

Lane 0        [4]
Lane 1        [4]
Lane 2        [4]
Lane 3        [4]

(press ESC)

Gen3 Endpoint Preset value for each Lane (Enter to expand)

Lane 0        [7]
Lane 1        [7]
Lane 2        [7]
Lane 3        [7]

(press ESC)
```

```
Gen3 Endpoint Hint value for each Lane (Enter to expand)

Lane 0        [2]
Lane 1        [2]
Lane 2        [2]
Lane 3        [2]

(press ESC)

Gen3 RxCTLE Control (Enter to expand)

Bundle0        [3]
Bundle1        [3]

(press ESC)

DMI Link ASPM Control        <L1>
DMI Extended Sync Control    <Disabled>
DMI De-emphasis Control        <-3.5 dB>
DMI IOT                <Disabled>

(press ESC)

PEG Port Configuration (Enter to expand)

PEG 0:1:0            Not Present
  Enable Root Port        <Auto>
  Max Link Speed        <Auto>
  PEG0 Slot Power Limit Value    [75]
  PEG0 Slot Power Limit Scale    <1.0x>
  PEG0 Physical Slot Number    [1]
PEG 0:1:1            x4  Gen2
  Enable Root Port        <Auto>
  Max Link Speed        <Auto>
  Max Link Width        <Auto>
  Power Down Unused Lanes    <Auto>
  Gen3 Eq Phase 2        <Auto>
  Gen3 Eq Phase 3 Method    <Auto>
  ASPM                <Auto>
  De-emphasis Control        <-3.5 dB>
  OBFF                <Enabled>
  LTR                <Enabled>
  PEG1 Slot Power Limit Value    [75]
  PEG1 Slot Power Limit Scale    <1.0x>
  PEG1 Physical Slot Number    [2]
  Max Link Width        <Auto>
  Power Down Unused Lanes    <Auto>
  Gen3 Eq Phase 2        <Auto>
  Gen3 Eq Phase 3 Method    <Auto>
  ASPM                <Auto>
  De-emphasis Control        <-3.5 dB>
  OBFF                <Enabled>
  LTR                <Enabled>
  PEG2 Slot Power Limit Value    [75]
  PEG2 Slot Power Limit Scale    <1.0x>
  PEG2 Physical Slot Number    [3]
PEG1 Max Payload size        <Auto>
PEG2 Max Payload size        <Auto>

Program PCIe ASPM after OpROM    <Disabled>
Program Static Phase1 Eq    <Enabled>
Gen3 Root Port Preset value for each Lane (Enter to expand)

Lane 0        [7]
Lane 1        [7]
Lane 2        [7]
Lane 3        [7]
Lane 4        [7]
Lane 5        [7]
Lane 6        [7]
Lane 7        [7]
Lane 8        [7]
Lane 9        [7]
Lane 10        [7]
Lane 11        [7]
Lane 12        [7]
Lane 13        [7]
Lane 14        [7]
Lane 15        [7]

(press ESC)
```

```
Gen3 Endpoint Preset value for each Lane (Enter to expand)

Lane 0        [7]
Lane 1        [7]
Lane 2        [7]
Lane 3        [7]
Lane 4        [7]
Lane 5        [7]
Lane 6        [7]
Lane 7        [7]
Lane 8        [7]
Lane 9        [7]
Lane 10        [7]
Lane 11        [7]
Lane 12        [7]
Lane 13        [7]
Lane 14        [7]
Lane 15        [7]

(press ESC)

Gen3 Endpoint Hint value for each Lane (Enter to expand)

Lane 0        [2]
Lane 1        [2]
Lane 2        [2]
Lane 3        [2]
Lane 4        [2]
Lane 5        [2]
Lane 6        [2]
Lane 7        [2]
Lane 8        [2]
Lane 9        [2]
Lane 10        [2]
Lane 11        [2]
Lane 12        [2]
Lane 13        [2]
Lane 14        [2]
Lane 15        [2]

(press ESC)

Gen3 RxCTLE Control (Enter to expand)

Bundle0        [0]
Bundle1        [0]
Bundle2        [0]
Bundle3        [0]
Bundle4        [0]
Bundle5        [0]
Bundle6        [0]
Bundle7        [0]
RxCTLE Override    <Disabled>

(press ESC)

Gen3 Adaptive Software Equalization
  Always Attempt SW EQ        <Disabled>
  Number of Presets to test    <Auto>
  Allow PERST# GPIO Usage    <Enabled>
  SW EQ Enable VOC        <Auto>
  Jitter Dwell Time        [3000]
  Jitter Error Target        [2]
  VOC Dwell Time        [10000]
  VOC Error Target        [2]
Generate BDAT PEG Margin Data    <Disabled>
PCIe Rx CEM Test Mode        <Disabled>
PCIe Spread Spectrum Clocking    <Enabled>

(press ESC)

Stop Grant Configuration    <Auto>
VT-d                <Enabled>
CHAP Device (B0:D7:F0)        <Disabled>
Thermal Device (B0:D4:F0)    <Disabled>
GMM Device (B0:D8:F0)        <Enabled>
CRID Support            <Disabled>
Above 4GB MMIO BIOS assignment    <Disabled>
X2APIC Opt Out            <Disabled>

(press ESC)
```

```
PCH-IO Configuration (Enter to expand)

PCI Express Configuration (Enter to expand)

PCI Express Clock Gating    <Enabled>
Legacy IO Low Latency        <Disabled>
DMI Link ASPM Control        <Enabled>
PCIE Port assigned to LAN    Disabled
Port8xh Decode             <Disabled>
Peer Memory Write Enable    <Disabled>
Compliance Test Mode        <Disabled>
PCIe-USB Glitch W/A        <Disabled>
PCIe function swap         <Enabled>
PCI Express Gen3 Eq Lanes (Enter to expand)

PCIE1  Cm    [6]
PCIE1  Cp    [2]
PCIE2  Cm    [6]
PCIE2  Cp    [2]
PCIE3  Cm    [6]
PCIE3  Cp    [2]
PCIE4  Cm    [6]
PCIE4  Cp    [2]
PCIE5  Cm    [6]
PCIE5  Cp    [2]
PCIE6  Cm    [6]
PCIE6  Cp    [2]
PCIE7  Cm    [6]
PCIE7  Cp    [2]
PCIE8  Cm    [6]
PCIE8  Cp    [2]
PCIE9  Cm    [6]
PCIE9  Cp    [2]
PCIE10 Cm    [6]
PCIE10 Cp    [2]
PCIE11 Cm    [6]
PCIE11 Cp    [2]
PCIE12 Cm    [6]
PCIE12 Cp    [2]
PCIE13 Cm    [6]
PCIE13 Cp    [2]
PCIE14 Cm    [6]
PCIE14 Cp    [2]
PCIE15 Cm    [6]
PCIE15 Cp    [2]
PCIE16 Cm    [6]
PCIE16 Cp    [2]
PCIE17 Cm    [6]
PCIE17 Cp    [2]
PCIE18 Cm    [6]
PCIE18 Cp    [2]
PCIE19 Cm    [6]
PCIE19 Cp    [2]
PCIE20 Cm    [6]
PCIE20 Cp    [2]

Override SW EQ settings    <Disabled>

(press ESC)

PCI Express Root Port 1 (Enter to expand)

PCI Express Root Port 1        <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates            <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE1 LTR           <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE1 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE1 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 5 (Enter to expand)

PCI Express Root Port 5        <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE5 LTR           <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE5 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE5 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 6 (Enter to expand)

PCI Express Root Port 6        <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER                <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE                <Disabled>
  SENFE                <Disabled>
  SECE                <Disabled>
  PME SCI            <Enabled>
  Hot Plug            <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE6 LTR           <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE6 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE6 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 7 (Enter to expand)

PCI Express Root Port 7        <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                 <Disabled>
  FER                 <Disabled>
  NFER                 <Disabled>
  CER                 <Disabled>
  CTO                 <Disabled>
  SEFE                 <Disabled>
  SENFE                 <Disabled>
  SECE                 <Disabled>
  PME SCI             <Enabled>
  Hot Plug             <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [7]
Reserved Memory           [17]
Reserved I/O            [16]

PCH PCIe LTR Configuration
PCH PCIE7 LTR           <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE7 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE7 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 8 (Enter to expand)

PCI Express Root Port 8        <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                 <Disabled>
  FER                 <Disabled>
  NFER                 <Disabled>
  CER                 <Disabled>
  CTO                 <Disabled>
  SEFE                 <Disabled>
  SENFE                 <Disabled>
  SECE                 <Disabled>
  PME SCI             <Enabled>
  Hot Plug             <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [7]
Reserved Memory           [17]
Reserved I/O            [8]

PCH PCIe LTR Configuration
PCH PCIE8 LTR           <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE8 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE8 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 9 (Enter to expand)

PCI Express Root Port 9        <Enabled>
  Topology            <M2>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                 <Disabled>
  FER                 <Disabled>
  NFER                 <Disabled>
  CER                 <Disabled>
  CTO                 <Disabled>
  SEFE                 <Disabled>
  SENFE                 <Disabled>
  SECE                 <Disabled>
  PME SCI             <Enabled>
  Hot Plug             <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE9 LTR           <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE9 LTR Lock            <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE9 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 10 (Enter to expand)

PCI Express Root Port 10    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                 <Disabled>
  FER                 <Disabled>
  NFER                 <Disabled>
  CER                 <Disabled>
  CTO                 <Disabled>
  SEFE                 <Disabled>
  SENFE                 <Disabled>
  SECE                 <Disabled>
  PME SCI             <Enabled>
  Hot Plug             <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE10 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE10 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE10 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 11 (Enter to expand)

PCI Express Root Port 11    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE11 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE11 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE11 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 12 (Enter to expand)

PCI Express Root Port 12    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE12 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE12 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE12 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 13 (Enter to expand)

PCI Express Root Port 13    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE13 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE13 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE13 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 17 (Enter to expand)

PCI Express Root Port 17    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE17 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE17 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE17 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 21 (Enter to expand)

PCI Express Root Port 21    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE21 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE21 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 22 (Enter to expand)

PCI Express Root Port 22    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE22 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE22 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 23 (Enter to expand)

PCI Express Root Port 23    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE23 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE23 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC)

PCI Express Root Port 24 (Enter to expand)

PCI Express Root Port 24    <Enabled>
  Topology            <Unknown>
ASPM                <Auto>
L1 Substrates           <L1.1 & L1.2>
Gen3 Eq Phase3 Method        <Software Search>
UPTP                [5]
DPTP                [7]
ACS                <Enabled>
  URR                <Disabled>
  FER                <Disabled>
  NFER               <Disabled>
  CER                <Disabled>
  CTO                <Disabled>
  SEFE               <Disabled>
  SENFE              <Disabled>
  SECE               <Disabled>
  PME SCI            <Enabled>
  Hot Plug           <Disabled>
  Advanced Error Reporting    <Enabled>
```

```
PCIe Speed            <Auto>
  Transmitter Half Swing    <Disabled>
Detect Timeout            [0]
Extra Bus Reserved        [0]
Reserved Memory           [10]
Reserved I/O            [4]

PCH PCIe LTR Configuration
PCH PCIE24 LTR            <Enabled>
  Snoop Latency Override    <Auto>
  Non Snoop Latency Override    <Auto>
  Force LTR Override        <Disabled>

PCIE24 LTR Lock           <Disabled>

PCH PCIe CLKREQ# Configuration
PCIE20 CLKREQ Mapping Override    <Default>

(press ESC twice)

SATA and RST Configuration (Enter to expand)

SATA Controller(s)        <Enabled>
SATA Mode Selection        <AHCI>
SATA Test Mode            <Disabled>
Software Feature Mask Configuration (Enter to expand)

HDD Unlock            <Enabled>
LED Locate            <Enabled>

(press ESC)

Aggressive LPM Support        <Enabled>

Serial ATA Port 0        ST2000NM0008-2 (4000.7GB)
  Software Preserve         SUPPORTED
  Port 0            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Flex>
  SATA Port 0 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 1        Empty
  Software Preserve         Unknown
  Port 1            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Direct Connect>
  SATA Port 1 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 2        Empty
  Software Preserve         Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 2 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 3        Empty
  Software Preserve         Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 3 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
```

```
Serial ATA Port 4        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 4 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 5        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <M2>
  SATA Port 5 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 6        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 6 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]
Serial ATA Port 7        Empty
  Software Preserve        Unknown
  Port 2            <Enabled>
  Hot Plug            <Disabled>
  Configured as eSATA        Hot Plug supported
  Spin Up Device        <Disabled>
  SATA Device Type        <Hard Disk Drive>
  Topology            <Unknown>
  SATA Port 7 DevSlp        <Disabled>
  DITO Configuration        <Disabled>
  DITO Value            [625]
  DM Value            [15]

(press ESC)

USB Configuration (Enter to expand)

XHCI Disable Compliance Mode    <False>

xDCI Support            <Disabled>

USB Port Disable Override    <Disable>

(press ESC)

Security Configuration (Enter to expand)

RTC Lock            <Enabled>
BIOS Lock            <Enabled>

(press ESC)

SerialIo Configuration (Enter to expand)

I2C0 Controller            <Enabled>
I2C1 Controller            <Enabled>
I2C2 Controller            <Disabled>
I2C3 Controller            <Disabled>
SPI0 Controller            <Disabled>
SPI1 Controller            <Disabled>
UART0 Controller        <Enabled>
UART1 Controller        <Disabled>
UART2 Controller        <for debug only>
GPIO Controller            <Enabled>

Serial IO I2C0 Settings (Enter to expand)
```

```
I2C IO Voltage Select        <3.3V>

Connected device        <Disabled>

(press ESC)

Serial IO I2C1 Settings (Enter to expand)

I2C IO Voltage Select        <3.3V>

Connected device        <Disabled>

(press ESC)

Serial IO UART0 Settings (Enter to expand)

Bluetooth Device        <Disabled>
Wireless Charging Mode        <WC Disabled>
Hardware Flow Control        <Enabled>

(press ESC)

Serial IO GPIO Settings (Enter to expand)

GPIO IRQ Route            <IRQ14>

(press ESC)

WITT/MITT Test Device        <Disabled>
UART Test Device        <Disabled>
Additional Serial IO devices    [ ]
SerialIO timing parameters (Enter to expand)

SerialIO timing parameters    [ ]

(press ESC)

UCSI/UCMC device        <Disabled>

(press ESC)

TraceHub Configuration Menu (Enter to expand)

TraceHub Enable Mode        <Disable>
MemRegion 0 Buffer Size        <1MB>
MemRegion 1 Buffer Size        <1MB>

(press ESC)

Pch Thermal Throttling Control (Enter to expand)

Thermal Throttling Level    <Suggested Setting>
DMI Thermal Setting        <Suggested Setting>
SATA Thermal Setting        <Suggested Setting>

(press ESC)

DCI enable (HDCIEN)        <Disabled>
Debug Port Selection        <Legacy UART>
GNSS                <Disabled>
PCH LAN Controller        No GbE Region
DeepSx Power Policies        <Disabled>
LAN Wake From DeepSx        <Enabled>
Wake on WLAN and BT Enable    <Disabled>
Disable DSX ACPRESENT PullDown    <Disabled>
CLKRUN# logic            <Enabled>
Serial IRQ Mode            <Quiet>
Port 61h Bit-4 Emulation    <Enabled>
State After G3            <S0 State>

{The SE and Hardware Management Appliance will use "S0 State", the HMC
and TKE will use "Last State".  This determines what the machine will
do when input power is restored.}

Port 80h Redirection        <LPC Bus>
Enhance Port 80h LPC Decoding    <Enabled>
Compatible Revision ID        <Disabled>
PCH Cross Throttling        <Enabled>
Disable Energy Reporting    <False>
Enable TCO Timer        <Disabled>
Pcie PII SSC            <Auto>
```

```
IOAPIC 24-119 Entries        <Enabled>
Unlock PCH P2SB            <Disabled>
Flash Protection Range Registers (FPRR) <Enabled>
SPD Write Disable         <True>
ChipsetInit HECI Message    [X]
Bypass ChipsetInit sync reset    <Disabled>

(press ESC)

PCH-FW Configuration (Enter to expand)

ME Firmware Version        0.0.0.0
ME Firmware Mode        ME Failed
ME Firmware SKU            Unidentified
ME File System Integrity Value    0
ME Firmware Status 1        0x000F0345
ME Firmware Status 2        0x8A116006
NFC Support            Disabled

ME State             <Enabled>
Comms Hub Support        <Disabled>
JHI Support            <Disabled>
Core Bios Done Message        <Enabled>

Firmware Update Configuration (Enter to expand)

Me FW Image Re-Flash        <Disabled>

(press ESC)

PTT Configuration (Enter to expand)

PTT Capability / State        0 / 0

PTP aware OS            <PTP Aware>

(press ESC)

ME Debug Configuration (Enter to expand)

HECI Timeouts            [X]

Force ME DID Init Status    <Disabled>
CPU Replaced Polling Disable    <Disabled>
ME DID Message            <Enabled>
HECI Retry Disable        <Disabled>
HECI Message check Disable    <Disabled>
MBP HOB Skip            <Disabled>
HECI2 Interface Communication    [ ]
KT Device            [X]
IDER Device            [X]
End Of Post Message        <Send in DXE>
DOI3 Setting for HECI Disable    <Disabled>

(press ESC twice)

Thermal Configuration (Enter to expand)

CPU Thermal Configuration (Enter to expand)

DTS SMM                <Disabled>
Tcc Activation Offset        [0]
Tcc Offset Time Window        <Disabled>
Tcc Offset Clamp Enable        <Disabled>
Tcc Offset Lock Enable        <Disabled>
Bi-directional PROCHOT#        <Enabled>
Disable PROCHOT# Output        <Enabled>
Disable VR Thermal Alert    <Disabled>
PROCHOT Response        <Disabled>
PROCHOT Lock            <Disabled>
ACPI T-States            [ ]
PECI Reset            <Disabled>
PECI C10 Reset            <Disabled>

(press ESC)

Platform Thermal Configuration (Enter to expand)

Automatic Thermal Reporting    <Disabled>
Critical Trip Point        <119C (POR)>
Active Trip Point 0        <71 C>
Active Trip Point 0 Fan Speed    [100]
```

```
Active Trip Point 1        <55 C>
Active Trip Point 1 Fan Speed    [75]
Passive Trip Point        <95 C>
  Passive TC1 Value        [1]
  Passive TC2 Value        [5]
  Passive TSP Value        [10]

Active Trip Points        <Enabled>
Passive Trip Points        <Disabled>
Critical Trip Points        <Enabled>

PCH Thermal Device        <Enabled in PCI mode>
PCH Temp Read            [X]
CPU Energy Read            [X]
CPU Temp Read            [X]
Alert Enable Lock        <Disabled>
CPU Temp            [0]
CPU Fan Speed            [65]

(press ESC)

DPTF Configuration (Enter to expand)

(press ESC)

Hardware Health Monitor (Enter to expand)

Thermal Sensor 1 Temp        <0 C>
Thermal Sensor 2 Temp        <0 C>
Thermal Sensor 3 Temp        <0 C>
Thermal Sensor 4 Temp        <0 C>
Thermal Sensor 5 Temp        <0 C>
Thermal Sensor 6 Temp        <0 C>
Thermal Sensor 7 Temp        <0 C>
Thermal Sensor 8 Temp        <0 C>
Thermal Thermistor 1 Temp    <0 raw>
Thermal Thermistor 2 Temp    <0 raw>
Thermal Thermistor 3 Temp    <0 raw>
Thermal Thermistor 4 Temp    <0 raw>
Thermal Thermistor 5 Temp    <0 raw>
Thermal Thermistor 6 Temp    <0 raw>
CPU Fan Speed            <0 rpm>
PCH DTS Temp from PCH        <0 C>

(press ESC twice)

Platform Settings (Enter to expand)

UCSI Retry Workaround        <Disabled>
PS2 Keyboard and Mouse        <Enabled>

(press ESC)

RTD3 settings (Enter to expand)

RTD3 Support            <Enabled>

VR Staggering delay            [16]
VR Ramp up delay            [16]
PCIE Slot 5 Device Power-on delay in ms    [100]
PCIE Slot 5 Device Power-off dealy in ms[10]
Audio Delay                [200]
I2C0 Controller                [0]
SensorHub                [68]
I2C1 Controller                [0]
TouchPad                [68]
TouchPanel                [68]
P-state Capping                <Disabled>
USB Port 1                <Disabled>
USB Port 2                <Disabled>
I2C0 Sensor Hub                <Enabled>
WWAN                    <Enabled>
Sata Port 1                <Disabled>
Sata Port 2                <Disabled>
RST Raid Volumes            <Enabled>

(press ESC)

Thunderbolt Device (Enter to expand)

Thunderbolt(TM) Support        <Disabled>
Thunderbolt(TM) PCIe Support    <Disabled>
```

```
(press ESC)

Server ME Configuration (Enter to expand)

Operational Firmware Version    4.1.4.54
Backup Firmware Version        0.0.0.0
Recovery Firmware Version    4.1.4.54
Server ME SKU            Silicon Enabling
ME Firmware Status #1        0x000F0345
ME Firmware Status #2        0x8A116006
Current State            Operational
Error Code            No Error

(press ESC)

Intel ICC (Enter to expand)

ICC/OC Watchdog Timer        <Disabled>
ICC Locks after EOP        <Default>
ICC Profile            [0]

(press ESC)

SIO AST2400 (Enter to expand)

Serial Port A            <AUTO>

(press ESC)

Trenton Systems (Enter to expand)

BIOS Info:
Platform            BIOS_MBC8272
Version               Main.001.012
State                release

SMBIOS OEM Strings:
Trenton BIOS version: BIOS_MBC8272.Main.001.012.release
Insyde  BIOS version: KabyLake.05.12.09.0049
Trenton Notes: Mainline

SPI OEM Contents:
SPI                SYSFLASH_MBC8272.Main.001.006
BIOS                BIOS_MBC8272.Main.001.004.release
ME               SPS_E3_04.01.04.054.0

(press ESC)

Ipmi Sensor Control (Enter to expand)

Per-Sensor Enables
FAN1 Enable        <Disabled>    {Enabled for TKE}
FAN2 Enable        <Enabled>
FAN3 Enable        <Enabled>
FAN4 Enable        <Enabled>
FAN5 Enable        <Disabled>    {Enabled for TKE}

(press ESC)

H2O IPMI Configuration (Enter to expand)

IPMI Support            <Enabled>

System Interface Type        KCS
IPMI Base Address for OS    CA2/CA3
IPMI Base Address for POST    CA2/CA3
IPMI Base Address for SMM    CA2/CA3

BMC Status            OK
BMC Firmware Version        3.03
IPMI Specification Version    2.0
BMC MAC Address            00:10:6F:23:73:B4    {varies}

BMC Warmup Time            [240]
ACPI SPMI Table            <Enabled>
Boot Option Support        <Disabled>
Set BIOS version to BMC        <Disabled>

BMC Configuration (Enter to expand)

Watchdog Timer Support        <Disabled>
```

```
Watchdog Timer Timeout        [5]
Watchdog Timer Action        <Hard Reset>

Power Cycle Time Support    <Disabled>
Power Cycle Time        [10]

Power Button            <Enabled>
Reset Button            <Enabled>
NMI Button            <Enabled>

Lan Port Configuration        <Dedicated>

LAN Channel Number        [1]
IPv4 Source            <DHCP>        {varies}
IPv4 IP Address            9.60.15.239    {varies}
IPv4 Subnet Mask        255.255.255.0    {varies}
IPv4 Gateway Address        9.60.15.254    {varies}

IPv6 Mode            <Disabled>
IPv6 AutoConfig            <Enabled>
IPv6 Prefix Length        [0]
IPv6 IP Address            0:0:0:0:0:0:0:0
IPv6 Gateway Address        0:0:0:0:0:0:0:0

(press ESC)

SDR List (Enter to expand)

SDR List Support        <Disabled>

(press ESC)

Execute H2O IPMI Utility

LOAD IPMI OPTIMAL DEFAULT

(press ESC)

Console Redirection (Enter to expand)

Console Serial Redirect        <Enabled>
Terminal Type            <VT_100>
Baud Rate            <115200>
Data Bits            <8 Bits>
Parity                <None>
Stop Bits            <1 Bit>
Flow Control            <None>
Information Wait Time        < 5 Second>
C.R. After Post            <Yes>
Text Mode Resolution        <AUTO>
AutoRefresh            <Enabled>
FailSafeBaudRate        <Disabled>
COMA (Enter to expand)

PortEnable            <Enabled>
UseGlobalSetting        <Enabled>

(press ESC)

Enable VT-100, 115200, N81

(press ESC)

H2oUve Configuration (Enter to expand)

H2OUVE Support            <Enabled>

(press ESC)

Diagnostics and System Tester (Enter to expand)

H2ODST Tool

(press ESC)

[Security Tab]

Current TPM Device            <TPM 2.0 (DTPM)>
TPM State                All Hierarchies Enabled, UnOwned    {varies}
TPM Active PCR Hash Algorithm        SHA1, SHA256
TPM Hardware Supported Hash Algorithm    SHA1, SHA256
TrEE Protocol Version            <1.1>
```

```
TPM Availability            <Available>
TPM Operation                <No Operation>
Clear TPM                [ ]

Supervisor Password            Not Installed
User Password                Not Installed

Set Supervisor Password
Set User Password
Set All Hdd Password
Set All Master Hdd Password

Storage Password Setup Page (Enter to expand)

ST2000NM0008-2F3100 (Enter to expand)

Device Name:        [ST2000NM0008-2F3100]

Security Mode:        No Accessed

Set Storage Password
Set Master Hdd Password

(press ESC twice)

[Power Tab]

ACPI S3            <Enabled>
Wake on PME        <Enabled>
Wake on Modem Ring    <Disabled>
Auto Wake on S5        <Disabled>
S5 long run test    <Disabled>

[Boot Tab]

Boot Type             <UEFI Boot Type>
Quick Boot             <Enabled>
Quiet Boot             <Enabled>
Network Stack             <Enabled>
PXE Boot capability        <UEFI:IPv4>
Power Up In Standby Support    <Disabled>
Add Boot Options        <Auto>
ACPI Selection            <Acpi5.0>
USB Boot            <Enabled>
EFI Device First        <Enabled>
UEFI OS Fast Boot        <Enabled>
  USB Hot Key Support        <Disabled>
Timeout                [10]
Automatic Failover        <Enabled>

EFI (Enter to expand)

BOOT_EMBEDDED (ST2000NM0008-2F3100)    {This list will vary}
EFI Hard Drive (ST2000NM0008-23F3100)
EFI Network LAN8  for IPv4 (00-10-6F-23-73-B3)
EFI Network LAN7  for IPv4 (00-10-6F-23-73-B2)
EFI Network LAN6  for IPv4 (00-10-6F-23-73-B1)
EFI Network LAN5  for IPv4 (00-10-6F-23-73-B0)
EFI Network LAN4  for IPv4 (00-10-6F-23-73-AF)
EFI Network LAN3  for IPv4 (00-10-6F-23-73-AE)
EFI Network LAN2  for IPv4 (00-10-6F-23-73-AD)
EFI Network LAN1  for IPv4 (00-10-6F-23-73-AC)
Internal EFI Shell

(press ESC)

Per-port boot filer (Enter to expand)

Rear Port1 Enable    <Enabled>
Rear Port2 Enable    <Enabled>
Rear Port3 Enable    <Enabled>
Rear Port4 Enable    <Enabled>
Rear Port5 Enable    <Enabled>
Rear Port6 Enable    <Enabled>
Front Port1 Enable    <Enabled>
Front Port2 Enable    <Enabled>

(press ESC)

[Exit Tab]

Exit Saving Changes
```

```
Save Change Without Exit
Exit Discarding Changes
Load Optimal Defaults
Load Custom Defaults
Save Custom Defaults
Discard Changes

(end of BIOS Setup values)
```

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Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

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European Community contact:
IBM Deutschland GmbH
Technical Regulations, Department M372
IBM-Allee 1, 71139 Ehningen, Germany

Tele: +49 (0) 800 225 5423 or +49 (0) 180 331 3233
email: halloibm@de.ibm.com

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Statement - Japan

この装置は、クラス A 情報技術装置です。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講ずるよう要求されることがあります。 VCCI-A

The following is a summary of the Japanese VCCI statement above:

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case the user may be required to take corrective actions.

Japan JIS C 61000-3-2 Compliance

（一社）電子情報技術産業協会 高調波電流抑制対策実施要領に基づく定格入力電力値： Knowledge Centerの各製品の仕様ページ参照

For products less than or equal to 20 A per phase, the following statement applies:

高調波電流規格 JIS C 61000-3-2 適合品

For products greater than 20 A, single-phase, the following statements apply:

高調波電流規格 JIS C 61000-3-2 準用品

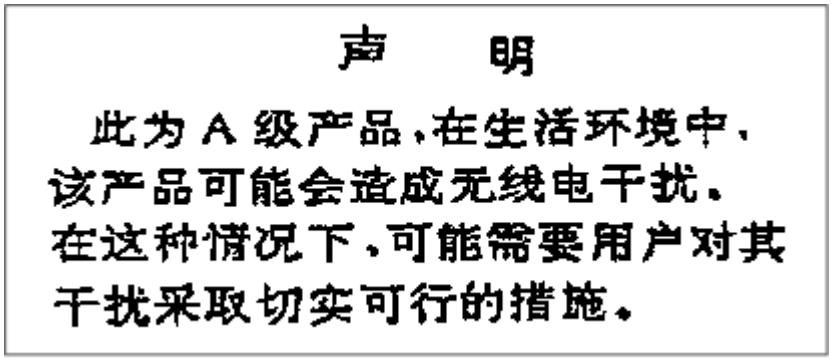
本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。
回路分類：6（単相、ＰＦＣ回路付）
換算係数：0

For products greater than 20 A per phase, three-phase, the following statements apply:

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。
回路分類 ：5（3相、ＰＦＣ回路付）
換算係数 ：0

Electromagnetic Interference (EMI) Statement - People's Republic of China



Declaration: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

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這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

The following is a summary of the Taiwan EMI statement above:

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user will be required to take adequate measures.

IBM Taiwan Contact Information:

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Electromagnetic Interference (EMI) Statement - Korea

이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니
판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의
지역에서 사용하는 것을 목적으로 합니다.

Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55032 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung von IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung von IBM gesteckt/eingebaut werden.

EN 55032 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2014/30/EU) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
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Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55032 Klasse A.

Electromagnetic Interference (EMI) Statement - Russia

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать радиопомехи, для снижения которых необходимы дополнительные меры

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