Inspur Server User Manual

I8020

V1.0

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Abstract

This manual contains technical information such as specifications, hardware operations, software configuration, fault diagnosis, etc. that are relevant to the maintenance and operation of this server.

It is recommended that server installation, configuration, and maintenance is performed by experienced technicians only.

Target Audience

This manual is intended for:

- Technical support engineers
- Product maintenance engineers
- Technicians

Warnings:

This manual introduces the server's technical features, system installation and setup, which will help the user to understand how best to utilize the server and all its functionalities.

1.For your safety, please do not disassemble the server's components arbitrarily. Please do not extend configuration or connect other peripheral devices arbitrarily. If needed, please contact Inspur for our support and guidance.

2.Before disassembling the server's components, please be sure to disconnect all the power cords connected to the server.

3.BIOS and BMC setup is a significant factor in correctly configuring your server. If there are no special requirements, it is suggested to use the default values and not alter the parameter settings arbitrarily.

4.Please use the driver shipped with the server or provided in Inspur official website , if you use non-Inspur driver, it may cause compatibility issues and affect the normal use of the product, Inspur will not assume any responsibility or liability.

The manufacturer is not responsible for any damages, including loss of profits, loss of information, interruption of business, personal injury, and/or any damage or consequential damage without limitation, incurred before, during, or after the use of our products.

Contents

1 Safety Instructions

⚠ WARNING: Please be advised to follow the instructions below for safety. Failure to do so could result to potential dangers that may cause property loss, personal injury or death.

1. The power supplies in the system may produce high voltages and energy hazards that may cause personal injury. For your safety, please do not attempt to remove the cover of the system to remove or replace any component without assistance provided by Inspur. Only service technicians trained by Inspur are authorized to remove the cover of the host, and to remove and replace internal components.
2. Please connect the equipment to the appropriate power supply. Use only power supplies with the correct voltage and electrical specifications according to the label. To protect your equipment from damages caused by a momentary spike or plunge of the voltage, please use relevant voltage stabilizing equipment, or uninterruptible power supplies.
3. If you must use an extension cable, please use a three-core cable with properly grounded plugs. Observe extension cable ratings. Ensure that the total rating of all equipment plugged into the extension cable does not exceed 80 percent of the ratings limit for the extension cable.
4. Please be sure to use the power supply components that come with the server, such as power lines, power socket (if provided with the server) etc. For your safety, please do not replace power cables or plugs randomly.
5. To prevent electric shock dangers caused by leakage in the system, please make sure that the power cables of the system and peripheral equipment are correctly connected to the earthed/grounded power socket. Please connect the three-core power line plug to the three-core AC power socket that is well earthed and easy to access. Be sure to use earthing /grounding pin of power lines and do not use the patch plug or the earthing/grounding pin unplugged with cables. In the case that the earthing/grounding conductors are not installed and it is uncertain whether there are appropriate earthing/ grounding protections, please do not use or attempt to operate the equipment. Contact and consult an electrician.
6. Please do not push any objects into the openings of the system. Doing so may cause fire or electric shock.

7. Please place the system far away from the cooling plate and heat sources, and be sure not to block the air vents.
8. Please be sure not to scatter food or liquid in the system or on other components, and do not use the product in humid or dusty environments.
9. Using an incompatible battery may cause explosion. When battery replacement is required, please consult the manufacturer first, and choose batteries of the same or equivalent type. Do not disassemble, crush, puncture the batteries or make the external connection point short circuit, and do not expose them in the environment over 60°C. Never throw batteries into fire or water. Please do not attempt to open or repair the batteries. Dispose of used batteries according to instructions. For battery recycling, please contact the local waste recycling center.
10. Before installing equipment into the rack, please install all front and side stabilizers on the independent rack first. Please install the front stabilizers first, if connecting with other racks. Please install stabilizers before installing equipment into the rack. Failure to install the corresponding stabilizers before installing equipment into the rack may cause the cabinet to tip over, possibly resulting to severe injury. After installing the equipment and other components into the rack, only one component can be pulled out from the rack through its sliding part at one time. Pulling out several components at the same time may cause the rack to turn over, resulting to serious personal injury.
11. A minimum of two people are required to safely move a rack. The racks are extremely awkward and heavy, moving them without adequate, trained personnel could result in severe injury or death.
12. It is prohibited to directly short-circuit the copper busbar. Please do not touch the copper busbar when the rack is powered on.
13. This is Class A product, and may cause radio interference. In such case, users may need to take necessary measures to mitigate the interference.
14. The equipment is intended for installation in a Restricted Access Location.

⚠ Note: The following considerations may help avoid the occurrence of problems that could damage the components or cause data loss, etc.

1. In the event of the following, please unplug the power line plug from the power socket and contact Inspur's customer service department:

1) The power cables, extension cables or power plugs are damaged.
2) The products get wet.
3) The products have fallen or have been damaged.
4) Other objects have fallen into the products.
5) The products do not or are unable to function normally even when attempting tooperate according to the instructions.

2. If the system becomes wet or damp, please follow these steps:

1) Power off the equipment, disconnect them with the power socket, wait for 10 to 20 seconds, and then open the host cover.
2) Move the equipment to a well-ventilated placeto dry the system at least for 24 hours and make sure that the system is fully dried.
3) Close the host cover, reconnect the system to the power socket, and then power on.
4) In case of operation failure or other abnormal situations, please contact Inspur and get technical support.

3. Pay attention to the position of system cables and power cables-avoid placing wires in high foot traffic locations. Please do not place objects on the cables.
4. Before removing the host cover, and/or touching the internal components, please allow for the equipment to cool first. To avoid damaging the mainboard, please power off the system and wait for five seconds, and then remove the components from the mainboard and/or disconnect the peripheral device from the system. Please rememberthat only service technicians trained by Inspur are authorized to remove the cover of the host, and to remove and replace internal components.
5. If there is modem, telecom or LAN options installed in the equipment, please pay attention to the followings:

1) In the case of thunder and lightning, please do not connect or use the modem.
2) Never connect or use the modem in a damp environment.
3) Never insert the modem or telephone cables into the socket of network interface controller (NIC).
4) Before unpacking the product package, installing internal components, touching uninsulated cables or jacks of the modem, please disconnect the modem cables.

6. In order to prevent electrostatic discharge from damaging the electronic components in the equipment, please pay attention to the followings:

1) Please remove any static electricity on your body before dismounting or touching

anyelectronic component in the equipment, to prevent the static electricity from conducting itself to the sensitive components. You may remove the static electricity on the body by touching the metal earthing objects (such as the unpainted metal surface on the rack).

2) Please do not take electrostatic sensitive components that are not ready to be installed for application out of the antistatic package materials.

3) While working, please touch the earthing conductor or the unpainted metal surface on the cabinet regularly to remove any static electricity from the body that may damage the internal components.

7. Upon receiving the proper authorization from Inspur and dismounting the internal components, please pay attention to the following:

1) Switch the system power supply off and disconnect the cables, including all connections of the system. When disconnecting the cables, please hold the connector of the cables touching the internal components.

3) During the dismounting process, avoid making large movement ranges to prevent damage to the components or scratching arms.

4) Handle components and plug-in cards with care. Please do not touch the components or connection points on the plug-in cards. When handling the plug-in cards or components, firmly grab the edges of the plug-in cards and components, and/or their metal fixed supports.

8. During the process of rack installation and application, please pay attention to the followings:

1) After the rack installation is finished, please ensure that the stabilizers have been fixed to the rack and supported to ground, and the weight of the rack is firm on ground.

2) Always load from the bottom up, and load the heaviest items first.

3) When pulling out the components from the rack, apply slight force to keep the rack balanced.

4) When pressing down the release latch and the rail of components is sliding, please be careful; as the sliding may hurt your fingers.

5) Do not overload the AC power supply branch circuits in the rack. The total load of the rack should not exceed 80% of the ratings of the branch circuits.

6) Ensure that components in the rack have good ventilation conditions.

7) When repairing components in the rack, never step on any other components.and slowly pull the plugs out. Never pull on the cables.

2 Product Specification

2.1 Introduction

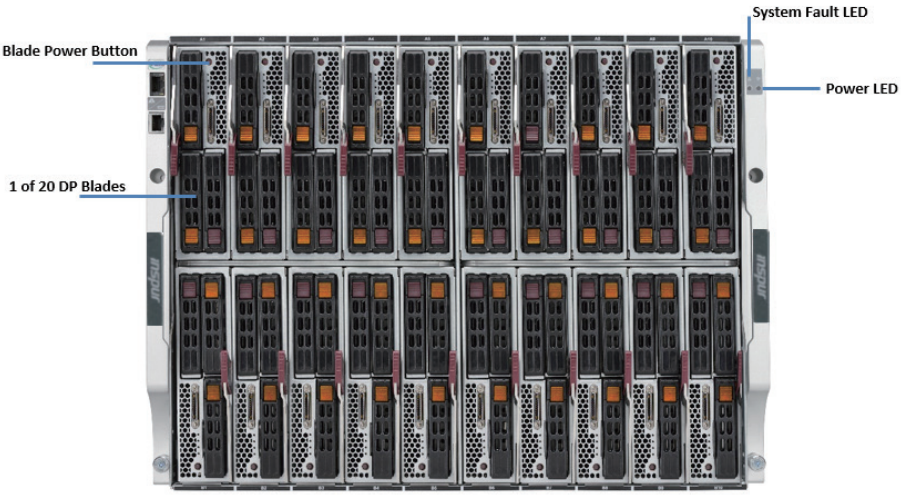
The I8020 blade server is specially optimized for high-performance computing with a unified management, power supply and cooling architecture; supports the latest Intel Xeon Skylake Gold / Platinum processor and the 100Gbps EDR / OPA high-speed network switch module; supports large-scale deployment, and 20 servers can be placed in the 8U blade chassis. It is an ideal choice for customers who are concerned with computing performance, computing density, low network latency, and scalability.

2.2 I8020 Blade Chassis Introduction

2.2.1 I8020 Chassis Spec.

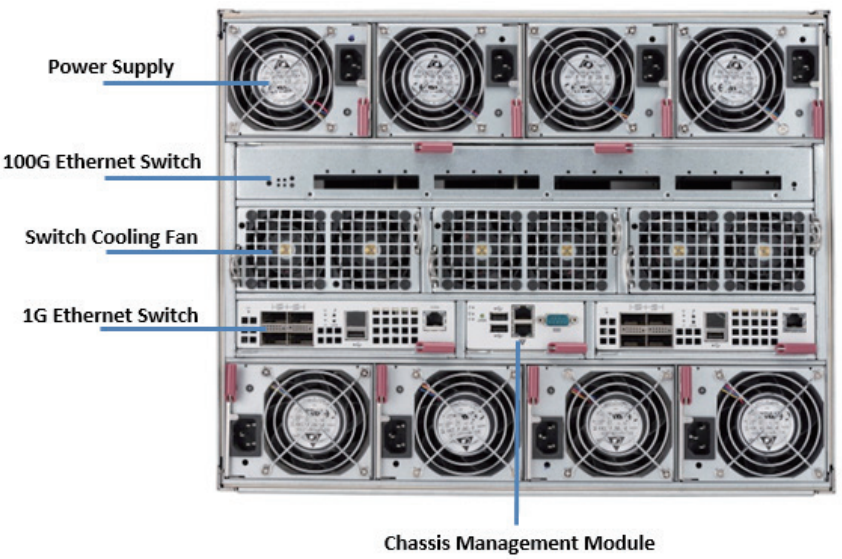
Dimensions	8U (HxWxD): 14” x 17.6” x 32”
Blade Support	Blade Server Modle Number :NX5440M5; Up to 20 half-height 2-socket blade servers.
Switchs	2x 1G Ethernet switches; 1x 100G EDR IB or OPA switch.
Power Supply	Up to eight hot-swap 2200W Titanium power supplies.
Chassis Management Module	1x CMM for remote system management with software; Management module not included in the enclosure.
Cooling Design	Up to 8 cooling fans and PWS modules 3 optional cooling fan modules (PWS-DF005-2F)
Enviromental Spec.	Operating Temperature :10℃ -35℃
	Non-operating Temperature :-40℃ -60℃
	Operating Relative Humidity :8% to 90% (non-condensing)
	Non-operating Relative Humidity :5% to 95% (non-condensing)

2.2.2 Chassis Front View



1	Blade Module Power Button
2	1 of 20 DP Blades
3	Chassis Power LED
4	System Fault LED

2.2.3 Chassis Rear View



1	Redundant 2200W Titanium Level Power Supply
2	100G Ethernet Switch
3	Switch Cooling Fans
4	1G Ethernet Switch
5	Chassis Management Module

2.3 Blade Server NX5440M5 Introduction

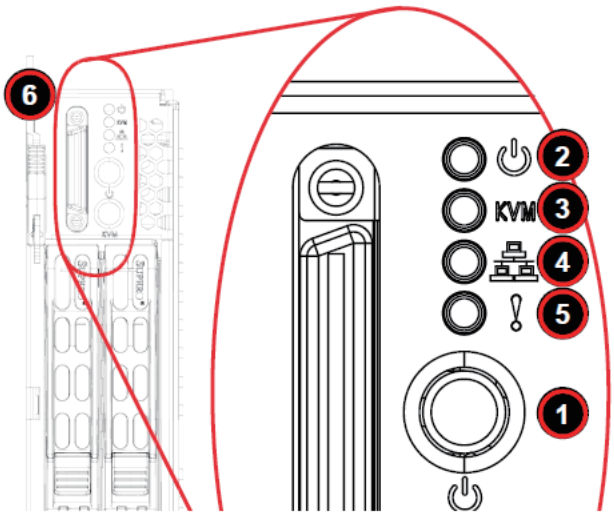
2.3.1 NX5440M5 Blade Server Specifications

Dimensions	(HxWxD): 6.54” x 1.69” x 23.14” (166 mm x 43 mm x588 mm) Weight:9.5 lbs (4.3 kg) Available Colors: Black
Processors	Two Intel™ Xeon® EP series Socket P processors for each node.
UPI Speed	UPI up to 11.2 GT/s
Chipset	One Intel C620 chip set for each node
Graphics Controller	Integrated Aspeed AST 2500 VGA Graphics chip for each node
Network Controllers	Dual 10G onboard
Memory Capacity	Supports up to 2 TB of RDIMM/LRDIMM DDR4 2400/2666/3200 MHz speed and 8 GB, 16 GB, 32 GB, 64 GB and 128 GB size SDRAM memory in sixteen (16) 288-pin DIMM sockets for each node.
Hard Drive Bays	2 Hot-plug 2.5” NVMe + 1 SATA3 drive bays or 3 SATA3 drive bays;
RAID	Each blade module supports up to three hard drives, which may create a RAID 0/1/5

2.3.2 Blade Module Features

Feature	**Description**
Processors	Supports single or dual Socket P LBA 3647 Intel Xeon processor EP series processors per node
Memory	Supports up to 2 TB of RDIMM/LRDIMM DDR4 2400/2666/3200 MHz speed, 8 GB, 16 GB, 32 GB, 64 GB and 128 GB size SDRAM memory in sixteen (16) 288-pin DIMM sockets per node
Storage	Either two hot-plug 2.5” NVMe/SAS3, or two hot-plug 2.5” NVMe and one SATA3 or three SATA3
Ports	One KVM port, Intel X722 dual port 10-Gigabit Ethernet
Features	On-board Integrated Aspeed AST 2500 VGA Graphics chip, Intel® I/OAT 3, VMDq, IPMI 2.0, ATA/100, Plug and Play, APM 1.2, DMI 2.3, PCI 2.2, ACPI 1.0/ 2.0, SMBIOS 2.3, Real Time Clock, Watch Dog,

2.3.3 Control Panel



Item	Function	State	Description
1	Power Button	N/A	Turns blade module on and off
2	Power LED	Green	Indicates power status “On”
		Solid Orange	Indicates power status “Off” (with power cables plugged in)
		Flashing Orange	Flashing Orange: Indicates node is not ready or not enough power to turn on
3	KVM/UID LED	Blue	Indicates KVM being utilized on blade unit
		Flashing Blue	Indicates UID activated on blade module
4	Network/IB LED	Flashing Green	Indicates network activity over LAN
		Flashing Orange	Indicates network activity over InfiniBand module
5	System Fault LED	Red	Indicates a memory error, overheat, VGA error or any error that prevents booting
6	KVM Connector	N/A	Connector for SUV/KVM cable

3. Setup and Installation

3.1 Chassis Installation

3.1.1 Installing Blade Modules

Up to 20 Blade modules may be installed into a single blade enclosure. Blade modules with Windows and Linux operating systems may be mixed together in the same blade or blade enclosure.

Powering Up a Blade Unit

Each blade unit node may be powered on and off independently from the rest of the blades and nodes installed in the same enclosure. A blade unit may be powered up in two ways:

- Press the power button on the blade unit.
- Use IPMIView or the web-browser based management utility to apply power using the CMM module.

Powering Down a Blade Unit

A blade unit may be powered down in either of the following ways:

- Press the power button on the blade unit.
- Use IPMIView or the web-browser based management utility to power down (if you have Operator or Admin privileges on the CMM).
- Use IPMItool when connected to the CMM to power down (if you have Operator or Admin privileges on the CMM).

Removing a Blade Unit from the Enclosure

Although the blade system may continue to run, individual blades should always be powered down before removing them from the enclosure.

Removing a Blade Unit from the Enclosure

1. Power down the blade unit (see “Powering Down a Blade Unit” above).
2. Squeeze both handles to depress the red sections then pull out both handles completely and use them to pull the blade unit from the enclosure.

⚠ Note: Blade Modules can be Hot-Plugged from the enclosure.

Removing/Replacing the Blade Cover

The blade cover must be removed to access the mainboard when you need to install or

remove processors, memory units, the On-board battery and so on.

Removing/Replacing the Blade Cover

1. Remove the blade unit from the enclosure (see “Removing a Blade Unit from the Enclosure” above).

2. Depress the two buttons on the cover while pushing the cover toward the rear of the blade unit. When it stops, lift the cover off the blade unit.

3. To replace the cover, fit the six grooves in the cover into the studs in the sides of the blade, then slide the cover toward the front of the blade to lock it into place.

Installing a Blade Unit into the Enclosure

Make sure the cover of the blade unit has been replaced first before installing a blade unit in the enclosure.

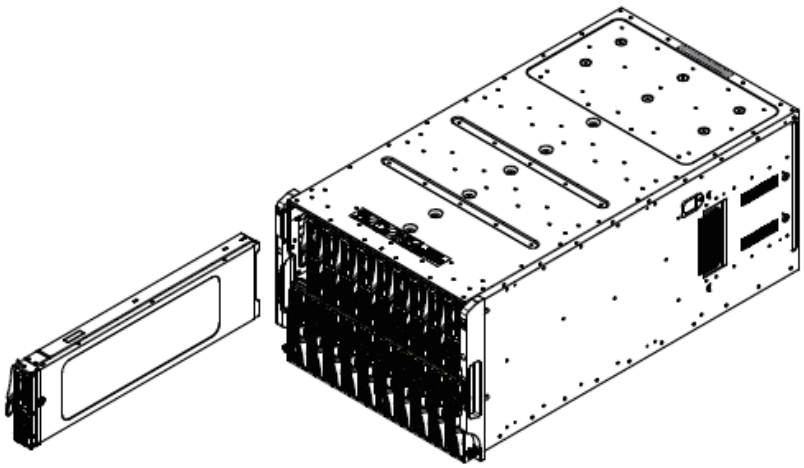
Installing a Blade Unit into the Enclosure

1. Slowly push the blade unit into its bay with the handles fully pulled out.

2. When the blade stops, push the handles back in to their locked position, making sure the notches in both handles catch the lip of the enclosure.

⚠ Note: Blade Modules can be Hot-Plugged into the enclosure.

Caution: Use extreme caution when inserting a blade module into the enclosure. If the blade’s power connector becomes damaged, it can damage pins on other blade bays that it is inserted into.



3.1.2 Installing Power Supply

Before installing or removing a power supply, the chassis must to be powered off. Which all

the power cable must to be cut down from the AC source.

Installing or Romoving a Power supply

1. Shut down all the blade servers.
2. Cut down all the AC power by pulling out all the AC cable from the Enclosure.
3. Installing or removing the Power Supply.

3.1.3 Installing Chassis Management Module

Before installing or removing a chassis management module, the chassis must to be powered off. Which all the power cable must to be cut down from the AC source.

Installing or Romoving a chassis management module

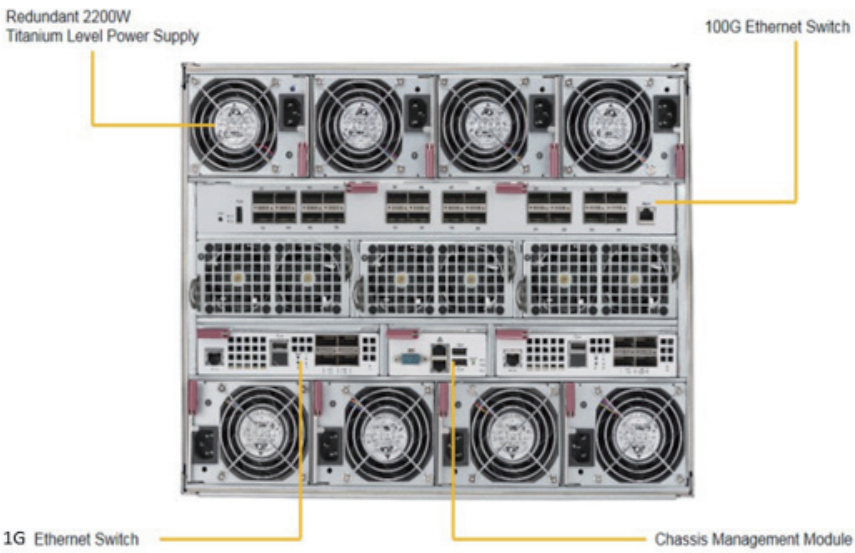
1. Shut down all the blade servers.
2. Cut down all the AC power by pulling out all the AC cable from the Enclosure.
3. Installing or removing the chassis management module.

3.1.4 Installing Ethernet Switch

I8020 support 1x 100G Ethernet Switch and 2x 10G/1G Ethernet Switchs. Before installing or removing an Ethernet Switch, the chassis must to be powered off. Which all the power cable must to be cut down from the AC source.

Installing or Romoving an Ethernet Switch

1. Shut down all the blade servers.
2. Cut down all the AC power by pulling out all the AC cable from the Enclosure.
3. Installing or removing the Ethernet Switch.



3.2 Blade Module Installation

3.2.1 Processor Installation

One or two processors may be installed to the mainboard of each blade unit.

⚠ WARNING: When handling the processor package, avoid placing direct pressure on the label area of the CPU or CPU socket. Also, improper CPU installation or socket misalignment can cause serious damage to the CPU or motherboard which may result inRMA repairs. Please read and follow all instructions thoroughly before installing your CPUand heatsink.

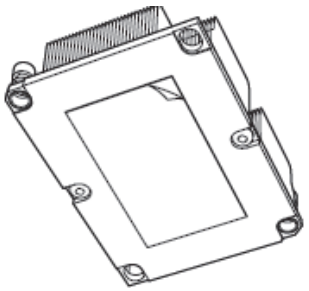
⚠ Notes:

1. Always connect the power cord last, and always remove it before adding, removing, or changing any hardware components. Please note that the processor and heatsink should be assembled together first to form the Processor Heatsink Module (PHM), and then install the entire PHM into the CPU socket.
2. When you receive a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and that none of the socket pins are bent; otherwise, contact your retailer immediately.
3. Please follow the instructions given in the ESD Warning section before handling, installing, or removing system components.
4. All graphics, drawings, and pictures shown in this manual are for illustration only. The components that came with your machine may or may not look exactly the same as those shown in this manual.

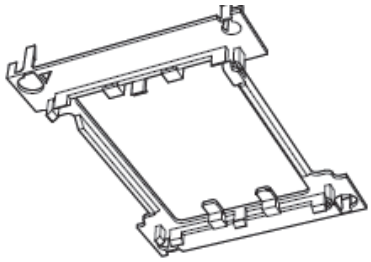
Overview of the Processor Heatsink Module (PHM)

The Processor Heatsink Module (PHM) contains 1) a heatsink, 2) a narrow processor clip, and 3) the SKX(-F) processor.

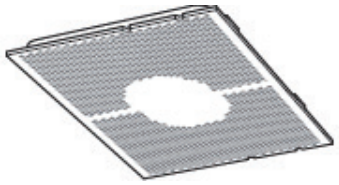
1.Heatsink



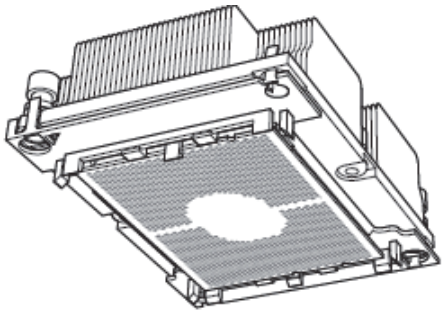
2.Narrow Processor Clip



3.SKK Processor



Bottom View



Attaching the Processor to the Narrow Processor Clip to Create the Processor Package Assembly

To properly install the CPU into the narrow processor clip, please follow the steps below.

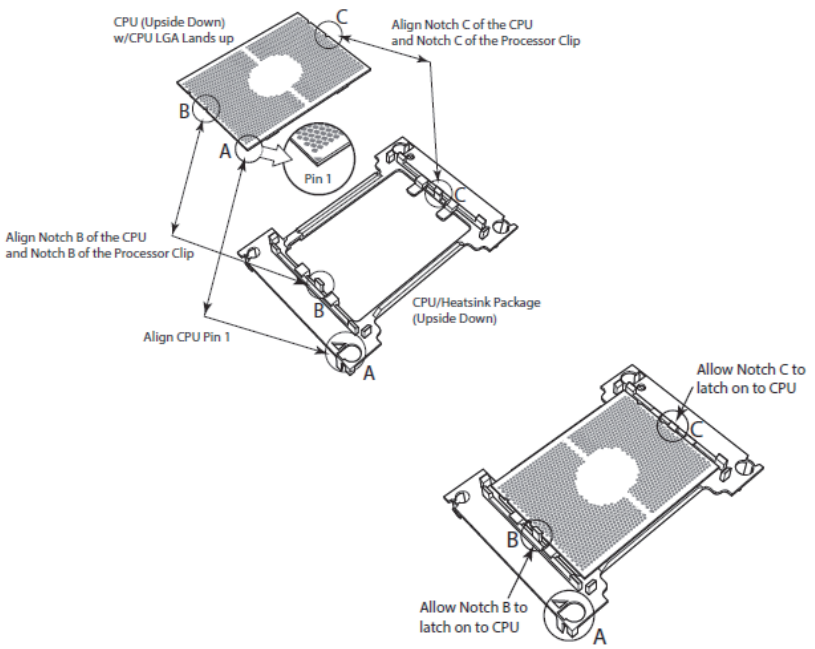
1. Locate pin 1 (notch A), which is the triangle located on the top of the narrow processor clip. Also locate notch B and notch C on the processor clip.

2. Locate pin 1 (notch A), which is the triangle on the substrate of the CPU. Also, locate notch B and notch C on the CPU as shown below.

3. Align pin 1 (the triangle on the substrate) of the CPU with pin 1 (the triangle) of the narrow processor clip. Once they are aligned, carefully insert the CPU into the processor clip by sliding notch B of the CPU into notch B of the processor clip, and sliding notch C of the CPU into notch C of the processor clip.

4. Examine all corners of the CPU to ensure that it is properly seated on the processor clip. Once the CPU is securely attached to the processor clip, the processor package assembly is created.

⚠ Note: Please exercise extreme caution when handling the CPU. Do not touch the CPU LGA-lands to avoid damaging the LGA-lands or the CPU. Be sure to wear ESD gloves when handling components.



Attaching the Processor Package Assembly to the Heatsinkto Form the Processor Heatsink Module (PHM)

After you have made a processor package assembly by following the instructions on the previous page, please follow the steps below to mount the processor package assembly onto the heatsink to create the Processor Heatsink Module (PHM).

1. Locate “1” on the heatsink label and the triangular corner next to it on the heatsink. With your index finger pressing against the screw at this triangular corner, carefully hold and turn the heatsink upside down with the thermal-grease side facing up. Remove the protective thermal film if present, and apply the proper amount of the thermal grease as needed. (Skip this step if you have a new heatsink because the necessary thermal grease is pre-applied in the factory.)

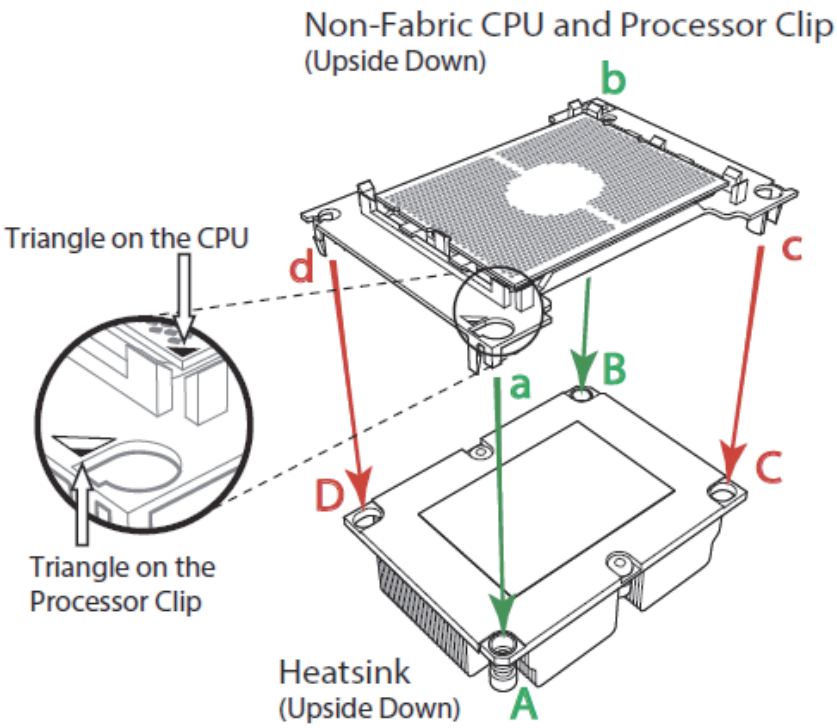
2. Holding the processor package assembly at the center edge, turn it upside down. With the thermal-grease side facing up, locate the hollow triangle located at the corner of the processor carrier assembly (“a” in the graphic). Note a larger hole and plastic mounting

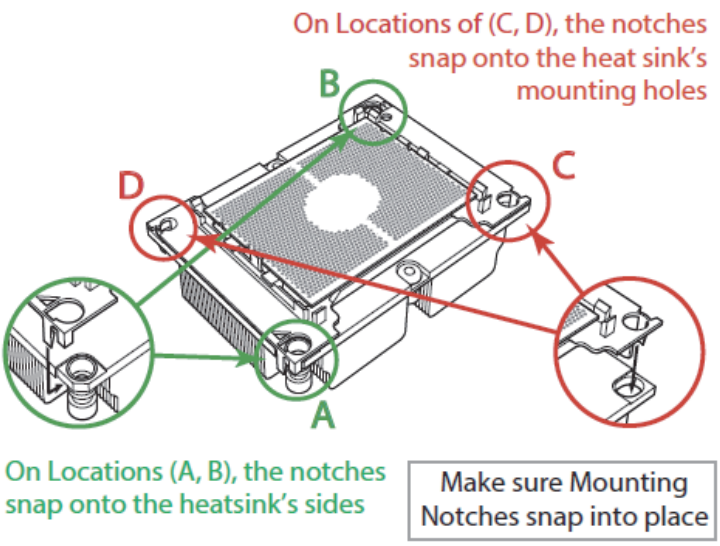
clicks located next to the hollow triangle. Also locate another set of mounting clicks and a larger hole at the diagonal corner of the same (reverse) side of the processor carrier assembly (“b” in the graphic).

3. With the back of heatsink and the reverse side of the processor package assembly facing up, align the triangular corner on the heatsink (“A” in the graphic) against the mounting clips next to the hollow triangle (“a”) on the processor package assembly.

4. Also align the triangular corner (“B”) at the diagonal side of the heatsink with the corresponding clips on the processor package assembly (“b”).

5. Once the mounting clips on the processor package assembly are properly aligned with the corresponding holes on the back of heatsink, securely attach the heatsink to the processor package assembly by snapping the mounting clips at the proper places on the heatsink to create the processor heatsink module (PHM).



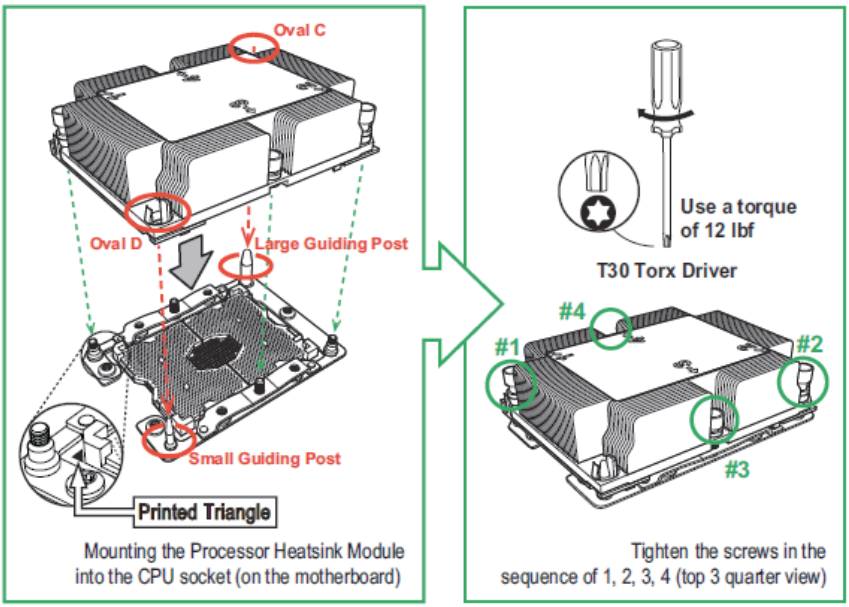


Installing the Processor Heatsink Module (PHM)

Once you have assembled the processor heatsink module (PHM) by following the instructions listed on page 29 or page 30, you are ready to install the processor heatsink module (PHM) into the CPU socket on the motherboard. To install the PHM into the CPU socket, follow the instructions below.

1. Locate the triangle (pin 1) on the CPU socket, and locate the triangle (pin 1) at the corner of the PHM that is closest to "1." (If you have difficulty locating pin 1 of the PHM, turn the PHM upside down. With the LGA-lands side facing up, you will note the hollow triangle located next to a screw at the corner. Turn the PHM right side up, and you will see a triangle marked on the processor clip at the same corner of hollow triangle.)
2. Carefully align pin 1 (the triangle) on the the PHM against pin 1 (the triangle) on the CPU socket.
3. Once they are properly aligned, insert the two diagonal oval holes on the heatsink into the guiding posts.
4. Using a T30 Torx-bit screwdriver, install four screws into the mounting holes on the socket to securely attach the PHM onto the motherboard starting with the screw marked "1" (in the sequence of 1, 2, 3, and 4).

⚠ Note: Do not use excessive force when tightening the screws to avoid damaging the LGA-lands and the processor.

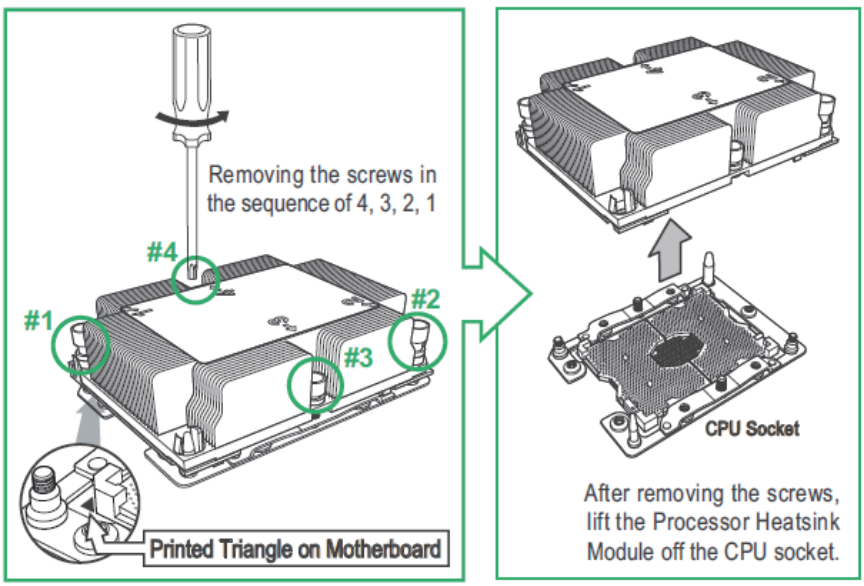


Removing the Processor Heatsink Module (PHM) from the Motherboard

Before removing the processor heatsink module (PHM), unplug power cord from the power outlet.

1. Using a T30 Torx-bit screwdriver, turn the screws on the PHM counterclockwise to loosen them from the socket, starting with screw marked #4 (in the sequence of 4, 3, 2, 1).
2. After all four screws are removed, wiggle the PHM gently and pull it up to remove it from the socket.

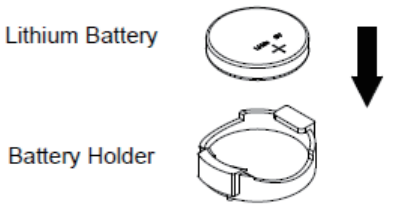
⚠ Note: To properly remove the processor heatsink module, be sure to loosen and remove the screws on the PHM in the sequence of 4, 3, 2, 1 as shown below.



3.2.2 On-board Battery Installation

A battery is included on the mainboard to supply certain volatile memory components with power when power has been removed from the blade module. If this battery dies, it must be replaced with an equivalent CR2032 Lithium 3V battery. Dispose of used batteries according to the manufacturer's instructions. See the below picture for a diagram of installing a new On-board battery.

⚠ Caution: There is a danger of explosion if the On-board battery is installed upside down, which reverses its polarities.

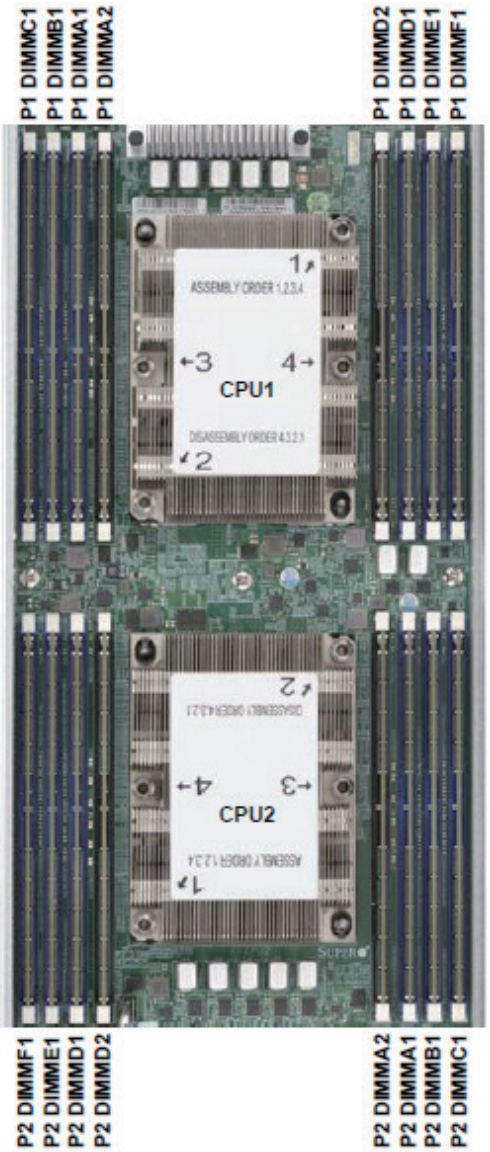


3.2.3 Memory Installation

The mainboard of each blade unit must be populated with DIMMs (Dual In-line Memory Modules) to provide system memory. The DIMMs should all be of the same size and speed and from the same authorized manufacturer due to compatibility issues.

Populating Memory Slots

Each node's mainboard has sixteen (16) memory slots, eight for each processor. Both interleaved and non-interleaved memory are supported, so you may populate any number of DIMM slots. For information on memory population, see Table 3-1 and Table 3-2.Total memory capacity for the module is 2 TB for RDIMM/LRDIMM per node. See Table 3-3 and Table 3-4 for information on supported memory types. For better performance and capacity consistency please use the same DIMM size and the same DIMM speed. By doing this you will avoid the issue of memory down speed to the lower speed DIMM, in case of any DIMMs' speed disparity. This also allows readiness for Memory RAS with Spare Rank and Spare DIMM features which required lock steps.



Note: Though multiple DIMM memory module types and speeds may be supported, you need to use DIMM memory modules of the same speed and type.

Table 3-1. DIMM Installation CPU1

Number of DIMMs	CPU 1							
	A1	A2	B1	C1	D1	D2	E1	F1
2				X				
3				X				X
4				X				X
5	X			X				X
6	X			X	X			X
7	X			X	X			X
8	X			X	X			X
9	X		X	X	X			X
10	X		X	X	X		X	X
11	X		X	X	X		X	X
12	X		X	X	X		X	X
13	X	X	X	X	X		X	X
14	X	X	X	X	X	X	X	X
15	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X

Table 3-2. DIMM Installation CPU2

Number of DIMMs	CPU2							
	A1	A2	B1	C1	D1	D2	E1	F1
2				X				
3				X				
4				X				X
5				X				X
6				X				X
7	X			X				X
8	X			X			X	X
9	X			X			X	X
10	X			X			X	X
11	X		X	X			X	X
12	X		X	X	X		X	X
13	X		X	X	X		X	X
14	X		X	X	X		X	X
15	X	X	X	X	X		X	X
16	X	X	X	X	X	X	X	X

⚠ Notes:

1. All DIMMs must be either all DDR4 DIMMs or DDR4 and AEP/NVDIMM.
2. Populate in furthest slot from CPU if only one DIMM populated in a channel.
3. Populate in furthest slot from CPU if only one DIMM populated in a channel.
4. A2 and D2 reserved for AEP/NVDIMM.

Table 3-3. DDR4 Support for the Intel 81xx/61xx/51xx/41xx/31xx Series Processor Platform – 2 Slots per Channel

Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (M/Ts); Voltage (V), Slots per Channel (SPC), and DIMMs per Channel (DPC) 2 Slots per Channel	
				1DPC	2DPC
		4 GB	8 GB	1.2V	1.2V
RDIMM	SRx4	8 GB	16 GB	2666	2666
RDIMM	SRx8	4 GB	8 GB	2666	2666
RDIMM	DRx8	8 GB	16 GB	2666	2666
RDIMM	DRx4	16 GB	32 GB	2666	2666
RDIMM 3DS	QRx4	N/A	2H-64 GB	2666	2666
	8RX4	N/A	4H-128 GB	2666	2666
LRDIMM	QRx4	32 GB	64 GB	2666	2666
LRDIMM 3DS	QRx4	N/A	2H-64 GB	2666	2666
	8Rx4	N/A	4H-128 GB	2666	2666

Table 3-4. DDR4 Support for the Intel 81xx/61xx/51xx/41xx/31xx Series Processor Platform – 1 Slot per Channel

Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (M/Ts); Voltage (V), Slots per Channel (SPC), and DIMMs per Channel (DPC) 1 Slot per Channel
				1DPC
		4 GB	8 GB	1.2V
RDIMM	SRx4	8 GB	16 GB	2666
RDIMM	SRx8	4 GB	8 GB	2666
RDIMM	DRx8	8 GB	16 GB	2666
RDIMM	DRx4	16 GB	32 GB	2666
RDIMM 3DS	QRx4	N/A	2H-64 GB	2666
	8RX4	N/A	4H-128 GB	2666
LRDIMM	QRx4	32 GB	64 GB	2666
LRDIMM 3DS	QRx4	N/A	2H-64 GB	2666
	8Rx4	N/A	4H-128 GB	2666

DIMM Installation

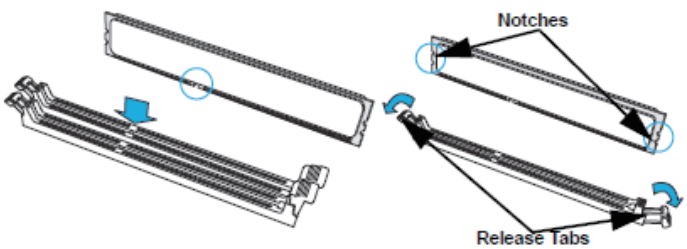
Warning: Exercise extreme care when installing or removing DIMM modules to prevent any

possible damage.

Installing & Removing DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with P1-DIMMA1. (For best performance, please use the memory modules of the same type and speed in the same bank.)

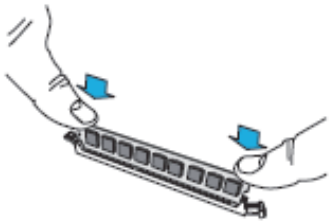
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



3. Align the key of the DIMM module with the receptive point on the memory slot.

4. Align the notches on both ends of the module against the receptive points on the ends of the slot.

5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.



6. Press the release tabs to the locking positions to secure the DIMM module into the slot.

Removing Memory Modules

Press the release tabs on both ends of the memory module to unlock it. Once it is loosened, remove the DIMM module from the memory slot.

3.2.4 Hard Disk Drive Installation

Hard disk drives are installed in “carriers” which are hot-swappable and can be removed or replaced without powering down the blade unit they reside in. A blade module needs a hard disk drive with an operating system installed to operate.

⚠ Caution: To maintain proper airflow, both hard drive bays must have drive carriers inserted during operation whether or not a drive is installed in the carrier.

To remove a hard drive carrier, do the following:

Removing a Hard Drive Carrier

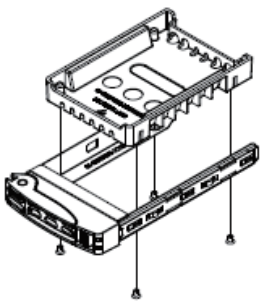
1. Locate the colored “Open” button at the bottom of the drive carrier and press it with your thumb. This action releases the drive carrier from the drive bay.
2. Pull the release handle out about 45-degrees, then use it to pull the drive carrier out.

To install a hard drive, use the following procedure:

Installing a Hard Drive

1. Remove a blank drive carrier from the blade (see removal procedure above).
2. Insert a drive into the carrier with the PCB side facing down and the connector end toward the rear of the carrier.
3. Align the drive in the carrier so that the screw holes of both line up. Note that there are holes in the carrier marked “SATA” to aid in correct installation.
4. Secure the drive to the carrier with six screws as shown in below picture.
5. Insert the drive carrier into its slot keeping the Open button at the bottom. When the carrier reaches the rear of the bay the release handle will retract.
6. Push the handle in until you hear the carrier click into its locked position.

Caution: Enterprise level hard disk drives are recommended for use in Inspur chassis and servers.



3.2.5 Installing a Rear Daughter Card

Depending upon your preference for the system, you may install a rear network cad into your system. Both plug into the same daughter card slot on the rear of the serverboard.

Rear Network Cad

Installing the Operating System

An operating system (OS) must be installed on each blade module. Blades with Microsoft Windows OS and blades with Linux OS can both occupy and operate within the same blade enclosure.

There are several methods of installing an OS to the blade modules.

Installing with an External USB CD-ROM Drive

The most common method of installing the OS is with an external USB CD-ROM drive.Take the following steps to install the OS to a blade module:

⚠ Caution: Installing the OS from an external CD-ROM drive may take several hours to complete.

1. Connect an SUV cable (Serial port/USB port/Video port cable) to the KVMconnector on the front of the blade module. You will then need to attach a USB hubto the USB port on this cable to provide multiple USB ports.

2. Connect the external CD-ROM drive, a USB keyboard and a mouse to the USB hub.You will

also need to connect a monitor to the video connector on the SUV cable.Turn on the blade module.

3. Insert the CD containing the OS into the CD-ROM drive.

4. Follow the prompts to begin the installation.

Installing via PXE Boot

PXE (Preboot Execution Environment) is used to boot a computer over a network. To install the OS via PXE, the following conditions must be met:

1. The PXE BOOT option in BIOS must be enabled.

2. A PXE server has been configured (this can be another blade in the system).

3. The PXE server must be connected over a network to the blade to be booted.

4. The blade has only non-partitioned/unformatted hard drives installed and no bootable devices attached to it.

Once these conditions are met, make sure the PXE server is running. Then turn on the blade on which you wish to boot and/or install the OS. The BIOS in the blade will look at all bootable devices and finding none will connect to the PXE server to begin the boot/install.

4. BIOS Setup

This section describes the BIOS setting and motherboard jumpers of this server. All operations described here are limited to the operator or administrator having the system maintenance qualification.

BIOS, the abbreviation of basic input-output system, can adjust system parameters and hardware parameters through special setting programs. As BIOS has a significant impact on the operation and startup of the system, improper settings ause conflict between hardware resources or reduce the system performance. Therefore, understanding of BIOS setting is very important to configure your server. If there is no special need, we recommend you use the factory default values instead of arbitrarily changing the parameter setting.

Note:

1. Before changing any BIOS setting of this server, you shall record the corresponding initial setting for the purpose of recovery In case of system exception arising from modification of any option.
2. All system factory default settings are usually optimized setting. Before understanding the meaning of each parameter, do not try changing it.
3. This section mainly details common setting. Seldom used options are described briefly or omitted.
4. By different setting, BIOS contents may change, and will not be elaborated here.

4.1 Setting system BIOS

Switch on and boot this server. When the “Press <DEL> to SETUP or <TAB> to POST or <F12> to PXE Boot” prompt appears on the upper right corner of the screen:

Press the DEL key; when the “Entering Setup...” prompt appears on the lower-right corner of the screen, enter the system BIOS setting interface. In the main menu of BIOS, you can select the sub-items through arrow keys and press Enter key to view the submenu.

Note: Gray options are not available. Options marked with “” have submenus.

Control Key Instructions

Key	Functions
<F1>	Help
<Esc>	Exit or return to the main menu from submenu
<←> or <→>	Select the menu
<↑> or <↓>	Move the cursor up or down
<Home> or <End>	Move the cursor to screen top or bottom
<+> or <->	Select previous/next value or setting of current option
<F9>	Setting default values
<F10>	Save and exit
<Enter>	Execute instruction or select submenu

4.2 BIOS update

It may be necessary to update the BIOS used in the blade modules on occasion. However, it is recommended that you not update BIOS if you are not experiencing problems with a blade module.

There are several methods you may use to upgrade your BIOS. After downloading the appropriate BIOS file (in a zip file format), follow one of the methods described below to flash the new BIOS.

Flashing BIOS

Use the procedures below to “Flash” your BIOS with a new update using the KVM dongle, USB ports on the CMM module or by use of a Floppy disk.

Flashing a BIOS using the KVM Dongle:

For this method, you must use a KVM “dongle” cable (CBL-0218L, included with the system).

1. Copy the contents of the zip file to a bootable USB pen drive.
2. Connect the KVM dongle (CBL-0218L) to the KVM connector at the front of the blade you will be flashing the BIOS to.
3. Connect your bootable USB pen drive to one of the two USB slots on the KVM dongle.
4. Boot to the USB pen drive and go to the directory where you saved the contents of the zip file.
5. Type flash filename.rom (replace filename.rom by the actual ROM file name).

Flashing a BIOS using a Floppy Image File

This method must be performed remotely.

1. Copy the image file from the zip file to your desktop.

2. Use the web browser or IPMIView to access your CMM remotely using its IP Address.

3. Go to the VIRTUAL MEDIA menu and select FLOPPY IMAGE UPLOAD.

4. BROWSE or OPEN to locate the *.img file on your desktop and select it.

5. Press the UPLOAD button and wait a few seconds for the image to upload to the CMM.

6. Once the upload finishes, turn on the blade module and press <DEL> to enter the BIOS setup utility.

7. In the BOOT MENU, bring USB LS120: PEPPCMM VIRTUAL DISC 1 to the top of the boot priority list.

8. Exit while saving the changes. The blade module will boot to the virtual media (floppy image)A:\>.

9. Type flash filename.rom.

Note: Replace filename.rom by the actual ROM file name (such as B8DTE142.rom for example) in the command.

4.3 Running setup

Note: Default settings are in bold text unless otherwise noted.

The BIOS setup options described in this section are selected by choosing the appropriate text from the MAIN BIOS SETUP screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options.

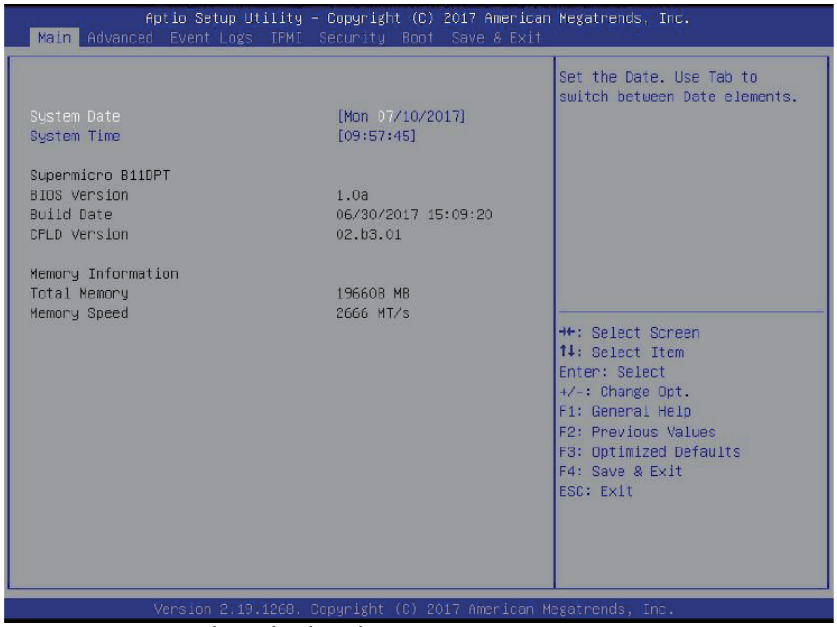
When you first power on the computer, the BIOS is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing <DELETE> immediately after turning the system on, or

2. When the message Press the <Delete> key to enter Setup appears briefly at the bottom of the screen during the POST, press the <DELETE> key to activate the main SETUP menu:

4.3.1 Main Setup



All Main Setup options are described in this section.

Use the UP/DOWN arrow keys to move among the different settings in each menu. Use the LEFT/RIGHT arrow keys to change the options for each setting.

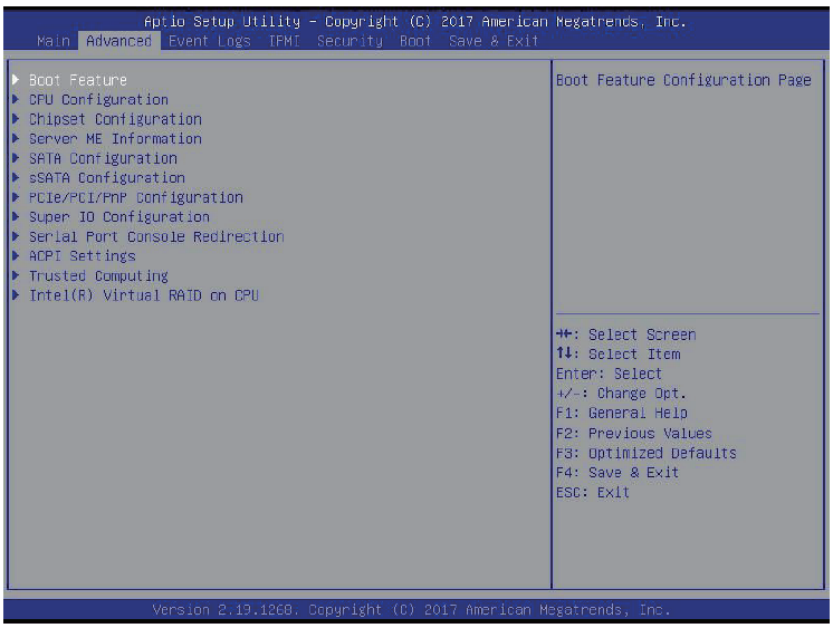
Press the <ESC> key to exit the CMOS SETUP menu. The next section describes in detail how to navigate through the menus.

Items that use sub-menus are indicated with the icon. With the item highlighted, press the <ENTER> key to access the sub-menu.

Menu options found in the MAIN BIOS SETUP menu are described in below table.

Menu Option	Description
System Date	Using the arrow keys, highlight the month, day and year fields, and enter the correct data for the system date. Press the <Enter> key to save the data.
System Time	To set the system date and time, key in the correct information in the appropriate fields. Then press the <Enter> key to save the data.
BIOS Information	BIOS static display information including the motherboard number, SMC version, SMC Build Date and Total Memory is also shown on the screen.

4.3.2 Advanced Setup



Choose Advanced from the BIOS Setup Utility main menu with the arrow keys to display the ADVANCED SETUP menu. The items with a triangle beside them are sub-menus that can be accessed by highlighting the item and pressing <ENTER>.

Options for PIR settings are displayed by highlighting the setting option using the arrow keys and pressing <ENTER>.

Below tables describe all sub-menus found in the ADVANCED SETUP menu.

Boot Feature sub-menu

Menu Option	Description
Quiet Boot	When Disabled the BIOS displays normal POST messages. When **Enabled** the BIOS displays an OEM Logo instead of POST messages.
Option ROM Messages	Use this setting to set the display mode for Option ROM to either **Force BIOS** or Keep Current.
Bootup NUM-Lock State	This setting selects the Power-On state for Numlock. Options include **On** or Off.
Wait for 'F1' If Error	When enabled, the system will wait for the F1 key to be pressed if an error occurs. Options are **Enabled** or Disabled.
Interrupt 19 Capture	When enabled this setting allows option ROMs to trap Interrup 19. Options include **Immediate** or Postponed.
Re-try Boot	Use this setting to specify the Re-try Boot option to use. Options include **Disabled**, Legacy Boot or EFI Boot.
Watch Dog Function	This setting allows the system to restart when it is not active more than 5 minutes. Option include Enabled and **Disabled**.
Power Button Function	This setting specifies the power button's function when pressed. Option include 4 Seconds Override or **Instant Off**.

CPU Configuration sub-menu

Menu Option	Description
Processor Configuration Information	This section shows static information on the processor configuration.
Hyper-threading [ALL]	This setting is **Enabled** for Windows XP and Linux (OS optimized for Hyper-threading technology), and Disabled for other OSes (any OS not optimized for Hyper-threading techology). When Disabled, only one thread per enabled core is enabled.
Execute Disable Bit	XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS such as Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2 or RedHat Enterprise 3 Update 3. Options include **Enabled** or Disabled.
Intel® Virtualization Technology	Select **Enabled** to use this Virtualization Technology feature to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer system. The options are **Enabled** and Disabled. Please refer to the Intel website for further detailed information. **NOTE:** A full reset of the system is required when you change this setting.
PPIN Control	Use this setting to enable/disable the PPIN control. Options include **Unlock/Enable** or Unlock/Disable.
Hardware Prefetcher	This settings allows you to **Enable** or Disable the Hardware Prefetcher.
Adjacent Cache Prefetch	This setting allows you to **Enable** or Disable the Adjacent Cache Prefetch.
DCU Streamer Prefetcher	This setting allows you to **Enable** or Disable the DCU Streamer Prefetcher, which is an L1 data cache prefetcher.

Menu Option	Description
DCU IP Prefetcher	This setting allows you to **Enable** or Disable the DCU IP Prefetcher, which is an L1 data cache prefetcher.
LLC Prefetch	This setting allows you to enable or disable the LLC Prefetch on all threads. Options include **Enable** or Disable.
Extended APIC	Use this setting to Enable or **Disable** extended APIC support
AES-NI	Use this setting to **Enable** or Disable AES-NI support.
▶Advanced Power Management Configuration	This submenu display and provides options to change the Power Management Settings.
▶CPU P State Control	Use this submenu to specify options for CPU P-State controls.
SpeedStep (Pstates)	This setting allows you to **Enable** or Disable EIST (P-States).
EIST PSD Function	For this setting, choose a setting for the EIST PSD function. Options include **HW_ALL**, SW_ALL, or SW_ANY.
Turbo Mode	This setting allows you to **Enable** or Disable the processor Turbo Mode for your system. **Note:** This requires EMTTM be enabled also.
▶Hardware PM State Control	Use this submenu for specifying Hardware PM State controls.
Hardware P-States	Use this setting to specify an option for Hardware P-States. Options include the following: • **Disable** – The hardware chooses a P-State based upon the OS request (Legacy P-States). • Native Mode – The hardware chooses a P-State based upon the OS guidance. • Out of Band Mode – The hardware autonomously chooses a P-State (No OS guidance). • Native Mode with No Legacy Support
▶CPU C State Control	Use this submenu to select a CPU C-State controls.
Autonomous Core C-State	This setting allows you to Enable or **Disable** the Autonomous Core C-State control for your system.
CPU C6 Report	This setting allows you enable/disable a CPU C6 (ACPI C3) report to the OS. Options include Disable, Enable and **Auto**.
Enhanced Halt State (C1E)	Use this setting to **Enable** or Disable Core C1E auto promotion control. **Note:** This setting only takes effect after a reboot.
▶Package C State Control	Use this submenu to specify Package C-State controls.

Chipset Configuration Sub-menu

Menu Option	Description
▶North Bridge Configuration	This sub-menu configures North Bridge features and shows configuration information.
▶UPI Configuration	
UPI General Configuration Information	This static information shows UPI General Configuration information for your system.
Degrade Precedence	Use this setting to select the Degrade Precedence. Choose **Topology Precedence** to degrade features if the system options are in conflict. Choose Feature Precedence to degrade topology if the system options are in conflict.
Link L0p Enable	Use this setting to enable/disable Link L0p. Options include Disable, Enable or **Auto**.
Link L1 Enable	Use this setting to enable/disable Link L1. Options include Disable, Enable or **Auto**.
IO Directory Cache (IODC)	The IO Directory Cache (IODC) generates snoops instead of memory lookups, for remote InvItoM (ITO) and/or WCiLF (cores). Options include the following: • Disable • **Auto** (sets to WCiLF) • Enable for Remote InvItoM Hybrid Push InvItoM AllocFlow • Enable for Remote InvItoM Hybrid AllocNonAlloc • Enable for Remote InvItoM and Remote WViLF
Isoc Mode	This sets Isoc Mode to either Enable, Disable or **Auto**.
▶Memory Configuration	This sub-menu displays Memory Configuration settings.
Enforce POR	This setting allows you to enforce POR restrictions for DDR4 frequency and voltage programming. Options include **POR** or Disabled.
Memory Frequency	This setting sets the maximum memory frequency in Mhz. Options are **Auto** and frequency values from 1866 ~ 2666 Mhz.
Data Scrambling for NVMDIMM	Use this setting to enable data scrambling for NVMDIMM. Options include **Auto** (sets it to the MRC default), Disabled and Enabled.
Data Scrambling for DDR4	Use this setting to enable data scrambling for DDR4. Options include **Auto** (sets it to the MRC default), Disabled and Enabled.
tCCD_L Relaxation	Use this setting to specify if the tCCD_L is overridden by the SPD or based on the memory frequency. Options include **Auto**, Disable and Enable.
Enable ADR	This setting enables the detecting and enabling of ADR. Options include Enable or **Disable**.
▶Memory Topology	This submenu, when selected, provides with you with static information for memory topology.
▶Memory RAS Configuration	This submenu displays and provides options to change the Memory RAS settings.

Menu Option	Description
Static Virtual Lockstep Mode	Use this setting to Enable or **Disable** Static Virtual Lockstep mode.
Mirror Mode	Mirror Mode will set the entire 1LM/2LM memory in the system to be mirrored, consequently reducing the memory capacity by half. Options include **Disable**, Mirror Mode 1LM and Mirror Mode 2LM. **Note:** Mirror Enable will disable XPT Prrefetch.
Memory Rank Sparing	This setting will Enable or **Disable** Memory Rank Sparing for your system.
Correctable Error Threshold	Use this setting to set a threshold value from 1 ~32767 for the Correctable Error Threshold used for sparing, tagging and leaky bucket. Use the + or - keys on your numpad to toggle up or down a value or type in a number value for the field for this setting. Default value is **10**.
SDDC	This value Enables or **Disables** SDDC for your system.
ADDDC Sparing	This value Enables or **Disables** ADDDC Sparing for your system.
Patrol Scrub	This setting **Enables** or Disables Patrol Scrub in your system.
Patrol Scrub Interval	This setting selects the number of hours (1-24) required to complete full scrub. A value of 0 means auto. Default is **24**. Settings are increased or decreased using the "+" or "-" keys on your keyboard's number pad.
▶IIO Configuration	This sub-menu configures Integrated I/O Configuration.
EV DFX Features	This setting gives you the option to allow DFX Lock Bits to remain clear or not. Options include Enable or **Disable**.
▶CPU1 Configuration	This submenu allows you to configure CPU1 configuration options.
IOU0 (IIO PCIe Br1)	This setting selects the PCIe port bifurcation for Br1. Options include x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 or **Auto**.
IOU1 (IIO PCIe Br2)	This setting selects the PCIe port bifurcation for Br2. Options include x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 or **Auto**.
MCP0 (IIO PCIe Br4)	This setting selects the PCIe port bifurcation for Br4. Options include x16 or **Auto**.
MCP1 (IIO PCIe Br5)	This setting selects the PCIe port bifurcation for Br5. Options include x16 or **Auto**.
▶Socket 0 PcieBr0D00F0 - Port 0/DMI Submenu	Settings for this submenu are related to PCI Express Ports in your system. This submenu contains a mix of static information and configurable option settings.
Link Speed	This setting specifies the link speed for the PCI-E port. Options include **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s) and Gen 3 (8GT/s)
PCI-E Port Max Payload Size	This sets the max payload size. Options include 128B, 256B or **Auto**.

▶CPU2 Configuration	This submenu allows you to configure CPU2 configuration options.
IOU0 (IIO PCIe Br1)	This setting selects the PCIe port bifurcation for Br1. Options include x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 or **Auto**.
IOU1 (IIO PCIe Br2)	This setting selects the PCIe port bifurcation for Br2. Options include x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 or **Auto**.
IOU2 (IIO PCIe Br3)	This setting selects the PCIe port bifurcation for Br3. Options include x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16 or **Auto**.
MCP0 (IIO PCIe Br4)	This setting selects the PCIe port bifurcation for Br4. Options include x16 or **Auto**.
MCP1 (IIO PCIe Br5)	This setting selects the PCIe port bifurcation for Br5. Options include x16 or **Auto**.
▶IOAT Configuration	This submenu allows you to configure IOUT configuration options.
Disable TPH	This setting lets you turn on/off TLP Processing Hint disabling. Options are Yes or **No**.
Prioritize TPH	This setting allows you to Enable or **Disable** the Prioritize TPH option.
Relaxed Ordering	This setting Enables or **Disables** relaxed ordering in your system.
▶Intel VT for Directed I/O (VT-d)	Use this submenu to bring up options for Intel VT for Directed I/O configurations.
Intel VT for Directed I/O (VT-d)	This setting allows you to **Enable** or Disable Intel Virtualization Technology for Directed I/O (VT-d) by reporting the I/O device assignment to VMM through the DMAR ACPI Tables.
Interrupt Remapping	This setting allows you to **Enable** or Disable the VT_D Interrupt Remapping support.

Passthrough DMA	This setting allows you to **Enable** or Disable the Non-Isoch VT_D Engine Pass Through DMA support.
ATS	This setting allows you to **Enable** or Disable the Non-Isoch VT_D Engine ATS support.
Posted Interrupt	This setting allows you to **Enable** or Disable the VT_D Posted Interrupt.
Coherency Support (Non-Isoch)	This setting allows you to **Enable** or Disable the VT_D Engine Coherency support.
▶Intel VMD Technology Submenu	Use this submenu to bring up options for Intel VMD Technology configuration options.
▶Intel VMD for On-board NVMe submenu	Use this submenu to bring up options for Intel VMD for On-board NVMe configuration options.
On-board NVMe Mode	This setting selects **Legacy Mode** or VMD Mode options for On-board NVMe.

PCIe Hot Plug	This setting allows you to Enable/Disable PCIe Hot Plug globally. Options include **Disable**, Enable, Auto and Manual.
PCI-E Completion Timeout (Global)	This setting allows you to Enable/Disable the Completion Timeout, where x is 0-3. Options include Yes, **No** and Per-Port.
▶South Bridge Configuration	This sub-menu allows you to configure South Bridge parameters.
USB Information	Static information for USB Module Version and USB devices connected is shown at the top of this screen.
Legacy USB Support	This setting allows you to enable the use of Legacy USB devices. If this option is set to Auto, legacy USB support will be automatically enabled if a legacy USB device is installed on the mainboard, and disabled if no USB devices are connected. The Disable option will keep USB devices available only for EFI applications. The options include Disabled, **Enabled** and Auto.
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by the XHCI driver. Options include **Enabled** and Disabled.
Port 60/64 Emulation	This setting **Enables** or Disables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
Port 61h Bit-4 Emulation	This setting allows you to Enable or **Disable** Port 61h Bit-4 Emulation.
Install Window 7 USB Support	This setting allows you to Enable or **Disable** installation of Windows 7 USB support to your system..

Server ME Information Sub-menu

Menu Option	**Description**
General ME Configuration Information	General ME configuration information is displayed at the top of this screen.

SATA Configuration Sub-menu

Menu Option	**Description**
SATA Controller	This setting allows you to **Enable** or Disable the SATA device.
Configure SATA as	Use this setting to select the SATA mode you desire. Options include IDE, **AHCI** and RAID.
SATA HDD Unlock	Use this setting to **Enable** or Disable the HDD password unlock in the OS.
Aggressive Link Power Management	Use this setting to Enable or **Disable** SALP.
SATA Port 0~2 Settings	For each of the ports you many configure the settings listed below.
Hot Plug	Use this setting to **Enable** or Disable the port as Hot Pluggable.
Spin Up Device	This setting allows you to Enable or **Disable** the Spin up Device for the system. If enabled for any ports staggered spin up will be performed and only the drives that have this option enabled will spin up at boot. Otherwise all drives spin up at boot if this setting is disabled.
SATA Device Type	This setting allows you to identify that the SATA port is connected to either a Solid State Drive or a **Hard Disk Drive**.

sSATA Configuration Sub-menu

Menu Option	Description
sSATA Controller	This setting allows you to **Enable** or Disable the SATA controller.
Configure sSATA as	Use this setting to select the SATA mode you desire. Options include IDE, **AHCI** and RAID.
SATA HDD Unlock	Use this setting to **Enable** or Disable the HDD password unlock in the OS.
Aggressive Link Power Management	Use this setting to Enable or **Disable** SALP.
sSATA Port 0~5 Settings	For each of the ports you many configure the settings listed below.
Hot Plug	Use this setting to Enable or **Disable** the port as Hot Pluggable.
Spin Up Device	This setting allows you to Enable or **Disable** the Spin up Device for the system. If enabled for any ports staggered spin up will be performed and only the drives that have this option enabled will spin up at boot. Otherwise all drives spin up at boot if this setting is disabled.
sSATA Device Type	This setting allows you to identify that the SATA port is connected to either a Solid State Drive or a **Hard Disk Drive**.

PCIe/PCI/PnP Configuration Sub-menu

Menu Option	Description
PCI Bus Driver Version	The installed version for the PCI Bus Driver is static displayed here for your information.
PCI Devices Common Settings	
Above 4G Decoding	Select Enabled to decode a 64-bit PCI device in the space above 4G Address. The options are **Enabled** and Disabled.
SR-IOV Support	If the system has SR-10V capable PCIe device, this option Enables or **Disables** single root I/O virtualization support.
MMIO High Base	Use this setting to select the MMIO High Base. Options include **56T**, 48T, 24T, 16T, 4T and 1T.
MMIO High Granularity Size	This setting selects the allocation size used to assign MMIOH resources. The total MMIOH space can be up to 32xgranularity. Per stack MMIOH resource assignments are multiples of the granularity where 1 unit per stack is the default allocation. Options are numbers 1G~1024G where **256G** is the default.
PCI PERR/SERR Support	This setting **Enables** or Disables the runtime event for SERR/PERR errors.
Maximum Read Request	Select Auto to allow the system BIOS to automatically set the maximum Read Request size for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.
MMCFG Base	This setting selects the MMCFG base. Options include 1G, 1.5G, 1.75G, **2G**, 2.25G and 3G.
VGA Priority	This setting decides the priority between **On-board** and the first Offboard video device found.
PCI Devices Option ROM Settings	

On-board NVME 1 OPROM	This setting enables/disables the On-board NVMe OPROM option. Options include Disabled, Legacy and **EFI**.
On-board NVME 2 OPROM	This setting enables/disables the On-board NVMe OPROM option. Options include Disabled, Legacy and **EFI**.
CPU1 Slot 1 PCI-E x8 OPROM	This setting enables/disables the PCI-E Slot OPROM option. Options include Disabled, **Legacy** and EFI.
CPU1 Slot2 PCI-E x16 OPROM	This setting enables/disables the PCI-E Slot OPROM option. Options include Disabled, **Legacy** and EFI.
CPU1 Slot 3 PCI-E x8 OPROM	This setting enables/disables the PCI-E Slot OPROM option. Options include Disabled, **Legacy** and EFI.
On-board Video OPROM	Use this setting to control the execution of UEFI and Legacy Video OPROM on your system. Options include Disabled, **Legacy** or EFI.
On-board LAN 1 OPROM	This setting enables or disables On-board LAN 1 Option ROM. Options include Disabled, **Legacy** and EFI.
On-board LAN 2 OPROM	This setting enables or disables On-board LAN 2 Option ROM. Options include **Disabled**, Legacy and EFI

▶Network Stack Configuration	Use this submenu to configure network stack settings.
Network Stack	This setting allows you to **Enable** or Disable UEFI Network Stack for your system. If disabled, the boot option for UEFI Network Stack will not be created.
Ipv4 PXE Support	This setting allows you to **Enable** or Disable Ipv4 PXE support for your system. If disabled, the boot option for Ipv4 PXE Support will not be created.
Ipv4 HTTP Support	This setting allows you to **Enable** or Disable Ipv4 HTTP support for your system. If disabled, the boot option for Ipv4 HTTP Support will not be created.
Ipv6 PXE Support	This setting allows you to Enable or **Disable** Ipv6 PXE Support for your system. If disabled, the boot option for Ipv4 PXE Support will not be created.
Ipv6 HTTP Support	This setting allows you to Enable or **Disable** Ipv6 HTTP Support for your system. If disabled, the boot option for Ipv6 HTTP Support will not be created.
PXE Boot Wait Time	This sets the wait time in seconds for you to press the ESC key tin order o abort the PXE boot for your system. Default is **0**, use your system's keyboard's keypad to specify the number.
Media Detect Count	This sets the number of times the presence of media will be checked for your system. Default is **1**, use your system's keyboard's keypad to specify the number.

SuperIO Device Configuration Sub-menu

Menu Option	Description
Super IO Chip	This static display shows the name of the Super IO chip installed for your system.
▶Serial Port 1/2 Configuration	This sub-menu allows the user the configure settings of Serial Port 1 or Serial Port 2.
Serial Port	Select Enabled to enable the a selected On-board serial port. The options are **Enabled** and Disabled.
Device Settings	This displays a static display of the status of a serial part specified by the user.
Change Settings	This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address. The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12) and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12). The options for Serial Port 2 are **Auto**, (IO=2F8h; IRQ=3), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12) and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).
Serial Port 2 Attribute (Available for Serial Port 2 only)	This feature specifies the attribute of Serial Port 1. The options are **SOL** and COM.

Serial Port Console Redirection Sub-menu

Menu Option	Description
COM1 Console Redirection, COM2/SOL Console Redirection Sub-menus	
Console Redirection	Select Enabled to enable console redirection support for a serial port specified by the user. The options are Enabled and **Disabled**.
▶Console Redirection Settings	This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.
Terminal Type	This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.
Bits Per second	Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).
Data Bits	Use this feature to set the data transmission size for Console Redirection. The options are 7 Bits and 8 **Bits**.

Parity	A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.
Stop Bits	A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.
Flow Control	Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.
VT-UTF8 Combo Key Support	Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled.
Recorder Mode	Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.
Resolution 100x31	Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.
Legacy OS Redirection Resolution	Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.
Putty KeyPad	This feature selects the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SC0, ESCN, and VT400.
Redirection After BIOS Post	Use this feature to enable or disable legacy console redirection after BIOS POST. When set to Bootloader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.
Legacy Console Redirection Sub-menu	
Legacy Serial Redirection Port	Use this setting to select a COM port to display redirection of Legacy OS and Legacy OPROM messages. Options include **COM1 Console Redirection** or COM2/SOL Console Redirection.
Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)	
Console Redirection (for EMS)	Select Enabled to use a COM Port selected by the user for Console Redirection. The options are Enabled and **Disabled**.
▶Console Redirection Settings (for EMS)	This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.
Out-of-Band Management Port	The feature selects a serial port used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote server. The options are **COM1 Console Redirection** and COM2/SOL Console Redirection.

Terminal Type	This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, VT100+, and **VT-UTF8**.
Bits Per Second	This item sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).
Flow Control	This feature allows the user to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None**, Hardware RTS/CTS, and Software Xon/Xoff.
Data Bits, Parity, Stop Bits	The status of each item above is displayed.

ACPI Settings Sub-menu

Menu Option	Description
NUMA	Use this setting to **Enable** or Disable NUMA.
WHEA Support	This feature Enables the Windows Hardware Error Architecture (WHEA) support for the Windows 2008 (or a later vision) operating system. The options are **Enabled** and Disabled.
High Precision Timer	Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

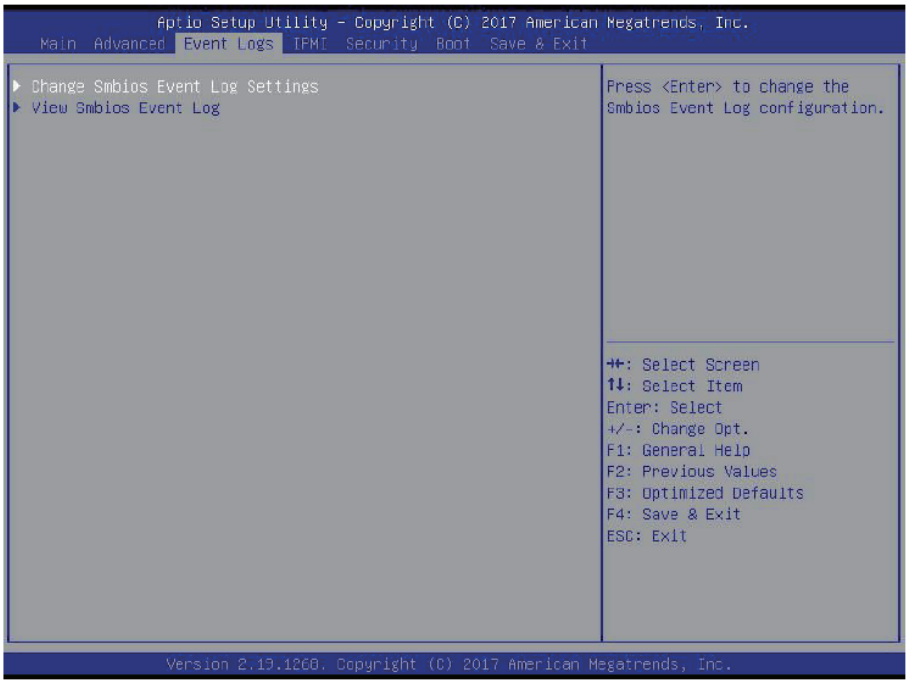
Trusted Computing Settings Sub-menu

Menu Option	Description
Device Select	Use this setting to select the TPM device support and restriction to be used. Options are described below: • **TPM 1.2** – This option restricts support to TPM 1.2 devices. • **TPM 2.0** – This option restricts support to TPM 2.0 devices. • **Auto** – This option will support both with the default set to TPM 2.0 devices. If TPM 2.0 is not found, then TPM 1.2 devices will be enumerated. Default for this setting is the **Auto** option.
TXT Support	This setting will Enable or **Disable** TXT support.

Intel(R) Virtual RAID on CPU Settings Sub-menu

Menu Option	Description
Use this menu if you have RAID volumes or Intel VMD Controllers on the system to configure your Intel Virtual RAID on CPU settings. Otherwise this meun is blank.	

4.3.3 Event Logs Setup

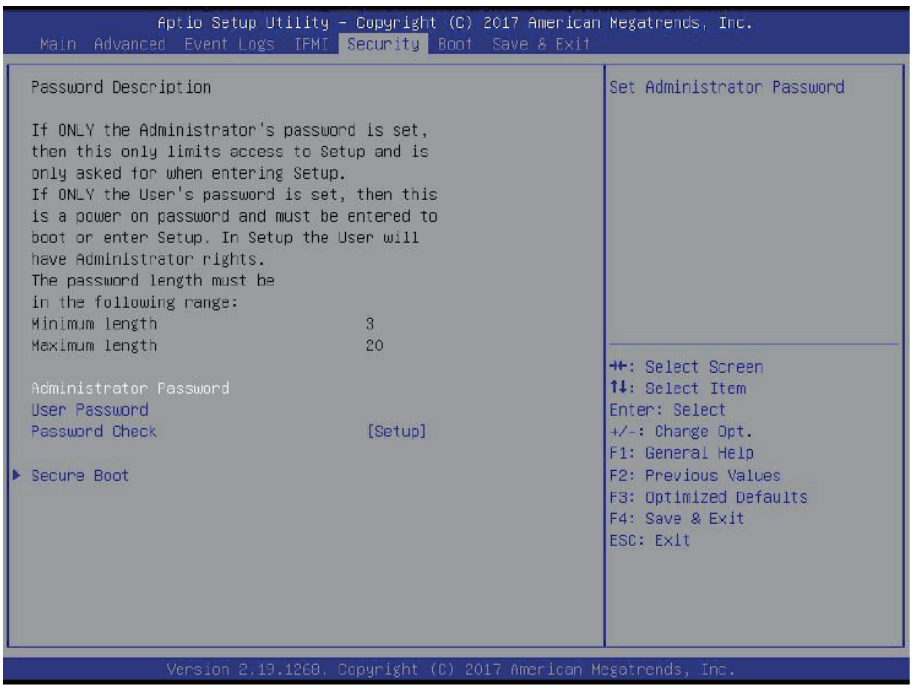


Menu Option	Description
▶Change SMBIOS Event Log Settings	This sub-menu allows you to change the SMBIOS Event Log configuration settings.
SMBIOS Event Log	Change this setting to enable or disable all features of the SMBIOS Event Logging during system boot. The options are **Enabled** and Disabled.
Erase Event Log	If No is selected, data stored in the event log will not be erased. Select Yes, Next Reset, data in the event log will be erased upon next system reboot. Select Yes, Every Reset, data in the event log will be erased upon every system reboot. The options are **No**, Yes, Next reset, and Yes, Every reset.
When Log is Full	Select Erase Immediately for all messages to be automatically erased from the event log when the event log memory is full. The options are **Do Nothing** and Erase Immediately.
Log System Boot Event	This option toggles the System Boot Event logging to enabled or disabled. The options are **Disabled** and Enabled.
MECI	The Multiple Event Count Increment (MECI) counter counts the number of occurrences that a duplicate event must happen before the MECI counter is incremented. This is a numeric value. The default value is **1**.
METW	The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99. The default value is **60**.
Log OEM Codes	Use this setting to **Enable** or Disable the logging of EFI Status codes as OEM codes (if not already converted to legacy).
Convert OEM Codes	Use this setting to Enable or **Disable** the converting of EFI Status Codes to Standard SMBIOS types (not all may be translated).
▶View SMBIOS Event Log	This section displays the contents of the SMBIOS Event Log. It provides a date, time, error code and severity with a brief description of each event.

4.3.4 IPMI Setup

Menu Option	Description
IPMI Information	IPMI Firmware Revision and IPMI Status information are statically displayed at the top of this menu.
▶System Event Log	Selecting this sub-menu displays settings for changing the SEL Event Log configuration. Note: all values changed here do not take effect until the system is restarted.
SEL Components	Change this setting to **Enable** or Disable all features of the System Event Logging during boot-up.
Erase SEL	Use this setting for erasing the SEL. Options are **No**, Yes On Next Reset and Yes On Every Reset.
When SEL is Full	Use this setting to choose options for reactions to a full SEL. Options include Do **Nothing** and Erase Immediately.
Log EFI Status Codes	Use this setting to **Enable** or Disable logging of EFI status codes, log only error codes or only progress codes
▶BMC Network Configuration	Use this sub-menu to configure BMC network parameters.
BMC Network Configuration Information	The sub-menu contains static display information for the Station IP Address, Subnet Mask, Station MAC Address and Gateway IP Address.
Update IPMI LAN Configuration	Specify Yes or **No** for the BIOS to use this setting for IPMI in the next boot-up.

4.3.5 Security

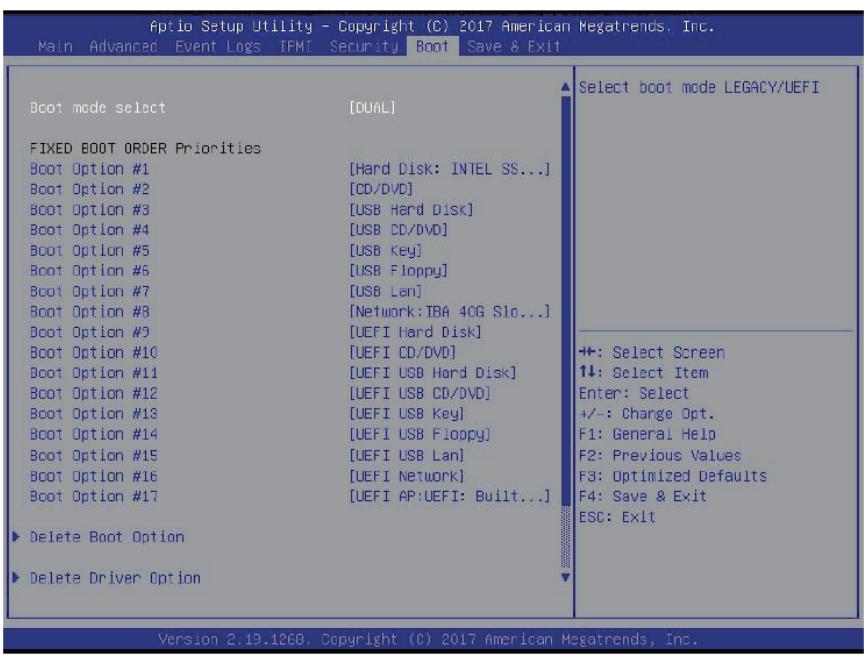


Choose Security from the BIOS Setup main menu with the arrow keys to bring up the SECURITY SETUP menu. Security setting options are displayed by highlighting the setting using the arrow keys and pressing <ENTER>. All Security BIOS settings are described in below table.

Menu Option	Description
Administrator Password	This allows you to create an administrator password for the system.
User Password	This allows you to create user password for the system.
Password Check	Use this setting to specify when to do a password check. Options include checking the password while invoking **Setup**, or Always when invoking setup as well as on each boot.
▶Secure Boot	This submenu allows you to customize the Secure Boot settings.
Attempt Secure Boot	This setting allows you to Enable or **Disable** Secure Boot activation when the Platform Key (PK) is enrolled. System Mode is User/Deployed, and the CSM function is disabled.

Menu Option	Description
Secure Boot Mode	This setting specifies the Secure Boot Mode used. Options include Standard and **Custom**. In Custom mode, Secure Boot variables can be configured without authentication.
CSM Support	Use this setting to **Enable** or Disable CSM support for your system.
▶Key Management	Use this submenu to modify boot policy variables without full authentication.
Provision Factory Defaults	This setting allows you to provision the factory default Secure Boot Keys when the system is in Setup Mode. Options include Enabled and **Disabled**.
Install Factory Default Keys	Use this setting to force the system to User Mode, and install all factory default keys. Pressing the Enter keyboard key will bring up Yes or No dialog.
Enroll EFI Image	This setting allows the image to run in Secure Boot Mode. Pressing the Enter keyboard key will bring up a field for entering in a path to enroll the SHA256 hash of the binary into the Authorized Signature Database (db).
Platform Key (PK)	For all of these features, enroll factory defaults or load certificates from a file.
Key Exchange Keys	
Authorized Signatures	
Forbidden Signatures	
Authorized Timestamps	
OsRecovery Signatures	

4.3.6 Boot

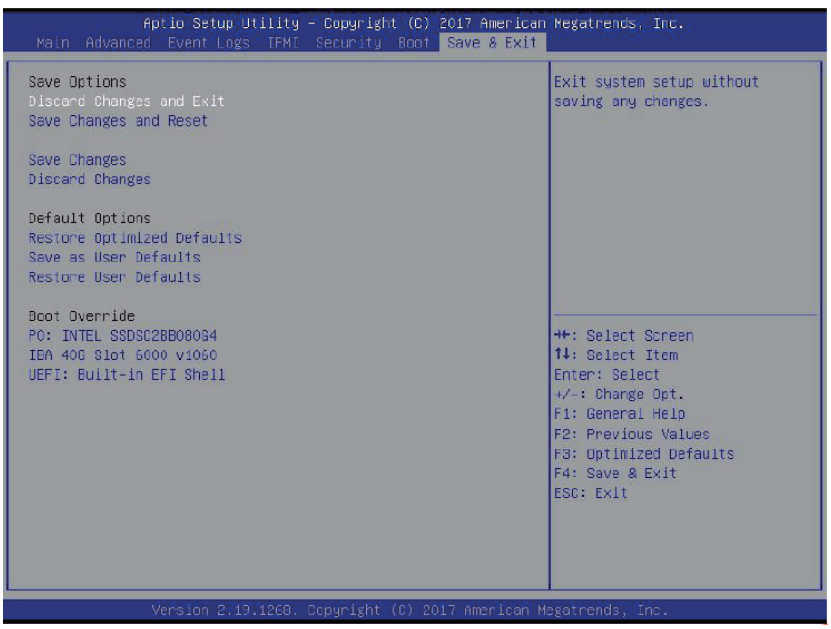


Choose Boot from the 256 Mb SPI Flash EEPROM with AMI® BIOS Setup Utility main menu with the arrow keys to bring up the BOOT SETUP menu. Security setting options are

displayed by highlighting the setting using the arrow keys and pressing <ENTER>. All Security BIOS settings are described in below table.

Menu Option	Description
Boot Mode Select	This setting allows you to select the boot mode to use. Options include Legacy, UEFI or **Dual**.
Boot Priority Options 1 ~ 17	This feature allows you to specify the sequence of priority for the boot device (such as hard disk drives, USB devices, CD-ROM drives, Network drives and so on). The menu options are for 1st Boot Device, 2nd Boot Device and 3rd Boot device. Each numbered boot device can be set to a specific device installed in your system or to Disabled. **NOTE:** A device enclosed in parenthesis has been disabled in the corresponding type menu.
▶Delete Boot Option	This sub-menu allows you to remove an EFI boot option form the boot order.
▶Add New Driver Option	Use this submenu to add a new EFI driver option to the driver order.
Add driver option	Selecting this option brings up a field for entering a name for a new driver option.
Path for driver option	Selecting this option brings up a field for entering a path to the driver option in the format fsx:\path\filename.efi.
Create	After specifying the driver option name and path select this option to create it.
▶Delete Driver Option	This sub-menu allows you to remove an EFI driver option form the boot order.
▶UEFI Hard Disk Drive BBS Priorities	Use this submenu to specify the Boot Device Priority sequence from the available UEFI Hard Disk Drives in the system.
▶Hard Disk Drive BBS Priorities	Use this submenu to specify the Boot Device Priority sequence from the available Hard Disk Drives in the system.
▶Network Device BBS Priorities	This sub-menu allows you to set the order of the legacy devices in this group for setting the boot order.

4.3.7 Save & Exit



Choose SAVE & EXIT from the 256 Mb SPI Flash EEPROM with AMI® BIOS BIOS Setup Utility main menu with the arrow keys to display the SAVE & EXIT SETUP menu. All Exit BIOS settings are described in below table.

Menu Option	Description
Discard Changes and Exit	Highlight this item and hit <ENTER> to exit the BIOS Setup utility without saving any changes you may have made. Any changes you have made to the BIOS Setup will not take effect upon system bootup.
Save Changes and Reset	Highlight this item and hit <ENTER> to save any changes you made and to exit the BIOS Setup utility. The system will reboot and implement the changes you have made to the BIOS Setup.
Save Changes	Highlight this item and hit <ENTER> to save changes done so far to any of the setup options.
Discard Changes	Highlight this item and hit <ENTER> to discard (cancel) any changes you made. You will remain in the Setup utility.
Restore Optimized Defaults	Highlight this item and hit <ENTER> to load the default settings for all items in the BIOS Setup. These are the safest settings to use and are designed for maximum system performance, but may not work best for all computer applications.
Save as Users Defaults	Highlight this item and hit <ENTER> to save changes done so far as user defaults.
Restore User Defaults	Highlight this item and hit <ENTER> to restore the user defaults to all the setup options.
Boot Override	For each boot device you have the option of saving the configuration for it and exiting.

4.4 Appendix A Updating BIOS Using KVM Console

Use the following procedure to update a module BIOS using the KVM console software.

Updating the BIOS Using the KVM Console

1. Click on the graphic in the SYSTEM -> SYSTEM INFORMATION screen to launch the KVM Console window as shown in Figure A-1.

Alternately, you may go to the CONFIGURATION -> CONSOLE REDIRECTION screen (Figure A-2) and press the LAUNCH CONSOLE button to bring up the KVM Console window.

Figure A-1. System Information Remote Console Preview Graphic

Figure A-2. Console Redirection Screen

2. In the KVM Console window, click on the VIRTUAL STORAGE menu option from the VIRTUAL MEDIA menu (Figure A-3). The VIRTUAL STORAGE window will be displayed (Figure A-4).

Figure A-3. KVM Console Window

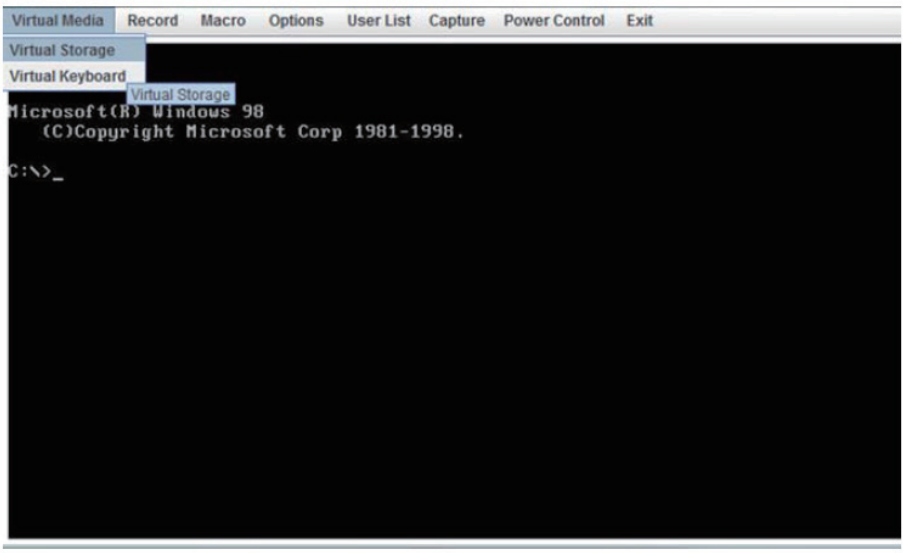
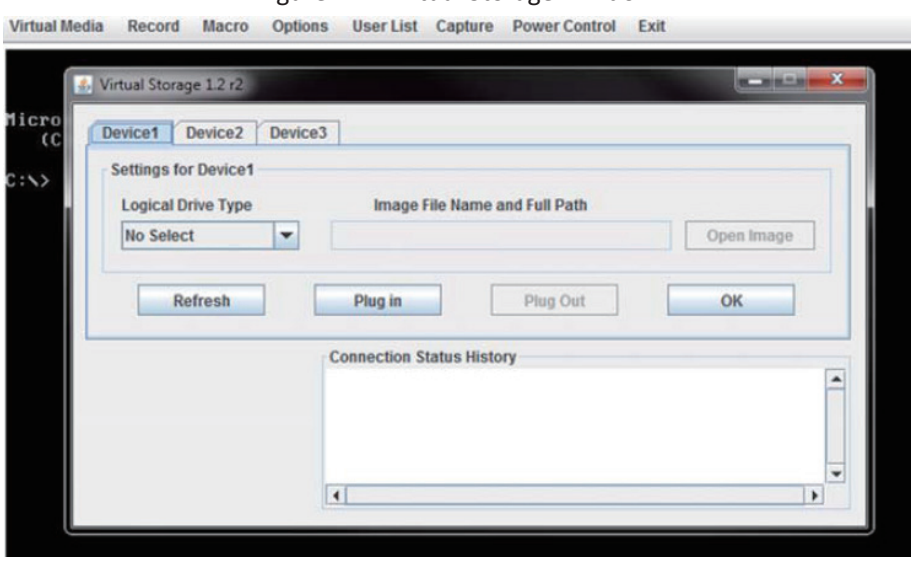
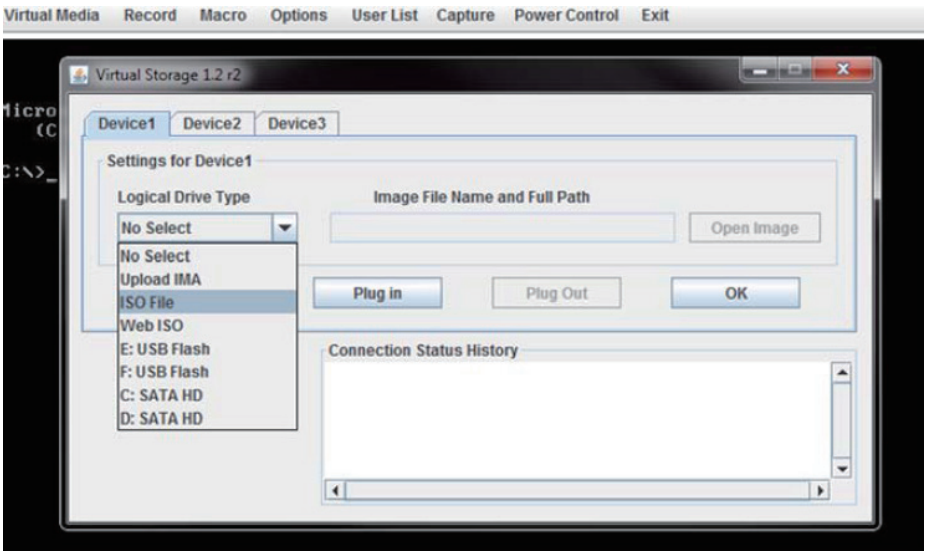


Figure A-4. Virtual Storage Window



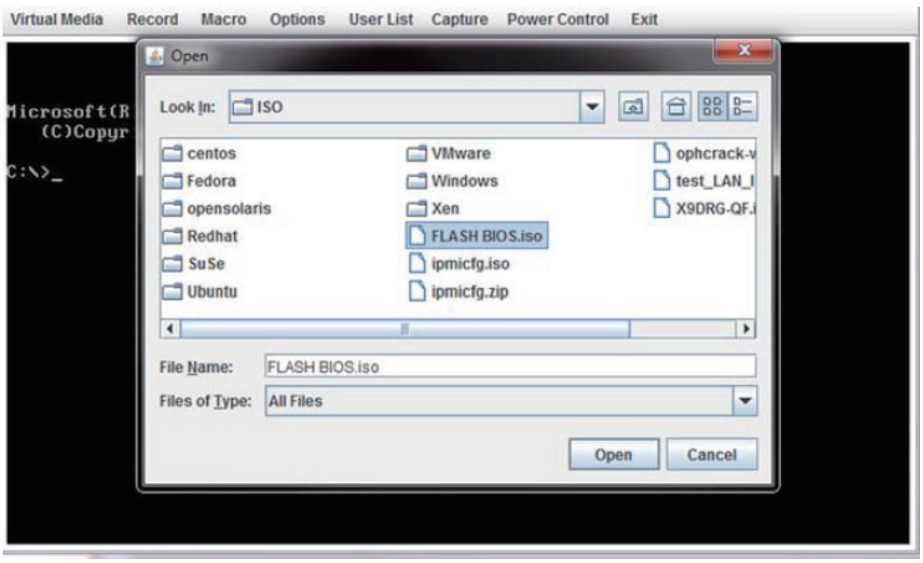
3. Under the DEVICE 1 tab of the VIRTUAL STORAGE window, select ISO File from the LOGICAL DRIVE TYPE menu if you wish to mount an ISO file (Figure A-5).

Figure A-5. Selecting ISO File to Mount an ISO File



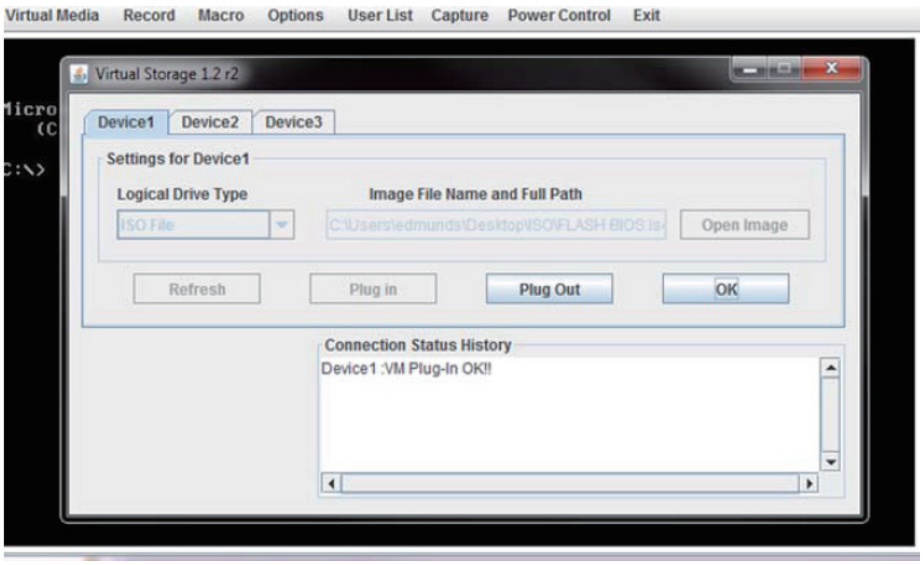
4. Browse for the ISO file on your local disk that contains the BIOS file and flash utility (Figure A-6). Press the OPEN button to select it.

Figure A-6. Locating the ISO File



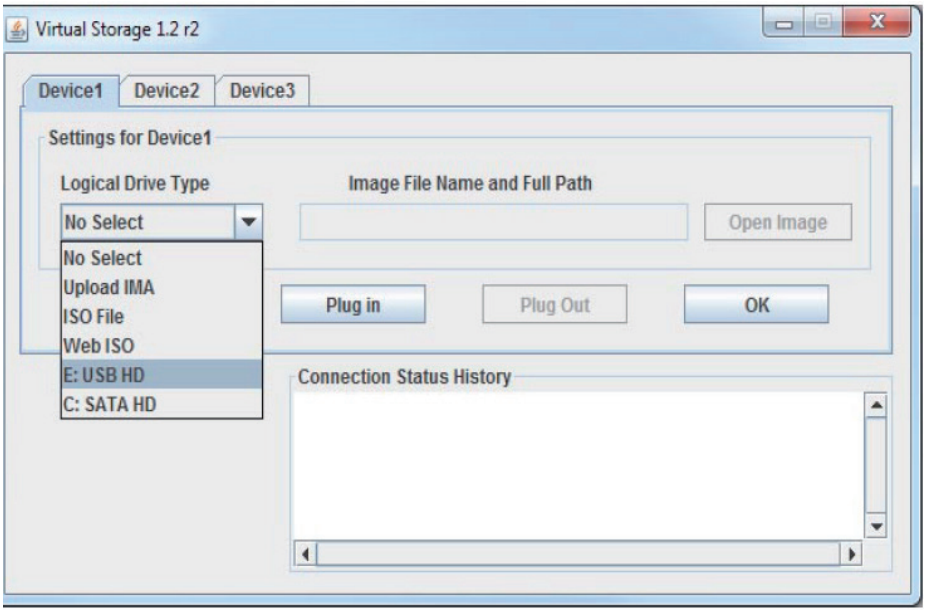
5. After you have selected the ISO file, press the Plug In button, then the OK button to exit the VIRTUAL STORAGE window (Figure A-7). Skip ahead to step 8.

Figure A-7. Pressing the Plug In and OK Buttons for an ISO File



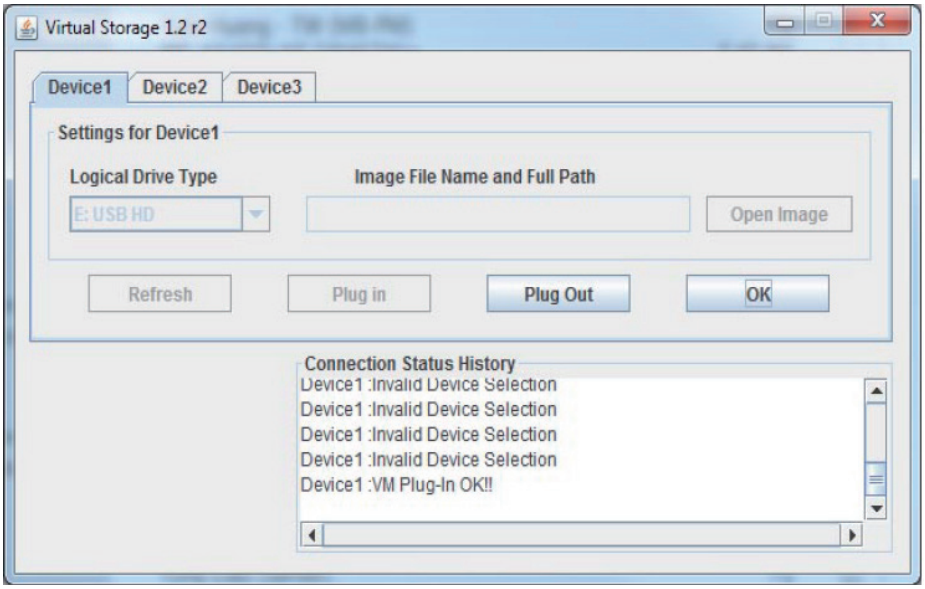
6. If you wish instead to download the BIOS update from a USB Flash drive, then insert the flash drive into your system and select it from the Logical Drive Type menu (Figure A-8).

Figure A-8. Selecting a USB Flash Drive



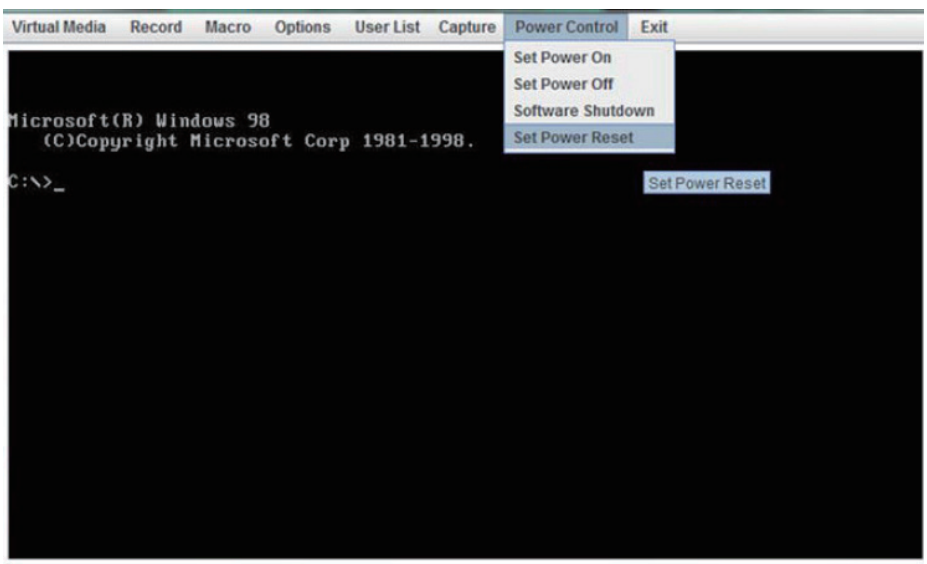
7. After you have selected the USB flash drive file, press the Plug In button, then the OK button to exit the VIRTUAL STORAGE window (Figure A-9).

Figure A-9. Pressing the Plug In and OK Buttons for an USB Flash Drive File



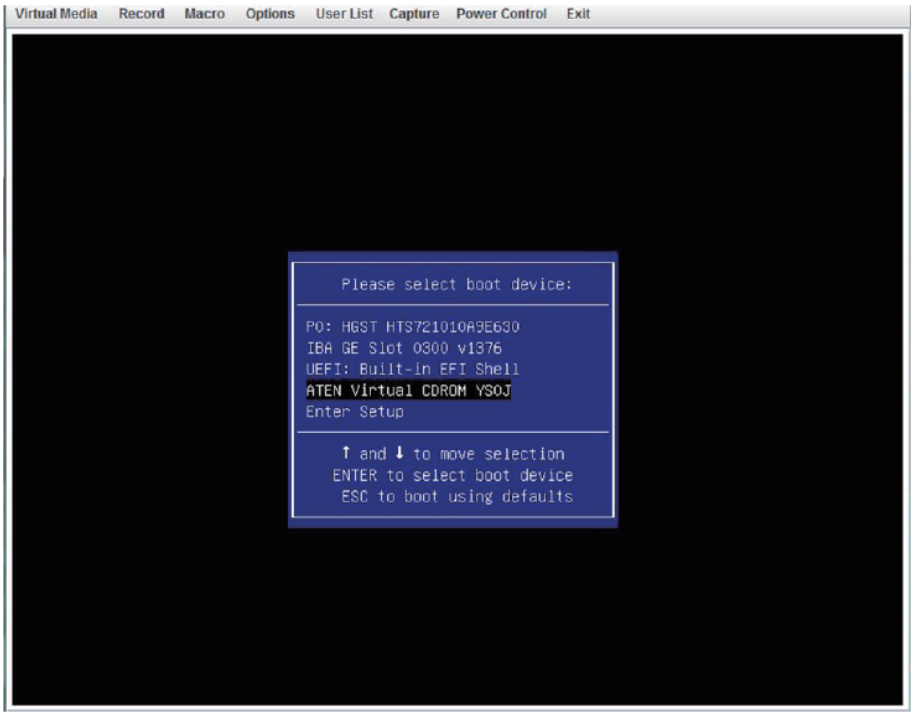
8. Reboot the MicroBlade by selecting the POWER CONTROL -> SET POWER RESET menu option from the KVM CONSOLE window. If the MicroBlade is not powered on yet, please select SET POWER ON from the menu (Figure A-10).

Figure A-10. Selecting Set Power Reset



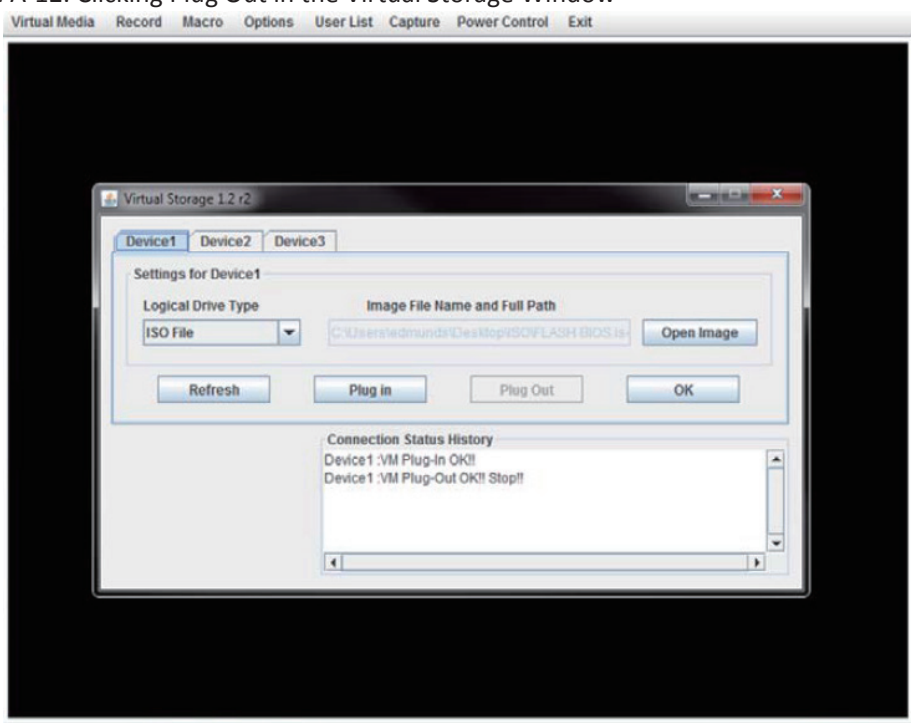
When the system powers up, press your keyboard's F11 key in order to boot into the INVOKE BOOTABLE DEVICES LIST. From this list, select the ATEN Virtual CDROM YS0J command. Your MicroBlade will now boot up into mounting the ISO file which contains the new BIOS file and flash utility (Figure A-11).

Figure A-11. Bootable Devices List



9. Close the KVM CONSOLE window, or go to the Virtual Storage window (see step 2) and click on Plug Out, this will remove mounting of the ISO file (Figure A-12).

Figure A-12. Clicking Plug Out in the Virtual Storage Window



5.CMM Introduction

The MicroBlade Web-based Management Utility is a web-based interface that consolidates and simplifies system management for MicroBlade systems.The MicroBlade Web-based Management Utility aggregates and displays data from the SIMCM (the IPMI card designed for the MicroBlade Chassis Management Module).The MicroBlade Web-based Management Utility provides the following key management features:

- Enables IT administrators to view in-depth hardware configuration and status information using a single intuitive interface.
- Provides an OS-independent, remote graphical console.
- Allows remote users to map local media (floppy, CD-ROM, removable disks and hard drives) or ISO images on a shared network drive to a blade server.

Supported Browsers

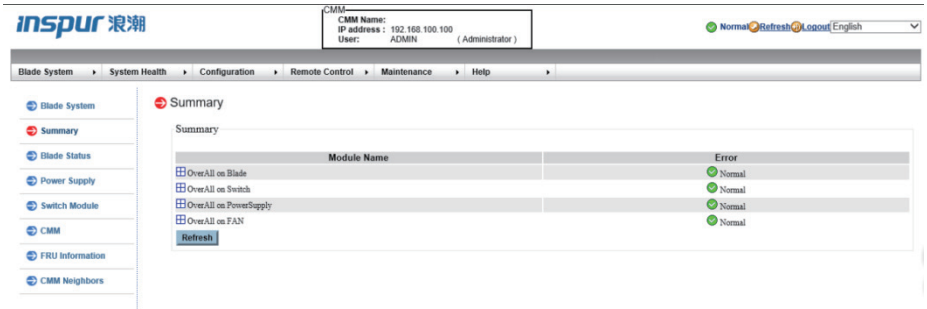
The following browsers have been tested for use with the MicroBlade Web-based Management Utility. It is recommended that you use the most current revision of the browser you choose. The minimum browser revisions supported by the MicroBlade Web-based Management Utility are shown below:

- Internet Explorer 7
- Firefox 2.0.0.7
- Netscape 9.03b
- Google Chrome

5.1 Launch CMM

To log into the MicroBlade Web-based Management Utility:

1. Launch a web browser.
2. In the address field of the browser, enter the IP address that you assigned to the MicroBlade Chassis Management Module (CMM) and hit the <ENTER> key.
3. When the browser makes contact with MicroBlade Chassis Management Module, enter your username and password, then click LOGIN.
4. The WEB-BASED MANAGEMENT UTILITY HOME PAGE will then display as below picture shown.



Reset

To reset the Web-based Management Utility simply press push a pen tip into the reset hole in the back of the CMM module. This will reset the system.

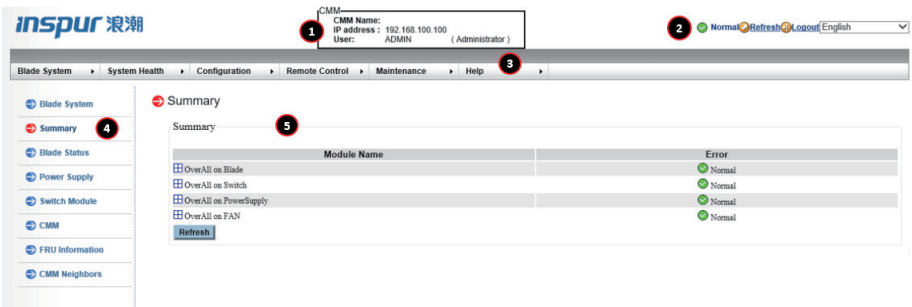
Address Defaults

Below table shows the default addresses that are initially set for the CMM. Afterwards, you can change these values within the program.

Default	Description
Default IP Address	**https://192.168.100.100**
Default Gateway Address	0.0.0.0
Default Subnet Mask	255.255.255.0
Default username	ADMIN
Default password	ADMIN

5.2 Page Elements and Controls

WEB-BASED MANAGEMENT UTILITY HOME PAGE elements and its controls.



Item	Name	Description
1	Host Identification	This displays the host identification information including host server IP address and user ID.
2	Page Controls	Control links for page refresh and logout are found here in the upper right corner of the page. Additionally, there is a LANGUAGE drop-down list box for selecting the language used.
3	Menu Bar	This menu bar contains control buttons for the MicroBlade Web-based Management Utility's menus. Clicking on a button brings up the summary page for that menu, plus the menu items listed in the MENU LIST Pane on the left. Also placing the cursor over these buttons brings up a drop-down list of all the menu items for that menu that allow you to select one of them.
4	Menu List Pane	This is a list of links for each menu item from a selected menu from the MENU BAR. Clicking on one of these links brings up the control pane for that menu item and its controls.
5	Control Pane	This pane controls for the menu item selected from the menu bar. You can use these controls to configure and control blade modules, other equipment or services for your MicroBlade.

Main Menu Buttons

The buttons cover the main functions of MicroBlade Web-based Management Utility. Clicking on an button will reveal a menu of related functions that you can select. Clicking on a button will bring up a summary page for that menu with all the menu items shown in the right pane of the page.These you click on to go their pages.

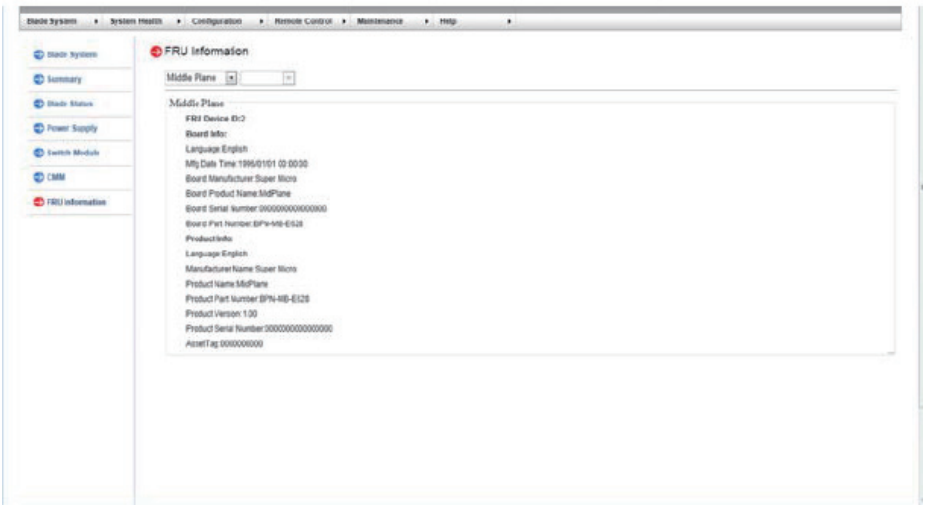
Menu Buttons	Description
Blade System	These pages contains general information about the blade system.
System Health	These pages shows you data related to the server's health, such as sensor readings and the event log.
Configuration	Use these pages to configure various settings, such as alerts, users, or network etc.
Remote Control	These pages allows you to perform various remote operations on the server, such as launching the remote console.
Maintenance	Use these pages to maintain the IPMI device, such as update firmware or reset the IPMI device.
Help	This button toggles on or off the HELP DISPLAY box on the page.

5.3 Blade System

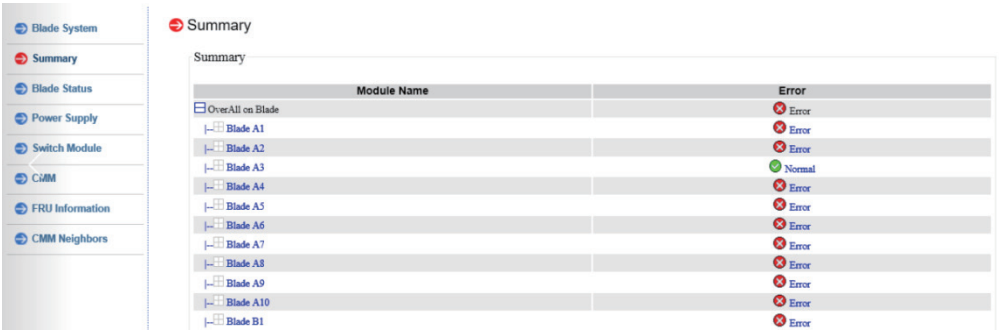
The BLADE SYSTEM menu allows you to access and configure the various blades in your system. Clicking the BLADE SYSTEM icon allows you to access the following pages through its sub-menus:

- Blade System Summary Page
- Blade Status Page
- Power Supply Page
- Switch Module Page

- CMM Page
- FRU Information



5.3.1 Blade System Summary Page



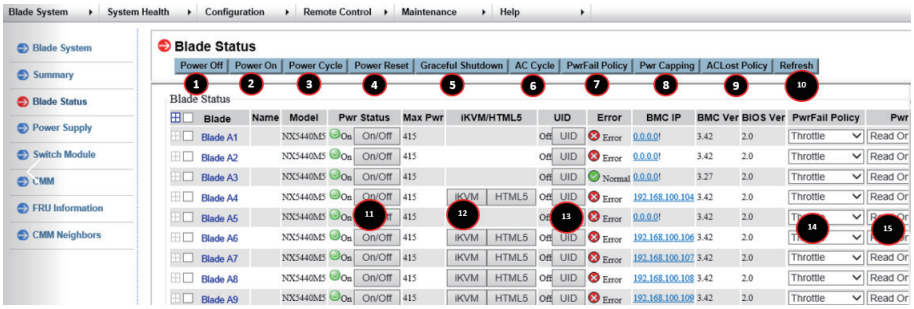
This page displays a summary status of all blades and nodes, switch modules and power supplies.The CONTROL pane displays a column for each module's error status. Press the REFRESH button to refresh the view on this page.

5.3.2 Blade Status Page

The BLADE STATUS page allows you to check and set up the status of all the blade modules in the system and displays information in columns of a table including Blade, Name, Model, Power Status, Maximum Power, KVM, UID, Error, BMC IP, BMC Version, Power Fail Policy and AC Lost Policy Function buttons at the top of the table include Power On/Off, Power Cycle, Power

Reset, Graceful Shutdown, AC cycle, Power Fail Policy, AC Lost Policy and Refresh of the blade module. Selecting a blade module or node from the blade table, and then pushing

a function button at the top of the table changes the status and functions of the blade module. There are also control buttons and drop-down list box controls within the table for changing status on a blade module as well. The command functions on the page and in some of the columns allow you to perform various functions. To perform a function, first click the box(es) next to the blade(s) or node(s) you wish to issue a command to and then click the command button on top of the table. You can also click on any of the individual nodes listed to bring up additional pages with details about that particular node's status, and the controls for setting them.



Item	Control Name	Description
1	Power Off Button	Checking the check box next to a node or blade module and then pressing this button will power off the selected node or blade system.
2	Power On Button	Checking the check box next to a node or blade module and then pressing this button will power on the selected node or blade system.
3	Power Cycle Button	Checking the check box next to a node or blade module and then pressing this button will initiate the power cycle for the selected node or blade system.
4	Power Reset Button	Checking the check box next to a node or blade module and then pressing this button will reset the selected node or blade system.
5	Graceful Shutdown Button	Checking the check box next to a node or blade module and then pressing this button will initiate a graceful shutdown for the selected node or blade system.
6	AC Cycle Button	Checking the check box next to a node or blade module and then pressing this button will initiate the AC cycle for the selected node or blade system.
7	Power Fail Policy Button	Checking the check box next to a node or blade module, and then selecting an option from the drop-down list box for the item and then pressing this button will set the selected power fail policy for the selected node or blade system.
8	Pwr Capping Button	Checking this button for a selected node or blade module sets power capping for that node or blade by bringing up a confirmation pop-up.
9	AC Lost Policy Button	Checking the button next to a node or blade module, and then selecting an option from the drop-down list box for the item and then pressing this button will set the selected AC lost policy for the selected node or blade system.
10	Refresh Button	Pressing this button will refresh the screen to accurately show the new status of all blade modules or nodes in the system.
11	Pwr Status On/Off	The button in this column allows you to power on or off a node or blade in the selected row.
12	KVM	Pressing the button in this column for a selected blade or node starts up a KVM window for viewing that blade or node.

13	UID	Pressing the button in this column for a selected blade lights up the UID for that blade.
14	Pwr Fail Policy	This column contains a pull-down menu for selecting the Power Fail Policy for the selected blade or node. Options include THROTTLE, POWEROFF or PERFORMANCE.
15	Pwr Cap	This column contains a pull-down menu for selecting the Power Cap for the selected blade or node. Options include READ ONLY, DISABLED, and percentage values from 50% to 90%.
16	AC Lost Policy	This column contains a pull-down menu for selecting the AC Lost Policy for the selected blade or node. Options include POWEROFF, POWERON and LASTSTATE.

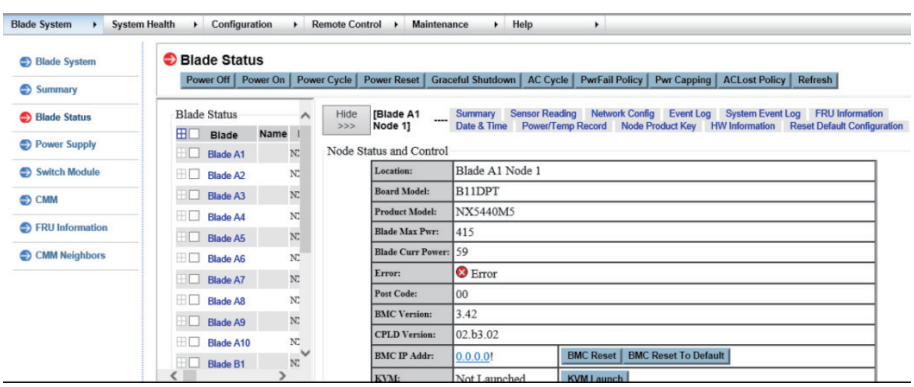
Node Status Page

If you click on the link for a node in the BLADE STATUS page, a new window will appear with the first of several pages with additional controls for that specific node in your system. The following control pages can be selected for this window by clicking on links that are available at the top of the CONTROL page in the new window:

- Node Status – Summary Page
- Node Status – Sensor Reading Page
- Node Status – Network Settings Page
- Node Status – Event Log Page
- Node Status – FRU Information Page
- Node Status – Date & Time Page

Node Status – Summary Page

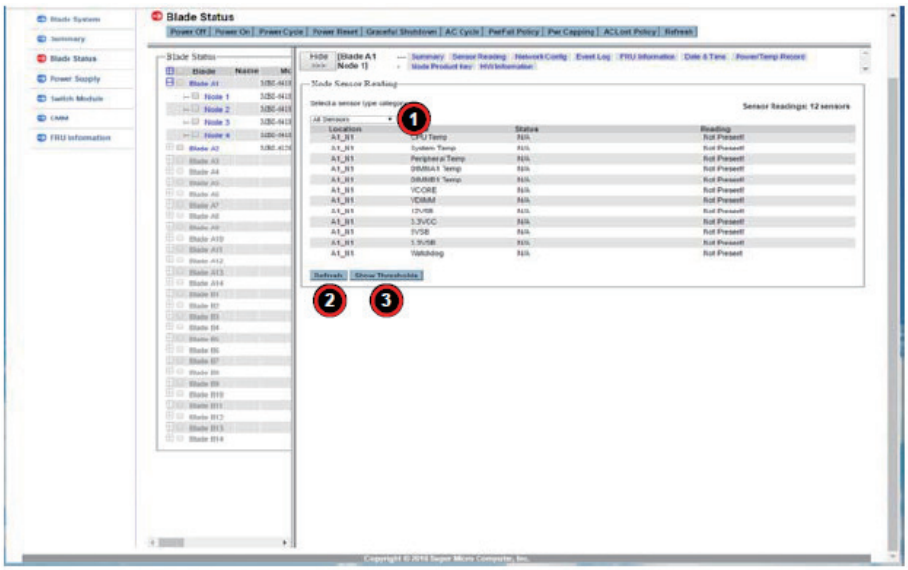
Clicking on the SUMMARY link brings up a SUMMARY page with controls that are listed and described in the below table.



Item	Name	Description
1	BMC IP Address Link	Pressing this link brings up the SYSTEM SUMMARY page (Figure 2-1) that displays information about the selected node or blade module, a REMOTE CONSOLE PREVIEW pane and the following controls for the pane and system: • REFRESH PREVIEW IMAGE • POWER DOWN/ON • RESET Clicking on the FRU Information link reveals static display FRU information about the selected blade module or node selected.
2	BMC Reset Button	Pressing this button resets the BMC.
3	BMC Reset To Default Button	Pressing this button resets the BMC settings to their default settings.
4	KVM Launch Button	Press this button to launch a KVM Remote window.
5	VM Launch Button	Press this button to launch a VIRTUAL MEDIA SETUP window.
6	SOL Launch Button	Press this button to launch a SOL REMOTE window.
7	UID Off Button	Use this button to turn off the UID LED for a selected node or blade module.
8	UID On Button	Use this button to light up the UID LED for a selected node or blade module.
9	Save Name Field and Button	Enter a name in the field provided and press the SAVE NAME button to apply the new name to the node or blade module.
10	Save Power Fail Policy Button and Drop-down List Box	This drop-down list box is used to set the Power Fail Policy and includes the following items you may set for this policy: • POWER OFF • THROTTLE • PERFORMANCE After selecting the Power Fail Policy from the drop-down list box, press the SAVE PWRFAIL POLICY button to apply it.
11	Power On Button	Pressing this button will power on the selected node or blade system.
12	Power Off Button	Pressing this button will power off the selected node or blade system.
13	Reset Button	Pressing this button will reset the selected node or blade system.
14	Power Cycle Button	Pressing this button will initiate the power cycle for the selected node or blade system.
15	Graceful Shutdown Button	Pressing this button will initiate a graceful shutdown for the selected node or blade system.
16	Refresh Button	Pressing this button refreshes the page display.

Node Status – Sensor Reading Page

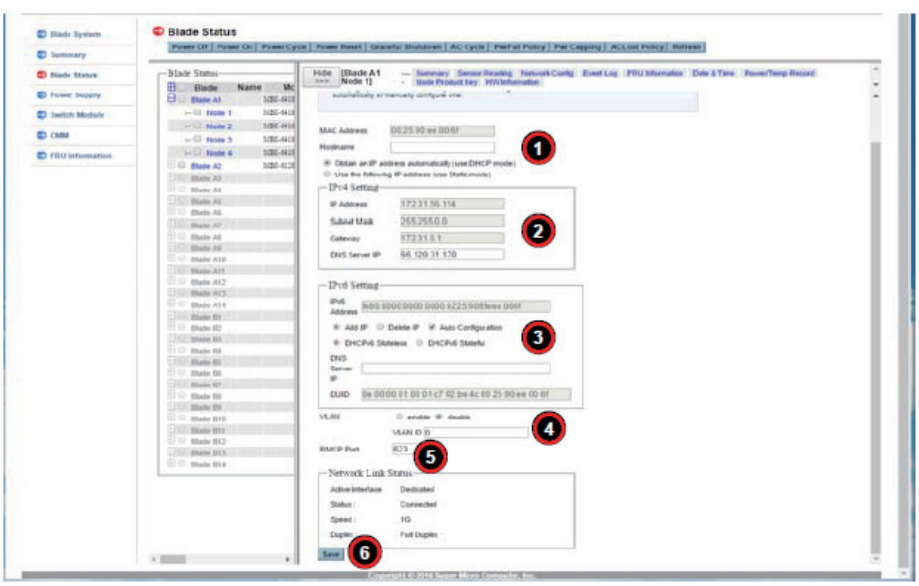
Clicking on the SENSOR READING link brings up a NODE SENSOR READING page with controls that are listed and described in below table.



Item	Name	Description
1	Select Sensors List Box	Use this list box to select the types of sensors you wish to view. Options include ALL SENSORS, TEMPERATURE SENSORS, VOLTAGE SENSORS or WATCHDOG 2.
2	Refresh Button	Press this button to refresh the page.
3	Show Thresholds Button	Pressing this button shows the thresholds for your system.

Node Status – Network Settings Page

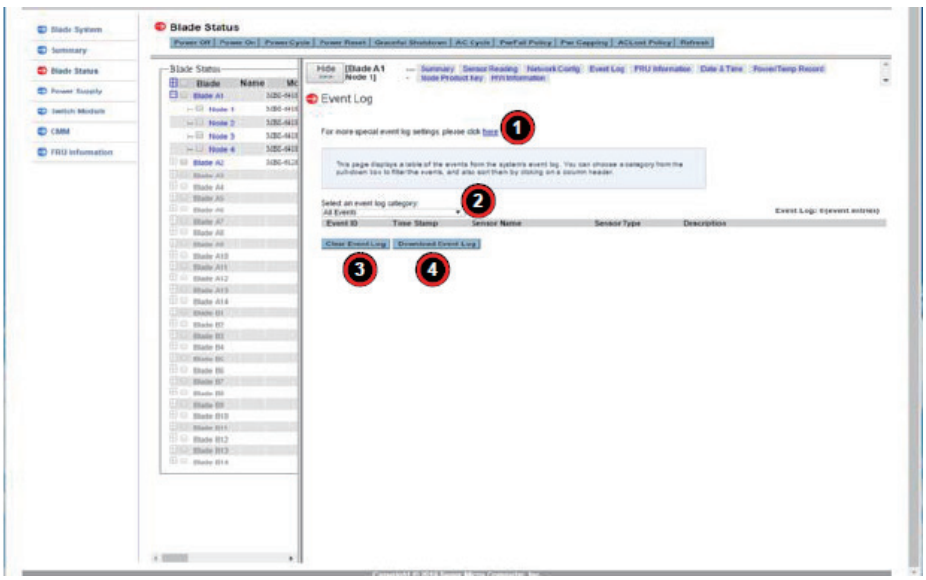
Clicking on the NETWORK CONFIG link brings up a Blade IPMI NETWORK page with controls that are listed and described in below table.



Item	Name	Description
1	Hostname Field	Enter a host name in this field if desired.
2	IPv4 Settings	The IPv4 settings can be configured with these controls when you select the USE THE FOLLOWING IP ADDRESS (USE STATIC MODE) option button.
3	IPv6 Settings	The IPv6 settings can be configured using these controls.
4	VLAN Enable/Disable	These option buttons allow you to enable or disable VLAN.
5	RMCP Port Field	The port setting for RMCP can be entered in the field provided here.
6	Save Button	Pressing the SAVE button saves the configuration for the selected node or blade module.

Node Status – Event Log Page

Clicking on the EVENT LOG link brings up an EVENT LOG page with controlsthat are listed and described in below table.

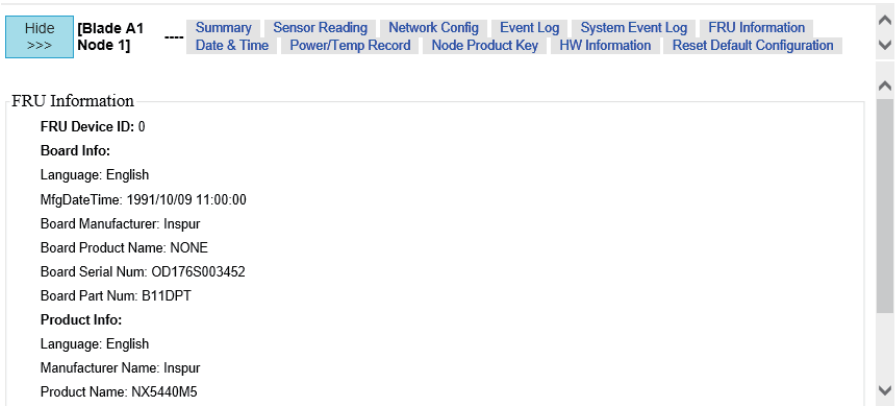


Item	Name	Description
1	Specific Event Logs Link	Clicking on this link brings up a new pane where you can specify specific events to log into the Event Log.
2	Select an Event Log Category Drop-down Link Box	This link box contains options for specifying the type of events to view in the pane. The following options are available: • All Events • BIOS Generated Events • System Management Software Events • Sensor Specific Events
3	Clear Event Log Button	Press this button to clear the event log of all entries.
4	Download Event Log Button	Press this button to download the event log.

Node Status – FRU Information Page

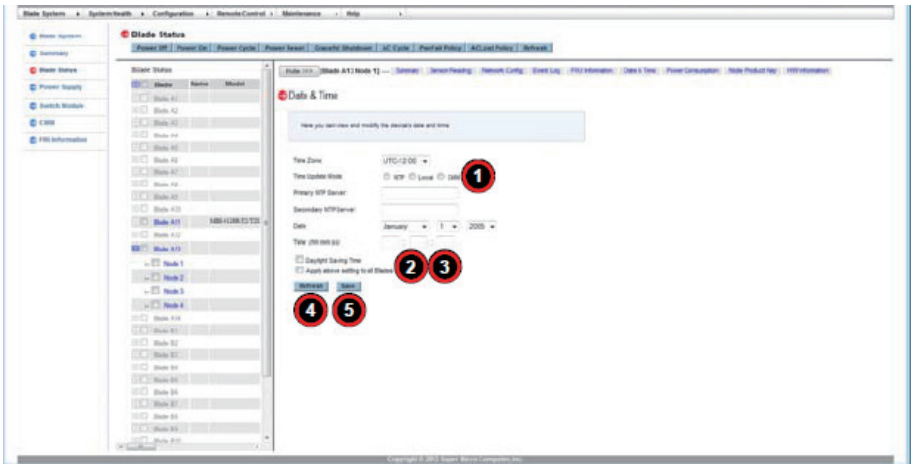
Clicking on the FRU INFORMATION link brings up a FRU INFORMATION page with static FRU

Information about the node or blade module selected.



Node Status – Date & Time Page

Clicking on the DATE & TIME link brings up a DATE & TIME page with controls that are listed and described in below table.

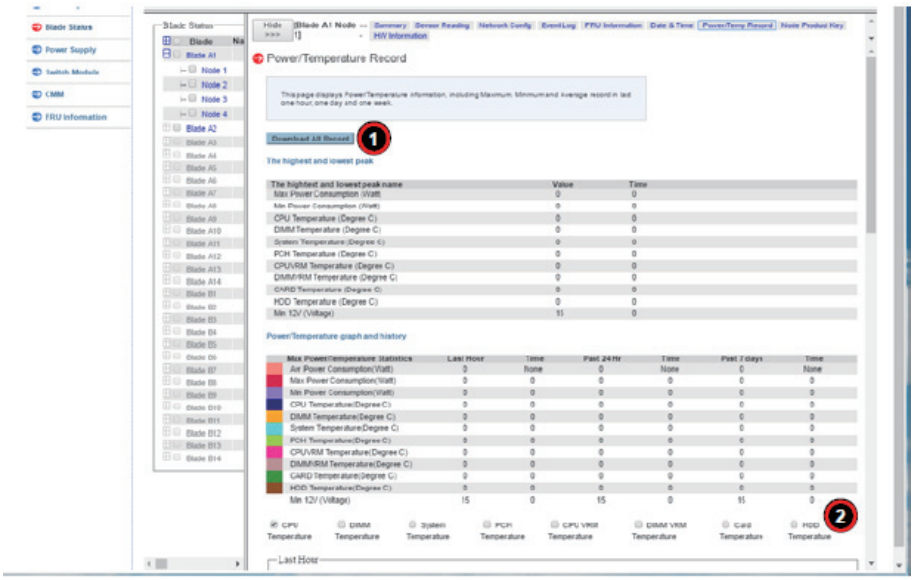


Item	Name	Description
1	Time Update Mode Option Buttons	Using these option buttons, you may select either NTP, Local or CMM mode for time updates to the system. Each mode, when selected, activates or deactivates fields or drop-down list boxes for specifying date and time information or the primary or secondary NTP server.
2	Daylight Savings Time check box	Click this check box if you wish to use daylight savings time for your time settings.
3	Apply Above Settings to All Blades check box	Use this check box to apply all time and date settings to ALL blades and nodes in your system rather than just the selected blade or node.
4	Refresh Button	Press this button to refresh the page.
5	Save Button	Pressing the SAVE button saves the configuration for the selected node or blade module.

Node Status – Power/Temperature Record Page

Clicking on the POWER/TEMP RECORD link brings up a POWER/TEMPERATURE RECORD

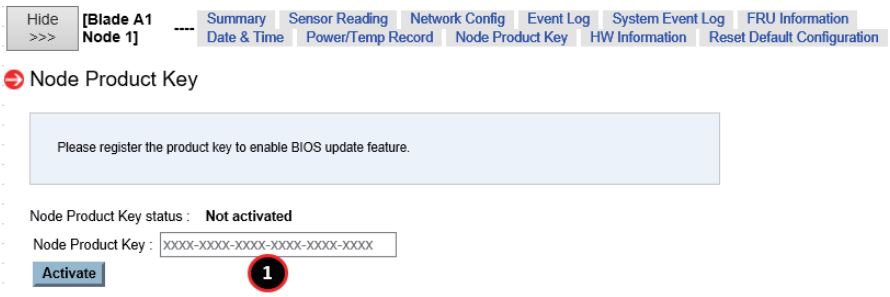
Page with controls that are listed and described in below table. This page contains tables for power and temperature information as well as graphs for Last Hour, Last Day, Last Week displaying this information below the tables (not shown).



Item	Name	Description
1	Download All Record Button	Pressing this button brings up window you can use to download all power and temperature information to a file on your system.
2	Temperature Check Boxes	Clicking these check boxes displays the selected temperature information in the graphs below.

Node Status – Node Product Key Page

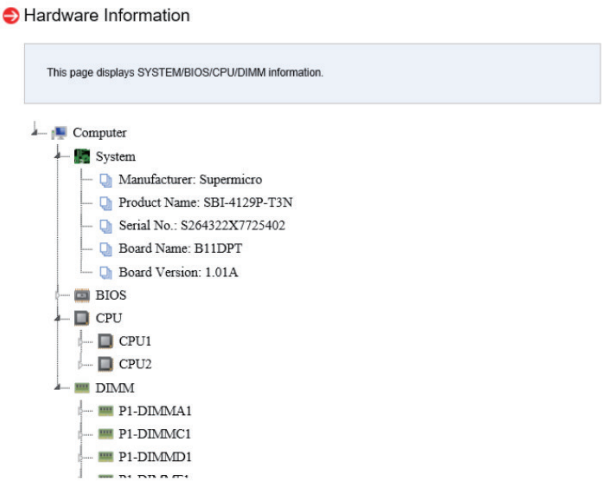
Clicking on the NODE PRODUCT KEY link brings up a NODE PRODUCT KEY page with controls that are listed and described in below table.



Item	Name	Description
1	Node Product Key Field	Enter the Node Product Key here in order to enable the BIOS update feature.

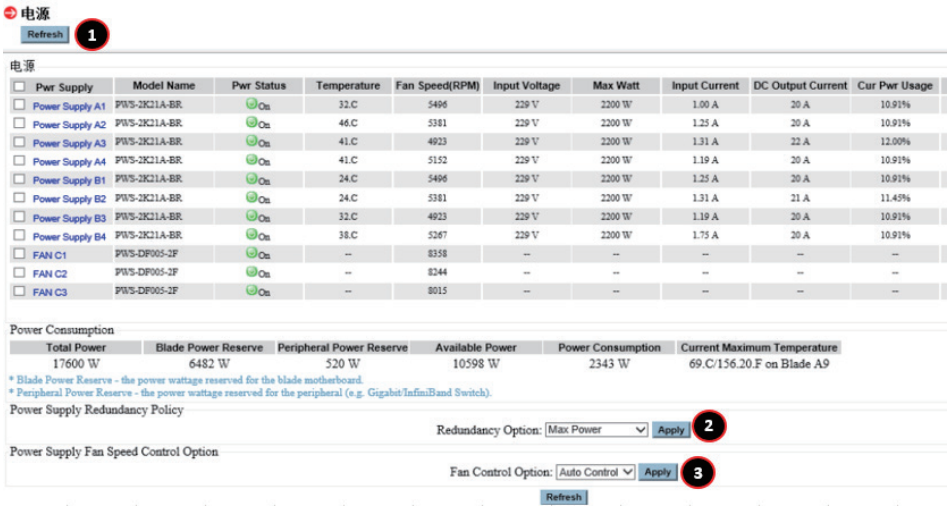
Node Status – Hardware Information Page

Clicking on the HW INFORMATION link brings up a HARDWARE INFORMATION pane with hardware information displayed.



5.3.3 Power Supply Page

Click a POWER SUPPLY to reveal the POWER SUPPLY STATUS page. You can use the commands listed as below to control the power supplies in your system. To perform a function, first click the box next to the power supplies you wish to issue a command to and then click the command icon you wish to use. You can also click on any of the individual power supplies listed to bring up additional pages with details about that particular power supply's status, and the controls for setting them.

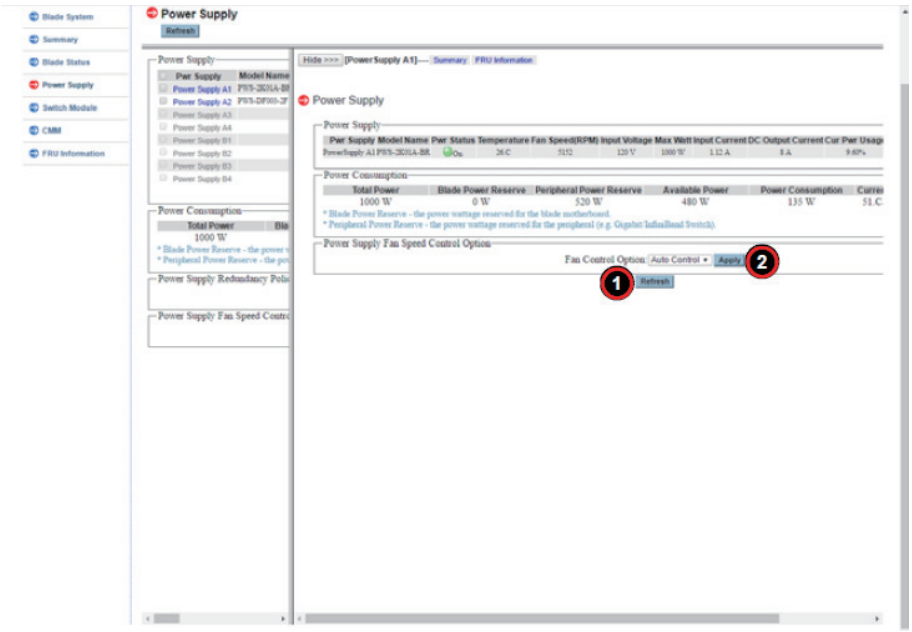


Item	Name	Description
1	Refresh Buttons	Pressing either of these buttons refreshes the page display.
2	Redundancy Controls	These controls allow you to select the Redundancy Option for your system. Select either the Max Power, Redundancy N+1 or Redunancy N+N option from the pull-down menu and press the Apply button to apply your redundancy option to the system.
3	Fan Control Option Controls	These controls allow you to select the Fan Control Option for your system. Select either the User Control or Auto Control option from the pull-down menu and press the Apply button to apply your fan control option to the system.

Power Supply Status Page

If you click on the link for a power supply in the POWER SUPPLY page, a new window will appear with the first of two pages with additional controls for that specific power supply in your system. The following CONTROL panes can be selected for this window by clicking on links that are available at the top of the CONTROL page in the new window:

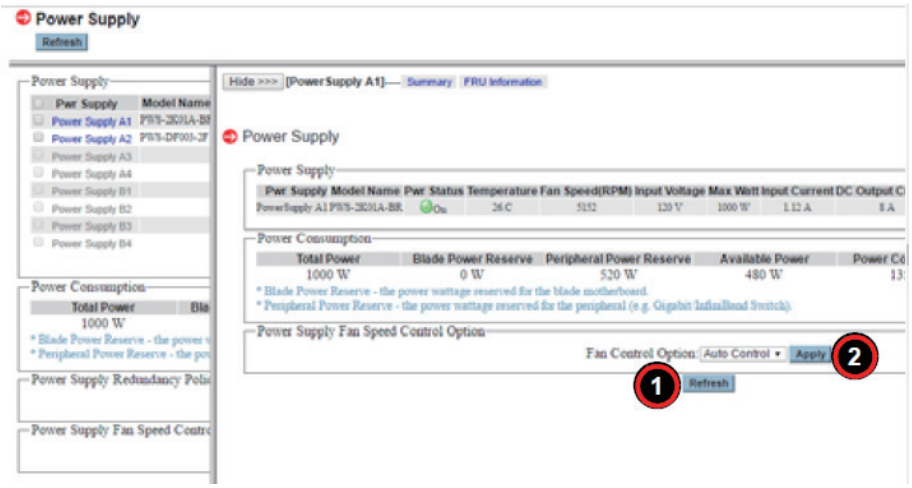
- Power Supply Status– Summary Page
- Power Supply Status – FRU Information Page



Item	Name	Description
1	Refresh Button	Pressing this button refreshes the page display.
2	Fan Control Option Controls	These controls allow you to select the Fan Control Option for your system. Select either the User Control or Auto Control option from the pull-down menu and press the Apply button to apply your fan control option to the system.

Power Supply Status– Summary Page

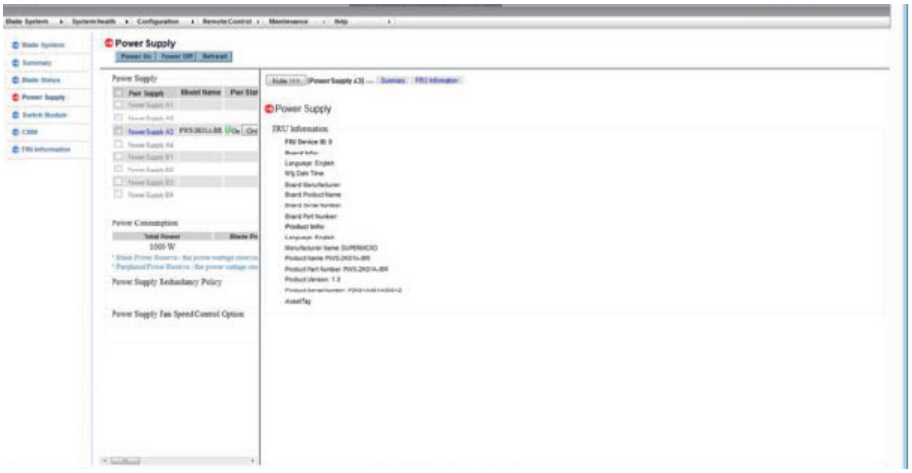
Clicking on the SUMMARY link brings up a POWER SUPPLY SUMMARY pane



Item	Name	Description
1	Refresh Button	Pressing this button refreshes the page display.
2	Fan Control Option Controls	These controls allow you to select the Fan Control Option for your system. Select either the User Control or Auto Control option from the pull-down menu and press the Apply button to apply your fan control option to the system.

Power Supply Status – FRU Information Page

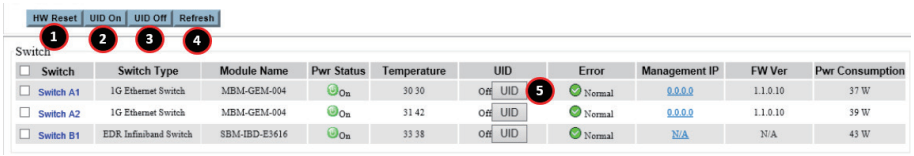
Clicking on the FRU INFORMATION link brings up a FRU INFORMATION page with static FRU information about the Power Supply module selected.



5.3.4 Switch Module Page

Click on SWITCH MODULE to reveal the SWITCH MODULE STATUS page. You can use the commands listed to control the power supplies in your system.To perform a function, first click the box next to the power supplies you wish to issue a command to and then click the command icon you wish to use. You can also click on any of the individual power supplies listed to bring up additional pages with details about that particular power supply's status,

and the controls for setting them.



Item	Name	Description
1	HW Reset Button	Press this button to reset a selected switch to its default configuration. The reset button will reset all switch configurations, including IP address and so on.
2	UID On Button	Press this button to turn on a UID for a selected switch.
3	UID Off Button	Press this button to turn off a UID for a selected switch.
4	Refresh Button	Click this icon to refresh the page and update the status of a switch shown.
5	UID Button	Press this button in the UID column to turn on or off a UID for a selected switch.

NOTE: Initially, you must manually enter the IP address for each switch to gain access to it. Each IP address should be unique when there are multiple switches on the same network segment.

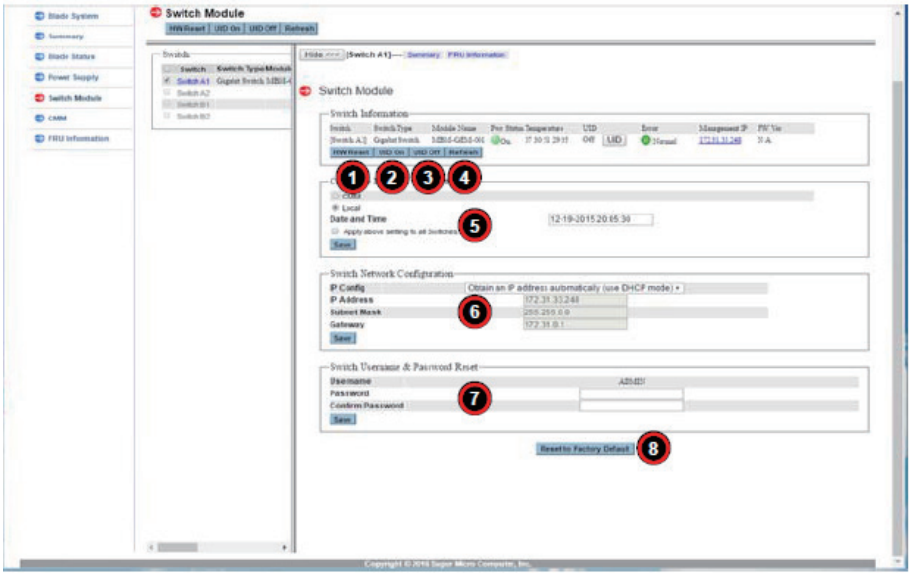
Switch Module Status Page

If you click on the link for a switch module in the SWITCH MODULE page, a new window will appear with the first of two pages with additional controls for that specific power supply in your system. The following CONTROL panes can be selected for this window by clicking on links that are available at the top of the CONTROL page in the new window:

- Switch Module Status– Summary Page
- Switch Module Status – FRU Information Page

Switch Module Status– Summary Page

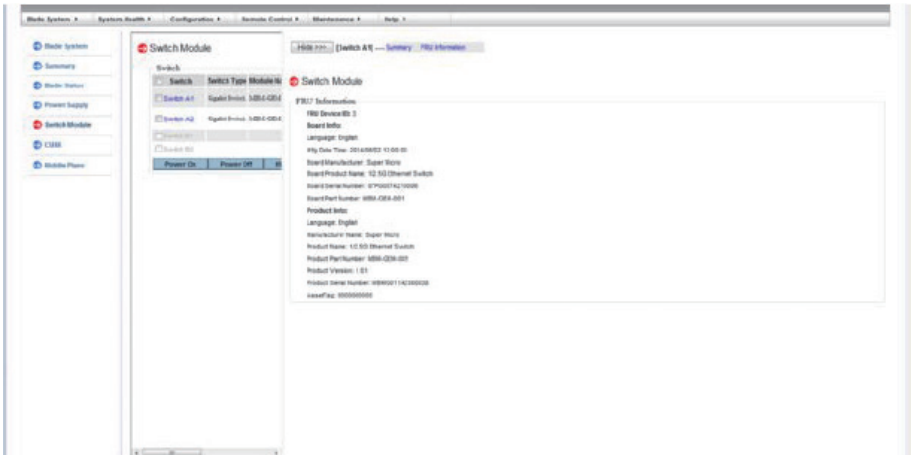
Clicking on the SUMMARY link brings up a SWITCH MODULE SUMMARY page with controls that are listed and described in below table.



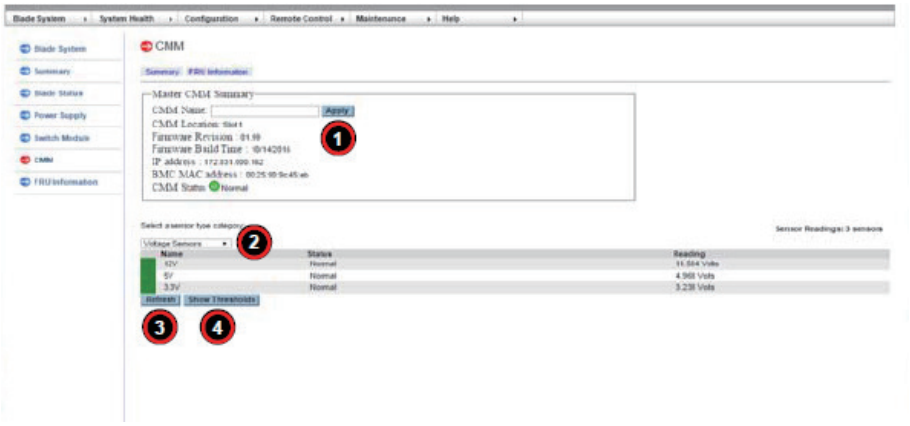
Item	Name	Description
1	HW Reset Button	Press this button to reset a selected switch to its default configuration. The reset button will reset all switch configurations, including IP address and so on.
2	UID On Button	Press this button to turn on a UID for a selected switch.
3	UID Off Button	Press this button to turn off a UID for a selected switch.
4	Refresh Button	Pressing this button refreshes the page display.
5	Configure Date and Time Settings Section	Use this section to configure the date and time settings for your selected switch. Enter the time and date settings in the field provided and then press the SAVE button.
6	Switch Network Configuration Section	Use this section to configure the selected switches IP addresses (IP, Subnet Mask and Gateway addresses). You may either do this manually using static mode or do it automatically by using DCHP mode according to the selection you make in the drop down list box provided. When finished press the SAVE button.
7	Switch Username and Password Reset Section	Use this section to enter the ADMIN password for the switch and confirm it by entering the password in the fields provided. When finished press the SAVE button.
8	Reset to Factory Default	Press this button to reset the switch back to its factory default settings.

Switch Module Status – FRU Information Page

Clicking on the FRU INFORMATION link brings up a FRU INFORMATION page with static FRU information about the switch module selected.



Click on CMM to reveal the CMM STATUS SUMMARY page. The CMM option in the BLADE SYSTEM submenu allows you to check the status the CMM module in the system you are accessing. Operating status, temperature, firmware information and IP address information are all shown in this summary page. Additionally, you can view CMM FRU information on the CMM STATUS FRU INFORMATION page.



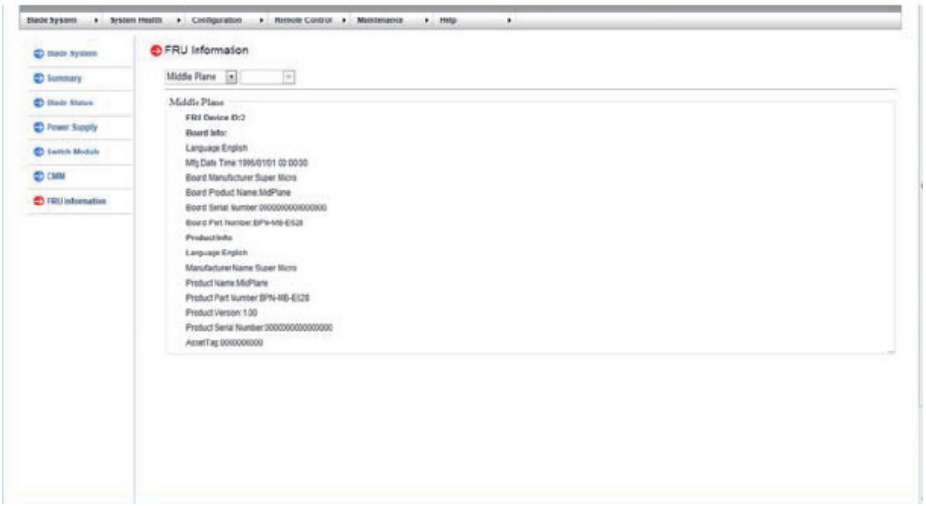
Item	Name	Description
1	CMM Name Field	Select a name for Master CMM in this field and press the Apply button to apply the name to it.
2	Sensor Type Category Drop-down List Box	Use this list to select the type of sensors you wish to view. Options include All Sensors, Temperature Sensors or Voltage Sensors.
3	Refresh Button	Press this button to refresh the page.
4	Show Thresholds Button	Pressing this button shows the thresholds for your system.

NOTE: By default, when the enclosure power turns, the CMM on slot 1 will be the master and the CMM on slot 2 will be the slave. When the master CMM becomes “failed”, the slave CMM will take over. When the failed CMM on slot 1 is replaced, the master CMM will not swap back to slot 1. You may wait until the CMM on slot 2 is “failed” or power cycle whole the enclosure to return to slot 1 resuming to be the master CMM.

NOTE: The “Failover” feature for two CMMs as “master” and “slave”, with the CMM redundant feature, is not supported on either the MBE-628L-816 or MBE-628L-416 enclosures.

5.3.5 FRU Information

Clicking on the FRU INFORMATION link brings up the FRU INFORMATION page with static FRU information. Use the drop-down list box on the page to select the type of information you wish to view.



5.4 System Health

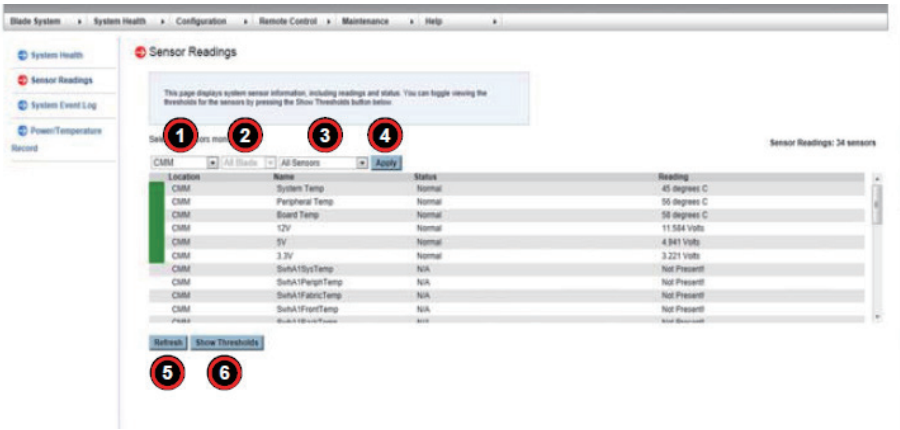
The SYSTEM HEALTH menu allows you to access and configure logs and alert settings in your system. Clicking the SYSTEM HEALTH icon allows you to access the following pages through its sub-menus:

- Sensor Readings Page
- System Event Log Page

• Power/Temperature Record Page

5.4.1 Sensor Readings Page

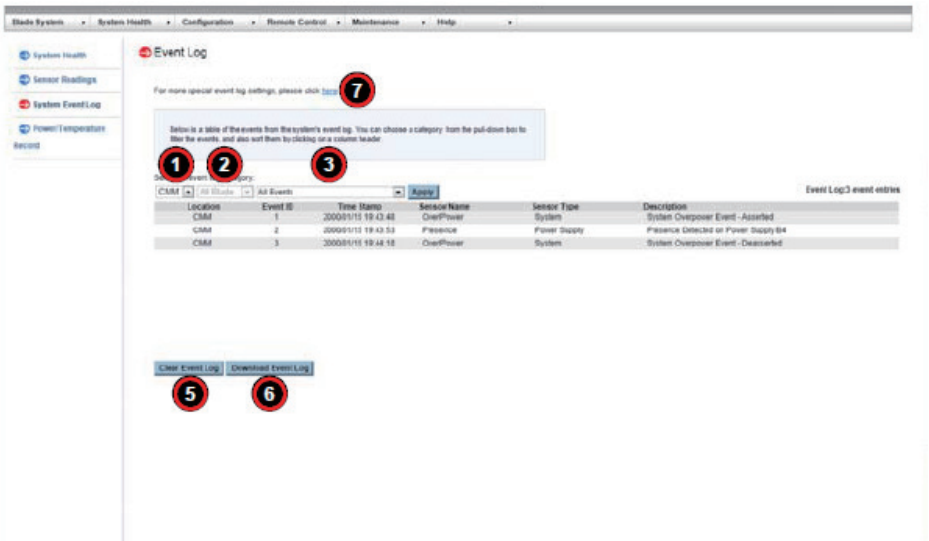
The SENSOR READING page displays system sensor information, including readings and status. You can toggle viewing the thresholds for the sensors by pressing the SHOW THRESHOLDS button below.



Item	Name	Description
1	Module Selection Drop-down List Box	Select from here the module type whose sensors you wish to view. Options include: CMM, Blade, Switch or Power Supply.
2	Module Number Selection Drop-down List Box	Select the specific module of the type you selected in the MODULE SELECTION list whose sensors you wish to view.
3	Sensor Selection Drop-down List Box	Select in this drop-down list box the type of sensor you wish to view from the previous selected module. Options include All Sensors, Temperature Sensors or Voltage Sensors, When you have made all your selections, press the APPLY button to view the sensors.
4	Refresh Button	Press this button to refresh the page.
5	Show Thresholds Button	Pressing this button shows the thresholds for your system.

5.4.2 System Event Log Page

The SYSTEM EVENT LOG option in the SYSTEM HEALTH submenu allows you to view and clear the contents of the system event log for a remote system. The SYSTEM EVENT LOG page that appears and its controls are shown below.



Item	Name	Description
1	Module Selection Drop-down List Box	Select from here the module type whose event you wish to view. Options include: CMM or Blade.
2	Module Number Selection Drop-down List Box	Select the specific module of the type you selected in the MODULE SELECTION list whose event you wish to view.
3	Event Type Selection Drop-down List Box	Select the specific event type whose event you wish to view. Options include All Events, Sensor Specific Events, BIOS Specific Events or System Management Software Events.
4	Apply Button	When you have selected your options from all the above drop-down list boxes, press the APPLY button to apply your changes.
5	Clear Event Log Button	Press this button to clear the event log of all entries.
6	Download Event Log Button	Press this button to download the event log.
7	Event Log Advanced Settings Link	Press this link to go the Event Log Advanced Settings page (Figure 3-3). This page has a check box to ENABLE THE AC POWER EVENT LOG and buttons to SAVE or CANCEL this configuration.

5.4.3 Power/Temperature Record Page

The POWER/TEMPERATURE RECORD option in the SYSTEM HEALTH submenu allows you to view and download power and temperature records of the system. The POWER/ TEMPERATURE RECORD page that appears and its controls are shown below.

Item	Name	Description
1	Download All Record Button	Press this button to download records for all the check boxes above you have selected.
2	Record Selection Check Boxes	Check the boxes here in order to select the records you wish to download and display on this page. You may select one or all for viewing.

5.5 Configuration

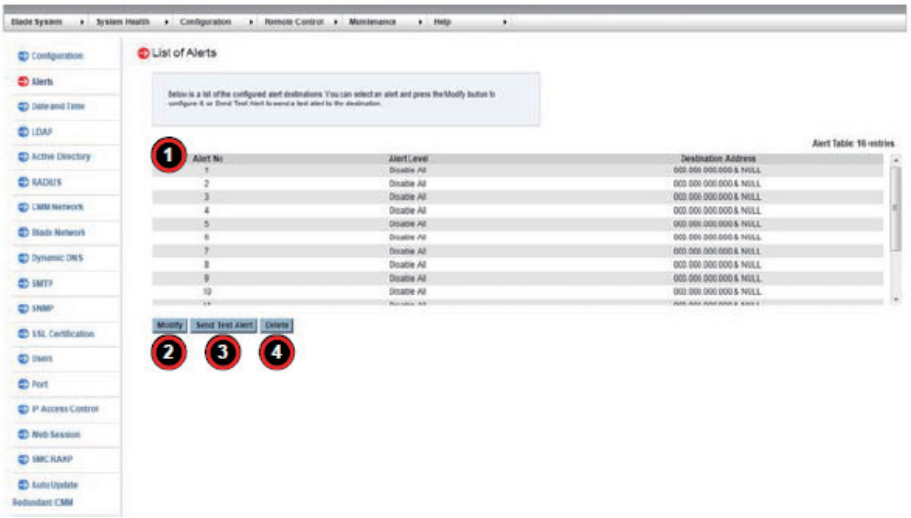
The USER MANAGEMENT menu allows you to configure users for your system. Clicking the USER MANAGEMENT icon allows you to access the following pages through its sub-menus:

- Alerts Page
- Date and Time Page
- LDAP Page
- Active Directory Page
- RADIUS Page
- CMM Network Page
- Blade IPMI Network Page
- Dynamic DNS Page
- SMTP Page
- SNMP Page
- SSL Certification Page
- Users Page
- Port Page

- IP Access Control Page
- Web Session Page
- SMC RAKP Page
- Auto Update Redundant CMM Page

5.5.1 Alerts Page

Click on ALERTS to reveal the ALERTS page. Use this page to set up alerts for your system. The commands you may give on this page are described in the below table.



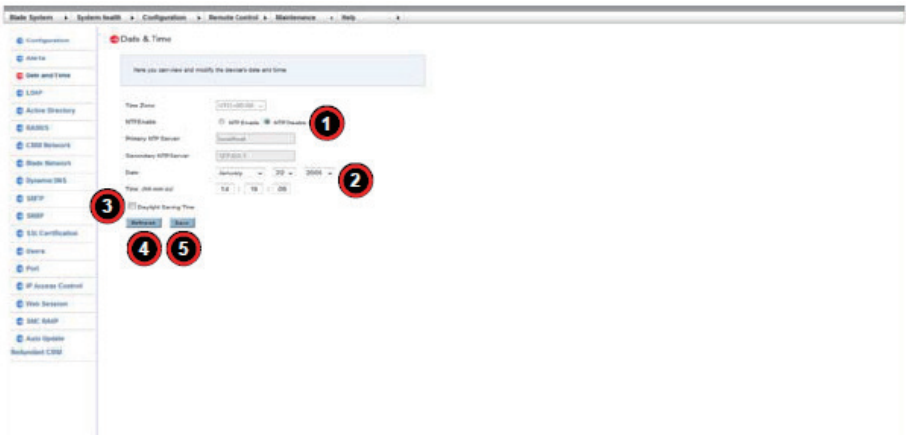
To setup an alert or to modify an alert setting, do the following.

1. Select an alert entry from the list presented on the page.
2. Click MODIFY to configure or modify the settings of an alert.
3. Click SEND TEST ALERT to check if the alerts have been set and sent out correctly.
4. Click DELETE if you need to delete an alert.

Item	Control Name	Description
1	Alert List	This table shows the currently active alerts, their number, their alert level and their destination address. Select from this list in order to modify an alert.
2	Modify Button	Press this button after selecting an alert from the table brings up the MODIFY ALERT page (Figure 4-2), which you use to modify an alert. In this new page select the Event Severity, Destination IP, Email Address, Subject and Message from the drop-down lists provided and press the SAVE button. If yo wish to cancel the alert, press the CANCEL button.
3	Send Test Alert Button	Press this button to send a test alert to its specified destination after you have modified the alert.
4	Delete Button	Press this button to delete an alert from the list.

5.5.2 Date and Time Page

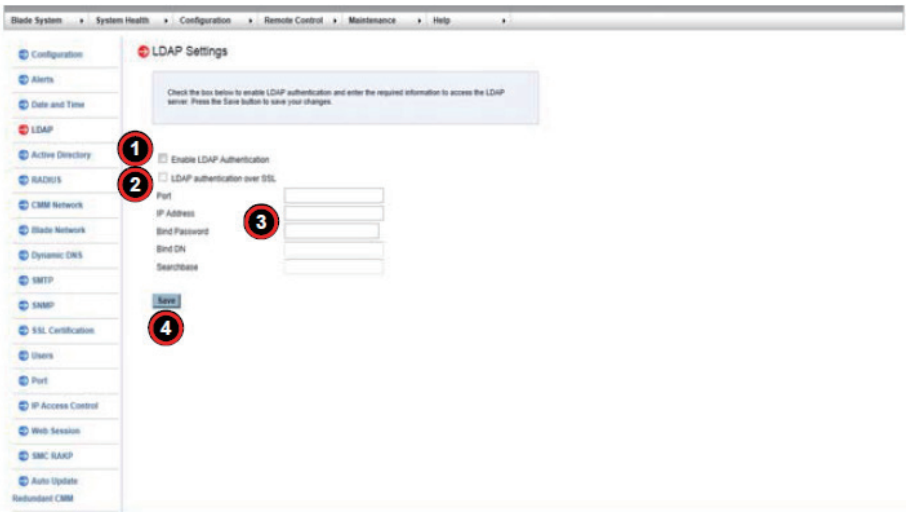
Click on DATE & TIME to reveal the DATE & TIME page. Use this page to set up date and time information for your system. The commands you may give on this page, are described in below table.



Item	Control Name	Description
1	Time Update Mode Option Buttons	Using these option buttons, you may select either NTP Enable or NPT Disable mode for time updates to the system. Each mode, when selected, activates or deactivates fields or drop-down list boxes for specifying date and time information or the primary or secondary NTP server.
2	Time Specification Drop-down List Box	Use these drop-down list boxes to specify the date and time information. These controls change depending upon which options you choose in the NTP or NPT option buttons.
3	Daylight Savings Time Check Box	Click this check box if you wish to use daylight savings time for your time settings.
4	Refresh Button	Press this button to refresh the page.
5	Save Button	Pressing the SAVE button saves the configuration for the selected node or blade module.

5.5.3 LDAP Page

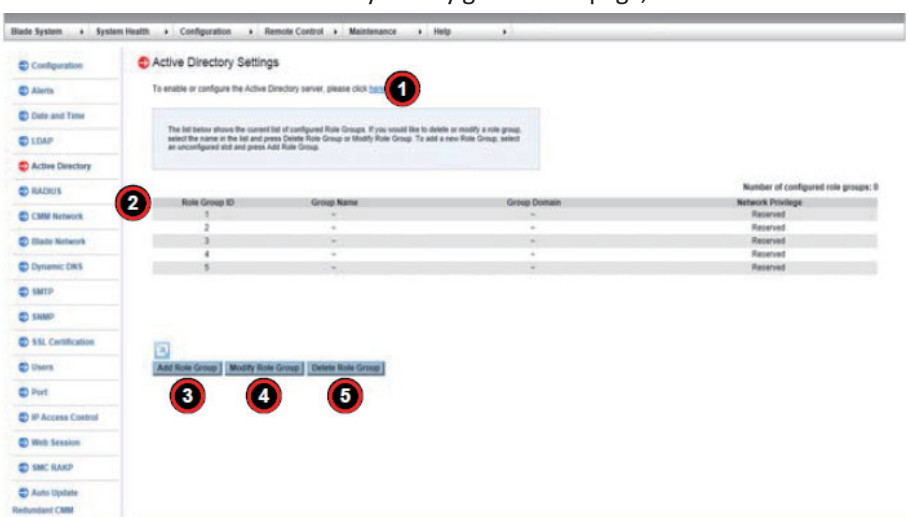
Click on LDAP to reveal the LDAP page. This page allows you to configure the Light-Weight Directory Access Protocol (LDAP) settings. Check the box below to enable LDAP authentication and enter the required information to access the LDAP server. Press the Save button to save your changes. The commands you may give on this page, are described in below table.



Item	Control Name	Description
1	Enable LDAP Authentication	Use this check box to enable the controls below to configure LDAP for your system.
2	LDAP Authentication over SSL	Check this box to allow LDAP Authentication over SSL in your system.
3	Configuration fields	Enter Port, IP Address, Bind Password, Bind DN and Searchbase in the fields in this section to configure LDAP for your system.
4	Save Button	Once you are done configuring LDAP, press this button to save this information to your system.

5.5.4 Active Directory Page

Click on ACTIVE DIRECTORY to reveal the ACTIVE DIRECTORY page. This page displays a list of role groups and their Group IDs, Group Names, Domains and Network Privilege settings. If you would like to delete or modify a role group, select the name in the list and press DELETE ROLE GROUP or MODIFY ROLE GROUP. To add a new role group, select an unconfigured slot from the table and press ADD ROLE GROUP. The commands you may give on this page, are described in below table.

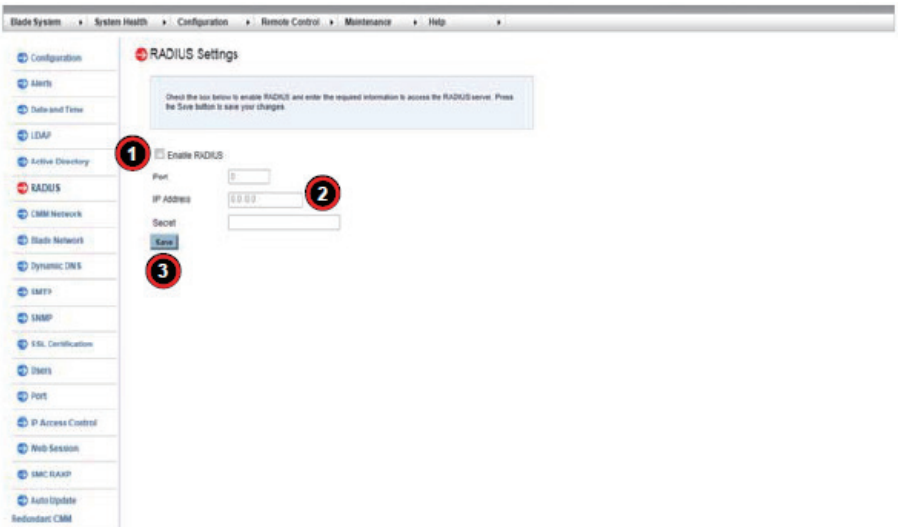


Item	Control Name	Description
1	Active Directory Server Link	Click on this link to go to the Active Directory - Advanced Settings page (Figure 4-8).
2	Role Group List	Select a role group from this list to modify or delete a role group. Press the ADD ROLE GROUP button to add a role group or select a role group and press the MODIFY ROLE GROUP button to modify one of them in the list.
3	Add Role Group Button	Press this button to add a role group to the list of role groups in the table above. This will bring up the ADD ROLE GROUP page (Figure 4-6) where you can enter information and save it as a new role group in the ROLE GROUP list.
4	Modify Role Group Button	After selecting a role group from the list above, press this button to modify a role group. Pressing this button brings up the MODIFY ROLE GROUP page (Figure 4-7) where you can modify information in the group and save it in the ROLE GROUP list.
5	Delete Role Group Button	If you wish to delete a role group, select it from the list and press this button.

Click on ACTIVE DIRECTORY SERVER link to reveal the ACTIVE DIRECTORY – ADVANCED SETTINGS page. This page displays two check boxes that allow you to ENABLE ACTIVE DIRECTORY AUTHENTICATION and ACTIVE DIRECTORY AUTHENTICATION OVER SSL. When checked, the table below opens allowing you to specify PORT, USER DOMAIN NAME, TIME OUT and DOMAIN CONTROLLER SERVER ADDRESSES. Pressing the SAVE Button allows you to save this configuration, while pressing CANCEL cancels the configuration.

5.5.5 RADIUS Page

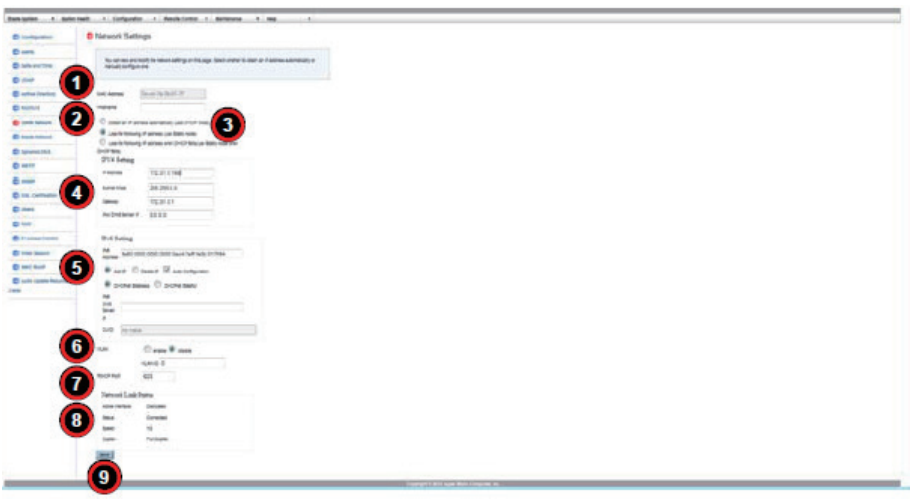
Click on RADIUS to reveal the RADIUS page. You can use this page to enable RADIUS and enter the required information to access the RADIUS server. The commands you may give on this page, are described in below table.



Item	Control Name	Description
1	Enable RADIUS Check Box	Check this box to enable RADIUS.
2	RADIUS Information Fields	Fill out these fields to configure RADIUS.
3	Save Button	Once you are done configuring RADIUS, press this button to save.

5.5.6 CMM Netweork Page

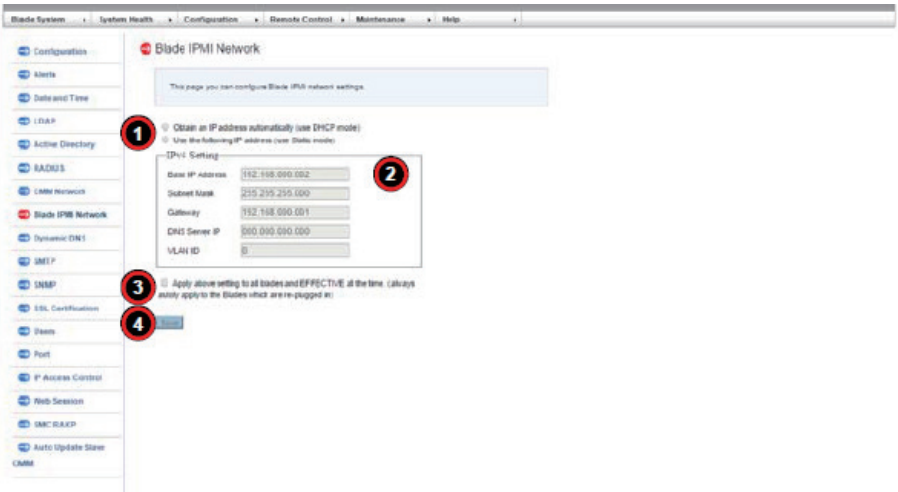
Click on CMM NETWORK to reveal the CMM NETWORK page. You can view and modify the network settings on this page and select whether to obtain an IP address automatically or manually configure one. The commands you may give on this page.



Item	Control Name	Description
1	MAC Address	When you specify the IP Address manually, use this field to specify your MAC Address. If you have chosen to have your IP address automatically determined, then this control is greyed-out and cannot be modified.
2	Hostname	Use this field to specify your Hostname.
3	Automatic or Manual IP Address Controls	Use these two option buttons to either OBTAIN AN IP ADDRESS AUTOMATICALLY (USING DHCP MODE) or USE THE FOLLOWING IP ADDRESSES (USE STATIC MODE) to either automatically or manually specify an IP address for the network.
4	IPv4 Setting Controls	Use these controls specify your IP ADDRESS, SUBNET MASK, GATEWAY address and DNS SERVER IP. If you have chosen to have your IP address automatically determined, then these fields are greyed-out and cannot be modified except for DNS SERVER IP address.
5	IPv6 Setting Controls	Use these controls to do the following: set IPV6 ADDRESS, ADD IP, DELETE IP, use AUTO CONFIGURATION, select either DHCPV6 STATELESS or DHCPV6 STATEFUL modes, specify your DNS SERVER IP or specify your DUID.
6	VLAN Controls	Use these controls to ENABLE or DISABLE VLAN or specify the VLAN ID.
7	RMCP Port	Use this field to specify your RMCP port number.
8	Network Link Status	This section shows your network link status for Active Interface, Status, Speed and Duplex.
9	Save Button	Once you are done configuring your network settings, press this button to save your configurations.

5.5.7 Blade IPMI Network Page

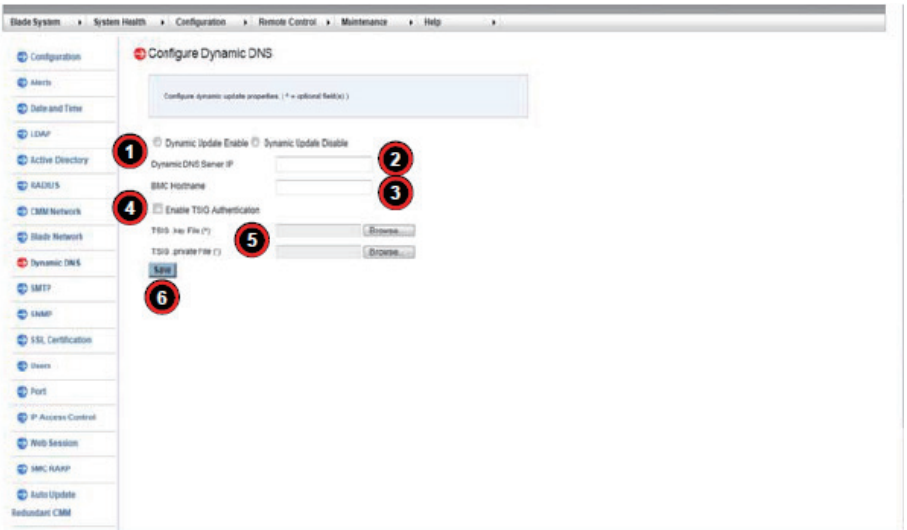
Click on BLADE IPMI NETWORK to reveal the BLADE IPMI NETWORK page.This page allows you to modify all blade and their networks by one click on this page. If you use Static mode, the base IP address will set to the first Node of a blade's A1 and increase base IP address in the order for the following nodes. The commands you may give on this page.



Item	Control Name	Description
1	Automatic or Manual IP Address Controls	Use these two option buttons to either OBTAIN AN IP ADDRESS AUTOMATICALLY (USING DHCP MODE) or USE THE FOLLOWING IP ADDRESSES (USE STATIC MODE) to either automatically or manually specify an IP address for the network.
2	IPv4 Setting Controls	Use these controls specify your BASE IP ADDRESS, SUBNET MASK and GATEWAY address. If you have chosen to have your IP address automatically determined, then these fields are greyed-out and cannot be modified.
3	Apply Above Settings to All Blades and Effective All the Time Check Box	If you check this box, then all IPv4 settings in the above section for ALL blade modules will use these settings ALL THE TIME and auto reset to these settings when the blades start up.
4	Save Button	Once you are done configuring your Blade Network settings, press this button to save your configurations.

5.5.8 Dynamic DNS Page

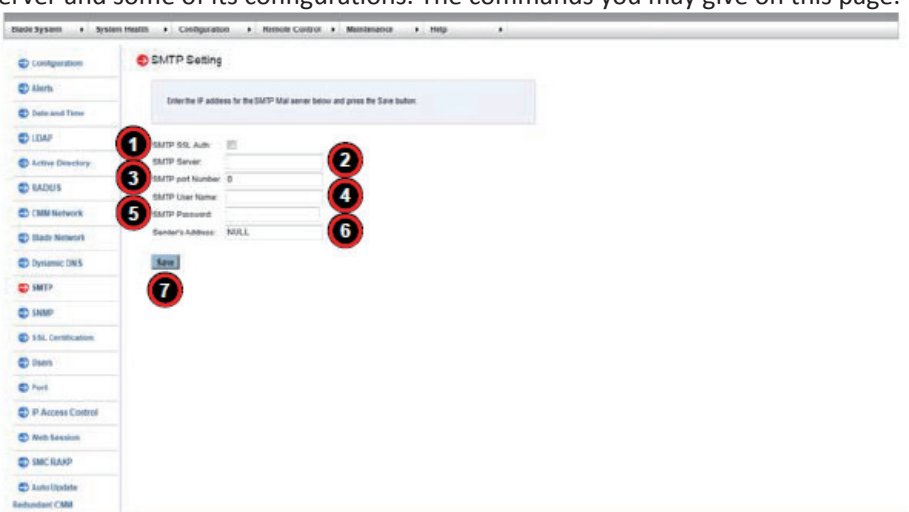
Click on DYNAMIC DNS to reveal the DYNAMIC DNS page. Use this page to configure dynamic update properties. The commands you may give on this page.



Item	Control Name	Description
1	Dynamic Update Enable/Disable Check Boxes	Use these check boxes to enable or disable the Dynamic DNS feature for your system.
2	Dyanmic DNS Server IP Field	Enter the Dynamic DNS Server IP address in this field.
3	BMC Hostname Field	Enter the BMC Hostname in this field.
4	Enable TSG Authentification Check Box	If you want to enable TSG Authentification, then check this box.
5	TSG .key File/TSG .private File fields	Optionally, you may use these controls to browse and specify the locations for TSG .key or TSG .private files.
6	Save Button	Once you are done configuring your Dynamic DNS settings, press this button to save your configurations.

5.5.9 SMTP Page

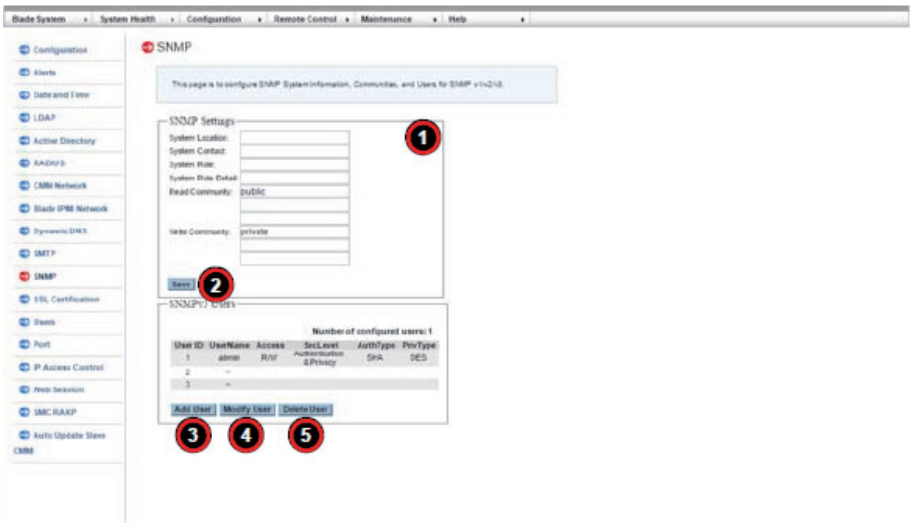
Click on SMTP to reveal the SMTP page. Use this page to enter the IP Address for the SMTP Mail server and some of its configurations. The commands you may give on this page.



Item	Control Name	Description
1	SMTP SSL Auth Check Box	Checking this check box allows you to require SMTP SSL authorization.
2	SMTP Server Field	This field is used to specify the SMTP Server address.
3	SMTP Port Number Field	This field is used to specify the SMTP Port Number.
4	SMTP User Name Field	This field is used to specify the SMTP User Name.
5	SMTP Password Field	This field is used to specify the SMTP Password.
6	Sender's Address Field	This field is used to specify the Sender's Address.
7	Save Button	Once you are done configuring your Dynamic DNS settings, press this button to save your configurations.

5.5.10 SNMP Page

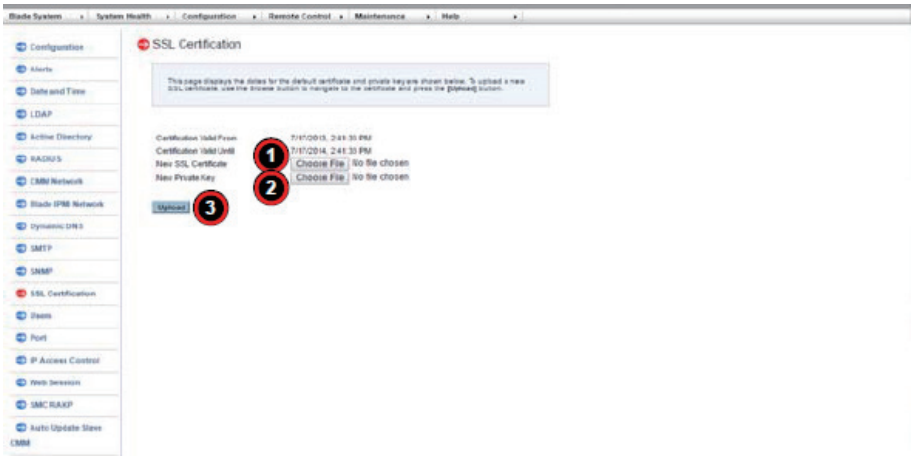
Click on SNMP to reveal the SNMP page. Use this page to enter the IP Address for the SMTP Mail server and some of its configurations. The commands you may give on this page.



Item	Control Name	Description
1	SNMP Settings Fields	Use these fields to configure SNMP system information, communities and users for SNMP v1/v2/v3. The information in these fields is for each record.
2	Save Button	After configuring the above fields, press the SAVE button to save this information to a record.
3	Add User Button	Press this button to open the ADD NEW SNMPV3 USER screen (Figure 4-15) to add a new SNMPv3 user to the SNMPV3 USER LIST above. Simply enter information in the fields and select from the drop-down list boxes the information for the new user and either press the ADD button to add a user or the CANCEL button to cancel the operation.
4	Modify User Button	Pressing this button modifies a selected user in the above SNMPV3 USER LIST by opening the MODIFY SNMPV3 USER screen (Figure 4-16). Simply change the information in the fields or drop-down list boxes for the user and either press the MODIFY button to modify a user or the CANCEL button to cancel the operation.
5	Delete User Button	Pressing this button deletes a selected user from the above SNMPV3 USER LIST.

5.5.11 SSL Certification Page

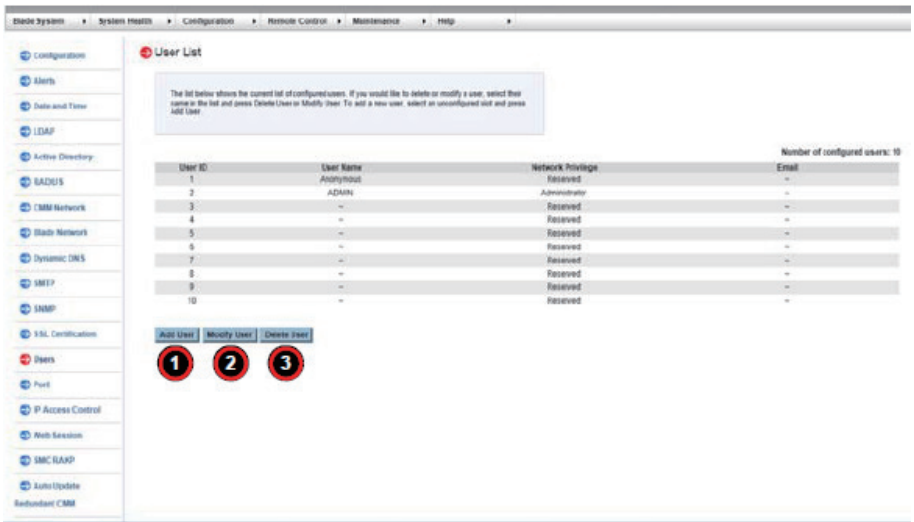
Click on SSL CERTIFICATION to reveal the SSL CERTIFICATION page. Use this page to specify the dates for the default certificate and private key and upload an SSL certificate. The commands you may give on this page.



Item	Control Name	Description
1	New SSL Certificate Choose File Button	Press this button to select a SSL Certificate file to use from your system.
2	New Private Key Choose File Button	Press this button to select a New Private Key to use from your system.
3	Upload Button	Press this button to upload the selected files for the SSL Certificate and the New Private Key to your system.

5.5.12 Users Page

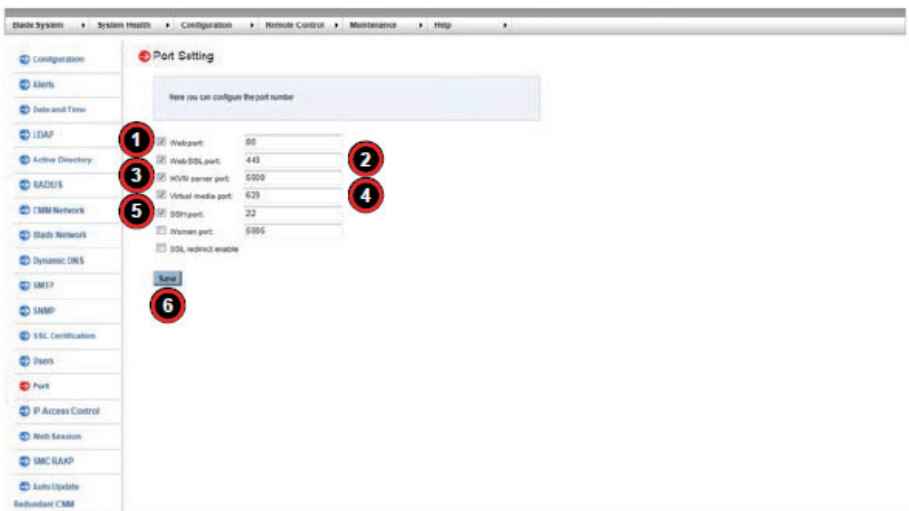
The USERS page is where you specify and manage groups and users, which helps you manage the remote systems you are managing.



Item	Control Name	Description
1	Add User Button	Selecting an unconfigured slot and pressing this button allows you to specify a new user for the User List on the page.
2	Modify User Button	Selecting a user and pressing this button allows you to modify a user from the User List on the page.
3	Delete User Button	Selecting a user and pressing this button allows you to delete a user from the User List on the page.

5.5.13 Port Page

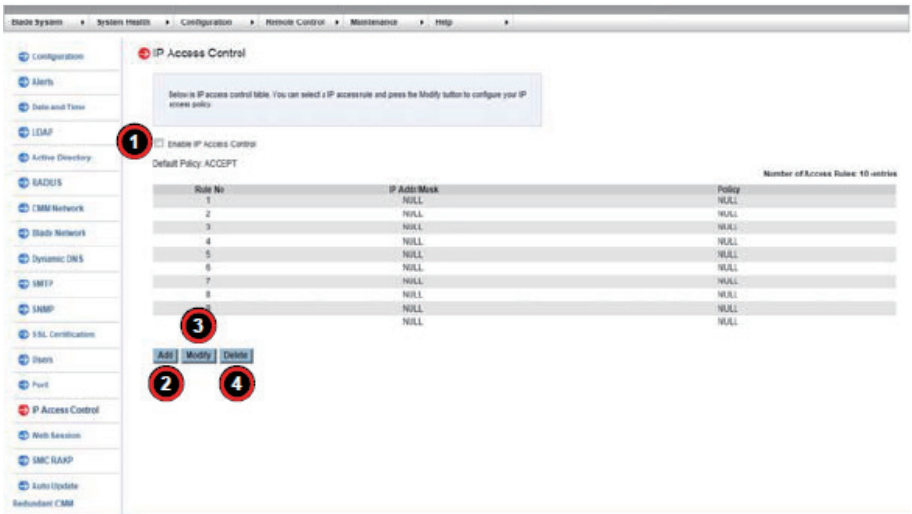
Click on PORT to reveal the PORT SETTING page. Use this page to configure a port number for your system. The commands you may give on this page.



Item	Control Name	Description
1	Web Port Number Field	User this field to enter the Web Port number.
2	Web SSL Port Number Field	User this field to enter the Web SLL Port number.
3	KVM Server Port Number	User this field to enter the KVM Server Port number.
4	Virtual Media Port Number	User this field to enter the Virtual Media Port number.
5	SSL Redirect Enable Check Box	Check this box to enable SSL redirect for your system.
6	Save Button	Once you are done configuring your Port Number settings, press this button to save your configuration.

5.5.14 IP Access Control Page

Click on IP ACCESS CONTROL to reveal the IP ACCESS CONTROL page. Use this page to add, modify or delete an IP access rule and to enable IP Access Control to the Rule List on this page. The commands you may give on this page.



Item	Control Name	Description
1	Enable IP Access Control Check Box	Check this box to enable Access Control for your system.
2	Add Button	Selecting an unconfigured slot and pressing this button allows you to specify a new rule for the Access Control Rule list on the page.
3	Modify Button	Selecting a user and pressing this button allows you to modify a rule from the Access Control Rule list on the page.
4	Delete Button	Selecting a user and pressing this button allows you to delete a rule from Access Control Rule list on the page.

5.5.15 WEB Session Page

Click on WEB SESSION to reveal the WEB SESSION page. Use this page to web session parameters for your system. The commands you may give on this page.

Item	Control Name	Description
1	Session Timeout Value	Use this number field to enter the amount of minutes before a timeout occurs when using a web session. Enter **1-30** for the amount of minutes or **0** for no timeout.
2	Save Button	Once you are done configuring your Web Session settings, press this button to save your configuration.

5.5.16 SMC RAKP Page

Click on SMC RAKP to reveal the SMC RAKP page. Use this page to specify SMC RAKP parameters for your system. The commands you may give on this page.

Item	Control Name	Description
1	RAKP Enable/Disable Option Buttons	Use these option buttons to Enable or Disable SMC RAKP in your system.
2	Save Button	Once you are done configuring your settings, press this button to save your configuration.

5.5.17 Auto Update Redundant CMM Page

Click on AUTO UPDATE REDUNDANT CMM to reveal the AUTO UPDATE REDUNDANT CMM page. Use this page to specify automatically updating redundant CMM firmware for your system. The commands you may give on this page.

Item	Control Name	Description
1	Enable Firmware: Auto Redundant CMM Check Box	Click on this check box to Enable the firmware auto redundant CMM function in your system.
2	Save Button	Once you are done configuring your settings, press this button to save your configuration.

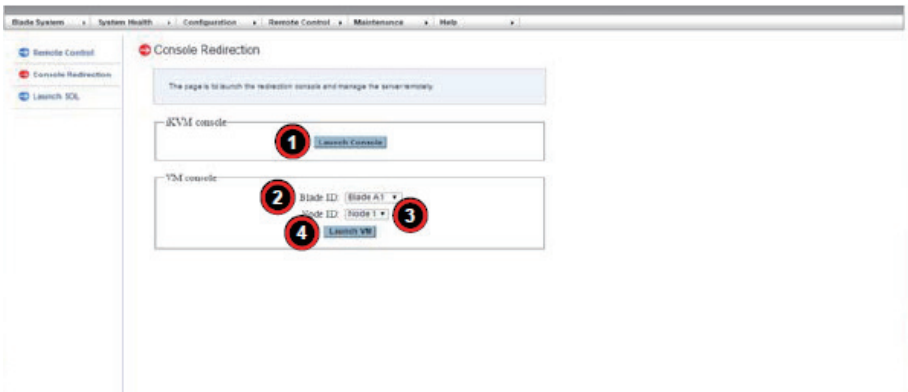
5.6 Remote Console

This chapter covers the use of the Remote Console in the Web-based Management Utility software.

- Console Redirection Page
- Launch SOL

5.6.1 Console Redirection Page

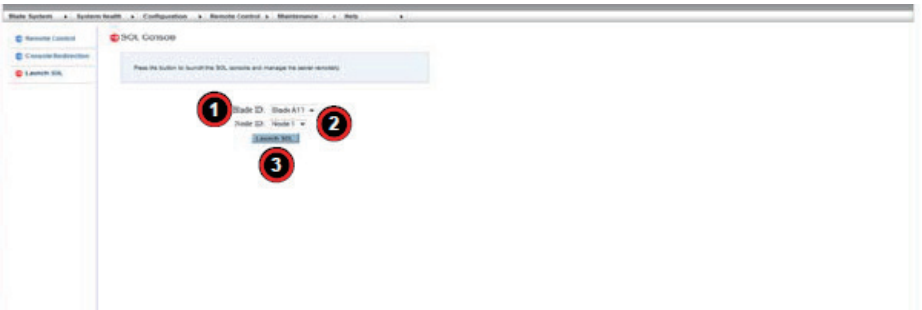
Click on CONSOLE REDIRECTION to reveal the CONSOLE REDIRECTION page.Use this page to launch the REDIRECTION CONSOLE window and mange the blade/node server remotely. The commands you may give on this page.



Item	Control Name	Description
1	Launch Console Button	Press this button to launch a REMOTE CONSOLE window for the selected blade module and node to view.
2	Blade ID Selection List	Use this selection list to select the blade server.
3	Node ID Selection List	Use this list to view the node you wish to view in the console windows.
4	Launch VM Button	Use this button to launch VM.

5.6.2 Launch SOL

Click on LAUNCH SOL to reveal the SOL CONSOLE page. Use this page to launch the SOL CONSOLE window and mange the blade server/node remotely. The commands you may give on this page.



Item	Control Name	Description
1	Blade ID Selection List	Use this selection list to select the blade server.
2	Node ID Selection List	Use this list to view the node you wish to view in the console windows.
3	Launch SOL Button	Press this button to launch a SOL CONSOLE window for the selected blade module and node to view.

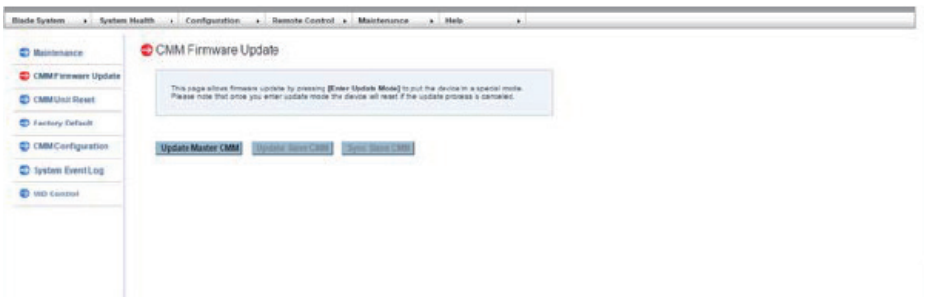
5.7 Maintenance

Use the MAINTENANCE menu for maintenance configurations on your system. Clicking the MAINTENANCE icon allows you to access the following pages through its sub-menus:

- CMM Firmware Update Page
- CMM Unit Reset Page
- Factory Default Page
- CMM Configuration Page
- System Event Log Page
- UID Control Page

5.7.1 CMM Firmware Update Page

Clicking the CMM UPDATE FIRMWARE link in the MAINTENANCE submenu brings up the CMM FIRMWARE UPDATE page. Pressing the UPDATE MASTER CMM to update the Master CMM firmware. Press the UPDATE SLAVE CMM button to update the Slave CMM firmware and press the SYNC SLAVE CMM to sync the Slave CMM to the master CMM.



NOTE: Once you put this device into Update Mode, the device will reset if the update process is canceled. This process is not reversible once the firmware is updated, so proceed with caution. It might take a few minutes to complete this procedure.

5.7.2 CMM Unit Reset Page

Clicking the CMM UNIT RESET link in the MAINTENANCE submenu brings up the UNIT RESET page. Pressing the RESET button on this page reboots the IPMI device.

5.7.3 Factory Default Page

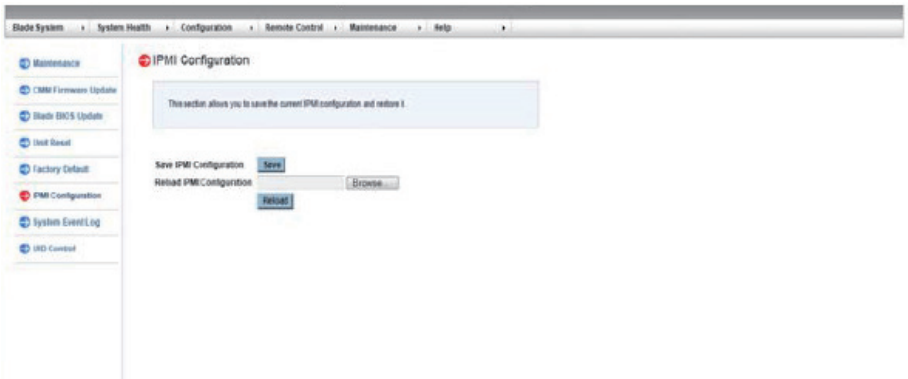
Clicking the FACTORY DEFAULT link in the MAINTENANCE submenu brings up the FACTORY DEFAULT page. Pressing the RESTORE button on this page restores the factory default settings back to the IPMI device.

5.7.4 CMM Configuration Page

Clicking the CMM CONFIGURATION link in the MAINTENANCE submenu brings up the CM CONFIGURATION page. This page allows you to save the current IPMI configuration and restore it. Press the SAVE button to save the current configuration. If you wish to restore a previous configuration, then press the BROWSE button to locate and select the previously saved configuration file and then press the RELOAD button to restore it.

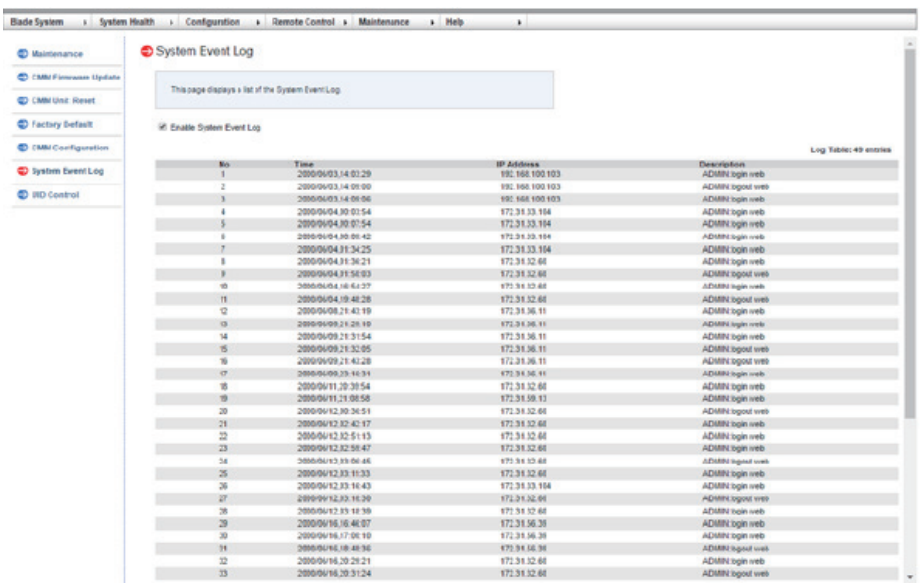
NOTE: It is recommended that you save your configuration so that you can restore it in the

future in case a new configuration is not to your liking.



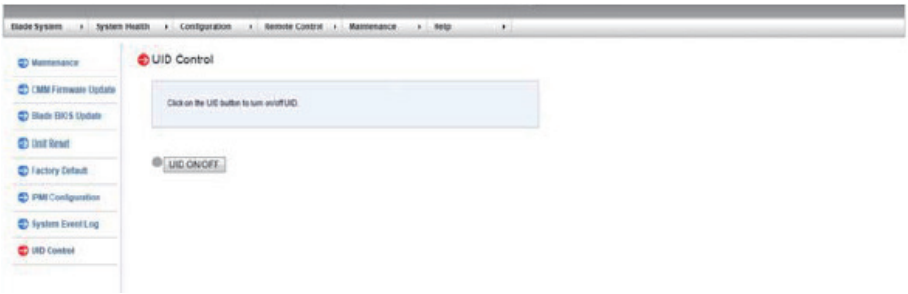
5.7.5 System Event Log Page

Clicking the SYSTEM EVENT LOG link in the MAINTENANCE submenu brings up the LIST OF SYSTEM EVENT LOG page. This page contains information on events that are recorded by the SIMCM in the order of Number, Date/Time, IP Address and Descriptions. Check the ENABLE SYSTEM EVENT LOG check box to enable this feature and press the CLEAR button to clear the log list.



5.7.6 UID Control Page

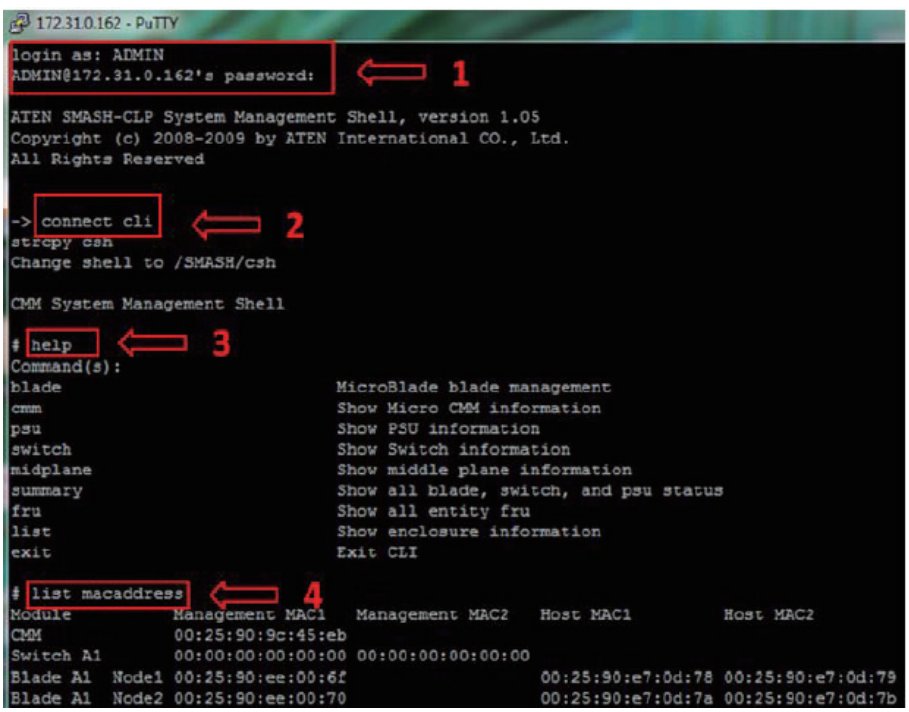
Clicking the UID CONTROL link in the MAINTENANCE submenu brings up the UID CONTROL page. On this click on the UID ON/OFF list button to turn the devices UID or click it off to turn off the UID..



5.8 Checking the MAC Address

Use the following procecure to check the MicroBlade's MAC address and other information through the command line interface. You can enter the CMM IP address through Putty SSH to get this information.

1. Login as an ADMIN using the command ssh ADMIN@CMMIP.
2. Connect to the command line interface using the command connect cli.
3. Get the MAC address and other information using the command list MAC address.



6 Common Faults, Diagnosis and Troubleshooting

This chapter introduces the common server faults, as well as corresponding diagnosis and troubleshooting suggestions.

6.1 Hardware Problems

1) Power-on failure at startup

Description: After pressing the power button, the LED (power status LED, HDD status LED) on server's front control panel is off. Meanwhile, no KVM (display) output is displayed, and server chassis fans do not rotate.

Suggestions:

a. Check the power supply situation: If the power module LED is on, it indicates normal power supply. If the power module LED is off or red, please check whether the power supply is normal, and whether the power cord is connected well.

b. If the power supply is normal, insert the power module again, and then power on for verification.

c. If there is a machine and a power module of the same type, you could change the power module to test whether there is a power module fault.

d. If the instructions above do not resolve the problem, please contact Inspur customer service.

2) No display after power on

Description: After pressing the power button, the power LED on server's front control panel is on, the chassis fans rotate normally, but there's no output on the display.

Suggestions:

a. Firstly check whether the monitor is powered up normally.

b. If the monitor is powered up normally, check whether it is connected normally with the server's VGA port.

c. Test on another monitor.

d. If there is no output on the new monitor, login to the BMC Web interface. Open BMC remote KVM to check whether there is output on the monitor. If there is normal output, it indicates the VGA port may be abnormal, please contact Inspur customer service.

e. If above operations could not resolve the problem, please contact Inspur customer

service.

3) Status LED on front panel is abnormal

Description: The server is under normal operation, but the status LED on front panel turns red.

Suggestions:

a. Firstly confirm which LED is abnormal according to the previous chapter about the LEDs on the front panel.

b. If the system failure LED is abnormal, check whether the system runs normally; if the system runs normally, you can login to the BMC Web interface to view the BMC logs, to check whether there are errors reported.

c. If the power failure LED is abnormal, check whether the power module LED is normal; ifthe power module LED is normal, you can login to the BMC Web interface to view the BMC logs, to check whether there are errors reported.

d. If other LEDs are abnormal, you can login to the BMC Web interface to view the BMC logs, to check whether there are errors reported.

e. If above operations could not resolve the problem, please contact Inspur customer service.

4) Power module LED is off or red

Description: The server is under normal operation, but a certain power module LED is off or red.

Suggestions:

a. Firstly check whether all power cables are normal, and plug in the power cables again.

b. If the fault still exists, insert the power module again.

c. If shutdown is allowed, you could exchange the two power modules to judge whether it is a power module fault.

d. If above operations could not resolve the problem, please contact Inspur customer service.

5) HDD status LED is abnormal

Description: The server is under normal operation, but the HDD status LED is off or red.

Suggestions:

a. If it is caused by manual operations, restore the array through RAID configuration.

b. If there is no manual operations, check whether the HDDs are identified normally. If the server is configured with an RAID card, login to the RAID management interface to check whether there is an HDD failure.

c. If there is an HDD failure, or the above operations could not resolve the problem, please contact Inspur customer service.

⚠ Note: Hot-plugging HDD allows users to take out or replace the HDD without system shutdown and power off, which improves the system disaster recovery capability, scalability and flexibility. It only means the hot-plug HDD can be plugged in and out online without damage, and the following two items need to be noticed: ① Depending on the RAID level, hot plugging the HDD in the RAID will cause RAID degradation or failure. When installing a new HDD, different RAID cards have different policies, you may need to login to the RAID card management interface for recovery. ② Remove the HDD until the HDD motor stops completely, to prevent damage to the motor. For the operations on the RAID card management interface, please refer to Inspur technical website: www.4008600011.com.

6) Chassis fans make excessive noise

Suggestions:

a. Firstly check whether the chassis fans operate at a high speed caused by the overtemperaturechassis.

b. If the chassis has a high temperature, check the temperature of server room, if it is excessively high, open the air conditioner to cool the room.

c. If the server room's temperature is normal, check whether the front panel or chassis interior is jammed with dust, or the air inlet is blocked. It needs to improve the server room's environment, to avoid server over-temperature running because of too much dust.

d. Check whether the server runs under high load.

e. If above operations could not resolve the problem, please contact Inspur customer service.

7) There is alarm sound during startup

Suggestions:

Firstly identify the source of alarm sound:

a. If the alarm sound comes from the power supply, check the power LED's status. If the power LED is abnormal, refer to item 3) to handle it.

b. If the alarm sound comes from the chassis interior, open the chassis to identify the specific source.

c. If the alarm sound comes from the RAID card, check the HDD LED status or login to the RAID management interface to check the HDD status. For the operations about the RAID management interface, please refer to Inspur technical website: www.4008600011.com.

d. If above operations could not resolve the problem, please contact Inspur customer

service.

8) Keyboard and mouse are not available

Description: Neither keyboard nor mouse could be operated normally.

Suggestions:

a. Make sure the keyboard or mouse has been connected correctly and firmly.

b. Replace other parts to test whether it is a mouse or keyboard fault.

c. Power cycle the server and retest.

d. Reboot and enter BIOS or RAID configuration interface to test keyboard or mouse performance. When tested in a non-system situation, if the keyboard or mouse performance turns out to be normal, a system fault could be considered. If the keyboard or mouse fault still exists, a mainboard interface fault could be considered, and Inspur technical hotline can be called for support.

9) USB interface problem

Description: Unable to use devices with a USB interface.

Suggestions:

a. Make sure the operating system on server supports USB devices.

b. Make sure the system has been installed with correct USB device driver.

c. Power off the server, and then power on again to test.

d. Check whether the USB device is normal when connected to other hosts.

e. If the USB device is normal when connected to other hosts, the server may be abnormal: please contact Inspur customer service.

f. If the USB device turns out to be abnormal when connecting to other hosts, please replace the USB device.

6.2 Software Problems

1) System installation problems

Description: It fails to load the RAID driver or to create partitions larger than 2T during system installation, C disk utilization is too large, and other problems.

Suggestions:

a. If it fails to load the driver during system installation, check the RAID driver's version, please visit Inspur website (http://www.inspur.com) to download the correct RAID driver.

For some RAID drivers, it needs to load several times.

b. If it fails to create 2T partitions, check BIOS Advance -> CSM Configuration-> Boot option filter, enable the UEFI option, and select UEFI mode to boot the system. It needs to enter the CMD command line to change the HDD format to GPT, and then partitions larger than 2T can be created.

c. If the C disk utilization is too large after system installation, open Computer Property-> Advanced System Property-> Advanced-> Performance-> Settings-> Change Virtual Memory, turn down the virtual memory or allocate the virtual memory to other partitions.

d. If above operations could not resolve the problem, please contact Inspur customer service.

2) The memory capacity is abnormal

Description: The memory capacity displayed in the OS and the physical memory capacity are inconsistent.

Suggestions:

a. Check the OS version, the supported memory capacity varies with the version of Windows OS. Enter BIOS Setup to view the memory capacity, if the memory is identified completely, the operating system may have limits to the memory capacity, e.g. Windows server 2008 x86 supports 4G memory at most.

b. If the memory is not identified completely in BIOS Setup, confirm that the corresponding slots have been installed with memories of correct type.

c. If above operations could not resolve the problem, please contact Inspur customer service.

3) Abnormal network

Description: The network is disconnected, or the rate is lower than the actual rate of the network port.

Suggestions:

a. Check whether the network cable is connected well and whether the network LED flashes normally, re-insert the network cable to test again.

b. If the problem still exists, use a computer to connect with the server directly. If the direct connection is normal, check whether the network cable or the switch port is normal.

c. If the direct connection is abnormal, please visit Inspur website (http://www.inspur.com) to download the latest NIC driver.

d. If above operations could not resolve the problem, please contact Inspur customer service.

7 Battery Replacement

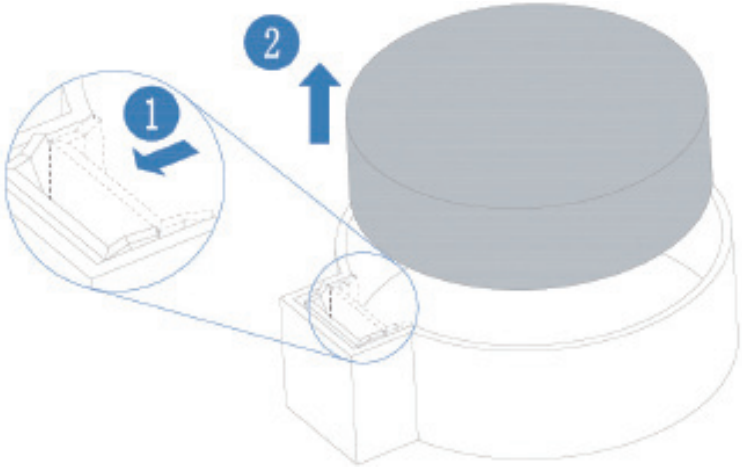
If the server no longer automatically displays the correct date and time, you may need to replace the battery that provides power to the real-time clock.

⚠ WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.
- Replace only with the spare designated for this product.

To remove the component:

1. Power down the server.
2. Extend the server from the rack.
3. Remove the access panel.
4. Remove the full-length expansion board retainer if any full-length expansion boards are installed.
5. Remove the PCI riser cage.
6. Remove the air baffle.
7. Remove the battery.



To replace the component, reverse the removal procedure.

For more information about battery replacement or proper disposal, contact Inspur Customer Service.

8 Regulatory Compliance Notices

8.1 Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

8.2 Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radiofrequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

8.2.1 FCC Rating Label

The FCC rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or ID on the label. Class A devices do not have an FCC logo or ID on the label. After you determine the class of the device, refer to the corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and,

if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

8.3 Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

8.4 European Union Regulatory Notice

Products bearing the CE marking comply with the following EU Directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- Eco-design Directive 2009/125/EC, where applicable

CE compliance of this product is valid if powered with the correct CE-marked AC adapter provided by INSPUR.

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued by INSPUR for this product or product family and available (in English only) within the product documentation.

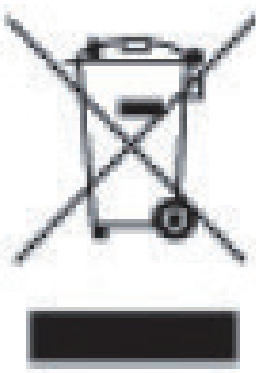
The compliance is indicated by one of the following conformity markings placed on the product:

Please refer to the regulatory label provided on the product.

8.5 Disposal of Waste Equipment by Users in the European Union

This symbol on the product or on its packaging indicates that this product must not be

disposed of with other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



8.6 Korean Notice

Class A Equipment

A급 기기 (업무용 방송통신기기)	이 기기는 업무용(A급)으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

Class B Equipment

8.7 Chinese Notice

Class A Equipment

声明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取可行的措施。

8.8 Battery Replacement Notice

⚠ WARNING: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them to Inspur, an authorized Inspur Partner, or their agents.

9 Electrostatic Discharge

9.1 Preventing Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

9.2 Grouding Methods to Prevent Eletrostatic Discharge

Several methods are used for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

For more information on static electricity or assistance with product installation, contact Inspur Customer Service.

10 Warranty

10.1 Introduction

Inspur warrants that all Inspur-branded hardware products shall provide a period of three (3) year warranty. This document describes Warranty Service, including a detailed description of service-level.

The warranty terms and conditions may vary by country, and some services and/or parts may not be available in all countries. For more information about warranty services in your country, contact Inspur technical support or Inspur local office.

10.2 Warranty Service

10.2.1 Service Overview

Type	Duration
Remote Services	3 years
RMA Services	3 years

10.2.2 Warranty Service Terms & Conditions

i. Remote Services

Inspur provides 24x7 remote service through Hotline, E-mail and Website. Through Hotline and E-mail Services, Inspur engineer helps customers determine the cause of the malfunction and provide solution. Website service provides a number of resources to help customers resolve problems, and learn about our products, such as product manuals, drivers and Firmware.

Below is how to obtain our remote service:

Type	Description	Response Time
Hotline	1-844-860-0011(English) 1-646-517-4966(English) 86-800-860-0011(Chinese)	Within 2hrs
E-mail	serversupport@inspur.com	Within 2hrs
Website	http://en.inspur.com/	

ii. RMA Services

Customers could return defective parts to the designated Inspur site after submitting a 144 service request. Inspur may, at its discretion, repair or replace the defective parts. Repair or

replacement parts may be new, used, or equivalent to new in performance and reliability. Replaced or repaired parts are warranted to be free of defects in material or workmanship for ninety (90) calendar days or, for the remainder of the warranty period of the product, whichever is longer.

10.3 Warranty Exclusions

Inspur does not guarantee that there will be no interruptions or mistakes during the use of the products. Inspur will not undertake any responsibility for the losses arising from any operation not conducted according to Inspur Hardware Products.

The Warranty Service Terms & Conditions do not apply to consumable parts, as well as any products the serial number of which falls off, is damaged or obscure for the following reasons:

- Accident, misuse, abuse, defiling, improper maintenance or calibration or other external causes
- Operating beyond the parameters as stipulated in the user documentation
- Use of the software, interface, parts or supplies not provided by Inspur
- Improper preparation place or maintenance
- Virus infection
- Loss or damage in transit
- Alterations or repairs have been made by unauthorized persons, or service organizations

Inspur does not undertake any responsibility for the damages or losses of any application, data or removable storage medium. Except for the software installed by Inspur in its production of this product, Inspur is not responsible for the restoration or reinstallation of any programs or data.