Sun Netra CP3270 ATCA Blade Server

User's Guide

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Contents

Using This Documentation

This user's guide provides detailed procedures for the installation, configuration, administration, and servicing of Oracle's Sun Netra CP3270 ATCA blade server. This document is written for technicians, system administrators, authorized service providers, and users who have advanced experience troubleshooting and replacing hardware.

- "UNIX Commands" on page ix
- "Shell Prompts" on page x
- "Related Documentation" on page x
- "Documentation, Support, and Training" on page xi
- "Documentation Feedback" on page xi

UNIX Commands

This document might not contain information on basic UNIX commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- The Oracle Solaris Operating System documentation, which is at

  `(http://docs.sun.com)`

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Related Documentation

The documents listed as online are available at:

(http://docs.sun.com/app/docs/prod/cp3270.brd?l=en#hic)

(http://docs.sun.com/app/docs/prod/n900.srvr#hic)

Application	Title	Part Number	Format	Location
Installation	*Sun Netra CP3270 ATCA Blade Server Start Here*	821-0076	Printed PDF	Shipping kit Online
Updates	*Sun Netra CP3270 ATCA Blade Server Product Notes*	821-0077	PDF HTML	Online
Safety	*Sun Netra CP3270 ATCA Blade Server Safety and Compliance Guide*	821-0079	PDF HTML	Online
General safety	*Important Safety Information for Sun Hardware Systems*	821-1590	Printed	Shipping kit
System service	*Sun Netra CT 900 Server Service Manual*	819-1176	PDF HTML	Online
System administration and reference	*Sun Netra CT 900 Server Administration and Reference Manual*	819-1177	PDF HTML	Online
Programming and sensors	*Sun Netra CT 900 Server Software Developer's Guide*	819-1178	PDF HTML	Online

Documentation, Support, and Training

- Documentation (http://www.sun.com/documentation)
- Support (http://www.sun.com/support)
- Training (http://www.sun.com/training)

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Submit comments about this document by clicking the Feedback[+] link at (http://docs.sun.com).

Please include the title and part number of your document with your feedback:

Sun Netra CP3270 ATCA Blade Server User's Guide, part number 821-0078-10.

Evaluating Product Compatibility

The following topics provide information for evaluating the blade server and your system's compatibility.

- "Evaluating the Blade Server" on page 1
- "Qualifying Your System" on page 15

Evaluating the Blade Server

The Sun Netra CP3270 ATCA blade server from Oracle is a dual-socket quad-core Intel-based ATCA blade for high-performance ATCA x86 applications in wireless infrastructure and central office consolidation.

This blade server complies with the AdvancedTCA specification. The ATCA standard comprises the PICMG 3.0, 3.1, 3.2, and 3.3 versions of the standard. The blade server complies with the following specifications:

- PICMG 3.0, the base specification that defines the mechanical, power distribution, system management, data transport, and regulatory guidelines.
- PICMG 3.1, which builds on the PICMG 3.0 base specification and on IEEE 802.3-2003.

Use the following information to evaluate the blade server:

- "Features" on page 2
- "Front and Side Views" on page 3
- "Block Diagram" on page 6
- "Form-Factor Physical Characteristics" on page 7
- "Processors" on page 7
- "Memory" on page 8
- "Networking and I/O" on page 8
- "Advanced Mezzanine Card Support" on page 13
- "Advanced Rear Transition Module Support" on page 14

Related Information

Features

The blade server's primary features are as follows:

- ATCA card 322.25 mm x280 mm, 1.2-inch slot height
- Two Intel LC5518 Processor Sockets, QuadCore version at 1.72 GHz and up to 50W per CPU
- Intel Ibex Peak I/O PCH
- Slots for DDR3 (registered, ECC) at 1067 MHz, 8 modules per card, up to 8 GB per DIMM, in very low-profile design
- Two 1000MBASE-T Ethernet base fabric (PICMG 3.0) interface ports (using Intel 82576 embedded version controller) from PCIe x4
- Two 10/100/1000MbaseT Ethernet management ports (using Intel 82576EB controller) from PCIe x4
- Two 10 Gb XAUI Ethernet extended fabric (PICMG 3.1) interface ports (using Intel 82599 controller) from PCIe x8
- One AMC.1 Type 8S2E2 expansion slot (PCIe x8) supporting I/O expansion with signaling to the ARTM
- One Asynchronous RS-232 serial port (RJ-45) routed to front panel and ARTM from SuperIO
- Dual USB 2.0 and 1.1 ports on front panel
- SATA to EIDE master to support one IDE Compact Flash Type II socket for 16 GB of user flash. The socket is accessible only when the blade server is removed from chassis.
- Redundant SPI BIOS, 32 Mb
- Management support using on-board IPM controller (Renesas H8) that provides dual IPMB. The IPMB bus is monitored by the shelf manager, providing redundant IPMI channels.
- Rear I/O expansion and connectivity provided to an optional ARTM. Compatible with Oracle's current ARTM architecture with upgrade capability to support PICMG working group ARTM.0 standard (Zone 3 Interface)
- SAS connectivity from ARTM to AMC slot

- TPM chip
- 225W delivered max power for the complete card (including 25W ARTM) via dual, redundant -48 VDC nominal rails
- NEBS™ certified compliant in Oracle's Sun Netra CT 900 server system

Front and Side Views

The following figures illustrate the layout of components and connectors on the front and side panels of the blade server.

FIGURE: Blade Server Front View
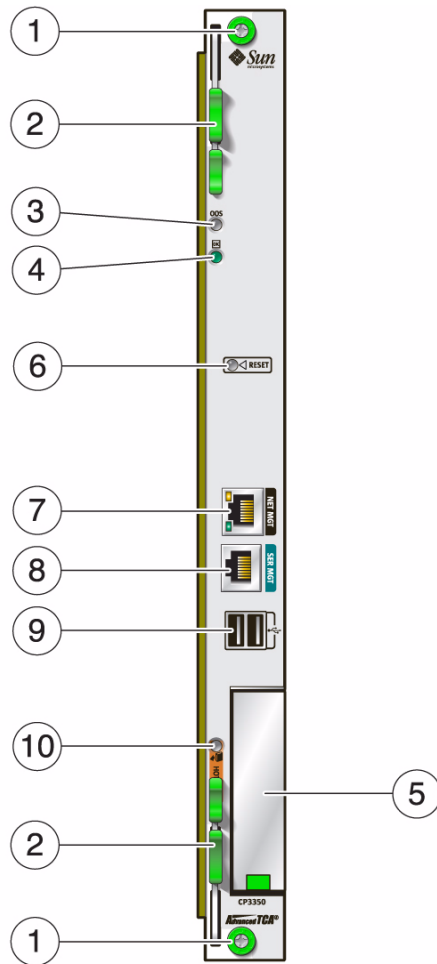
Figure Legend

1	Locking screws	**6**	Reset button
2	Latches	**7**	10/100/1000 Ethernet management port
3	Out-of-service (OOS) LED	**8**	Serial port
4	OK LED	**9**	USB ports
5	AMC slot	**10**	Hot-swap LED

FIGURE: Blade Server Side View
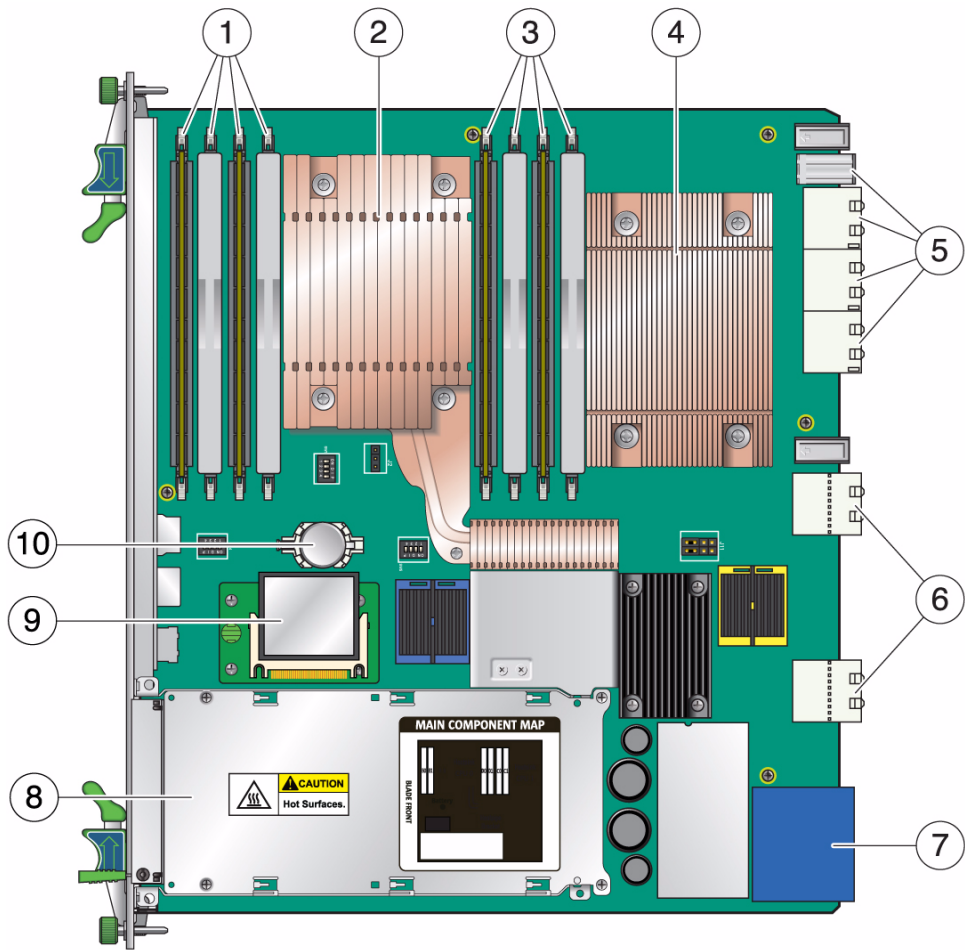
Figure Legend

1	DDR3 DIMM slots for CPU0	**6**	Zone 2 connectors to midplane
2	CPU0 heat sink	**7**	Zone 1 power connector
3	DDR3 DIMM slots for CPU1	**8**	AMC
4	CPU1 heat sink	**9**	Compact flash
5	Zone 3 connectors to ARTM	**10**	Battery

Block Diagram

The following block diagram illustrates the blade server system architecture.
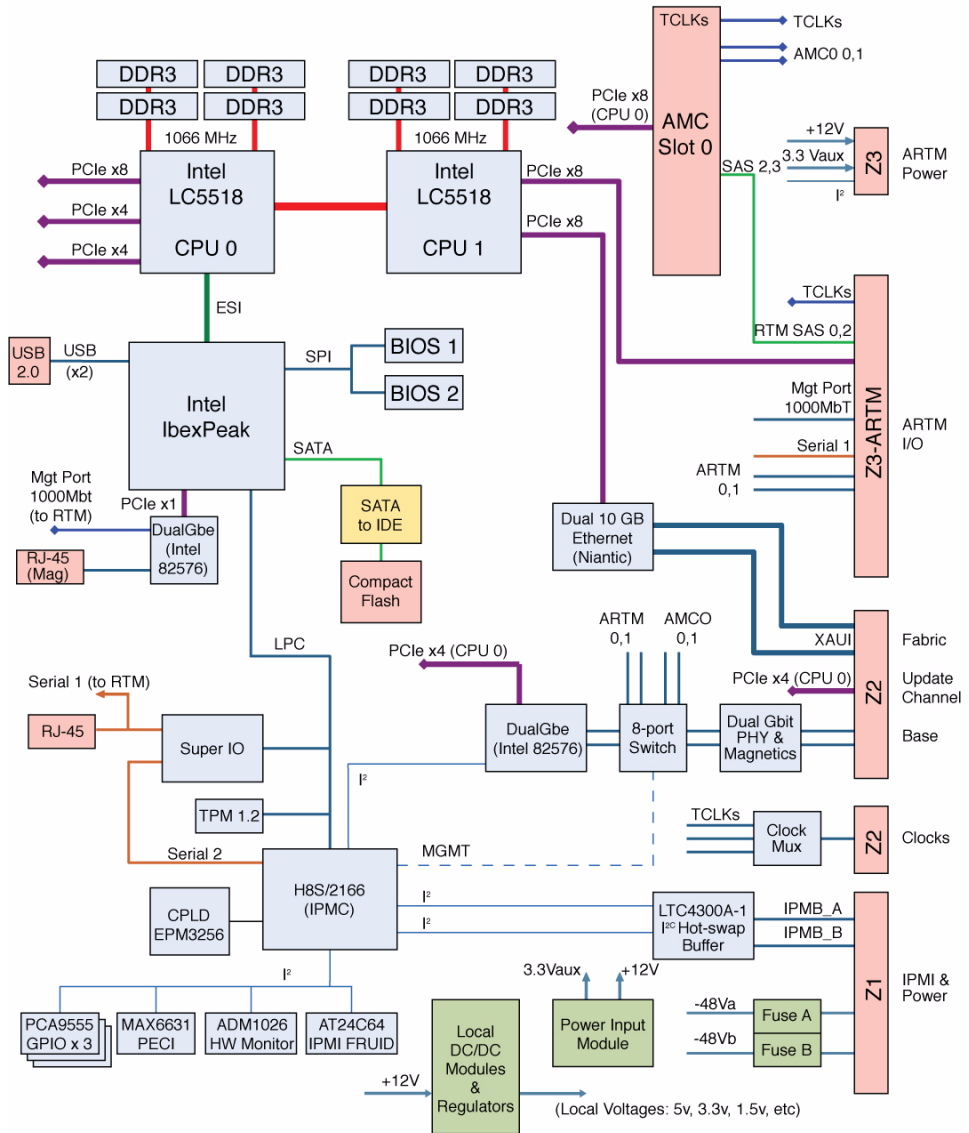
Form-Factor Physical Characteristics

The Sun Netra CP3270 ATCA blade server is a standard 8-rack unit factor, single-slot wide. It complies with the board mechanical dimensions that are required by the PICMG 3.0 specification:

- 322.25 mm x 280 mm (12.687 inches x 11.0 inches)
- 30.48-mm (1.2-inch) front panel
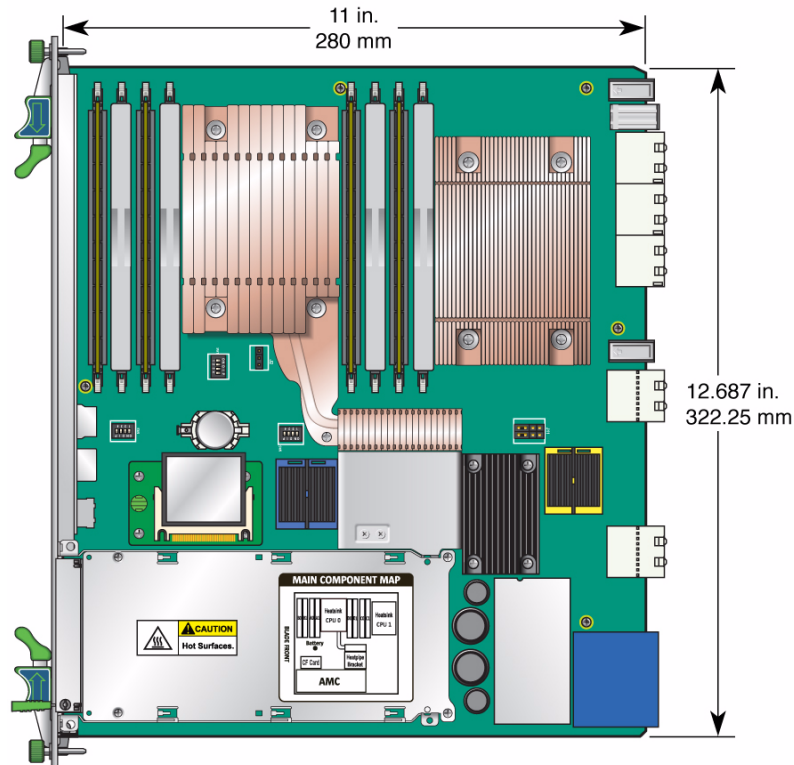
Processors

The blade server is powered by dual 64-bit, low-voltage Intel Xeon LC5518 processors at 1.72 GHz with 8 MB of L2 cache.

For more information on LC5518 processors, refer to Intel's web site (www.Intel.com).

Memory

Each LC5518 processor has an IMC, which can support up to four DDR3 memory channels. Generally, a dual-socket LC5518 design can support up to six DDR3 channels, three from each processor's IMC. The blade server uses four of the six channels with two DDR3 DIMM slots per channel operating at 1066MHz.

The blade server can support 4 GB DDR3 memory modules for configurations of 16 GB and 32 GB total memory. Each memory channel has two slots: 0 and 1, as shown on the AMC faceplate. When using only four DIMMS, they must all be installed in slots 0 and filler panels must be installed in corresponding slots 1.

Additional features of the blade server's memory architecture include:

- Very low-profile (0.72-inch) DIMM support
- Memory bandwidth up to 8.5 Gbyte per second per channel, with a 34 Gbyte per second total memory bandwidth
- DDR3 power requirements 4.4W to 7.0W (1.8V)
- The blade server supports the BIOS implementation of PMEM.

Related Information

Networking and I/O

Networking and I/O are provided by the following:

Intel IbexPeak Platform Controller Hub

The Intel IbexPeak I/O PCH provides legacy function support similar to that of ICH-family devices, but with extensions in Serial-ATA technology and 64-bit and 66-MHz PCI-X support. The PCH I/O also includes integrated USB 2.0 support, an LPC interface, a system management interface, a power management interface, and PECI interface.

IbexPeak provides platform I/O extensions with the following features:

- SATA port for CF access
- PCIe 1.0 port x 1 for Management LAN
- SPI Interface (BIOS)
- LPC Interface (SuperIO and IPMC)
- 2 USB 2.0 ports
- Integrated Trusted Platform Module

SATA Interface

The blade server supports a compact flash card for user flash. The card is connected to the SATA interface from IbexPeak PCH using a SATA to IDE controller. The blade server supports 16-GB cards. Once installed, the cards are not externally accessible when the blade server is operating.

There is no support for drives mounted directly to the blade server, and the blade server itself does not contain any native support for SAS or SATA drives.

PCI Express Interface

The PCIe 2.0 ports can negotiate 1.0 and 2.0 speeds. The LC5518 processor has four PCIe 2.0 port interfaces with x16 lanes that are configured as follows:

- x8 PCIe 2.0 to 82599 controller
- x8 PCIe 2.0 to AMC
- x8 PCIe 2.0 to ARTM (zone 3)
- x4 PCIe 2.0 to 82576EB controller Base
- x4 PCIe 2.0 (One x4 root port is configured to an NTB device interface (for update channel), which is currently not supported.)

SPI Interface

Two BIOS flash devices are connected through the SPI interface from the IbexPeak PCH.

LPC Interface

The LPC bus is a multiplexed (command, address, and data) serialized 4-bit bus with optional side band signals. It replaces the ISA and X-bus and reduces pin count (approximately 40) over the ISA and X-bus.

The LPC is software transparent and does not require special drivers or configuration for its interface. The motherboard BIOS configures all devices at boot up. The motherboard BIOS has the ability to support a variable number of wait states, to have I/O and memory cycles retried in SMM handler, and to support wake-up and other power-state transitions. The design meets LPC 1.0 design guidelines.

The LPC bus provides system connectivity to the following devices:

- TPM
- IPMC
- RS-232 serial ports

Intel 82599 10G Ethernet Controller

The blade server is the first Oracle ATCA blade server to use the Intel 82599 controller for 10-GbE extended fabric interface. It is connected to CPU0 through an x8 PCIe link.

The controller provides two 10-Gbit XAUI Ethernet connections to the ATCA backplane extended fabric, where four lanes are driven at 3.125 Gbyte per second (if the ATCA switch supports 10-Gbit Ethernet) or a single lane at 1.25 Gbyte per second if the switch is a 1-Gbit Ethernet device.

Note – The 82599 controller is supported only on 10G. Support for 1G on earlier generation blade servers is not available.

Intel 82576EB 1G Ethernet Controllers

Two separate dual 1GbE Intel 82576EB controllers provide control for base and management interfaces.

- The base interface controller is connected to the x4 PCIe 2.0 to 82576EB controller Base port from CPU0.
- The management interface controller is connected to the x1 PCIe port from the IbexPeak PCH.

Redundant BIOS

The blade server provides two BIOS PROMs attached to the SPI bus for increased reliability.

Each PROM is an 32-Mb flash device. The primary flash device (FWH0) contains the primary BIOS image, factory default settings, and user-configured settings. The primary BIOS chip is automatically selected for update during a firmware upgrade.

The secondary flash device (FWH1) contains a backup copy, normally of the last known good BIOS image, factory default settings, and last good user-configured settings. The secondary BIOS retains the original BIOS image, and can be used through manual configuration if the primary BIOS becomes corrupted.

In the event of checksum error or other failure during boot from primary BIOS image, you can switch the system over to the secondary BIOS image using H8 to allow system boot recovery.

Compact Flash Card

The blade server supports a single IDE compact flash card, 16-GB capacity.

IPMC

The Renesas H8S/2462 IPMC provides the IPM controller function on the blade server. The IPMC provides PICMG 3.0 board management functionality for monitoring, event logging, and recovery control,. The IPMC also provides management interfaces to the payload through a serial interface.

The IPMC provides the following:
- Dual buffered IPMB interfaces to connect to IPMB-0
- Hot-swap latch input and LED control
- Payload power control
- Payload base and fabric interface e-keying control
- Payload power and temperature monitoring

Hardware Monitoring

The blade server uses an ADM1026 hardware monitor device for monitoring on-board voltages. Other functions of the ADM1026 are not used by the blade server.

The monitored voltages are as follows:

- Primary blade voltages (12V, 5V and 3.3V)
- Standby voltages (3.3V)
- Five core and chipset voltages
- Four DDR3 voltages
- Battery voltages

Sensors are created for each voltage that is monitored.

For detailed mapping of the sensors, refer to the *Sun Netra CT900 Server Software Developer's Guide* (819-1178).

Temperature Monitoring

CPU temperatures are measured using a maximum 6631 device across the Intel proprietary PECI bus. An offset of 95ºC is added to provide a normalized temperature reading.

The Intel processor junction temperature is monitored for each CPU. The internal memory temperature is monitored for each installed DIMM. There could also be one or more sensors on an installed AMC.

- Upper Non-Critical 80ºC
- Upper Critical 86ºC
- Upper Non-Recoverable 94ºC

For detailed mapping of the sensors, refer to the *Sun Netra CT900 Server Software Developer's Guide* (819-1178).

Serial Port

An RS-232 serial port is available on the front panel using an RJ-45 connector. This same port is also wired through the Zone 3 connectors to provide a copy of this port on the ARTM. This connector shares the SuperIO chip Port A with the H8-IPMI controller, to allow console messages to be directed to the H8 when the external ports are not in use.

The blade server detects a valid RS-232 connection to either the front or rear port and automatically disconnects the SuperIO port from the H8 and connects to the external ports.

Note – The front and rear ports cannot be used at the same time, because they share the same wires.

SAS Ports

The blade server supports AMC drives that contain their own PCIe-based controller chip connecting to the system through the PCIe bus. The blade server supports an AMC that contains drives using Port 2 or 3 SAS connections, only when a Netra CP32x0 ARTM is present.

If present, the Sun Netra CP32x0 drives the AMC Port-2 signals. This support speeds up to 3 Gb per second.

There is no support for drives mounted directly to the blade server, and the blade server itself does not contain any native support for SAS or SATA drives.

Trusted Platform Module

The blade server uses the Infineon SLB9635 a TPM chip, which enables various security features, including hardware and software authentication for the x86 platform. This chip is reserved for future use.

Advanced Mezzanine Card Support

The blade server provides one AMC slot, which is available from the front panel (see "Front and Side Views" on page 3). The slot is a single-width, mid-height slot. If needed, AMC I/O connectivity can be accessed from the front panel (depending on the AMC installed).

The blade server conforms to the PICMG Advanced Mezzanine Card AMC.0 specification R1.0 ECR_002 D0.9, June 29, 2006, and supports AMC.1 Type 8S2E2 cards, as defined by the same specification.

Advanced Rear Transition Module Support

The blade server supports installing an optional ARTM into the rear of the ATCA shelf, opposite the blade server.

Hot-Swap Support

Hot-swap support for inserting and extracting blade servers is provided in accordance with the ATCA PICMG 3.0 and 3.1 standards. "Front and Side Views" on page 3 shows LEDs for hot-swap status.

Hot-swap of the blade server, ARTM, and AMC is supported in the Netra CT 900 server.

Ports and Connectors

For detailed descriptions of the ports and connectors, including pin assignments, see "Configuring Ports and Pins" on page 76.

Warranty and Technical Support

This hardware carries a one-year replacement warranty. The replacement is provided on a second-business day delivery schedule.

If you have technical questions that are not addressed in the blade server documentation set or on the technical support web site, contact your local Oracle Services representative.

For customers in the U.S. or Canada, call 1-800-USA-4SUN (1-800-872-4786).

For customers in the rest of the world, please find the World Wide Solution Center nearest you at the following web site:

(http://www.sun.com/contact/services_solutions.jsp)

Related Information

■ "Part Number, Serial Number, and MAC Address Label Locations" on page 125

Qualifying Your System

Use the following information to evaluate the blade server and your system for compatibility.

- "System Configurations" on page 15
- "System Requirements and Options" on page 18

Related Information

- "Evaluating the Blade Server" on page 1

System Configurations

Blade servers can be installed into an ATCA shelf (chassis), as shown in FIGURE: Blade Server and Components in Shelf Enclosure on page 16. The blade servers can be deployed in various electrical configurations to suit user requirements. For example, the blade server can be configured to boot from a network as a diskless client with either a front panel or ARTM network connection.

You can configure your blade server with the following optional components:

- "Advanced Mezzanine Card" on page 16
- "Advanced Rear Transition Module" on page 17
- "Memory" on page 8
- "Compact Flash Card" on page 11

FIGURE: Blade Server and Components in Shelf Enclosure
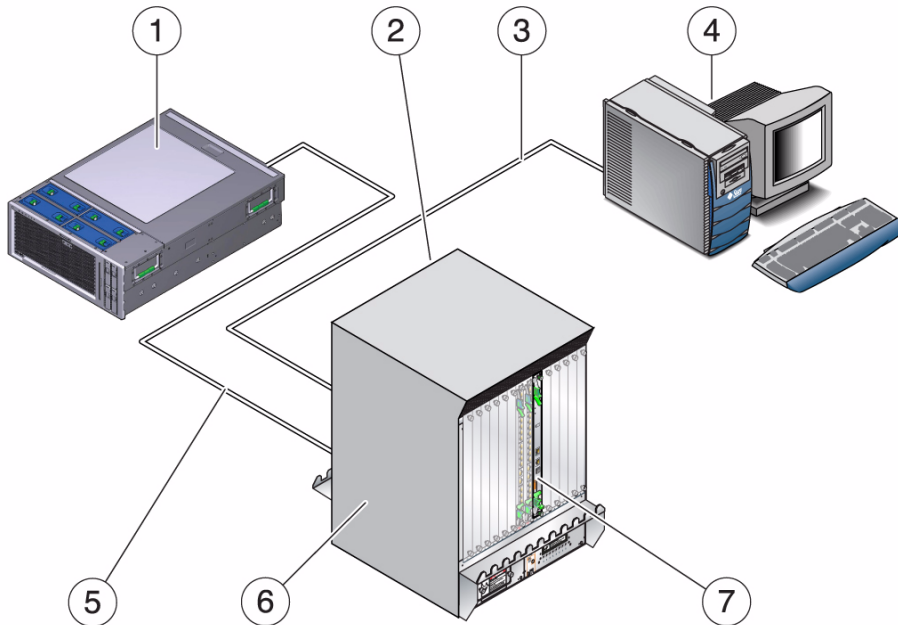
Figure Legend

1	Remote server	**5**	Ethernet connection
2	ARTM	**6**	ATCA shelf
3	Serial connector 10 meters or less	**7**	Blade server
4	Terminal console		

Advanced Mezzanine Card

The blade server has one AMC slot, with eight lanes of PCIe, to provide additional I/O to the front panels or to the rear of the enclosure when used with an ARTM.

The blade server supports AMC mid-height, single wide cards, as defined by the AMC specification.

Advanced Rear Transition Module

You can install one of the optional Sun Netra CP32x0 ARTMs, or any other compatible ARTM, into the rear of the ATCA shelf, opposite the blade server.

The following figure shows the physical relationship between the blade server, the ARTM, and the backplane in a typical ATCA system.
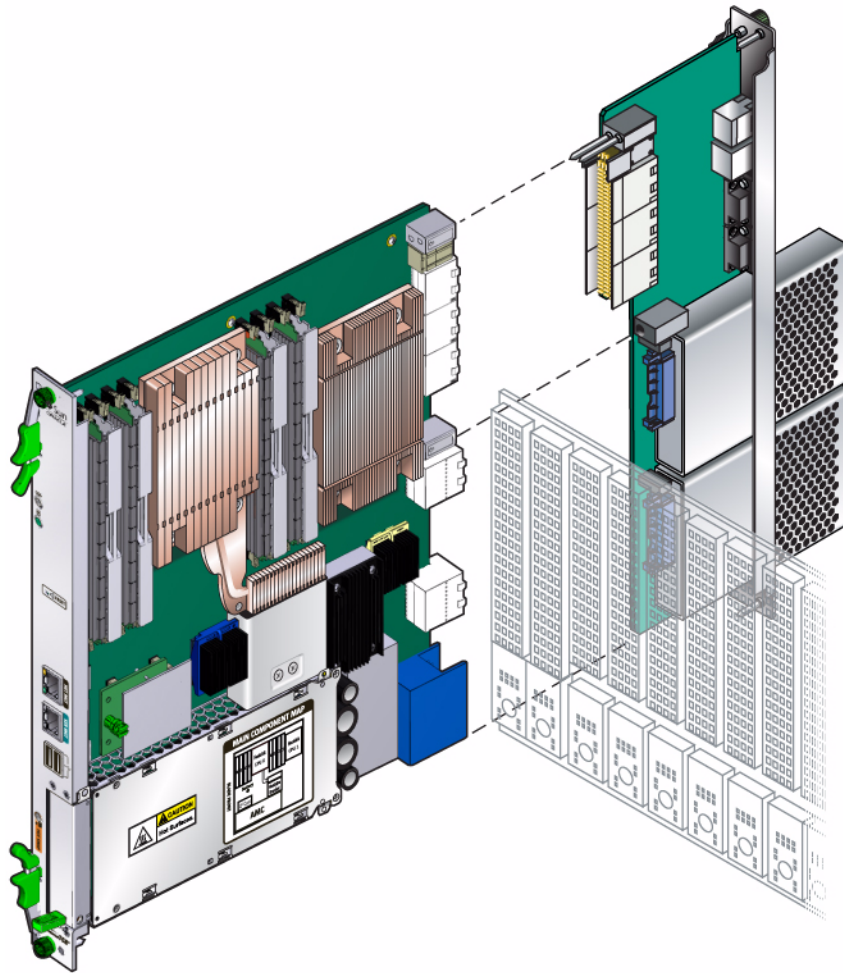
Note – When using the ARTM with the blade server, use cables of less than 10 meters in length for serial I/O ports.

You can order a Sun Netra CP32x0, build a custom module, or purchase from an IHV. You must set up a minimal set of I/O for a boot path for the host blade server. Also, provide a path for console I/O to deliver commands and to read blade server and system status.

Possible boot and console configurations are described in the following table. Oracle provides the blade server and, optionally, a compatible Sun Netra CP32x0. The ARTM provides one 10/100/1000BASE-T per second Ethernet RJ-45 port from the host to the rear of the system. Optionally, this port can be used to accomplish a network boot as a diskless client. The other configurations require IHV hardware.

TABLE: I/O Configurations

I/O	Hardware Required	Description
Ethernet	Sun Netra CP32x0, as an option for rear access	The default boot path uses an Ethernet port; the blade server runs in a diskless client configuration.
SAS	Netra 146-GB hard disk and the Sun Netra CP32x0	Available with the optional Sun Netra CP32x0 or through an AMC with SAS capabilities. When the optional ARTM is installed, connect to the drive(s) through SAS ports on the ARTM.
Zone 3	ARTM	
Serial data	Sun Netra CP3270 ATCA blade server	Serial port A on the front panel provides the path of the default console I/O.
Serial data	Sun Netra CP32x0	When an optional Sun Netra CP32x0 is installed, the module's serial port A will become the path of the default console I/O.
Compact Flash	IDE Compact Flash card	The blade server supports one, optional IDE Compact Flash drive, either 8-Gbyte or 16-Gbyte, installed in a Type II CF socket on the blade server.

System Requirements and Options

The following topics list the system-level hardware and software components, required and optional, for the Sun Netra CP3270 ATCA blade server.

Hardware Components

The blade server cannot be used as a stand-alone system. It is designed to be used in an ATCA chassis for 8U boards. The minimum hardware requirements needed to use the blade server are as follows:

- ATCA system enclosure for 8U boards (includes shelf, backplane, hub and switch board, shelf manager and power supply)

- Console output device or serial terminal
- Boot device (such as hard drive, network, or Compact Flash card)
- Peripheral device for network access
- IPMC (built in)
- Cables for terminal and network connections
- Sun Netra CT 900 server fan tray upgrade kit (PN 594-4953-01). If you are installing the blade server in a Netra CT 900 server that has lower-speed fan trays, you must upgrade the Netra CT 900 server fan trays to support the additional cooling needs of the blade server. For more information on the Netra CT 900 server fan tray upgrade kit (PN 594-4953-01), see the *Netra CT 900 Server Upgrade Guide* (820-3255).

Caution – You can damage the blade server components if you install the blade server in a chassis that does not provide sufficient cooling. For more information, see Section 1.2.1.1, "Check Power, Thermal, Environmental, and Space Requirements" on page 1-3.

Note – Use only serial cables that are less than 10 meters in length.

Software Components

The following operating systems are certified for use on the blade server:

- Solaris 10 (10/09) Operating System and newer
- RedHat Enterprise Linux 5.5
- Oracle Enterprise Linux v5.5
- Windows 2008

Additional OSs are being tested and will be supported after they are certified.

Refer to the appropriate vendor documentation for more information on your operating system.

Refer to the *Sun Netra CP3270 ATCA Blade Server Product Notes* (821-0077) for more Solaris OS information, including a list of any required Netra software patches and support for subsequent versions of Solaris and other OSs. You can view and download the latest version of the product notes at the following web site:

(http://docs.sun.com/app/docs/prod/cp3270.brd?l=en#hic)

Additionally, VMware is a software component certified to work with the Sun Netra CP3270 ATCA blade server. It is listed on VMware's HCL at:

```
(http://www.vmware.com/resources/compatibility/search.php?action
=search&deviceCategory=server&productId=1&keyBasic=
netra&maxDisplayRows=50&key=netra&release%5B%5D=-1&datePosted=
-1&stepping=&nsockets=&ncores=&max_mem=)
```

Optional SunVTS Software

The Sun VTS software is a comprehensive software suite that tests and validates the blade server by verifying the configuration and function of most hardware controllers and devices on the blade server.

Note – The SunVTS runs only on the Solaris OS. Similar test suites are available for Linux operating systems.

SunVTS software is used to validate a system during development, production, inspection, troubleshooting, periodic maintenance, and system or subsystem stressing. SunVTS software can be tailored to run on various types of machines, ranging from desktops to servers, with modifiable test instances and processor affinity features.

You can perform high-level system testing by using the appropriate version of SunVTS software. For detailed information on SunVTS software support and downloads, refer to the following web site:

```
(http://www.sun.com/oem/products/vts/)
```

You will be prompted for your Sun Online Account name and password.

Ensure that the SunVTS software version is compatible with the Solaris OS being used. VTS7.0PS8.x is bundled with Solaris 10 OS (10/09) and newer.

You can find information about the SunVTS software version installed on your system by using the following command:

```
# pkginfo -l SUNWvts
```

To obtain SunVTS documentation, contact your local Customer Service representative, field applications engineer, or system support engineer.

Note – For security reasons, only a superuser is permitted to run SunVTS software. Installation and starting instructions are included with the software when it is downloaded.

Optional Hardware

The following optional hardware components can be used with the blade server:

- Compact flash cards
- AMCs
- Sun Netra CP3240 switches
- Sun Netra CP32x0 ARTMs and other compatible ARTMs

The optional ARTM enables rear system I/O access to the following:

- Network
- Boot device
- Two hot-swappable SAS hard disk drives
- Console terminal

Installing the Blade Server

The following topics provide information and instructions for installing the blade server and optional components.

- "Preparing to Install the Blade Server" on page 23
- "Installing Components and Blade Server" on page 28
- "Installing Optional Components" on page 34
- "Software and Firmware Upgrades" on page 47

Related Information

- "Evaluating the Blade Server" on page 1
- "Qualifying Your System" on page 15

Preparing to Install the Blade Server

Before installing the blade server, ensure that your system meets the minimum environmental and power requirements, you have the required tools and IP addresses, and your system has the required fan trays.

> ⚠ **Caution –** Installing the blade server without completing the preparation tasks might result in damage to the blade server or your system.

- "Environmental Requirements" on page 24
- "Power and Thermal Distribution" on page 24
- "Tools and Materials Needed" on page 25
- "Local Network IP Addresses and Host Names" on page 26
- "Safety Requirements" on page 26
- "Verify the Fan Trays" on page 27
- "Upgrade or Replace the Fan Trays" on page 28

Environmental Requirements

The blade server fits into a standard ATCA shelf. If your installation requirements are different, contact your field applications engineer.

Verify that your environment meets the following requirements:

- Your enclosure specifications can support the sum of the specified maximum blade server power loads. See "Power and Thermal Distribution" on page 24.
- Facility power loading specifications can support the rack or enclosure requirements.
- Your enclosure specifications can support the cooling airflow requirements.

Power and Thermal Distribution

Typical heat dissipation and power consumption metrics for a blade server are as follows:

- 225W maximum power (includes 25W to ARTM, 20W to AMC, and two Intel LC5518 CPUs)
- Power input: -36 VDC to -72 VDC (-48VDC nominal)
- Normal operating temperatures range is 0ºC to 40ºC.
- Short-term operating temperatures range is -5ºC to 55ºC to support ETSI cold start and NEBS short-term high temperatures.
- Long-term operating temperature range is 5ºC to 45ºC.

Note – Empty DIMM slots must be covered by filler panels for proper thermal distribution.

For information about sensors, refer to the *Sun Netra CT 900 Server Software Developer's Guide* (819-1178).

Required Cooling and Blade Impedance Curve

The blade server requires the following cooling and impedance curves.

Watts		m³ per Min					CFM		
Power Level	25ºC	28ºC	40ºC	55ºC	25ºC	28ºC	40ºC	55ºC

Watts	m³ per Min				CFM			
140	0.45	0.45	0.91	0.91	16	16	32	32
205	0.45	0.45	0.91	0.91	16	16	32	32
210	0.45	0.45	0.91	0.91	16	16	32	32
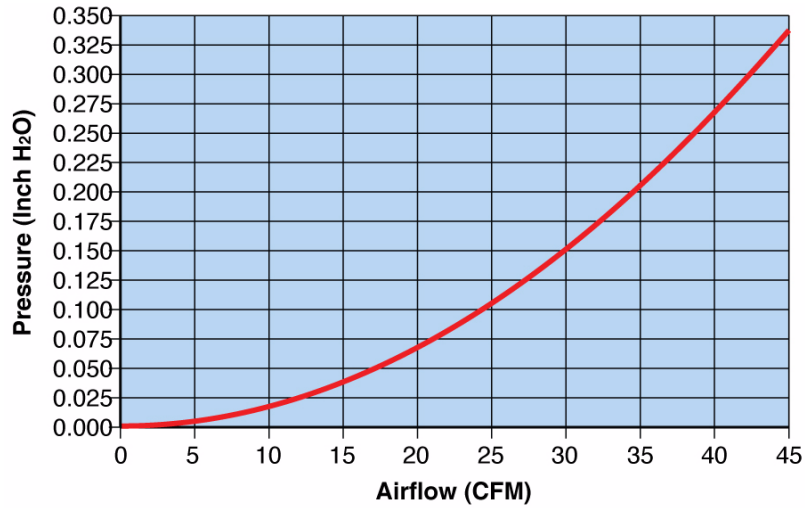
Tools and Materials Needed

The tools needed for installation and service are as follows:

- Phillips screwdrivers: No. 1 (required), No. 2 (optional)
- Antistatic wrist strap
- Terminal console
- Serial cable of less than 10 meters to connect the blade server to a system console

Local Network IP Addresses and Host Names

Collect the information listed in the following table to connect hosts to the LAN. Ask your network administrator for help, if necessary. This information is not needed for a stand-alone installation.

TABLE: Local Area Network Information

Information Needed	Your Information
IP address* and host name for each blade server client	
Domain name	
Type of name service and corresponding name server names and IP addresses—for example DNS and NIS (or NIS+)	
Subnet mask	
Gateway router IP address	
NFS server names and IP addresses	
Web server URL	

* Local IP addresses are not needed if they are assigned by a network DHCP server.

You might need the MAC (Ethernet) addresses of the local hosts to make name server database entries (see "Netinstall Boot Device Map" on page 34).

You can see the MAC address in the console output while booting the blade server. Also, you can find it on the barcode label on the node blade server (see "Locate MAC Address on Blade Server" on page 96).

Safety Requirements

Refer to the following documents for safety information:

- *Important Safety Information for Sun Hardware Systems* (821-1590) for general safety information.
- *Sun Netra CP3270 ATCA Blade Server Safety and Compliance Guide* (821-0079) for blade server safety information.

Read the following safety statements that are specific to the blade server carefully before you install or remove any part of the system.

Caution – Depending on the particular chassis design, operations with open equipment enclosures can expose the installer to hazardous voltages with a consequent danger of electric shock. Ensure that line power to the equipment is disconnected during operations that make high-voltage conductors accessible.

The installer must be familiar with commonly accepted procedures for integrating electronic systems and the general practice of Oracle systems integration and administration. Although parts of these systems are designed for hot-swap operation, other components must not be subjected to such stresses. Work with power connected to a shelf only when necessary, and follow these installation procedures to avoid equipment damage.

This equipment is sensitive to damage from electrostatic discharge from clothing and other materials. Use the following antistatic measures during an installation:

- If possible, disconnect line power from the shelf when servicing a system or installing a hardware upgrade. If the shelf cannot be placed on a grounded antistatic mat, connect a grounding strap between the facility electrical input ground (usually connected to the shelf) and facility electrical service ground.

- Use an antistatic wrist strap when performing the following tasks:

    - Removing a blade server from its packaging

    - Connecting or disconnecting blade servers or peripherals

    The other end of the antistatic wrist strap lead should be connected to one of the following:

    - A ground mat

    - The chassis metal as a ground

    The grounded mat or the chassis must be connected to a facility ground to prevent a floating ground.

- Remove a blade server from its packaging only when wearing a properly connected ground strap.

- Place blade servers on an antistatic mat if one is available, and the mat is grounded to a facility electrical service ground. Do not place blade servers on top of packaging.

▼ Verify the Fan Trays

The Netra CT 900 server fan tray upgrade kit (594-4953) must be installed in the chassis before the blade server is installed. This fan tray upgrade is required to provide adequate cooling and prevent the system from overheating or shutting down due to an over temperature condition that can occur with older or mismatched fan trays.

1. **Log in to the Shelf Manager.**

2. **Issue the following command for fan trays 1, 2, and 3:**

```
# clia fruinfo fan_tray 1 | grep "Product Part"
```

3. **If the "Product Part/Model Number" is 380-1559-*xx* or newer, an upgraded fan tray is already installed.**

4. **If the "Product Part/Model Number" is 380-1214-02 or older, the fan trays must be replaced with high-speed fan trays.**

   Refer to the *Netra CT 900 Server Upgrade Guide* (820-3255) for detailed information.

▼ Upgrade or Replace the Fan Trays

Caution – If you are hot-swapping this component, do not keep the fan tray access cover open for more than *60 seconds* at a time on a running system, otherwise the system might overheat. Remove and replace only *one fan module at a time*.

Note – This component is hot-swappable and customer-replaceable.

1. **Slide the chassis forward so that you can access the fan module door.**

2. **From the front of the system, open the fan module cover by pressing the two front latches and lifting the cover.**

3. **Identify the outdated lower-speed or defective fan module(s).**

   When the amber LED on the fan module is illuminated, the fan module is faulty and should be replaced.

4. **Pull up on the fan module until you remove the fan module from the system.**

Note – Be careful not to disconnect adjacent fans.

Installing Components and Blade Server

- "Unpack the Blade Server" on page 29

Related Information

▼ Unpack the Blade Server

To avoid damage to the component, follow the safety requirements when unpacking the blade server. See "Safety Requirements" on page 26.

1. **Place an antistatic wrist strap on your wrist, and connect the other end of the wrist strap to either a ground mat or the chassis metal, which is connected to a facility ground.**

2. **Remove the blade server from its antistatic bag.**

3. **Install any optional components before installing the blade server.**

   See "Install Optional Components" on page 29.

▼ Install Optional Components

Before installing the blade server into a chassis, if you are going to use any optional hardware components such as an AMC or ARTM, install the optional components first.

1. **To install an AMC, go to** "Install an Advanced Mezzanine Card" on page 35**.**

2. **To install an ARTM, go to** "Install an Advanced Rear Transition Module" on page 38**.**

3. **To install memory, go to** "Install Onboard Memory" on page 43**.**

▼ Insert and Latch the Blade Server

If you will use the blade server with optional components such as CF, AMC, ARTM, or onboard memory, install the optional components first. (See "Installing Optional Components" on page 34.)

Note – In a Sun Netra CT 900 server chassis, slots 1 through 6 and slots 9 through 14 are available for blade servers. Slots 7 and 8 are reserved for the switch card.

---

1. **If you have installed an ARTM, go to the front of the system and locate the corresponding slot number of the ARTM.**

2. **Remove the filler panel from the blade server slot, if necessary.**

   The filler panel is secured to the card cage using two screws, one at the top of the filler panel, the other at the bottom. Store the filler panel in a safe place; you might need to use it again if you remove a blade server for an extended time.

3. **Prepare the blade server by opening the injector/ejector latches.**

4. **Carefully align the edges of the blade server with the guides in the appropriate slot.**

   Look into the enclosure to verify correct alignment of the rails in the guides.

5. **Keep the blade server aligned in the guides and slide the blade server in until the injector/ejector latches engage the card cage and come in contact with the midplane or ARTM zone 3 connectors.**

6. **To overcome the connector resistance, use the injector/ejector latches to lever the system into position.**

   By rotating the injectors/ejectors from the horizontal to vertical position, you can fully seat the blade.

7. **Close the latches to seat the blade server in the connectors.**

   Slide the top and bottom injector/ejector latches so that both plastic parts touch. When the upper and lower levers are engaged properly, the blue Hot-Swap LED blinks while the blade server is initializing. The blue LED turns off and the green OK LED lights when the blade server is ready for use.

   Blade servers are powered on automatically through the H8 BMC when you install the blade server into a slot in the ATCA shelf. Once installed, the blade server sequences through power-on states until it is fully powered on.

Note – If the hot-swap LED does not light, wiggle and push the latch so that it engages the hot-swap switch.

---

8. **Tighten the locking screws and the top and the bottom of the blade server to ensure that it is secured to the ATCA shelf.**

   The blade server is now completely installed and will power on automatically.

Related Information

■ "Connect the External I/O Cables" on page 31

▼ Connect the External I/O Cables

Front panel ports are typically used for maintenance and troubleshooting purposes in installed and running systems. External I/O cables are connected to the blade server or to an ARTM when one is used.

1. **Using a Category 5e or better cable, connect one end of the Ethernet cable to a suitable 10/100/1000 MBASE-T Ethernet switch and the other end to one of the Ethernet ports on the blade server or the ARTM.**

FIGURE: Ports on the Blade Server
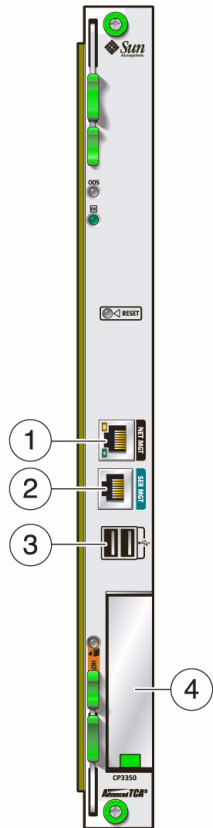
Figure Legend

1	Ethernet port
2	Serial port
3	USB ports
4	AMC slot

2. Connect asynchronous serial I/O cables from serial communication devices to the RJ-45 serial ports on the blade server or ARTM.

3. If you need to map netinstall boot devices, go to "Map Netinstall Boot Devices" on page 97.

4. Connect cables based upon which OS you are running on your system:

a. **If using the Solaris OS, go to** .

b. **If not using the Solaris OS, go to** .

▼ Connect Cables to a System Console Running Solaris OS

1. **Connect a RJ-45 style serial cable to the serial console port on the front panel of the blade server or the ARTM.**

   See .

   Serial access (both front and rear) is through the same serial interface controller. If both ports are connected at the same time, console input and output can be performed through both, however, this configuration is not recommended. If both access interfaces are not connected at the same time, console input and output can be performed through NetConsole session through the ShMM.

2. **Connect the other end of the serial cable to the serial port of the system serving as the serial console.**

3. **Use one of the following utilities to establish a full-duplex serial terminal connection with the blade server:**

   - The tip utility
   - The minicom utility
   - A telnet utility (connect to the proper port on a network terminal server to which the blade server is connected)
   - Another suitable serial communications program on the system console

     For example, if you are using a UNIX system as the system console, at the UNIX prompt in a command tool or shell tool, or serial port A, type:

   ```
   # tip -9600 /dev/ttya
   ```

▼ Connect Cables to a System Console Not Running Solaris OS

1. **Connect a serial cable to the serial console port on the front panel of the blade server or the ARTM.**

   See .

2. **Connect the other end of the serial cable to the serial port of the system serving as the system console.**

3. **Set the serial communications settings to 9600 baud, 8 bit, 1 stop bit, no parity, and no handshake.**

Netinstall Boot Device Map

The following table provides a map of netinstall boot devices. The table identifies which MAC address is associated with the system IP address on the install server.

For example, the Base Fabric interface is connected to the switch model-number in slot 8 of the ATCA shelf. To install to this device, select the *xxx* Ethernet interface from the BIOS setup menus.

TABLE: Netinstall Boot Device Map

MAC Address	Solaris Device	Hardware Device	Connection	Switch Slot Connection
00:14:4f:*xx.yy.zz+0*	igb0	Intel 82576 Gigabit Ethernet Controller	Base Fabric 0	Slot 7
00:14:4f:*xxx.yy.zz+1*	igb1	Intel 82576 Gigabit Ethernet Controller	Base Fabric 1	Slot 8
00:14:4f:*xx.yy.zz+2*	igb2	Intel 82576 Gigabit Ethernet Controller	Mgt A (front panel)	
00:14:4f:*xx.yy.zz+3*	igb3	Intel 82576 Gigabit Ethernet Controller	Mgt B (rear panel)	
00:14:4f:*xx.yy.zz+4*	ixgbe0	Intel 82599 10Gigabit Ethernet Controller	Extended Fabric 0	Slot 7
00:14:4f.*xx.yy.zz+5*	ixgbe1	Intel 82599 10Gigabit Ethernet Controller	Extended Fabric 1	Slot 8

Installing Optional Components

- "Install an Advanced Mezzanine Card" on page 35
- "Install an Advanced Rear Transition Module" on page 38
- "Install Compact Flash Card" on page 41
- "Install Onboard Memory" on page 43

Related Information

- "Removing Optional Components" on page 114
- "Installing Components and Blade Server" on page 28

▼ Install an Advanced Mezzanine Card

An AMC is a card or module that provides additional functionality to the blade server. The blade server contains one AMC slot in which you can install an optional AMC device. An AMC device can be installed and removed through a cutout in the front panel while the blade server is installed in the chassis.

Note – The following procedure provides a general set of instructions for installing an AMC on the blade server. Refer to the AMC manufacturer's documentation for specific instructions on installing these devices.

---

1. **Take antistatic precautions.**

   See "Safety Requirements" on page 26.

2. **Remove the AMC slot filler panel from the blade server's front panel, as shown in the following figure.**
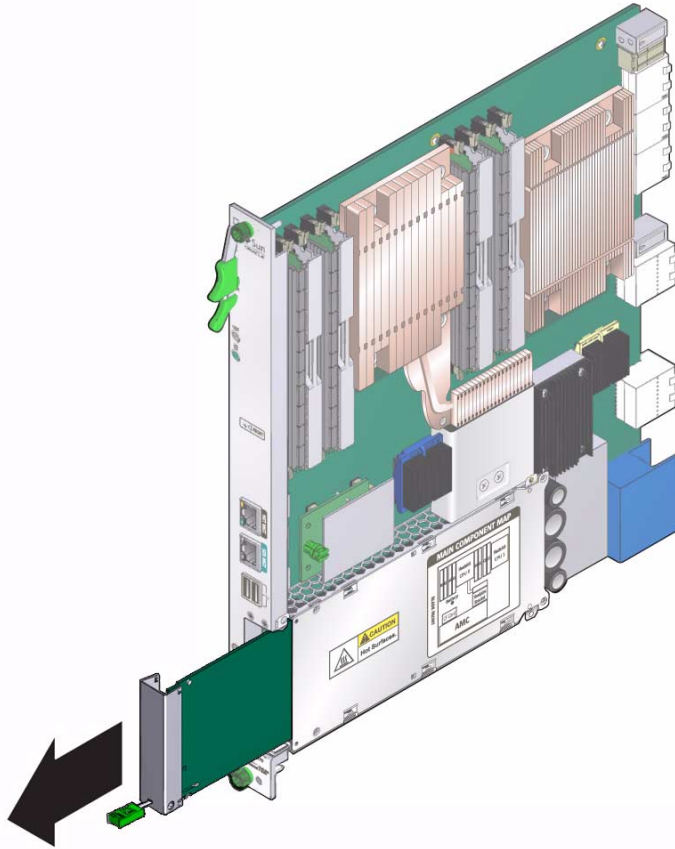
3. **Retrieve the AMC from its shipping kit, and place it on an antistatic surface.**

Caution – Do not use excessive force when installing the AMC into the slot. You might damage the AMC connector on the blade server, causing permanent damage to the AMC or the blade server. If the AMC does not seat properly when you apply even pressure, remove the AMC and carefully reinstall it.

4. **Insert the AMC through the cutout and into the AMC slot as shown in the following figure.**
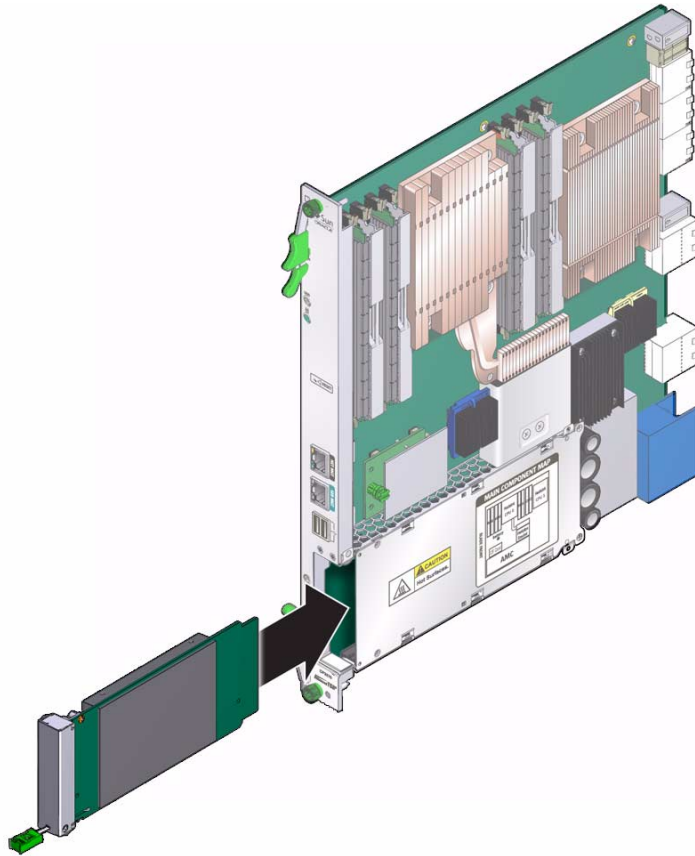
5. **Carefully push the AMC into the AMC connector.**

6. **Refer to the AMC documentation for software and cabling installation instructions.**

7. **If applicable, configure the AMC connectors.**

    See "Configuring Ports and Pins" on page 76.

    Related Information

    - "Remove an AMC" on page 114
    - "AMC Connector" on page 79

▼ Install an Advanced Rear Transition Module

A compatible ARTM must be used with the blade server for rear I/O access. The ARTM enables access to the network, a boot device, and a console terminal. You can use one of the Sun Netra CP32x0 ARTMs, or you can design your own compatible ARTM.

Note – The following procedure provides a general set of instructions for installing an ARTM on the blade server. Refer to the ARTM documentation for specific instructions on installing and configuring these components.

---

1. Take antistatic precautions.

See "Safety Requirements" on page 26.

2. From the rear of the system, choose the corresponding slot for the ARTM.

The ARTM must be installed, inline, behind a compatible blade server.

For example, if the blade server will be installed in slot 3, the corresponding ARTM must be installed at the back of the system in slot 3 (see FIGURE: Installing an ARTM on page 39). If you do not install the ARTM and the blade server in corresponding slots, the system will recognize the blade server and not the ARTM.

FIGURE: Installing an ARTM
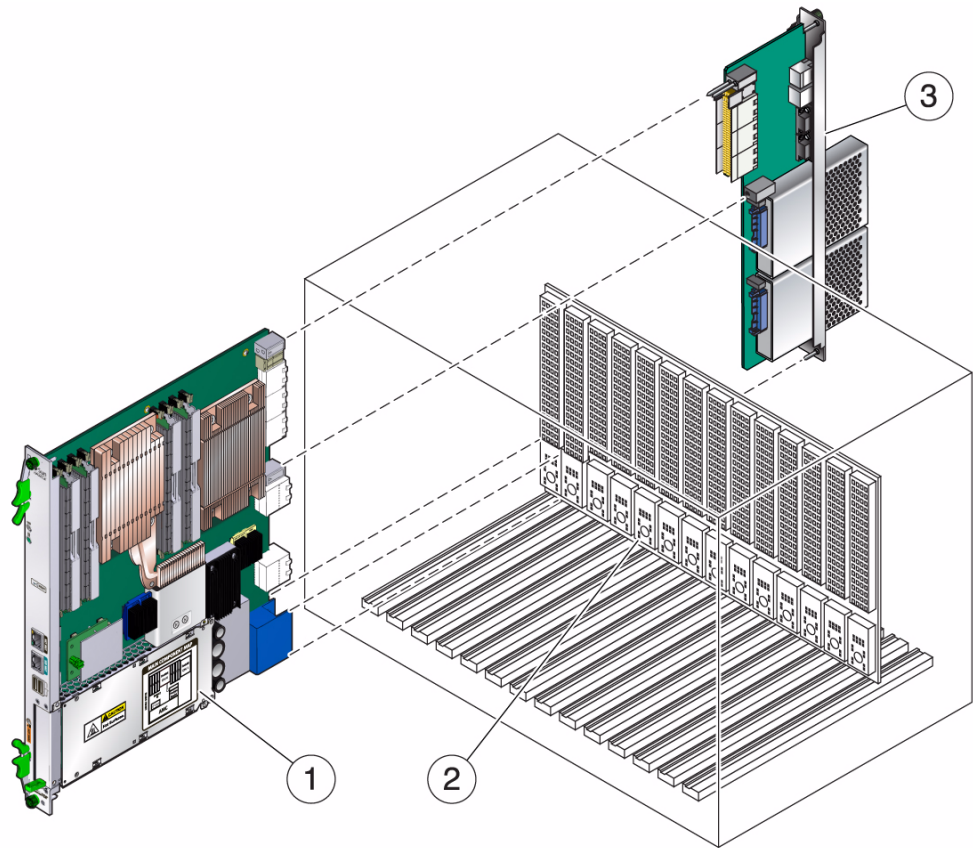
Figure Legend

1	Blade server (installed from the front)
2	ATCA backplane
3	Netra CP32x0 ARTM (installed from rear in corresponding slot to blade server's front slot)

3. **Remove the slot filler panel from the selected slot, if necessary.**

4. **Retrieve the ARTM from the ship kit.**

5. **Configure the ARTM connectors for the blade server.**

   See "Configuring Ports and Pins" on page 76.

   If you are using one of the Sun Netra ARTMs, refer to the documentation for detailed information.

6. **Prepare the ARTM by opening the injector/ejector latch at the top of the module.**

FIGURE: Injector/Ejector Latch and Locking Screw on the ARTM
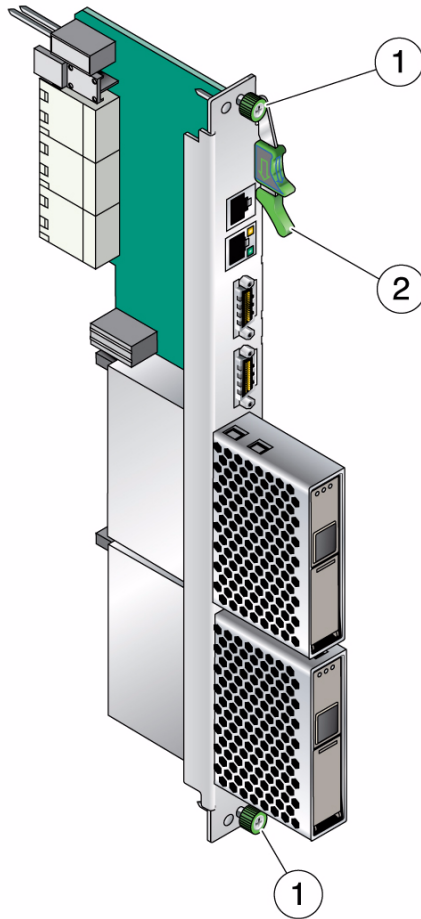
Figure Legend

1	Locking screws
2	Injector/ejector latch

7. **Carefully align the edges of the ARTM with the card guides in the appropriate slot.**

Look into the enclosure to verify correct alignment of the rails in the guides.

8. **Keep the ARTM aligned in the guides, and slide the module in until the injector/ejector latches engage the card cage.**

9. **Push the ARTM into the backplane connectors, and close the latch.**

10. **Tighten the locking screws to ensure that the module is secured into the ATCA shelf.**

11. **Install the blade server into the front of the ATCA shelf in the corresponding slot.**

    See "Installing Components and Blade Server" on page 28.

    Related Information
    - "Remove an ARTM" on page 118
    - "Advanced Rear Transition Module Connectors (Zone 3)" on page 88

▼ Install Compact Flash Card

An IDE CF card can be installed on the blade server for user flash. Due to the location of the CF slot, the blade server must be outside of the chassis for you to install a CF card. The CF is not hot-swappable. The maximum capacity is 32GB.

1. **Take antistatic precautions.**

   See "Safety Requirements" on page 26.

2. **Access the blade server by performing one of the following procedures:**
   - If the blade server is installed in an ATCA shelf, remove the blade server.

     See "Remove the Blade Server" on page 112.
   - If the blade sever is new and not installed, unpack the blade server.

     See "Unpack the Blade Server" on page 29.

   ⚠ **Caution –** Do not place blade server on top of an antistatic envelope unless the outside of the envelope also has antistatic properties. For detailed handling instructions and safety precautions, see "Unpack the Blade Server" on page 29.

3. **Locate the CF connector.**

   The connector is located on the blade server, behind the sheet metal door protecting the AMC slot.
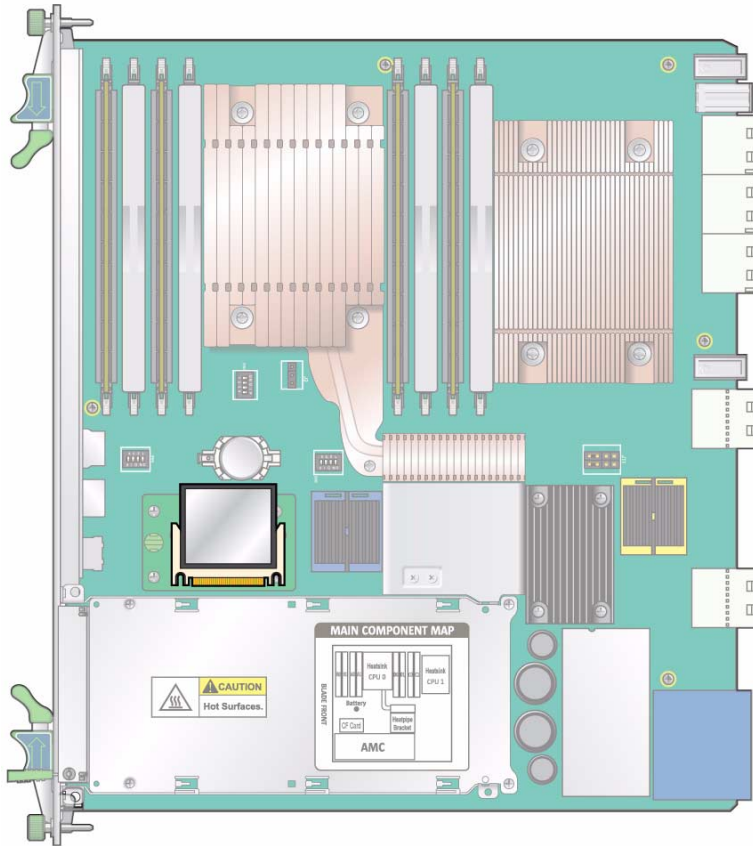
4. To install the CF card, use the arrow on the card as a guide to insert the card into the CF connector.

Note – CF cards have a life time of 2,000,000 write/erase cycles. Users are responsible for ensuring that the OS and applications do not exceed this maximum.

Related Information

- "Remove a Compact Flash Card" on page 119
- "Compact Flash Connector" on page 82

▼ Install Onboard Memory

The following procedure provides a general guide for installing DIMMs as onboard memory. However, for specific directions on installing DIMMs, refer to the documentation that shipped with the DIMMs.

The blade server accommodates DDR3 (registered, ECC) @ 1066MHz DIMMs. For more information, see "Memory" on page 8.

1. Take antistatic precautions.

Caution – Always wear a grounded antistatic wrist strap when handling DIMMs.

2. Access the blade server by performing one of the following procedures:

- If the blade sever is new and not installed, unpack the blade server.

  See "Unpack the Blade Server" on page 29.

- If the blade server is installed in an ATCA shelf, remove the blade server from the shelf.

  See "Remove the Blade Server" on page 112.

Caution – Do not remove the DIMM from its antistatic container until you are ready to install the DIMM on the blade server. Handle the DIMM only by its edges. Do not touch DIMM components or metal parts. Always wear a grounded antistatic wrist strap when handling a DIMM.

3. Locate the DIMM channels and connectors on the blade server, as shown in the following figure.
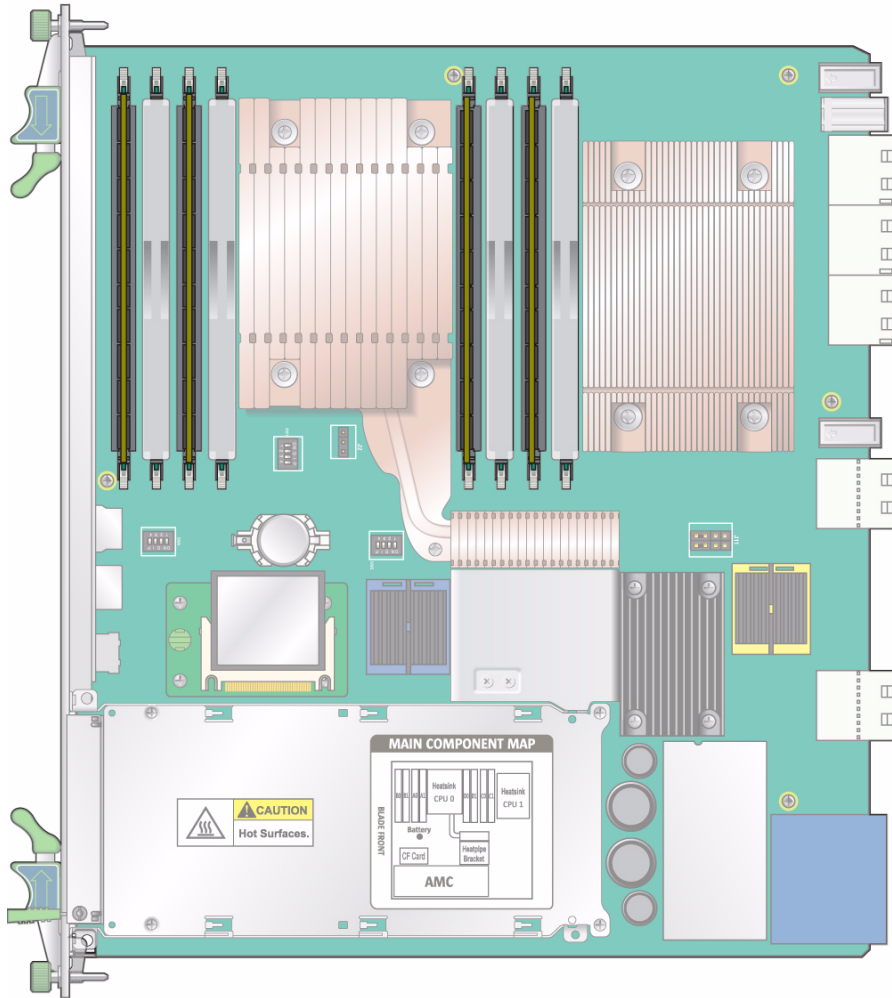
4. **Select the channels and slots where you will install the DIMM.**

B	B	A	A	Channel	D	D	C	C
B0	B1	A0	A1	Slot	D0	D1	C0	C1
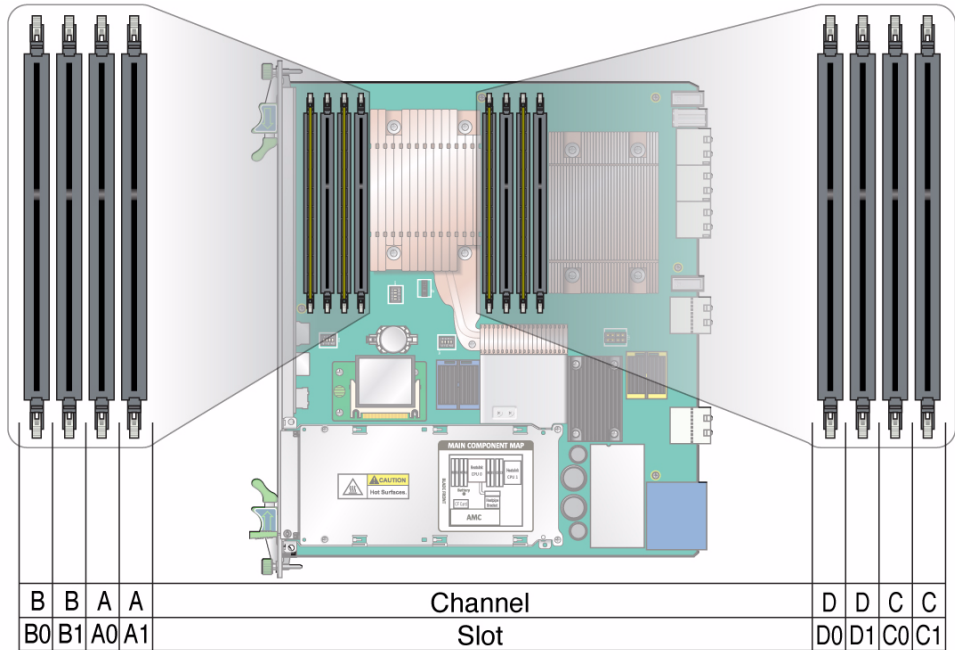
- Four channels are available: A, B, C, and D. Each channel has two DIMM slots. For example, channel A has slots A0 and A1, channel B has slots B0 and B1, and so on.
- Populate DIMMs in allocations of four or eight:
  - If using four DIMMs, install all of them in slots 0 (A0, B0, C0 and D0). Filler panels must be installed in slots A1, B1, C1, and D1.
  - If using eight DIMMs, fill all eight slots.

5. **Remove the DIMM from its protective packaging, holding the module only by the edges.**

Note – Before installing a replacement DIMM, verify that the new DIMM is the same capacity as its paired DIMM.

---

6. **Holding the DIMM upright to the blade server, insert the bottom edge of the DIMM into the bottom of the slot's hinge-style connector, as shown in the following figure.**

Caution – Evenly engage the DIMM in its hinge-style slot. Uneven contact can cause shorts that will damage the blade server. Do not rock the DIMM into place. Ensure that all contacts engage at the same time. You will feel or hear a click when the DIMM properly seats in the connector.

The socket and module are both keyed, which means that the DIMM can be installed only one way. With even pressure, push simultaneously on both upper corners of the DIMM until its bottom edge (the edge with the gold fingers) is firmly seated in the connector.

FIGURE: Installing a DIMM
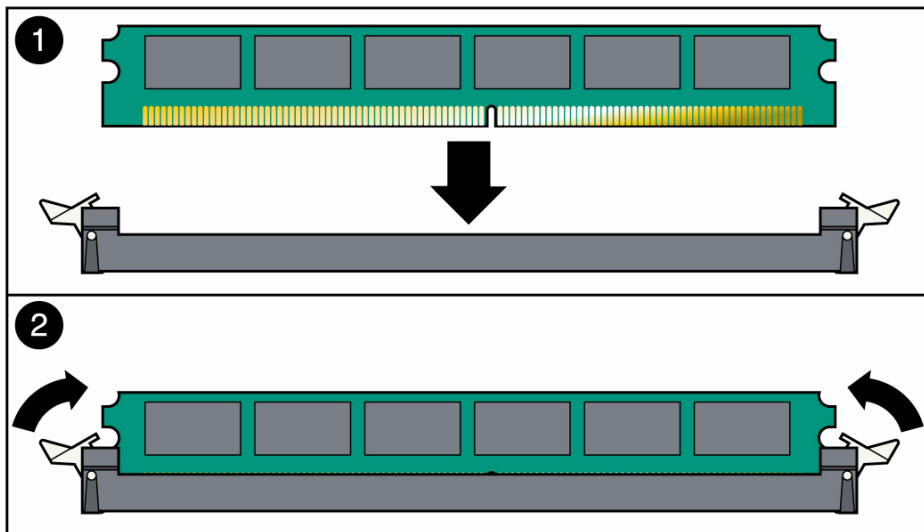
7. **Press the top edge of the DIMM toward the blade server until the retainer clips click into place in the notches on the DIMM sides.**

   The small metal retainer clips on each side of the DIMM slot are spring-loaded and should click into place in the notches on the sides of the DIMM.

Related Information

- "Remove Onboard Memory" on page 120
- "DDR3 DIMM Connector" on page 81

Software and Firmware Upgrades

After installing the blade server and any optional components, install and upgrade the software and firmware to the newest release. The newest release contains the most up-to-date features, enhancements, and bug fixes. Using an earlier release could limit your use of features and enhancements, and could affect your systems with known issues.

To download packages and install and upgrade software and firmware, refer to the following documentation:

■ *Sun Netra CP3270 ATCA Blade Server Product Notes* (821-0077)

■ *Sun Netra CT 900 Server Product Notes* (819-1180)

Additionally, other products such as AMCs and ARTMs might need upgrading to the most current software and firmware releases.

Administering the System

In addition to the administration topics in this user's guide, additional administration, reference, and configuration information for the blade server and all Sun Netra blade servers are available in the following documents:

- *Netra CT 900 Server Administration and Reference Manual* (819-1177)
- *Netra CT 900 Server Software Developer's Guide* (819-1178)
- *Netra CT 900 Server Service Manual* (819-1176)

(http://docs.sun.com/app/docs/prod/n900.srvr#hic)

The following topics provide information and instructions for administering the blade server, network, and user accounts.

Software and Firmware Upgrades

The newest software and firmware release package contains the most up-to-date features, enhancements, and bug fixes. Using an earlier release could limit your use of features and enhancements, and could affect your systems with known issues.

Software updates and support information for the blade server, optional components, and the Netra CT 900 system can be found at the Oracle Download Center:

(http://www.sun.com/download)

For detailed instructions, refer to the following documentation:

- *Sun Netra CP3270 ATCA Blade Server Product Notes* (821-0077)
- *Sun Netra CT 900 Server Product Notes* (819-1180)

For information on your specific configuration, contact your local Oracle Services representative.

(http://www.sun.com/service/contacting/solution.html)

Performing a Server Recovery

If a system or blade server experiences a fault or service interruption, perform a recovery.

- "Automatic Power-Off Events" on page 50
- "Reset the Blade Server" on page 110
- "Boot From Secondary BIOS" on page 51

Related Information

- "Change POST Options" on page 71
- "Restore the BIOS Settings" on page 73
- "Reset the System Time and Date" on page 75
- "Select the BIOS Primary" on page 98

Automatic Power-Off Events

A power-off sequence is initiated either by a request from the shelf manager or a fault condition. The blade server shuts down to standby power mode when the following upper critical threshold conditions are met:

- Detection of DC input (both -48V A and -48V B) drop for more than 5ms
- Processor thermal trip drops to standby mode

Thermal trip of DC brick turns off all local power (standby included).

▼ Boot From Secondary BIOS

The blade server provides dual 32-Mbyte BIOS chips that support redundant BIOS images for increased reliability. The default chip (page 0) acts as the primary BIOS chip and is automatically selected for update during a firmware upgrade. The secondary BIOS chip (page 1) retains the original BIOS image, and can be used through manual configuration in the unlikely case where the primary BIOS becomes corrupt.

If the primary BIOS becomes unbootable, use the secondary BIOS to manually boot the blade server:

Note – The following command works only when using a Sun Netra CT 900 server.

1. **Log in to the Shelf Manager.**

2. **To select the secondary BIOS image, type:**

```
# clia sendcmd 2e 81 00 00 2a 01 board n
```

Where board n is the physical slot number. For example:

```
# clia sendcmd 96 2e 81 00 00 2a 01 <----- Setting the boot page to 1

Pigeon Point Shelf Manager Command Line Interpreter

Completion code: 0x0 (0)    <----- successful completion code
Response data: 00 00 2A     <----- no data returned
```

3. **To boot the blade server from the Shelf Manager, type:**

```
# clia activate board n
```

4. **After the blade server is booted, reset the blade server to use the primary BIOS image (page 0) as in the following example.**

```
# clia sendcmd board n 2e 81 00 00 2a 00
```

Administering Parameters and Configurations

Related Information

BIOS Settings

The BIOS has a Setup utility stored in the BIOS flash memory. The Setup utility reports system information and can be used to configure the BIOS settings. The configured data is provided with context-sensitive help and is stored in the system's battery-backed CMOS RAM. If the configuration stored in the CMOS RAM is invalid, the BIOS settings will default to the original state specified at the factory. Also, you can reset settings to factory default by clearing the CMOS settings.

The BIOS Setup utility contains menu screens. See "BIOS Screens" on page 56 for summaries of first-level BIOS Setup screens and submenus, where applicable.

BIOS Option ROMs

The blade server has an option ROM for each of the following components:

- Intel 82576 1GbE dual Network and Intel 82599 10GbE dual Network interfaces
- AMC interfaces
- ARTM interfaces

Note – PXE boot from fabric interface is disabled by default. You must change the BIOS setting to boot from fabric interfaces (see "Change BIOS Parameters" on page 55).

BIOS Screen Navigation

Fields that can be configured are highlighted on the screens. All other fields are non-configurable.

- Use the left and right arrow keys to move sequentially through the BIOS screens.
- Use the up and down arrow keys to scroll through a screen's menu.
- Use the Tab key to move across columns.

Related Information

- "Restore the BIOS Settings" on page 73
- "Change BIOS Parameters" on page 55
- "BIOS Screens" on page 56

Keys for Directing Output to Remote Systems

The BIOS serial-console redirection feature redirects console input/output to a remote system through a serial null-modem cable. Use this feature to remotely manage/view the status of BIOS POST information.

Type the Ctrl-key sequences to launch the BIOS Setup and BBS Popup menus. Also use them to display Setup menus while the BIOS Setup is running.

BIOS supports the following Function-key to Ctrl-key sequences.

Local Keyboard	Remote Keyboard	Description
F8	Ctrl-P	For POST, invoke the Boot Menu to choose the preferred boot device.
F9	Ctrl-O	For Setup, load the Setup defaults.
F12	Ctrl-N	For POST, force the system to boot from the Network device.

Emulated Terminal Types and Key Mapping

The blade server BIOS supports the standard key mappings of VT-UTF8, VT100+, VT100, and ANSI to standard PC keyboard, including the mappings of the standard PC function keys to the ESC sequences for use with the VT100 terminal.

PC Key	ESC Sequence
F1	<ESC> 1
F2	<ESC> 2
F3	<ESC> 3
F4	<ESC> 4
F5	<ESC> 5
F6	<ESC> 6
F7	<ESC> 7
F8	<ESC> 8
F9	<ESC> 9
F10	<ESC> 0
F11	<ESC> !
F12	<ESC> @
HOME	<ESC> h
END	<ESC> k
PAGE UP	<ESC> ?
PAGE DOWN	<ESC> /
DELETE	<ESC> -

PC Key	ESC Sequence
ALT	<ESC> ^A
END	<ESC> ^C

To generate the key Sequence of <ESC> ^A or <ESC> ^C:

1. Press <ESC>, <SHIFT>, and the number 6 at the same time.

   where <SHIFT>+6 will generate ^.

2. Release all the keys.

3. Press the <SHIFT> key and the character "c" at the same time, so that the capital character "C" is created, or press the <Caps Lock> key once (make sure the LED is ON), then press the "c" key.

▼ Change BIOS Parameters

You can change the BIOS configuration by using a terminal (or terminal emulator connected to a computer) through the serial console port on the front of the blade server.

Note – Using the ANSI terminal emulation mode provides the best viewing of the BIOS screens.

---

1. **To change the system's parameters, enter the BIOS Setup utility by pressing the F2 key.**

   See "BIOS Settings" on page 52 for summaries of the BIOS menus.

   The first BIOS Setup menu screen is displayed.

2. **Highlight the field to be modified using the arrow and Tab keys.**

   See "BIOS Screen Navigation" on page 53.

3. **Press Enter to select the field.**

   A dialog box is displayed. The box displays the options that are available for the field that you have chosen.

4. **Modify the field and close the screen.**

5. **To modify other parameters, use the arrow and Tab keys to navigate to the appropriate screen and menu item.**

   Repeat Step 2 through Step 4 until you are finished modifying parameters.

6. **Press and release the right arrow key until the Exit menu screen is displayed.**

7. **Follow the instructions on the Exit menu screen to save your changes and exit the BIOS Setup utility.**

BIOS Screens

The following table lists the BIOS utility screens and summarizes their use. Illustrations of the screens follow.

TABLE: BIOS Screens Summary

Screen	Description
Main	General system information. (See FIGURE: BIOS Setup Menu on page 57.)
Advanced	Configuration information for the CPUs, IDE, Super I/O, ACPI, Event Log, PCI Express, Smbios, MPS, Remote Access, and USB. (See FIGURE: BIOS Advanced Configuration Menu on page 58.)
	Submenus are as follows:
	• FIGURE: CPU Configuration Menu on page 59
	• FIGURE: IDE Configuration Menu on page 60
	• FIGURE: USB Configuration Menu on page 61
	• FIGURE: Event Log Control Menu on page 62
	• FIGURE: IPMI 2.0 Configuration Menu on page 63
	• FIGURE: Remote Access Configuration Menu on page 64
	• FIGURE: PCI Option ROM Configuration Menu on page 65
	• FIGURE: Trusted Computing Menu on page 66
Boot Setting	Configure the boot settings to decrease boot time. (See FIGURE: Boot Setting Menu on page 67.)
Boot Device	Configure the boot device priority (hard disk drives and the ATAPI DVD-ROM drive). (See FIGURE: Boot Device Priority Configuration Menu on page 68.)
Security	Install or change the user and supervisor passwords. (See FIGURE: Security Settings Menu on page 69.)
Exit	Save or discard changes, or load optimal default BIOS settings. (See FIGURE: Exit Menu on page 70.)

FIGURE: BIOS Setup Menu

```
Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
 Main  Advanced  Boot  Security  Exit
**********************************************************************
*  System Overview                             ▲*Set the Date. Use Tab  *
*                                              **to switch between Data  *
*  AMIBIOS                                      **elements.              *
*  Version                1.01                  **                       *
*  Build Date             04/14/2010            **                       *
*                                               **                       *
*  Product Name           CP3270                **                       *
*  Board Serial Number    0328MSL-0951D2000B    **                       *
*  BMC Firmware Revision  1.0.0                  **                       *
*  CPLD Revision          08                     **************************
*                                               **><:      Select Screen  *
*  Processor                                    **^v:      Select Item    *
*  Intel(R) Xeon(R) CPU         C5518  @ 1.73GHz **Enter:   Select         *
*  Speed     : 1729 MHz                         **+/-:     Change Option  *
*  Count     : 2                                **F1:      General Help    *
*                                               **F9:      Load Defaults   *
*  System Memory                                **F10:     Save and Exit   *
*  Total Memory           16384 MB              ▼*ESC:     Exit            *
*                                               *                         *
**********************************************************************
           Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: BIOS Advanced Configuration Menu

```
        Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
    Main  Advanced  Boot  Security  Exit
*********************************************************************************
*  Advanced Settings                            *Spread Spectrum            *
*                                               *enabled/disabled           *
*  Spread Spectrum          [Enabled]           *                           *
*  Wait For F1 If Error     [Enabled]           *                           *
*                                               *                           *
** Trusted Computing                            *                           *
** WHEA Configuration                           *                           *
** CPU Configuration                            *                           *
** Persistent Memory                            *                           *
** Event Log Configuration                      ***************************
** PCI Express Configuration                    *><:      Select Screen     *
** SATA Configuration                           *^v:      Select Item       *
** PCI Option ROM Configuration                 *Enter:   Select            *
** IPMI 2.0 Configuration                        *+/-:     Change Option     *
** USB Configuration                            *F1:      General Help      *
** Super IO Configuration                       *F9:      Load Defaults     *
** Serial Port Console Redirection              *F10:     Save and Exit     *
*                                               *ESC:     Exit▯             *
*                                               *                           *
*********************************************************************************
                   Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: CPU Configuration Menu

```
      Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
         Advanced
******************************************************************************
*  CPU Configuration                          ▲*Enabled for Windows XP    *
*                                             **and Linux (OS optimized   *
*  Processor Type       Intel(R) Xeon(R) CPU  **for Hyper-Threading       *
*  EMT64                Supported             **Technology) and           *
*  Processor Speed      1729 MHz              **Disabled for other OS     *
*  Processor Stepping   106e4                 **(OS not optimized for     *
*  Microcode Revision   ffff0002              **Hyper-Threading           *
*  Processor Cores      4                     **Technology). When         *
*  Cache L1             32 KB                  **Disabled only one         *
*  Cache L2             256 KB                ***************************
*  Intel HT Technology  Supported            **><:     Select Screen      *
*                                             **^v:     Select Item        *
*  Hyper-threading      [Enabled]            **Enter:  Select            *
*  Active Processor Core [All]               **+/-:    Change Option      *
*  Limit CPUID Maximum  [Disabled]           **F1:     General Help       *
*  Execute Disable Bit  [Enabled]            **F9:     Load Defaults      *
*  Hardware Prefetcher  [Enabled]            **F10:    Save and Exit      *
*  Cache Line Prefetch  [Enabled]            ▼*ESC:    Exit▯              *
*                                             *                           *
******************************************************************************
             Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: IDE Configuration Menu

```
        Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
           Advanced
*********************************************************************************
*   SATA Configuration                             *Select IDE / AHCI Mode    *
*                                                   *                          *
*   SATA Port0              Not Present             *                          *
*   SATA Port1              Not Present             *                          *
*                                                   *                          *
*   SATA Mode               [IDE Mode]              *                          *
*   SATA Controller         [Compatible]            *                          *
*                                                   *                          *
*                                                   *                          *
*                                                   ****************************
*                                                   *><:       Select Screen   *
*                                                   *^v:       Select Item      *
*                                                   *Enter:    Select           *
*                                                   *+/-:      Change Option     *
*                                                   *F1:       General Help     *
*                                                   *F9:       Load Defaults    *
*                                                   *F10:      Save and Exit    *
*                                                   *ESC:      Exit□            *
*                                                   *                          *
*********************************************************************************
                  Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: USB Configuration Menu

```
         Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
           Advanced
*****************************************************************************
*  USB Configuration                                 *Enables Legacy USB    *
*                                                     *support. AUTO option  *
*  USB Devices:                                       *disables legacy support*
*        1 Keyboard, 1 Hub                            *if no USB devices are  *
*                                                     *connected. DISABLE     *
*  Legacy USB Support          [Enabled]              *option will keep USB   *
*  EHCI Hand-off               [Enabled]              *devices available only *
*  Device Reset timeout        [20 sec]               *for EFI applications.  *
*                                                     *                       *
*                                                     *************************
*                                                     *><:      Select Screen *
*                                                     *^v:      Select Item    *
*                                                     *Enter:   Select         *
*                                                     *+/-:     Change Option  *
*                                                     *F1:      General Help   *
*                                                     *F9:      Load Defaults  *
*                                                     *F10:     Save and Exit  *
*                                                     *ESC:     Exit□          *
*                                                     *                       *
*****************************************************************************
             Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Event Log Control Menu

```
      Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
          Advanced
*****************************************************************************
*  Event Log                                       *Choose options for      *
*                                                  *erasing Smbios Event     *
*  Clear Event Log              [No]               *Log.  Erasing is done    *
*                                                  *prior to any logging     *
*  View Smbios Event Log                           *activation during reset. *
*                                                  *                         *
*                                                  *                         *
*                                                  *                         *
*                                                  *                         *
*                                                  ***************************
*                                                  *><:      Select Screen   *
*                                                  *^v:      Select Item      *
*                                                  *Enter:   Select          *
*                                                  *+/-:     Change Option    *
*                                                  *F1:      General Help     *
*                                                  *F9:      Load Defaults    *
*                                                  *F10:     Save and Exit    *
*                                                  *ESC:     Exit[]           *
*                                                  *                         *
*****************************************************************************
               Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: IPMI 2.0 Configuration Menu


```
        Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
         Advanced
*******************************************************************************
*   IPMI 2.0 Configuration                         *Allows the BMC to reset   *
*                                                  *or power down the         *
*   Status Of BMC              Working             *system if the operating   *
*   BMC WDT Action             [Disabled]          *system crashes or hangs.  *
*                                                  *                          *
*                                                  *                          *
*                                                  *                          *
*                                                  *                          *
*                                                  *                          *
*                                                  ***************************
*                                                  *><:      Select Screen    *
*                                                  *^v:      Select Item      *
*                                                  *Enter:   Select           *
*                                                  *+/-:     Change Option     *
*                                                  *F1:      General Help      *
*                                                  *F9:      Load Defaults     *
*                                                  *F10:     Save and Exit     *
*                                                  *ESC:     Exit□             *
*                                                  *                          *
*******************************************************************************
              Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Remote Access Configuration Menu

```
         Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
              Advanced
**********************************************************************
*                                              *The settings specify  *
*   COM1                                        *how the host computer  *
*   Console Redirection      [Enabled]          *and the remote computer *
** Console Redirection Settings                 *(which the user is     *
*                                              *using) will exchange   *
*   Serial Port for Out-of-Band Management/     *data. Both computers   *
*   Windows Emergency Management Services (EMS) *should have the same or *
*   Console Redirection      [Enabled]          *compatible settings.   *
*   Out-of-Band Mgmt Port    COM1               *                       *
*   Data Bits                8                  ***************************
*   Parity                   None               *><:       Select Screen *
*   Stop Bits                1                  *^v:       Select Item   *
*   Terminal Type            [VT-UTF8]          *Enter:    Select        *
*                                              *+/-:      Change Option *
*                                              *F1:       General Help  *
*                                              *F9:       Load Defaults *
*                                              *F10:      Save and Exit *
*                                              *ESC:      Exit          *
*                                              *                       *
**********************************************************************
              Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: PCI Option ROM Configuration Menu

```
      Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
          Advanced
 *****************************************************************************
 *                                                   *This option enables    *
 *  1G onBoard NIC ROM         [Enabled]             *execution of the 1G    *
 *  10G onBoard NIC ROM        [Disabled]            *onBoard option ROM for  *
 *  AMC Option ROM             [Enabled]             *legacy support.         *
 *  RTM Option ROM             [Enabled]             *                        *
 *                                                   *                        *
 *                                                   *                        *
 *                                                   *                        *
 *                                                   *                        *
 *                                                   **************************
 *                                                   *><:      Select Screen  *
 *                                                   *^v:      Select Item     *
 *                                                   *Enter:   Select          *
 *                                                   *+/-:     Change Option   *
 *                                                   *F1:      General Help    *
 *                                                   *F9:      Load Defaults   *
 *                                                   *F10:     Save and Exit   *
 *                                                   *ESC:     Exit□          *
 *                                                   *                        *
 *****************************************************************************
              Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Trusted Computing Menu


```
        Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
          Advanced
******************************************************************************
*  TPM Configuration                              *Enables or Disables TPM  *
*    TPM SUPPORT            [Enable]               *support. O.S. will not   *
*    TPM State              [Disabled]             *show TPM. Reset of        *
*  Pending TPM operation    [None]                 *platform is required.     *
*                                                  *                          *
*                                                  *                          *
*  Current TPM Status Information                  *                          *
*    TPM Enabled Status:    [Disabled]             *                          *
*    TPM Active Status:     [Deactivated]          *                          *
*    TPM Owner Status:      [UnOwned]              ****************************
*                                                  *><:      Select Screen    *
*                                                  *^v:      Select Item      *
*                                                  *Enter:   Select           *
*                                                  *+/-:     Change Option     *
*                                                  *F1:      General Help      *
*                                                  *F9:      Load Defaults     *
*                                                  *F10:     Save and Exit     *
*                                                  *ESC:     Exit☐             *
*                                                  *                          *
******************************************************************************
              Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Boot Setting Menu


```
       Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
     Main  Advanced  Boot  Security  Exit
*****************************************************************************
*  Boot Settings                                    *Enables/Disables Quiet  *
*                                                   *Boot option             *
*  Quiet Boot                [Disabled]             *                        *
*                                                   *                        *
*  Boot Option Priorities                           *                        *
*  Boot Option #1            [PXE: IBA GE Slot 0...] *                       *
*  Boot Option #2            [PXE: IBA GE Slot 0...] *                       *
*  Boot Option #3            [SCSI: #8200 ID06 L...] *                       *
*  Boot Option #4            [SCSI: #0300 ID00 L...] *                       *
*  Boot Option #5            [PXE: IBA GE Slot 0...] **************************
*  Boot Option #6            [PXE: IBA GE Slot 0...] *><:      Select Screen  *
*                                                   *^v:      Select Item     *
*                                                   *Enter:   Select          *
*                                                   *+/-:     Change Option   *
*                                                   *F1:      General Help    *
*                                                   *F9:      Load Defaults    *
*                                                   *F10:     Save and Exit    *
*                                                   *ESC:     Exit□           *
*                                                   *                         *
*****************************************************************************
             Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Boot Device Priority Configuration Menu


```
           Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
       Main  Advanced  Boot  Security  Exit
   ***********************************************************************
   *  Boot Settings                                    *Sets the system boot    *
   *                                                   *order                   *
   *  Quiet Boot                    [Disabled]         *                        *
   *                                                   *                        *
   *  Boot Option Pri*************** Boot Option #1 *************            *
   *  Boot Option #1 * PXE: IBA GE Slot 0200 v1335 (PCI 2:0.0) *            *
   *  Boot Option #2 * PXE: IBA GE Slot 0201 v1335 (PCI 2:0.1) *            *
   *  Boot Option #3 * SCSI: #8200 ID06 LUN0 SEAGATE   ST9300   *            *
   *  Boot Option #4 * SCSI: #0300 ID00 LUN0 HITACHI   HUC103   *            *
   *  Boot Option #5 * PXE: IBA GE Slot 0400 v1335 (PCI 4:0.0) *****************
   *  Boot Option #6 * PXE: IBA GE Slot 0401 v1335 (PCI 4:0.1) * Select Screen  *
   *                 * Disabled                                * Select Item    *
   *                 **************************************** Select           *
   *                                                    Change Option *
   *                                                   *F1:  General Help      *
   *                                                   *F9:  Load Defaults     *
   *                                                   *F10: Save and Exit     *
   *                                                   *ESC: Exit              *
   *                                                   *                        *
   ***********************************************************************
                 Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Security Settings Menu


```
          Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
     Main  Advanced  Boot  Security  Exit
****************************************************************************
*  Security Settings                              *Set Setup Administrator  *
*                                                 *Password                 *
*  Administrator Password                         *                         *
*  User Password                                  *                         *
*                                                 *                         *
*                                                 *                         *
*                                                 *                         *
*                                                 *                         *
*                                                 *                         *
*                                                 ***************************
*                                                 *><:       Select Screen  *
*                                                 *^v:       Select Item     *
*                                                 *Enter:    Select           *
*                                                 *+/-:      Change Option    *
*                                                 *F1:       General Help     *
*                                                 *F9:       Load Defaults    *
*                                                 *F10:      Save and Exit    *
*                                                 *ESC:      Exit□            *
*                                                 *                           *
****************************************************************************
               Copyright (C) 2009 American Megatrends, Inc.
```

FIGURE: Exit Menu

```
     Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.
       Main  Advanced  Boot  Security  Exit
*****************************************************************************
*  Exit Options                                  *Reset the system after  *
*                                                *saving the changes.     *
*  Save Changes and Exit                         *                        *
*  Discard Changes and Exit                      *                        *
*  Discard Changes                               *                        *
*                                                *                        *
*  Load Defaults                                 *                        *
*                                                *                        *
*                                                ***************************
*                                                *><:      Select Screen  *
*                                                *^v:      Select Item     *
*                                                *Enter:   Select          *
*                                                *+/-:     Change Option   *
*                                                *F1:      General Help    *
*                                                *F9:      Load Defaults   *
*                                                *F10:     Save and Exit   *
*                                                *ESC:     Exit[]          *
*                                                *                        *
*****************************************************************************
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```

ShMM CLI and Commands

The CLI can be used to communicate with the intelligent management controllers of
the shelf, with blade servers, and with the ShMM itself, through text commands.

The CLI is an IPMI-based set of commands that can be accessed directly or through a
higher-level management application or a script. Administrators can access the CLI
through a Telnet connection or the shelf management card serial port.

Using the CLI, operators can access information about the current state of the shelf
including current FRU population, current sensor values, threshold settings, recent
events, and overall shelf health.

For detailed instructions on using the CLI, including a list of commands and their
parameters, refer to the *Sun Netra CT 900 Server Administration and Reference Manual*
(819-1177), which is available at the following web site:

(http://docs.sun.com/app/docs/prod/n900.srvr#hic)

▼ Change POST Options

The system provides a rudimentary POST that runs each time the blade server boots to check the basic devices required for the system to operate.

The progress of the self-test is indicated by a series of POST codes.

You can configure the level of POST testing and some POST display features through the BIOS menus (see "BIOS Screens" on page 56).

1. Initialize the BIOS Setup utility by pressing the F2 key while the system is performing the POST.

The BIOS Main Menu screen is displayed. See "BIOS Screen Navigation" on page 53.

2. From the BIOS Main Menu screen, select the Boot menu.

3. From the Boot Settings screen, select Boot Settings Configuration.

4. On the Boot Settings Configuration screen, you can enable or disable the options shown in the following table.

Option	Description
Quick Boot	This option is disabled by default. If you enable Quick Boot, the BIOS skips certain tests while booting, such as the extensive memory test. This decreases the time it takes for the system to boot.
Quiet Boot	This option is disabled by default.

▼ View Electronic Blade Server ID

The blade server can be electronically identified through its IPMI FRU ID PROM, which is accessible through standard `fru` utilities.

The IPMI FRU ID PROM format follows the Intel Specification *IPMI Platform Management FRU Information Storage Definition, v1.0 Document, Revision 1.1,* September 27, 1999.

The IPMI FRU ID manufacturing records match Oracle part number and serial number labels on the product. For more information about part number and serial number labels, see "Part Number, Serial Number, and MAC Address Label Locations" on page 125.

The IPMI FRU ID contains six FRU ID areas, which are defined in the following table.

FRU Area	Description
COMMON HEADER	Contains header and pointers to other FRUID sections and is used by fruutility software
INTERNAL USE AREA	Not present
CHASSIS INFO AREA	Not present
BOARD INFO AREA	Contains the manufacturing record without memory (FRU part number) for the FRU level assembly of the blade server. This assembly level is equivalent to the FRU replacement that is received from Oracle Service. • Mfg Date/Time = (date/time of blade server assembly) • Manufacturer = (manufacturer name) • Product Name = CP3270 • Serial Number = *XXXXXXX-XXXXXXXXXX* (Oracle 18-digit format) • Part Number = *000000000PPPPPPPDDRR* (Oracle part number) where 0 = Leading zeroes, P= part number, D= dash, R=rev
PRODUCT INFO AREA	Contains manufacturing record for configured blade server with memory. This assembly level includes the base blade server (FRU) plus memory. • Manufacturer = (manufacturer name) • Product Name = CP3270 • Part/Model Number = *000000000PPPPPPPDDRR* (Oracle part number) where 0 = leading zeroes, P= part number, D= dash, R= rev • Product Version = XXXX (dash/rev) • Serial Number = *XXXXXXX-XXXXXXXXXX* (Oracle 18-digit format)
MULTIRECORD INFO AREA	Oracle Internal Use Only

1. **To view blade FRU information, type the following command:**

```
# clia fruinfo board <slot-n>
```

where *slot-n* is the slot number for which blade you want to display data.

2. To view midplane FRU information, type the following command:

```
# clia fruinfo 20 n
```

where *n* is the FRU number (1 or 2) for which you want to display data.

▼ Restore the BIOS Settings

Reset jumper 11 to clear the CMOS settings, which restores the default BIOS settings.

The jumper housing should be stored in the J2/J4 position, which is the run position.

1. Remove the blade server.

See "Remove the Blade Server" on page 112.

2. Remove the jumper housing from the run position (J2/J4), and move it to the reset position (J1/J2).

FIGURE: Jumper Locations and Settings
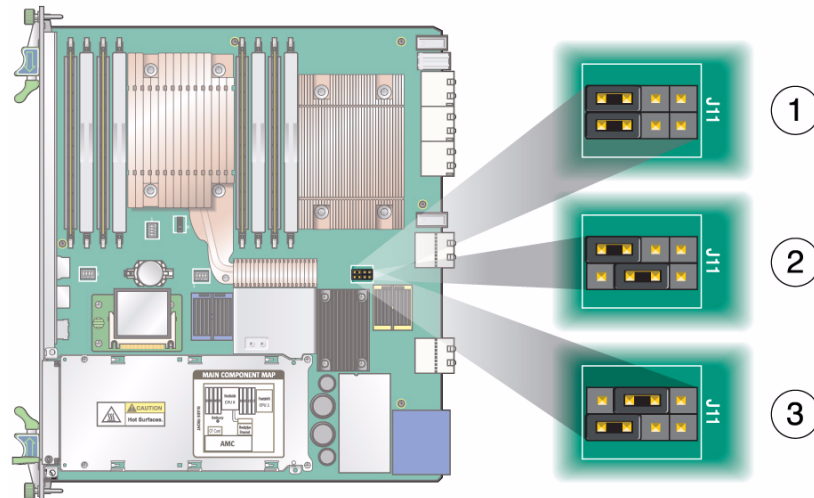
Figure Legend

1	Default jumper settings
2	Clear CMOS settings
3	Clear RTC settings

3. **Wait at least one second for the CMOS settings to reset, then move the jumper housing back to the run position.**

4. **Reinstall the blade server.**

   See "Installing Components and Blade Server" on page 28.

Related Information

- "Boot From Secondary BIOS" on page 51
- "Change BIOS Parameters" on page 55
- "Change POST Options" on page 71
- "BIOS Settings" on page 52

▼ Change the OOS LED Color

The color of the OOS LED can be set to red or amber by moving jumper 18 to the appropriate position. Amber is the default color for the OOS LED.
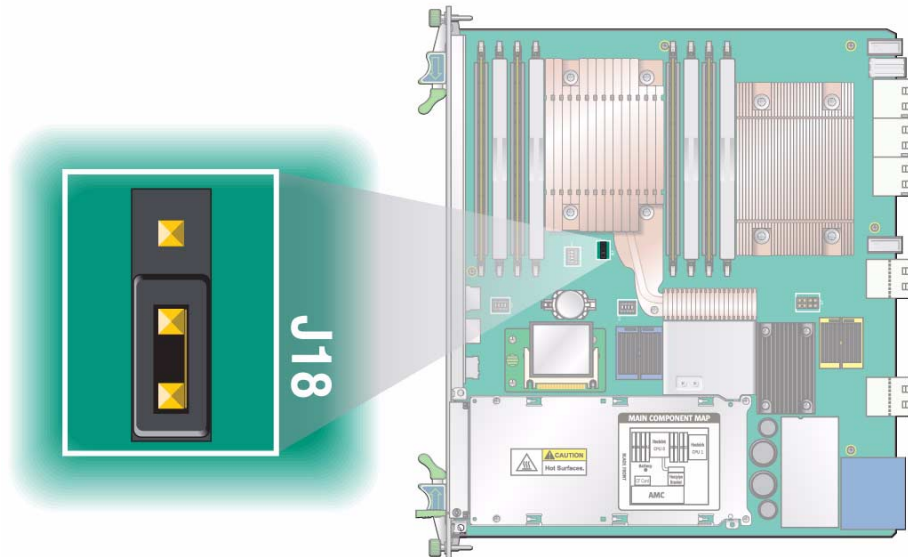
1. **Remove the blade server.**

    See "Remove the Blade Server" on page 112.

2. **Remove the jumper housing from the default (amber) position (P2/P3) and move it to the red position (P1/P2).**

3. **Reinstall the blade server.**

    See "Installing Components and Blade Server" on page 28.

Related Information

- "View Electronic Blade Server ID" on page 71
- "Locate MAC Address on Blade Server" on page 96
- "Reset the System Time and Date" on page 75
- "Replacing a Blade Server" on page 111
- "Removing Optional Components" on page 114

▼ Reset the System Time and Date

1. **Enter the BIOS Setup utility by pressing the F2 key.**

2. **Press and release the right arrow key until the Exit menu is selected, then press the Enter key.**

3. **Select the Load Optimal Defaults option and press the Enter key.**

4. **Use the arrow keys to return to the BIOS Main Menu.**

5. **Use the arrow keys to move down the main menu and reset the System Time and System Date fields.**

6. **Use the arrow keys to move to the Exit Menu.**

7. **Choose Save Changes -> Exit.**

8. **Click OK to confirm the changes you made.**

Related Information

- "Performing a Server Recovery" on page 50
- "Automatic Power-Off Events" on page 50

Configuring Ports and Pins

The following topics provide information about how to customize your configuration of connectors (ports and pins).

For descriptions of supported components, see "Evaluating Product Compatibility" on page 1.

- "Front Connectors" on page 76
- "On-Board Connectors" on page 79
- "Backplane Connectors" on page 82

Related Information

- "Networking and I/O" on page 8
- "Advanced Rear Transition Module Connectors (Zone 3)" on page 88
- "Map Netinstall Boot Devices" on page 97
- "BIOS Screen Navigation" on page 53
- "Keys for Directing Output to Remote Systems" on page 53
- "Emulated Terminal Types and Key Mapping" on page 54

Front Connectors

The front panel has the following connectors, as shown in the following figure:

- One 10/100/1000BASE-T Ethernet port (RJ-45), described in "Ethernet Port" on page 77
- Two USB ports, described in "USB Ports" on page 78
- One serial port (RJ-45) described in "Serial Port" on page 79

FIGURE: Ports on the Blade Server
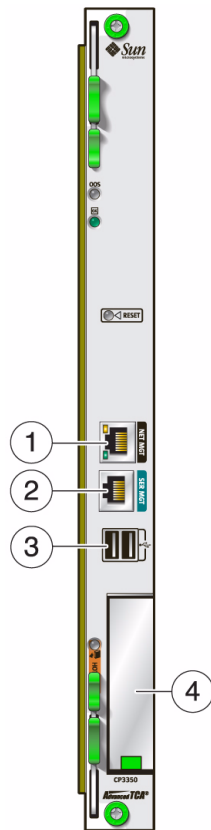
Figure Legend

1	Ethernet port
2	Serial port
3	USB ports
4	AMC slot

Ethernet Port

The Ethernet connector is an RJ-45 connector. The controller autonegotiates to either 10 BASE-T, 100 BASE-T, or 1000 BASE-T.
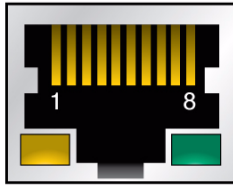
See the following table for the Ethernet port pin assignments.

Pin	Signal Name	Pin	Signal Name
1	DA+	5	DC-
2	DA-	6	DB-
3	DB+	7	DD+
4	DC-	8	DD-

USB Ports

The following figure shows the connectors for the front panel USB ports.
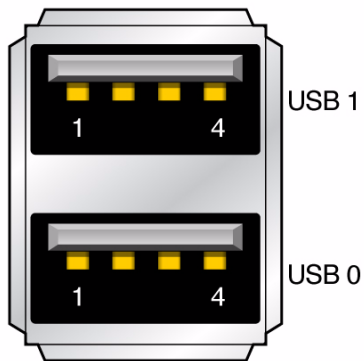
The following table lists the pin assignments.

Pin	Signal Name	Description
1	VCC	+5 VDA (500ma)
2	D-	Data-
3	D+	Data+
4	GND	Ground

Serial Port

The following figure shows the connectors for the front panel serial port.

FIGURE: Serial Port Connector
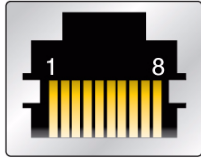
The following table lists the pin assignments.

Pin	Signal Name	Pin	Signal Name
1	RTS	5	GND
2	DTR	6	RXD
3	TXD	7	DSR
4	GND	8	CTS

On-Board Connectors

The following on-board connectors are available:

- "AMC Connector" on page 79
- "DDR3 DIMM Connector" on page 81
- "Compact Flash Connector" on page 82

AMC Connector

The support for an AMC is described in "Advanced Mezzanine Card Support" on page 13.

One 170-pin connector provides the AMC connection. The connector and pinouts are defined by the industry-standard specification PICMG Advanced Mezzanine Cards AMC.0 Specification R1.0 ECR-002 D0.9, June 29, 2006.

The AMC slot is available at the front of the blade server (see "On-Board Connectors" on page 79). The AMC can be accessed from the front, depending on the features of the AMC, or through an optional advanced rear transition module (ARTM).

The following table lists the AMC port pin mapping.

			TCLKA
TCLKA	Basic connector	Clocks	TCLKA
TCLKB			TCLKB
FCLKA			FCLKA
0		Common options region	Serdes 1G Lan -1
1			Serdes 1G Lan - 2
2			SAS-RTM 0
3			SAS-RTM 2
4		Fat pipes region	PCIe - 0
5			PCIe - 1
6			PCIe - 2
			PCIe - 3
8	Extended connector		PCIe - 4
9			PCIe - 5
10			PCIe - 6
11			PCIe - 7
12		Extended options region	EO - RTM Group 12
13			EO - RTM Group 13
14			EO - RTM Group 14
15			EO - RTM Group 15
TCLKC/D			TCLKC/D
17			EO - RTM Group 17
18			EO - RTM Group 18
19			EO - RTM Group 19
20			EO - RTM Group 20

DDR3 DIMM Connector

The DIMM connector is located on the blade server, as shown in the following figure.

B	B	A	A	Channel	D	D	C	C
B0	B1	A0	A1	Slot	D0	D1	C0	C1
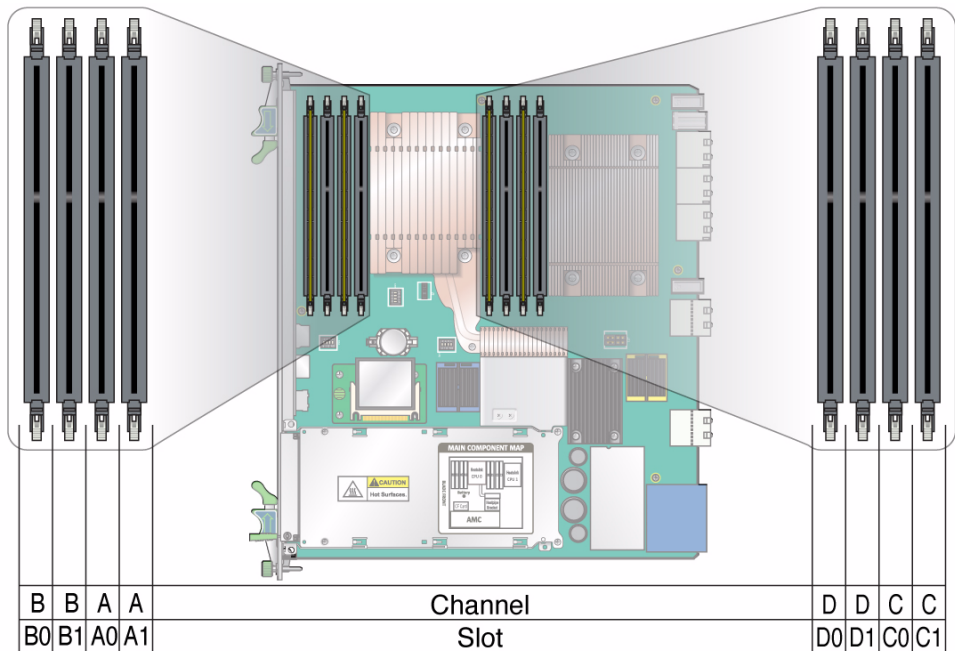
For a description of on-board memory support, see "Memory" on page 8.

Compact Flash Connector

One Compact Flash Type II connector provides 16 GB of user flash. Socket is accessible only when blade is removed from chassis. The following figure shows the connectors.
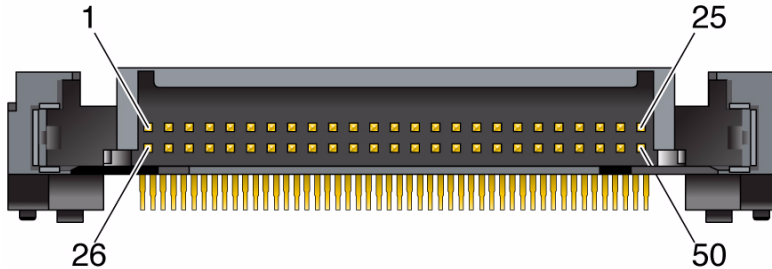
Related Information

- "Zone 3 AMC I/O (J31) Connector Pin Assignments" on page 91
- "AMC Connector" on page 79
- "Zone 3 Signal Descriptions" on page 94

Backplane Connectors

The backplane has the following connectors, as shown in the following figure.

- "Power Distribution Connector (Zone 1)" on page 83.
- "Data Transport Connectors (Zone 2)" on page 86.
- "Advanced Rear Transition Module Connectors (Zone 3)" on page 88.

FIGURE: Backplane Connectors
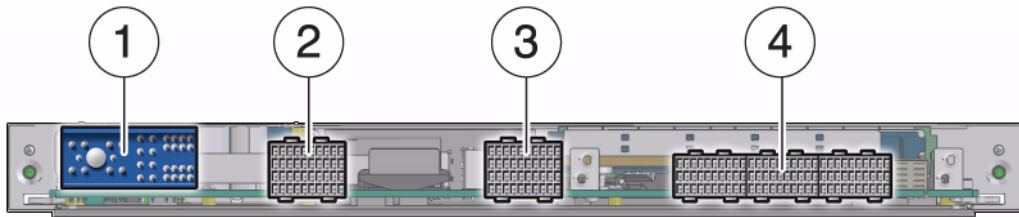
Figure Legend

1	Power connectors (Zone 1)
2	Data transport connectors (Zone 2)
3	Data transport connectors (Zone 2)
4	ARTM connectors (Zone 3)

Power Distribution Connector (Zone 1)

The blade server uses a 34-pin Positronic connector as the Zone 1 power distribution connector, as shown in the following figure. The J carrier is on the motherboard and the mating P carrier is on the midplane. Zone 1 provides the support for the following signals:

- 2 -48 VDC power feeds (four signals each; eight signals total)
- 2 IPMB ports (two signals each; four signals total)
- Geographic address (eight signals)
- 2 ground pins
- 12 unpopulated pins
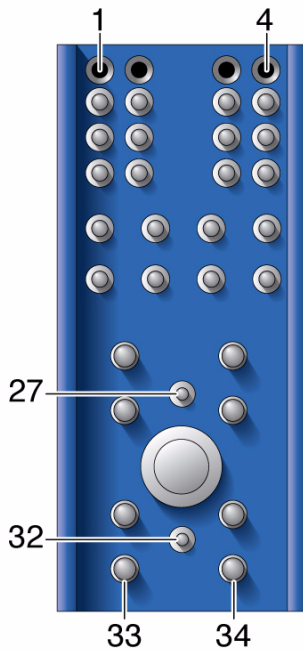
The analog test and ring voltage pins are left unconnected. The following table lists the pin assignments.

TABLE: Power Distribution Connector Pin Assignments

Pin No.	Signal	Description
1	Reserved	Reserved
2	Reserved	Reserved
3	Reserved	Reserved
4	Reserved	Reserved
5	GA0	Geographic Address Bit 0
6	GA1	Geographic Address Bit 1
7	GA2	Geographic Address Bit 2
8	GA3	Geographic Address Bit 3
9	GA4	Geographic Address Bit 4
10	GA5	Geographic Address Bit 5
11	GA6	Geographic Address Bit 6

TABLE: Power Distribution Connector Pin Assignments *(Continued)*

Pin No.	Signal	Description
12	GA7/P	Geographic Address Bit 7 (Odd Parity Bit)
13	IPMB_CLK_A	IPMB Bus A Clock
14	IPMB_DAT_A	IPMB Bus A Data
15	IPMB_CLK_B	IPMB Bus B Clock
16	IPMB_DAT_B	IPMB Bus B Data
17	Unused	No Connection
18	Unused	No Connection
19	Unused	No Connection
20	Unused	No Connection
21	Unused	No Connection
22	Unused	No Connection
23	Unused	No Connection
24	Unused	No Connection
25	EMI_GND	EMI Chassis Ground
26	LOGIC_GND	Ground Reference for Card Logic
27	ENABLE_B	Enable DC-DC conv, B Feed
28	VRTN_A	Voltage Return A, -48 V Return
29	VRTN_B	Voltage Return B, -48 V Return
30	Unused	No Connection
31	Unused	No Connection
32	ENABLE_A	Enable DC-DC conv, A Feed
33	-48V_A	-48V A
34	-48V_B	-48V B

Data Transport Connectors (Zone 2)

The data transport connectors support 40 signal pairs, providing 200 differential pairs for a PICMG 3.0 blade server to establish connectivity with up to 15 other blade servers through a common backplane. The J carrier is on the motherboard and the mating P carrier is on the midplane.

Front connectors are labeled J20 to J24, and backplane connectors are labeled P20 to P24, with both J20 and P20 being at the top of Zone 2. The front connector is a right angle connector and contains female contacts. The backplane contains male contacts.

On the blade server, Zone 2 consists of two 120-pin HM-Zd connectors, labeled J20 and J23, with 40 differential pairs each, as shown in FIGURE: Data Transport Connector (Zone 2) on page 87.

The Zone 2 connectors provide the following signals:

- A Synchronization Clock Interface comprised of three separate and redundant clock buses.

  Blade servers can act as clock sources (master mode) or can receive the Synchronization Clocks (slave mode) in J20.

- An Update Channel Interface connecting the blade server to the backplane (4 differential signal pairs each; 16 signals total)

  Connections are governed by the system Electronic Keying (e-Keying). For pin assignments, see TABLE: J20/P20 Pin Assignments (Zone 2) on page 87.

- Two 10/100/1000BASE-T/TX Ethernet base fabric channels (four differential signal pairs each; 16 signals total)

  For pin assignments, see TABLE: J23/P23 Pin Assignments (Zone 2) on page 88.

- Two 10-Gbit XAUI/SERDES ports on the extended fabric (eight differential signal pairs each; 16 signals total)

  For pin assignments, see TABLE: J23/P23 Pin Assignments (Zone 2) on page 88.

FIGURE: Data Transport Connector (Zone 2)
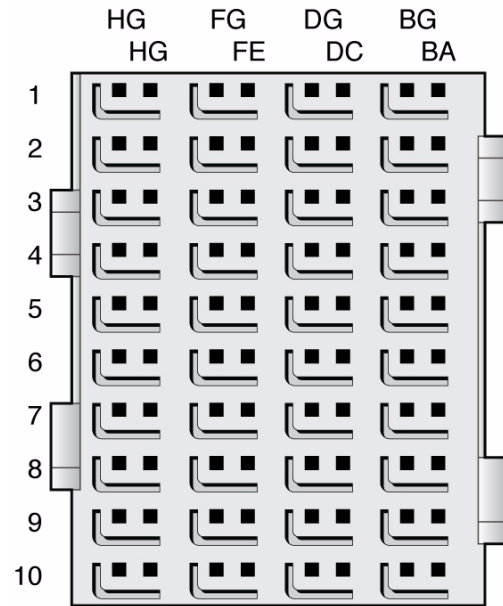
Board and backplane slots may be equipped with a complete set or a subset of the five possible ZD connectors. For example, hub boards/slots might require all five connectors, and node slots might require only P23 and P20 connectors. Node boards might require only the J23 connector.

The BG, DG, FG, and HG (G for Ground) columns contain the ground shields for the four columns of differential pairs. All pins in the BG, DG, FG, and HG columns are connected to Logic Ground.

TABLE: J20/P20 Pin Assignments (Zone 2)

Pin	A	B	C	D	E	F	G	H
1	CLK1A+	CLK1A-	CLK1B+	CLK1B-	CLK2A-	CLK2A-	CLK2B+	CLK2B-
2	No connect	No connect	No connect	No connect	CLK3A+	CLK3A-	CLK3B+	CLK3B-
3	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect
4	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect
5	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect
6	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect
7	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect

TABLE: J20/P20 Pin Assignments (Zone 2) *(Continued)*

Pin	A	B	C	D	E	F	G	H
8	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect
9	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect
10	No connect	No connect	No connect	No connect	No connect	No connect	No connect	No connect

TABLE: J23/P23 Pin Assignments (Zone 2)

Pin	Interface	AB		CD		EF		GH	
1	Fabric Channel 2	Tx2[2]+	Tx2[2]-	Rx2[2]+	Rx2[2]-	Tx3[2]+	Tx3[2]-	Rx3[2]+	Rx3[2]-
2		Tx0[2]+	Tx0[2]-	Rx0[2]+	Rx0[2]-	Tx1[2]+	Tx1[2]-	Rx1[2]+	Rx1[2]-
3	Fabric Channel 1	Tx2[1]+	Tx2[1]-	Rx2[1]+	Rx2[1]-	Tx3[1]+	Tx3[1]-	Rx3[1]+	Rx3[1]-
4		Tx0[1]+	Tx0[1]-	Rx0[1]+	Rx0[1]-	Tx1[1]+	Tx1[1]-	Rx1[1]+	Rx1[1]-
5	Base Channel 1	BI_DA1+ (Tx1+)	BI_DA1-(Tx1-)	BI_DB1+(Rx1+)	BI_DB1-(Rx1-)	BI_DC1+	BI_DC1-	BI_DD1+	BI_DD1-
6		BI_DA2+(Tx2+)	BI_DA2-(Tx2-)	BI_DB2+(Rx2+)	BI_DB2-(Rx2-)	BI_DC2+	BI_DC2-	BI_DD2+	BI_DD2-
7	N/A	unused	unused	unused	unused	unused	unused	unused	unused
8	N/A	unused	unused	unused	unused	unused	unused	unused	unused
9	N/A	unused	unused	unused	unused	unused	unused	unused	unused
10	N/A	unused	unused	unused	unused	unused	unused	unused	unused

Advanced Rear Transition Module Connectors (Zone 3)

The blade server provides all the I/O connections for rear access through the Zone 3 ARTM connectors, which support the following:

- GbE management port
- Two Gigabit Ethernet SERDES ports
- Serial port
- Two SAS interface ports
- x8 PCIe slot

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The J carrier is on the motherboard and a corresponding J carrier is on the ARTM. Zone 3 connector pins are presented from the point of view of the ATCA blade, meaning that TX means the ATCA blade is the signal source, and the ARTM is the signal receiver. Similarly, RX means the ATCA blade is the signal receiver and the ARTM is the signal source.

The "reserved" pins indicate connector pins that are currently reserved for compatibility to all ARTMs. Do not connect signals to reserved pins. The "no connect" indicates pins that should not be connected by the blade server.

The ARTM Zone 3 connectors are shown in FIGURE: ARTM Zone 3 Connectors on page 90.

For pin assignments of ARTM Zone 3, see the following:

- "Zone 3 Power (J30) Connector Pin Assignments" on page 91
- "Zone 3 AMC I/O (J31) Connector Pin Assignments" on page 91
- "Zone 3 Infrastructure (J32) Connector Pin Assignments" on page 92
- "Zone 3 PCIe (J33) Connector Pin Assignments" on page 93

For descriptions of the signals, see "Zone 3 Signal Descriptions" on page 94.

FIGURE: ARTM Zone 3 Connectors

FE DC BA

1
3
10

1
2
10

1
1
10
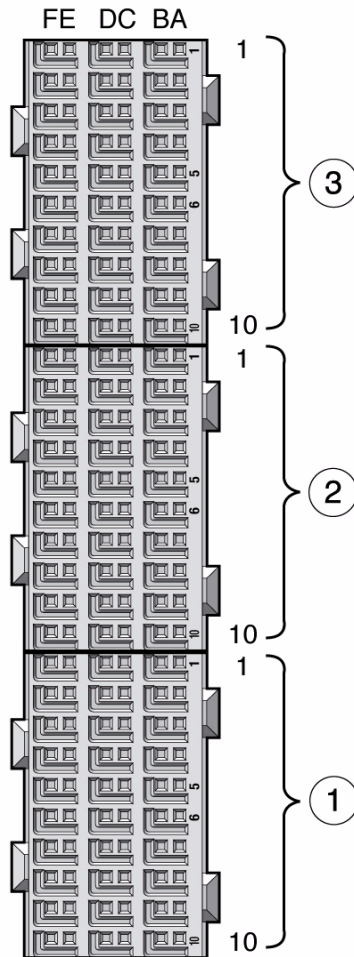
Figure Legend

1	Zone 3 J33
2	Zone 3 J32
3	Zone 3 J31

Zone 3 Power (J30) Connector Pin Assignments

The J30 connector pin assignments are used for power signals.

	1-3	4-6	Pin Length	Mating Sequence
E	PS1#	NC	Short	Last
D	+12V PP	+12V PP	Long	First
C	IPMI_SCL_L	IPMI_SDA_L	Medium	Second
B	Logic_GND	+3.3V_MP	Long	First
A	Logic_GND	Shelf_GND	Long	First

Zone 3 AMC I/O (J31) Connector Pin Assignments

The J31 connector pin assignments are used for AMC I/O RTM signals, on the AMC0 EO interface.

Pin	AB		BG	CD		DG	EF		FG
1	TX13+ (AMC0 EO_Rx1+)	TX13- (AMC0 EO_Rx1-)	GND	RX12+ (AMC0 EO_Tx0+)	RX12- (AMC0 EO_Tx0-)	GND	TX12+ (AMC0 EO_Rx0+)	TX12- (AMC0 EO_Rx0-)	GND
2	RX14+ (AMC0 EO_Tx2+)	RX14- (AMC0 EO_Tx2-)	GND	TX14+ (AMC0 EO_Rx2+)	TX14- (AMC0 EO_Rx2-)	GND	RX13+ (AMC0 EO_Tx1+)	RX13- (AMC0 EO_Tx1-)	GND
3	TX17+ (AMC0 EO_Rx4+)	TX17- (AMC0 EO_Rx4-)	GND	RX15+ (AMC0 EO_Tx3+)	RX15- (AMC0 EO_Tx3-)	GND	TX15+ (AMC0 EO_Rx3+)	TX15- (AMC0 EO_Rx3-)	GND
4	RX18+ (AMC0 EO_Tx5+)	RX18- (AMC0 EO_Tx5-)	GND	TX18+ (AMC0 EO_Rx5+)	TX18- (AMC0 EO_Rx5-)	GND	RX17+ (AMC0 EO_Tx4+)	RX17- (AMC0 EO_Tx4-)	GND
5	TX20+ (AMC0 EO_Rx7+)	TX20- (AMC0 EO_Rx7-)	GND	RX19+ (AMC0 EO_Tx6+)	RX19- (AMC0 EO_Tx6-)	GND	TX19+ (AMC0 EO_Rx6+)	TX19- (AMC0 EO_Rx6-)	GND
6	Reserved	Reserved	GND	Reserved	Reserved	GND	RX20+ (AMC0 EO_Tx7+)	RX20- (AMC0 EO_Tx7-)	GND
7	Reserved	Reserved	GND	Reserved	Reserved	GND	Reserved	Reserved	GND

Pin	AB		BG	CD		DG	EF		FG
8	Reserved	Reserved	GND	Reserved	Reserved	GND	Reserved	Reserved	GND
9	Reserved	Reserved	GND	Reserved	Reserved	GND	Reserved	Reserved	GND
10	Reserved	Reserved	GND	Reserved	Reserved	GND	Reserved	Reserved	GND

Zone 3 Infrastructure (J32) Connector Pin Assignments

The J32 connector pin assignments are used for infrastructure signals.

TABLE: J32 Pin (Infrastructure) Connector Assignments

Pin	Interface	AB		BG	CD		DG	EF		FG
1	Reserved	Reserved	Reserved	GND	Reserved	Reserved	GND	Reserved	Reserved	GND
2	SAS AMC0	SA TX0+ (AMC0 SAS0_Rx +)	SA TX0- (AMC0 SAS0_Rx -)	GND	SA RX0+ (AMC0 SAS0_Tx +)	SA RX0- (AMC0 SAS0_Tx -)	GND	RTS (Serial 0)	DTR (Serial 0)	GND
3	Reserved	Reserved	Reserved	GND	Reserved	Reserved	GND	TXD (Serial 0)	RXD (Serial 0)	GND
4	SAS AMC0	SAS TX2+ (AMC0 SAS1_Rx +)	SAS TX2- (AMC0 SAS1_Rx +)	GND	SAS RX2+ (AMC0 SAS1_Rx +)	SAS RX2- (AMC0 SAS1_Rx +)	GND	DSR (Serial 0)	CTS (Serial 0)	GND
5	Reserved	Reserved	Reserved	GND	Reserved	Reserved	GND	No Connect	No Connect	GND
6	ARTM LAN0 (Mgmt)	LAN0_A+	LAN0_A-	GND	LAN0_CTV	LAN0_CTV	GND	LAN0_B+	LAN0_B-	GND
7	ARTM LAN0 (Mgmt)	LAN0_C+	LAN0_C-	GND	ACT_LED#	LINK_LED#	GND	LAN0_D+	LAN0_D-	GND

Pin	Interface	AB		BG	CD		DG	EF		FG
8	ARTM LAN1 (SerDes)	SLAN_TX1+	SLAN_TX1-	GND	SLAN_RX1+	SLAN_RX1-	GND	No Connect	No Connect	GND
9	ARTM LAN2 and LAN4 (SerDes)	SLAN_TX2+	SLAN_TX2-	GND	SLAN_RX2+	SLAN_RX2-	GND	No Connect	No Connect	GND
10	ARTM LAN3 and LAN4 (SerDes)	No Connect	SLAN_TX3-	GND	SLAN_RX3+	SLAN_RX3-	GND	SLAN_RX4+	SLAN_RX4-	GND

Zone 3 PCIe (J33) Connector Pin Assignments

The J33 connector pin assignments are used for PCIe signals.

Row	Interface	AB		BG	CD		DG	EF		FG
1	PCIe x8 Lane	PETx0+	PETx0-	GND	PERx0+	PERx0-	GND	FCLKA+	FCLKA-	GND
2	PCIe x8 Lane	PETx1+	PETx1-	GND	PERx1+	PERx1-	GND	TCLKA+	TCLKA-	GND
3	PCIe x8 Lane	PETx2+	PETx2-	GND	PERx2+	PERx2-	GND	TCLKB+	TCLKB-	GND
4	PCIe x8 Lane	PETx3+	PETx3-	GND	PERx3+	PERx3-	GND	TCLKC+	TCLKC-	GND
5	PCIe x8 Lane	PETx4+	PETx4-	GND	PERx4+	PERx4-	GND	TCLKD+	TCLKD-	GND
6	PCIe x8 Lane	PETx5+	PETx5-	GND	PERx5+	PERx5-	GND	TCK	TMS	GND
7	PCIe x8 Lane	PETx6+	PETx6-	GND	PERx6+	PERx6-	GND	TRST#	TDO	GND

Row	Interface	AB		BG	CD		DG		EF	FG
8	PCIe x8 Lane	PETx7+	PETx7-	GND	PERx7+	PERx7-	GND	TDI	PCI_RST#	GND
9	Reserved	No Connect	No Connect	GND	No Connect	No Connect	GND	ARTM#	PCI_CFG	GND
10	Reserved	No Connect	No Connect	GND	No Connect	No Connect	GND	PS0#	Enabled#	GND

Zone 3 Signal Descriptions

TABLE: Zone 3 Signal Descriptions on page 94 provides descriptions of the signals listed in the following Zone 3 pin topics:

- "Zone 3 Power (J30) Connector Pin Assignments" on page 91
- "Zone 3 AMC I/O (J31) Connector Pin Assignments" on page 91
- "Zone 3 Infrastructure (J32) Connector Pin Assignments" on page 92
- "Zone 3 PCIe (J33) Connector Pin Assignments" on page 93

TABLE: Zone 3 Signal Descriptions

Signal Name	Description
IPMI_SCL_L	IPMI bus clock signal, as defined in AMC.0 specification. ARTM has a pull-up resistor for this signal as indicated in AMC.0 specification.
IPMI_SDA_L	IPMI bus data signal, as defined in AMC.0 specification. ARTM has a pull-up resistor for this signal as indicated in AMC.0 specification.
PS0#, PS1#	Active low ARTM present signal. The PS0# is linked to logic GND on the ATCA blade, PS1# is pulled up to 3.3V Management Power on the ATCA blade, PS0# and PS1# is connected through diode on ARTM, exactly as defined in AMC.0 specification. PS1# is last mate on Power connector and PS0# is on the opposite end of the set of connectors. Logic low on PS1# indicates that ARTM is present and fully inserted.
Enable#	When low, indicates to ARTM that it is fully inserted and that MMC can start execution. Logic high keeps MMC in reset state. This signal has a pull-up resistor as indicated in AMC.0 specification.
Shelf_GND	Frame/Chassis Safety Ground.
Logic_GND	(Logic 0vdc). Logic Ground-Common return for Management Power Payload Power, reference potential for single-ended logic signaling, and shielding for differential pair signals in the AMC connector.
12VPP	12V Payload Power, enabled after successful E-keying, following AMC.0 specification. ARTM meets requirements posted for payload power in AMC specification.

Signal Name	Description
3.3V_MP	3.3V Management Power. ARTM meets requirements posted for management power in AMC.0 specification.
RX	AMC Extended Options receive differential pair signals. Note that this specification takes ATCA blade perspective, which means that RX signals are driven by ARTM and received by ATCA blade.
TX	AMC Extended Options transmit differential pair signals. Note that this specification takes ATCA blade perspective, which means that TX signals are driven by ATCA blade and received by ARTM.
SA_TX	SAS or SATA transmit differential pair signals.
SA_RX	SAS or SATA receive differential pair signals.
Serial 0	RS-232 Serial Signals, Transmit, Receive, Clear to Send, Request to Send, Data Terminal Ready, and Data Set Ready.
LAN0	10/100/1000BASE-T signals.
LAN0_CTV	10/100/1000BASE-T transformer Center Tap signal, which could be used to terminate center tap of transformers placed on the ARTM. This signal is applicable if Ethernet PHY is located on ATCA blade, while transformers are located on ARTM.
ACT_LED#	LAN 0 (Management) activity indicator signal for LED (active low).
LINK_LED#	LAN 0 (Management) LINK indicator signal for LED (active low).
PCI_CFG	PCI Express bus configuration signal. It must be grounded on ARTMs that use a single x8 PCI Express bus and pulled up on the ATCA with 10Kohm resistor to management power. On ARTMs that expect two x4 PCI-Express buses, this pin will float (not be connected). Two x4 PCI-Express buses are intended for ARTM implementations that desire to avoid PCI-Express switch in order to reduce latency.
ARTM#	ARTM# signal must be grounded on ARTMs that implement MMC controller as defined by AMC.0 specification. This signal is pulled up with 10Kohm resistor to management power on the ATCA node blade server.
SLAN_TX	GBEthernet SerDes transmit differential pair signals.
SLAN_RX	GBEthernet SerDes receive differential pair signals.
PETx	PCI-Express transmit differential pair signals.
PERx	PCI-Express receive differential pair signals.
PCI_RST#	PCI-Express reset signal. Logic low resets downstream PCI-Express devices on ARTM.
TCLKA	PCI-Telecom clock A 19.44MHz, differential pair into ARTM (ATCA CLK2) as defined in AMC.0 specification.

Signal Name	Description
TCLKB	PCI-Telecom clock B 19.44MHz, differential pair out from ARTM (ATCA CLK3) as defined in AMC.0 specification.
TCLKC	PCI-Telecom clock C 8kHz, differential pair into ARTM (ATCA CLK1) as defined in AMC.0 specification.
TCLKD	PCI-Telecom clock D 8kHz, differential pair out from ARTM as defined in AMC.0 specification.
FCLKA	Fabric clock, as defined in AMC.0 specification. Intended to be used for PCI-Express 100 MHz spread spectrum clock.
TCK, TMS, TRST#, TDO, TDI	JTAG signals. Signal direction follows AMC.0 specification.

Administering the Network

The following topics contain information about administering the network.

-
-
-
-

Related Information

-
-

▼ Locate MAC Address on Blade Server

1. If the blade server is installed, remove the blade server.

See .

2. Locate the MAC label on the blade server as shown in the following figure.
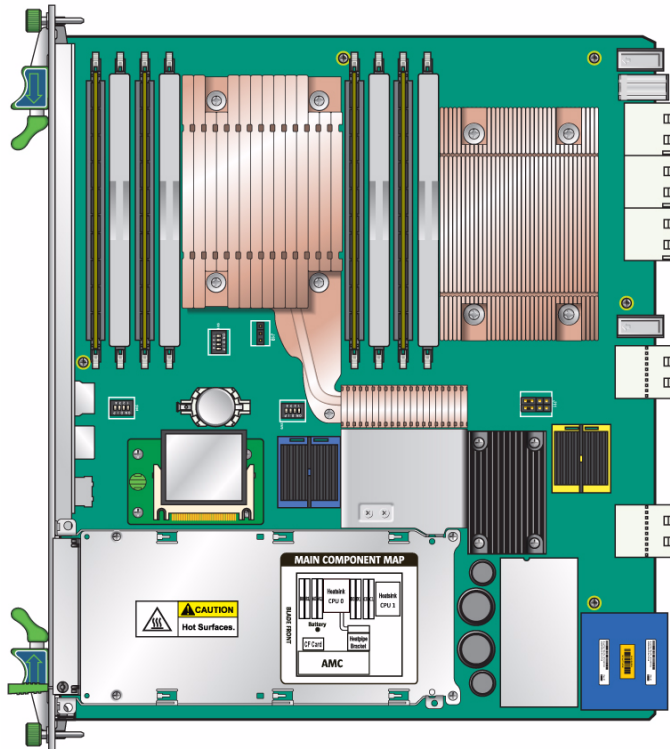
The MAC address label contains the base MAC address for the blade server in printed and barcode form. It is an orange label located on the Zone 1 connector. For a description of all the labels and their meaning, see "Part Number, Serial Number, and MAC Address Label Locations" on page 125.

3. **Install the blade server.**

   See "Installing Components and Blade Server" on page 28.

▼ Map Netinstall Boot Devices

1. **If you have not done so, connect the cables to the blade server.**

   See "Connect the External I/O Cables" on page 31.

2. **Use the mapping table to map your netinstall boot device.**

   See "Netinstall Boot Device Map" on page 34.

▼ Select the BIOS Primary

Before beginning this procedure, ensure that you have installed the serial cable as described in "Connect the External I/O Cables" on page 31.

Note – For descriptions and illustrations of the first-level BIOS menu screens, see "BIOS Screens" on page 56.

---

1. **Use terminal emulation software to configure the serial COM1 settings.**

   Use the ANSI terminal type setting.

2. **Set the serial communication settings to 9600 baud, 8 bit, 1 stop bit, no parity, and no handshake.**

3. **Reset the ATCA shelf.**

   The BIOS starts running POST.

4. **Press the F2 key to interrupt the boot and access the BIOS Main menu.**

5. **Using the arrow keys, move across the top of the screen to the Boot menu and press the Enter key.**

   The Boot Settings menu is displayed.

6. **Move down the list, select the Boot Device Priority option, and press Enter.**

   The Boot Device Priority menu is displayed.

7. **Select the applicable device and priority.**

8. **Use the arrow keys to move to the Exit menu, and press Enter.**

   The confirmation dialog box is displayed.

9. **Press Enter to select Ok.**

   The BIOS boots the selected device. The operating system on the selected boot device loads.

10. **Configure the operating system by providing a locale, system name, IP address, and other information.**

    Refer to the documentation for your operating system for information on configuring the operating system.

Related Information

- "Boot From Secondary BIOS" on page 51
- "Restore the BIOS Settings" on page 73
- "Change BIOS Parameters" on page 55

Configuring and Using Serial Over LAN

To redirect the input and output of the serial port of the blade server over IP, use SOL. Typically, the serial ports on a blade server are not connected to a serial port socket. By redirecting the IO of the serial port to the network, you can allow users to access applications on the blade server via the serial port. For example, users accessing the blade server via the serial port can telnet to a network address and log in. On the blade server, the login is routed through the serial port.

- If you are using a Sun Netra CT 900 server, all network configurations including IP, MAC, gateway, subnet and so on are automatically configured. To use SOL, set up a user account.

- If you are using a third-party chassis, enable and configure serial over LAN as described in the following topics.

Note – The following configurations and examples of setting IP, Netmask, and Gateway addresses use the generic IPMI command `setlanconfig`. The command `clia sendcmd` is a Sun Netra CT 900 ShMM wrapper interface to send generic IPMI commands.

To configure and use serial over LAN, perform the following tasks:

▼ Download and Install Software

● **If it is not already installed, download and install ipmitool 1.8.9 or newer.**
  (http://ipmitool.sourceforge.net/)

▼ Configure IP Address

Make sure the IP address is within the subnet of the chassis where the blade server is installed.

1. Read the IP address to see if it is already set.

```
# clia sendcmd board IPMB addr 0x0C 0x02 0x05 0x03 0x00 0x00
```

where *board IPMB addr* is the blade server's IPMB address, as in the following example.

```
# clia sendcmd 0x9a 0x0C 0x02 0x05 0x03 0x00 0x00
```

2. If IP address is already set, skip to "Set Up subnet Mask" on page 101**.**

3. Enter the in progress command as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x00 0x01
```

4. Set the IP address as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x03 IPAddress_byte1, byte2,
byte3, byte 4
```

where *IPAddress_byte1, byte2, byte3, byte 4* is the hardcoded address such as in the following example:

```
# clia sendcmd 0x9a 0x0C 0x01 0x05 0x00 0x01 0x0A 0x07 0x64 0xB4
```

5. Enter the commit write command as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x00 0x02
```

6. Read the IP address to ensure it is set correctly.

▼ Set Up subnet Mask

1. Read the subnet **mask to see if it is already set.**

```
# clia sendcmd board IPMB addr 0x0C 0x02 0x05 0x06 0x00 0x00
```

where *board IPMB* is the blade server's IPMB address, as in the following example.

```
# clia sendcmd 0x9a 0x0C 0x02 0x05 0x06 0x00 0x00
```

2. If subnet **mask is already set, skip to** "Set Up Default Gateway IP Address" on page 102**.**

3. Enter the in progress command as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x00 0x01
```

4. Set the subnet **mask as follows:**

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x06 four subnet mask bytes
```

as in the following example:

```
# clia sendcmd 0x9a 0x0C 0x01 0x05 0x06 0xFF 0xFF 0xFF 0x00
```

5. Enter the commit write command as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x00 0x02
```

6. Read the subnet **mask to ensure it is set correctly.**

▼ Set Up Default Gateway IP Address

Before performing the following steps, you will need to know your Gateway IP address.

1. Read the Gateway IP address to see if it is already set.

```
# clia sendcmd board IPMB addr 0x0C 0x02 0x05 0x0C 0x00 0x00
```

where *board IPMB addr* is the blade server's IPMB address, as in the following example.

```
# clia sendcmd 0x9a 0x0C 0x02 0x05 0x0C 0x00 0x00
```

2. If Gateway IP address is already set, you are finished with the configuration and can skip to "Ping the Sideband Interface" on page 103**.**

3. Enter the in progress command as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x00 0x01
```

4. Set the default Gateway IP address as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x0C Gateway IPAddress_byte1,
byte2, byte3, byte 4
```

where *Gateway IPAddress_byte1, byte2, byte3, byte 4* is the hardcoded address such as in the following example:

```
# clia sendcmd 0x9a 0x0C 0x01 0x05 0x0C 0x0A 0x07 0x64 0xFE
```

5. Enter the commit write command as follows:

```
# clia sendcmd board IPMB addr 0x0C 0x01 0x05 0x00 0x02
```

6. Read the Gateway IP address to ensure it is set correctly.

▼ Ping the Sideband Interface

After you configure the Sideband Interface and SOL, as detailed in previous tasks, run `ipmitool` to connect the console.

1. Ping the Sideband Interface:

```
# ping 10.7.100.180 PING 10.7.100.180 (10.7.100.180) 56(84) bytes
of data
64 bytes from 10.7.100.180: icmp_seq=0 ttl=54 time=78.0 ms
64 bytes from 10.7.100.180: icmp_seq=5 ttl=54 time=77.1 ms
```

If the Sideband Interface is set correctly, a response similar to that shown in the previous example will be displayed. If a response is not displayed, then either the Sideband Interface is improperly configured or something is not working on the NIC.

2. If the Sideband Interface configuration is incorrect, go back to previous tasks and reset the configuration as described.

3. If the Sideband Interface configuration is correct, yet the ping results in no reponse, check the status of the NIC.

```
# clia sendcmd board IPMB addr 2E 8D 00 00 2A 00 00
# clia sendcmd 9a 2E 8D 00 00 2A 00 00
Pigeon Point Shelf Manager Command Line Interpreter
Completion code: 0x0 (0)
Response data: 00 00 2A B2 00
```

In the example above, B2 means NIC is working. However, if the response byte's lower number = 0, it means the NIC is resetting. A NIC in reset mode might mean that the payload is still waiting for an AMC to come up before releasing the payload reset.

▼ Open SOL Session

You will need ipmitool version 1.8.9 or newer to open a SOL session. Older versions might work, however, they are not supported.

For information about cipher suits, refer to the SOL specification, version 0.6 or newer.

For detailed information about SOL, refer to *Intelligent Platform Management Interface Specification v2.0*.

1. **If using the blade server in a Sun Netra CT 900 server, enter the following command:**

```
# clia console blade slot n -C n
```

where *blade slot n* is the blade server slot number and *n* is the cipher suit number (1-3) in which you want to open the SOL session. Cipher suite 0 is not supported.

Refer to *Sun Netra CT 900 Server Administration and Reference Manual* (819-1177) for more information about starting SOL on a netconsole.

2. **If using the blade server in a third-party chassis, enter the following command:**

```
# ipmitool -C n -I lanplus -H 10.7.100.180 -U soluser -k gkey sol
activate
```

where *n* is the cipher suit number (1-3) in which you want to open the SOL session, and *soluser* is the user name. Cipher suite 0 is not supported.

3. **Enter your password.**

Related Information

■ "Create or Modify SOL User Name and Password" on page 104

▼ Create or Modify SOL User Name and Password

Use the ShMM CLI to create or modify a user account and password for SOL sessions. Access to the commands are disabled from ipmitool. For detailed information about using the ShMM CLI and commands, refer to the *Netra CT 900 Server Administration and Reference Manual* (819-1177).

SOL implementation supports two users. A mandatory null user with user id 1 and a second user with user id 2. Default user name and password for user id 2 is soluser and solpasswd. The user name and password string should be null terminated. The command expects 16 bytes. Pad unused bytes with zeros. The default user name and password can be used, or you can change the user name and password.

Note – If using the blade server in a Sun Netra CT 900 chassis, retain the default user name and password, which is secured through VLAN tagging.

---

1. **To change the user name from the default soluser, enter the following command at the ShMM CLI:**

```
# clia sendcmd 9a 06 45 02 72 61 6a 65 65 76 0 0 0 0 0 0 0 0 0 0
Pigeon Point Shelf Manager Command Line Interpreter
Completion code: 0x0 (0)
```

   where *72 61 6a 65 65 76* are the ASCII characters for the new user name being set.

2. **To change the password from the default solpasswd, enter the following command at the ShMM CLI:**

```
# clia sendcmd 9a 06 47 2 2 61 62 63 64 65 66 0 0 0 0 0 0 0 0 0 0
Pigeon Point Shelf Manager Command Line Interpreter
Completion code: 0x0 (0)
```

   where *61 62 63 64 65 66* are the ascii equivalents of the alpha characters being used for the password. In this example, the password would be "abcdef."

3. **To verify that the user name and password changes are accepted, read the settings by entering the following command:**

```
# ipmitool -I lan -H 10.7.100.180 -P "" channel getaccess 0xe 2
Maximum User IDs: 2
Enabled User IDs: 2
User ID: 2
User Name: name
Fixed Name: No
Access Available: call-in/callback
Link Authentication: enabled
IPMI Messaging: enabled
Privilege Level: USER
```

   where in place of *name*, the user's name is displayed.

SOL Timeout Settings

The OEM command `Set SOL Fail over Link change timeouts` allows you to set the time out period for when IPMC switches over to the secondary link because the primary fails. This setting also specifies how long to wait before switching back to the primary when it becomes available.

Note – Default settings are recommended over user-customized settings.

For information about how to set SOL failover link change timeouts, refer to the *Sun Netra CT 900 Server Administration and Reference Manual* (819-1177).

For detailed information about SOL, refer to *Intelligent Platform Management Interface Specification v2.0*.

Administering User Accounts and Security

Most of the information and procedures for administering user accounts and security is located in the *Netra CT 900 Server Administration and Reference Manual* (819-1177), which is located online at:

`(http://docs.sun.com/app/docs/prod/n900.srvr#hic)`

▼ Setting Passwords

You must set the Supervisor password before you can set the User password. The Supervisor password sets the desired access level for the User password.

1. **To reset BIOS passwords, clear the CMOS settings by resetting Jumper 2.**

   See "Restore the BIOS Settings" on page 73 for details.

2. **Enter the BIOS Setup utility by pressing the F2 key on the keyboard while the system is performing the POST.**

3. **Using the arrow keys, move across the top of the screen to the Security menu and press the Enter key.**

   The Security Settings Menu is displayed.

4. **Move down the list, select the Change Supervisor Password or Change User Password option, and press Enter.**

   The Change Password menu is displayed.

5. **Type a password, then press Enter.**

6. **Use the arrow keys to move to the Exit Menu.**

7. **Click OK to confirm the changes you made.**

Related Information

- "Administering Parameters and Configurations" on page 52
- "Administering the Network" on page 96
- "ShMM CLI and Commands" on page 70

Servicing the Blade Server

This user's guide contains service procedures specific to the Sun Netra CP3270 ATCA blade server. Additionally, procedures and reference information for the blade server and all Sun Netra blade servers and optional components is available in the following documentation:

- *Netra CT 900 Server Service Manual* (819-1176)
- *Netra CT 900 Server Administration and Reference Manual* (819-1177)

`(http://docs.sun.com/app/docs/prod/n900.srvr#hic)`

Related Information

LEDs and Status Indicators

LED	Color	Description
Hot-Swap	Blue	Steady on indicates that board is safe for removal (hot-swap activity) Blinking when hot-swap in progress
OK	Green	Healthy status
OOS	Red or Amber	Fault condition

If an error or malfunction occurs on the blade server or its installed optional components, the OOS LED lights (see "Front and Side Views" on page 3). The OOS LED can be set to red or amber.

Comprehensive coverage of service actions, fault origins, logs, and configurations are covered in the *Netra CT 900 Server Service Manual* (819-1176), which is available online at:

`(http://docs.sun.com/app/docs/prod/n900.srvr#hic)`

Related Information

- "Change the OOS LED Color" on page 74
- "Configuring Ports and Pins" on page 76
- "Reset the Blade Server" on page 110
- "Performing a Server Recovery" on page 50
- "Administering Parameters and Configurations" on page 52

▼ Reset the Blade Server

Caution – Do not operate the ATCA shelf without all fans, component heatsinks, air baffles, filler panels, and covers installed. Severe damage to components can occur if the ATCA shelf is operated without adequate cooling mechanisms.

1. **Use a spudger tool or other stylus to press and release the recessed Reset button on the front of the blade server.**
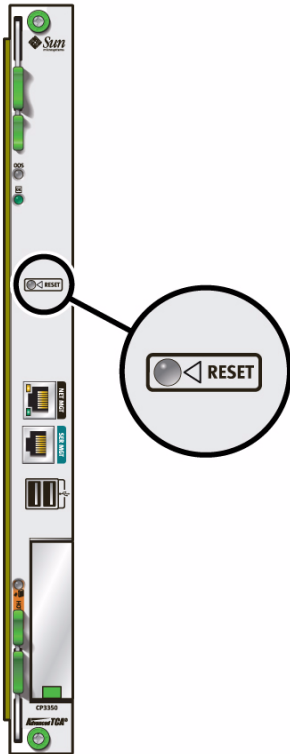
2. Confirm the progress of the reset by monitoring the BIOS POST messages.

Replacing a Blade Server

You can remove (hot-swap) the blade server without powering off the entire chassis by performing the following steps.

- "Power Off the Blade Server" on page 112
- "Remove the Blade Server" on page 112
- "Installing Components and Blade Server" on page 28

Related Information

- "Reset the Blade Server" on page 110
- "LEDs and Status Indicators" on page 110

■ "Safety Requirements" on page 26

▼ Power Off the Blade Server

1. Shut down the operating system.

Log in and shut down any OS operating on the blade server or its companion ARTM.

2. Log in to the shelf manager and deactivate the blade server in the target slot.

See "ShMM CLI and Commands" on page 70.

For example, to shut down the blade server in slot 3, log in to the shelf manager and type:

```
# clia deactivate board 3
```

▼ Remove the Blade Server

⚠ **Caution –** Do not place blade servers on top of an antistatic bag unless the outside of the bag also has antistatic protective properties.

1. Power off the blade server.

2. Move the front cable management bracket to the lower position.
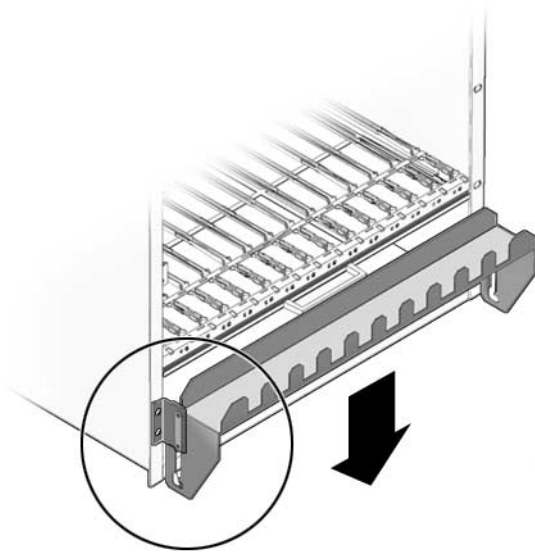
3. **Remove all cables from the blade server.**

4. **Loosen the locking screws to release the blade server from the ATCA shelf.**

5. **When the blue Hot-Swap LED lights steadily, release the upper latch and the lower latch at the same time to unseat the blade server from the connectors.**

6. **Remove the blade server from the ATCA shelf and place the blade server on an antistatic mat.**

7. **Remove any optional components installed on the blade.**

   See "Removing Optional Components" on page 114.

8. **Install a replacement blade server or a filler panel.**

   See "Installing Components and Blade Server" on page 28.

Note – If transferring the same optional components from the old blade server to the new one, install optional components before installing the replacement blade server.

Caution – Failure to cover all open slots with filler panels can negatively impact the cooling of the system.

Related Information

Removing Optional Components

The following topics provide instructions for removing optional components from blade servers.

Related Information

▼ Remove an AMC

This topic contains general instructions for removing an AMC. For specific information and instructions, refer to the AMC product documentation for your AMC.

⚠️ **Caution –** Before removing an AMC, read all cautions, warnings, and instructions in "Safety Requirements" on page 26.

1. Shut down the payload OS.

Removing a board before powering down the operating system might cause an OS panic, which could corrupt data or file systems.

2. Take antistatic precautions: attach and electrically ground the wrist strap.

⚠ **Caution –** Always wear a grounded antistatic wrist strap when handling AMCs and blade servers.

3. If you want to remove both the AMC and the blade server, go to "Remove the Blade Server" on page 112**.**

4. At the front of the blade server, locate the AMC you want to remove.

5. For the AMC, initiate the hot-swap deactivation sequence by pulling the injector/ejector latch out half way, as shown in the figure.

The Hot-Swap LED starts blinking.

6. Wait until the Hot-Swap LED is solid blue.

7. When the Hot-Swap LED is solid blue, pull the injector/ejector latch out completely, as shown in the figures.

FIGURE: Deactivating the AMC
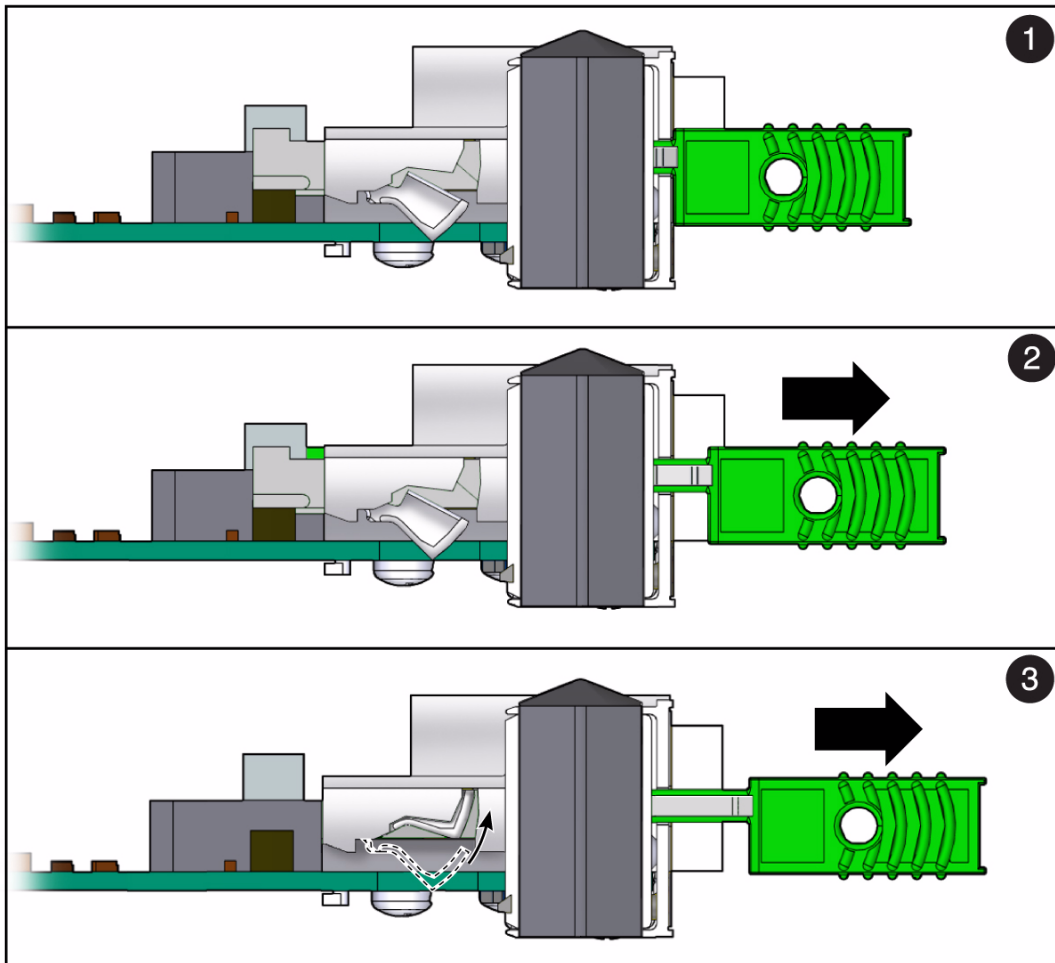
Figure Legend

1	Fully In (IN) When IN, the module communicates to the shelf manager that the module is not in the hot-swap state, and the shelf manager communicates with the MMC. This position is for normal operation.
2	Half Way (HW) When in the HW position, the hot-swap sequence is initiated. The MMC sends a hot-swap event to the shelf manager.
3	Out (OUT) When OUT, the latching mechanism is released and the module can be extracted. Wait for the Hot-Swap LED to stop blinking before pulling the latch all the way out.

FIGURE: Removing the AMC
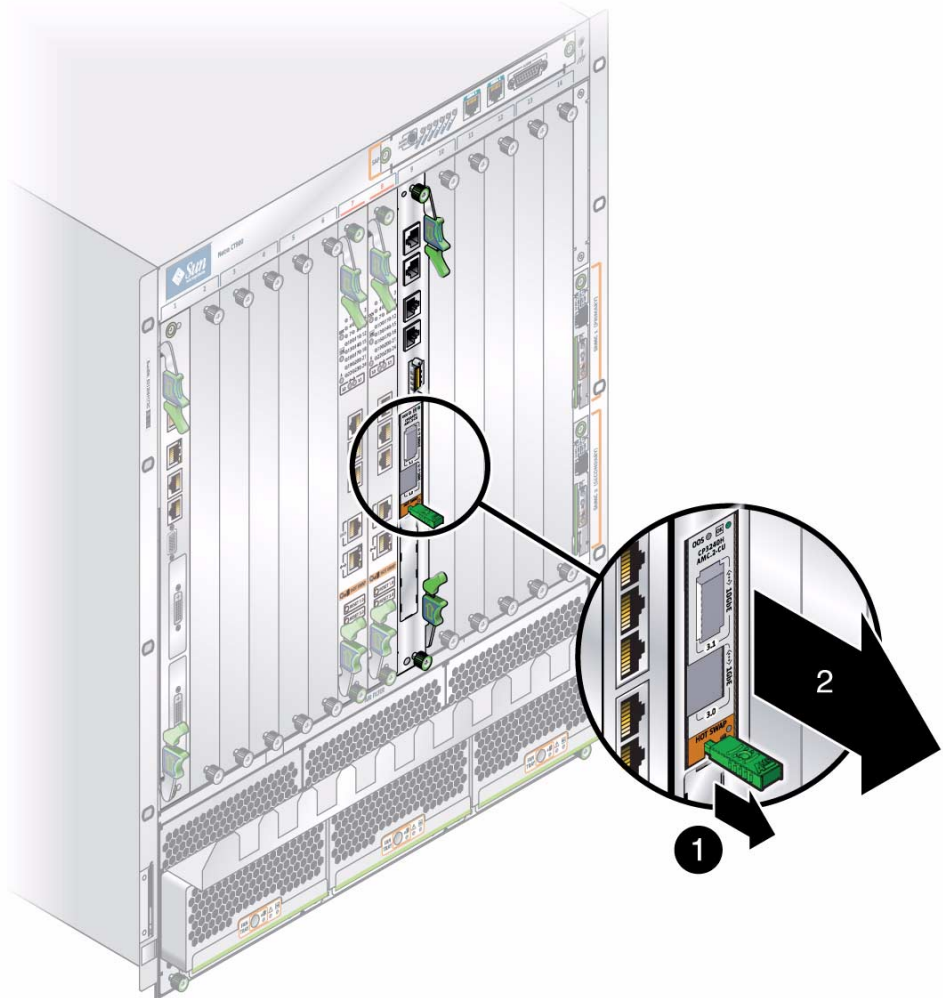
⚠️ **Caution –** Failure to fill all slots with AMCs or cover with filler panels can negatively impact the cooling of the system.

8. Replace the AMC with another AMC or install a filler panel.

Related Information

■ "Remove an ARTM" on page 118

▼ Remove an ARTM

The following provides general instructions for removing an ARTM. For specific information and instructions, refer to the ARTM product documentation for your ARTM.

The Sun Netra CP32x0 ARTM is hot-swappable and can be removed from the chassis without powering down its associated host blade server.

⚠️ **Caution –** Before you remove your module, read all cautions, warnings, and instructions presented in "Safety Requirements" on page 26.

1. Take antistatic precautions: attach and electrically ground the wrist strap.

⚠️ **Caution –** Always wear a grounded antistatic wrist strap when handling components.

2. If the chassis is not hot-swap compliant, remove power to the slot or system before removing the ARTM.

3. Loosen the locking screws on the module.

When the module is properly prepared for removal, it will illuminate a steady, non-blinking Blue color.

4. Rotate the top ejector handle to the half-way (HW) position.

⚠️ **Caution –** Do not remove the module yet. Powering down or removing a module before the operating system or other software running on the board has been properly shut down may cause corruption of data or file systems.

- If your host blade server is running hot-swap software, the action of rotating the ejector lever will start the shutdown process on the ARTM. The software will slowly blink the LED, indicating the module is in the process of being de-activated.

- If your blade server or system is not running hot-swap software, the LED might illuminate without regard to software processes still running on the ARTM. This scenario is likely the case when the LED continues to blink for more than 10-15 seconds after you rotate the ejector handle of the module. Be sure to manually shut down applications or operating systems running on the blade server prior to ARTM removal.

5. **If you need to manually shut down applications, execute the following command from the shelf manager:**

```
# clia deactivate xx 1
```

Where *xx* is the slot number.

When the module has been deactivated, the Blue LED will illuminate steady.

6. **When the Blue LED is steady, extract the module by pulling on the module handles.**

7. **Carefully remove the module from the chassis.**

8. **If the ARTM is being replaced, install the new ARTM.**

See "Install an Advanced Rear Transition Module" on page 38.

9. **If the slot is to remain empty, install a filler panel in the slot.**

Related Information

- "Replacing a Blade Server" on page 111
- "Removing Optional Components" on page 114

▼ Remove a Compact Flash Card

1. **Take antistatic precautions: attach and electrically ground the wrist strap.**

2. **Shut down the blade server.**

See "Power Off the Blade Server" on page 112.

3. **Remove the blade server.**

See "Remove the Blade Server" on page 112.

4. **Locate the CF connector.**

The connector is located on the blade server, by the sheet metal protecting the AMC slot.
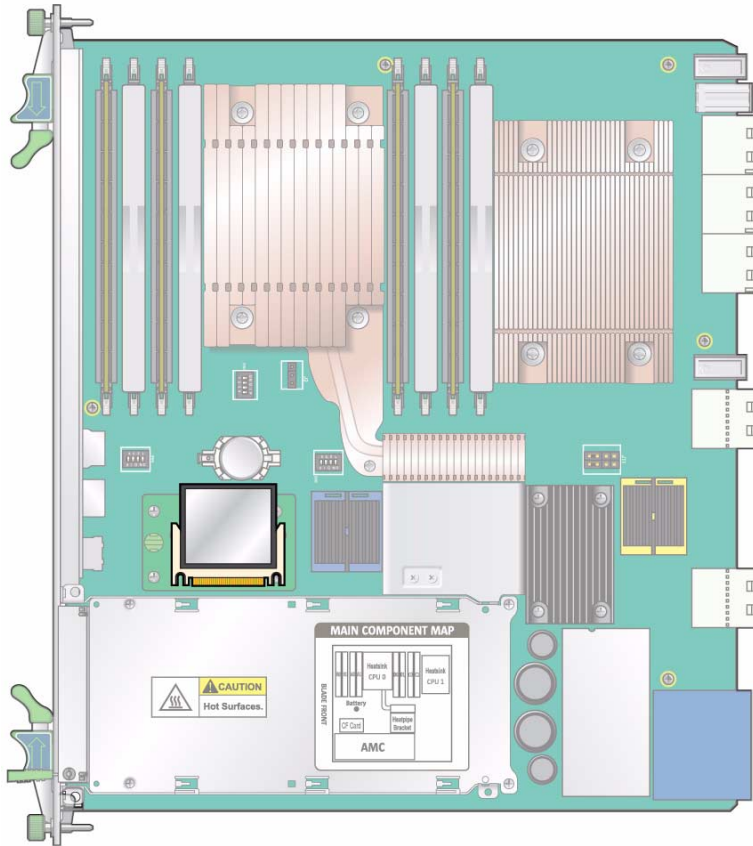
5. Remove the CF card from the CF connector.

▼ Remove Onboard Memory

If you are returning the blade server for service, or if you are replacing a DIMM with another DIMM, remove the DIMM from the blade server.

Note – Safely store the original factory-shipped DIMM and related DIMM packaging. Store any removed DIMM in the new DIMM packaging.

1. Take antistatic precautions: attach and electrically ground the wrist strap.

Caution – Always wear a grounded antistatic wrist strap when handling DIMMs.

2. **Remove the blade server from the shelf as explained in** "Remove the Blade Server" on page 112**.**

Caution – Do not place blade servers on top of an antistatic bag unless the outside of the bag also has antistatic protective properties.

3. **Locate the DIMM you want to remove from the blade server.**

4. **Simultaneously pull both spring retainer clips outward from the slot for the DIMM you want to remove.**

5. **Grasp the DIMM by the edges, and carefully pull it out of its connector.**
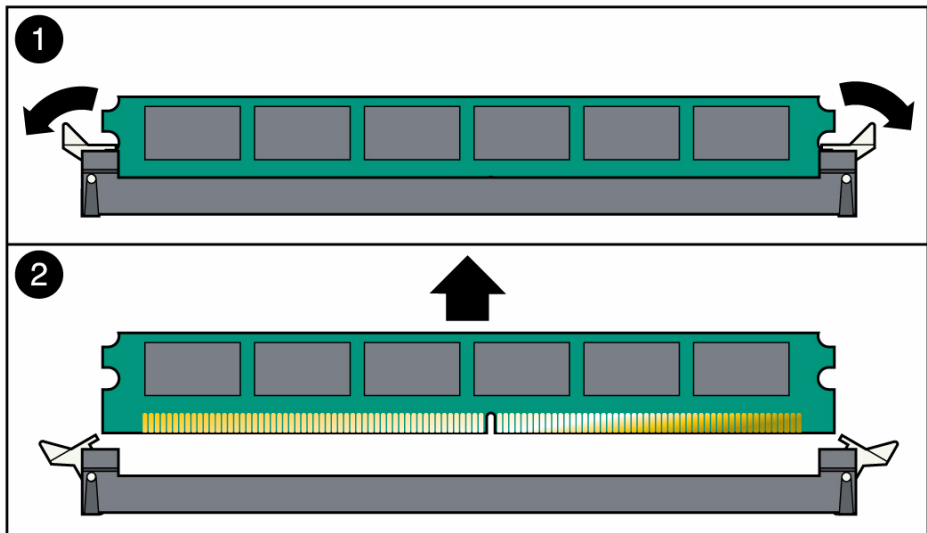
6. **Place the DIMM in an antistatic bag.**

7. **If you are replacing the DIMM you removed with a new DIMM, install it.**
   See "Install Onboard Memory" on page 43.

8. **Perform one of the following actions:**
   - If the blade server is to be reinstalled or replaced, install it.
     See "Installing Components and Blade Server" on page 28.
   - If the slot is to remain empty, install a filler panel in the slot.

Related Information
- "Install Onboard Memory" on page 43
- "Removing Optional Components" on page 114

▼ Remove or Replace a Battery

The blade server ships with a battery installed. The battery preserves CMOS settings in the event of power loss.

The battery must be type CR1632, with a minimum of 4ma abnormal charging current rating. The following lithium disk batteries (3V, 125MA) are approved for blade servers:

- Ray-O-Vac CR1632
- Renata CR1632
- Panasonic CR1632

Caution – Risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries properly in accordance with manufacturer's instructions and local regulations.

1. **Remove the blade server.**

2. **Locate and remove the battery from the blade server.**
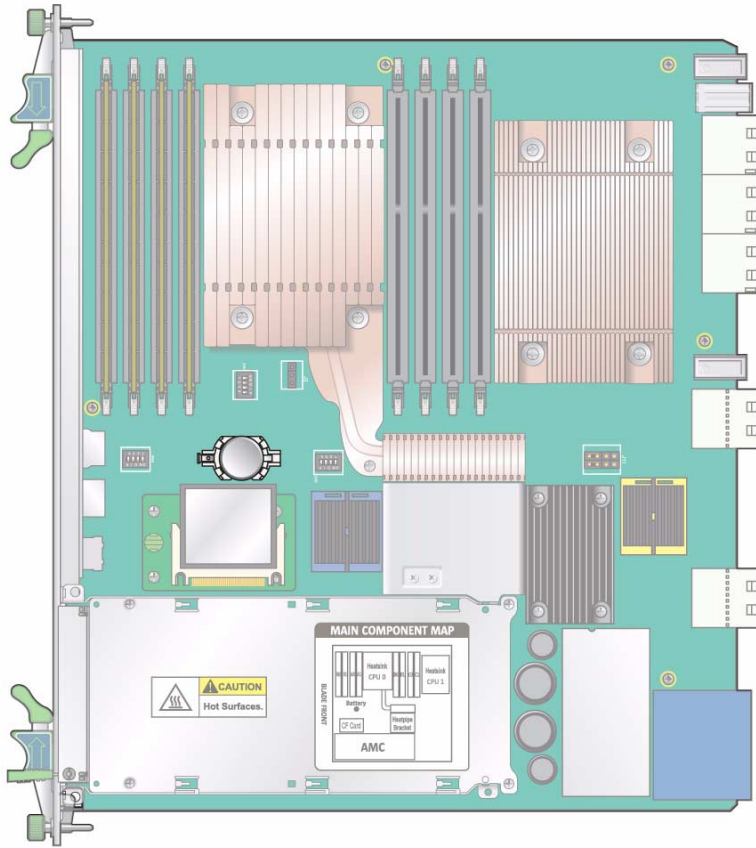
3. Slide the new battery into the holder with the side labeled "+" facing up.

4. Move the RTC jumpers to reset the RTC registers used for manageability engine.

FIGURE: Jumper Locations and Settings
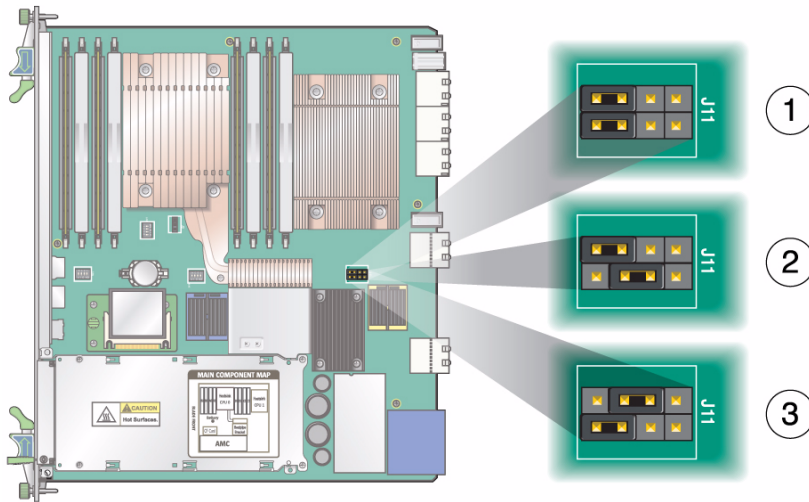
Figure Legend

1	Default jumper settings
2	Clear CMOS settings
3	Clear RTC settings

5. **Wait at least one second for the RTC settings to reset, then move the jumper housing back to the default position.**

6. **Install the blade server.**

Related Information

- "Remove the Blade Server" on page 112
- "BIOS Settings" on page 52
- "Restore the BIOS Settings" on page 73
- "Installing Components and Blade Server" on page 28
- "Installing Optional Components" on page 34
- "Removing Optional Components" on page 114

▼ Return a Blade Server

If a blade server is defective and under warranty, return it as follows.

1. **Review warranty information to determine if your product is under warranty.**

   See "Warranty and Technical Support" on page 14.

2. **Remove the blade server from the chassis.**

   See "Remove the Blade Server" on page 112.

3. **Remove any optional components.**

   See "Removing Optional Components" on page 114.

4. **Locate the serial and part numbers on the blade server.**

   See "Part Number, Serial Number, and MAC Address Label Locations" on page 125.

5. **Contact Oracle Services or the World Wide Solution Center to obtain Return Material Authorization (RMA) numbers.**

   You must get RMA numbers for each blade you intend to return.

6. **Package the blade server in proper packaging to protect it from damage.**

   Oracle will examine the blade server and perform testing to determine cause of malfunction.

7. **Obtain and follow the return instructions provided by Oracle Service or the World Wide Solution Center.**

   Oracle Services will give you specific details on the return procedure for your geographic area.

Related Information

- "Installing the Blade Server" on page 23

Part Number, Serial Number, and MAC Address Label Locations

The blade server part number, serial number, revision number, and MAC address are printed on label stickers located on the blade server.

The Oracle barcode label provides the following information:

- Blade server serial number (for example, 1005LCB-07296R0912), which is on the barcode label.

The part number, dash, revision, and date code label provides the following information:

- Blade server part number (for example, 3753529), which is the first seven digits on the part number label
- Product dash number (for example, -01)
- Revision number (for example, REV: 01)

The MAC address label contains the base MAC address for the blade server in printed and barcode form. It is an orange label located on the Zone 1 connector.
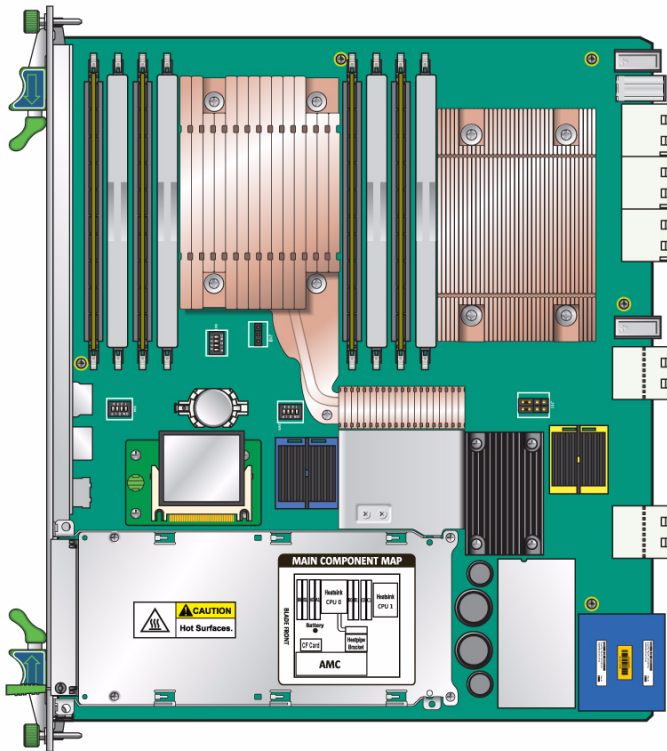
Related Information

- "View Electronic Blade Server ID" on page 71

Programming the Blade Server

These topics provide instructions for programming, debugging, and configuring the blade server.

Additional programming instructions and reference information for the blade server and all Sun Netra blade servers are available in the following documentation:

- *Netra CT 900 Server Administration and Reference Manual* (819-1177)
- *Netra CT 900 Server Software Developer's Guide* (819-1178)
- *Netra CT 900 Server Service Manual* (819-1176)

(http://docs.sun.com/app/docs/prod/n900.srvr#hic)

- "Sensors" on page 127
- "I2C Device Mapping" on page 128
- "AMC and ARTM Traffic Port" on page 130
- "OEM and IPMI Commands" on page 130

Related Information

- "Administering Parameters and Configurations" on page 52
- "Configuring Ports and Pins" on page 76
- "Administering the Network" on page 96
- "Administering User Accounts and Security" on page 106
- "ShMM CLI and Commands" on page 70

Sensors

Sensor tables for the Sun Netra CP3270 ATCA blade server and compatible optional components are provided in the *Netra CT 900 Software Developer's Guide* (819-1178), which is available online at:

(http://docs.sun.com/app/docs/prod/n900.srvr#hic)

I2C Device Mapping

The BMR-H8S-ATCA provides a dual IPMB interface using the I2C-2 and I2C-3 ports of the built-in I2C controller of the H8S.

Each IPMB interface is buffered using a Linear Technology device, allowing insertion and removal of the respective IPMB interface onto a live backplane. When the connection to the backplane is made, the device provides bidirectional buffering, keeping the backplane and the blade server capacities isolated.

Based on current design and implementation, the firmware uses the I2C-4 port in master-only mode. The BMR-H8S-AT CA provides:

■ Pull-up resistors on the clock and data lines of the master-only I2C (SCL and SDA pins)

■ Other I2C buses using the I2C-5 port connection to ADM1026 (PC5 pin)

■ I2C-4 port connection to dual Gigabit LAN and I2C-1 connection to AMC and ARTM (PC4 pin)

TABLE: I2C Devices Mapping

Bus 4	ADG729	0x0488	SMBBUS Switch for DIMM SPDS
	DDR3 DIMMs SPD address	CPU0:DIMM CH_A0 : 0xA0	DIMM SPD EEPROM data
		CPU0:DIMM CH_A1 : 0xA2	
		CPU0:DIMM CH_B0 : 0xA4	
		CPU0:DIMM CH_B1 : 0xA6	
		CPU1:DIMM CH_C0 : 0xA0	
		CPU1:DIMM CH_C1 : 0xA2	
		CPU1:DIMM CH_D0 : 0xA4	
		CPU1:DIMM CH_D1 : 0xA6	
	DDR3 DIMMs TEMP address	CPU0:DIMM CH_A0 : 0x30	DIMM thermal sensors
		CPU0:DIMM CH_A1 : 0x32	
		CPU0:DIMM CH_B0 : 0x34	
		CPU0:DIMM CH_B1 : 0x36	
		CPU1:DIMM CH_C0 : 0x30	
		CPU1:DIMM CH_C1 : 0x32	
		CPU1:DIMM CH_D0 : 0x34	
		CPU1:DIMM CH_D1 : 0x36	
Bus 5	ADM1026	0x5C	HW monitor
	MAX6621	0x54	CPU thermal sensors (PECI)
	AT24C64	0xAC	IPMI FRU
	PCA9555	0x40	AMC control
	PCA9555	0x42	Telecom clock enable and ARTM control
	PCA9555	0x44	ZL30106 control and Telecom clock enable

AMC and ARTM Traffic Port

To multiplex traffic from onboard AMC and ARTMs through the Base interface, the Sun Netra CP3270 ATCA blade server uses a Broadcom switch (BCM53118).

Related Information

- *"Configuring Ports and Pins" on page 76*
- *"BIOS Settings" on page 52*
- *"Data Transport Connectors (Zone 2)" on page 86*
- *"Ports and Connectors" on page 14*
- *"Networking and I/O" on page 8*

OEM and IPMI Commands

All of the OEM commands and IPMI commands that are available for use on the blade server are documented in the following:

- *Sun Netra CT 900 Server Administration and Reference Manual* (819-1177)
- *Sun Netra CT 900 Server Software Developer's Guide* (819-1178)

Glossary

A

AMC	Advanced PCI Mezzanine Card
ARTM	Advanced Rear Transition Module
ASP	Authorized service provider
ATCA	Advanced Telecommunications Computing Architecture; also used as AdvancedTCA when referring to specifications

C

CLI	Command-line interface

D

DHCP	Dynamic Host Configuration Protocol
DIMM	Dual In-line Memory Module

E

ESD	Electrostatic discharge

8U	Eight rack unit

F

FRUID	Field Replaceable Unit Identification Device

G

GbE	Gigabit Ethernet

I

IEEE	Institute of Electrical and Electronics Engineers, Inc.
IHV	
IMC	Integrated Memory Controller
IPMB	Intelligent Platform Management Bus
IPMC	Intelligent Platform Management Controller, a management subsystem that provides monitoring, event logging, and recovery control.
IPMI	Intelligent Platform Management Interface
I2C	Inter Integrated Circuit bus

M

MAC	Media access control

N

NEBS™ Network Equipment Building System

NFS Network File System

NTB non-transparent bridge

P

PCIe PCI Express interface

PCH platform controller hub

PECI Peripheral Environmental Control Interface

PHY Physical

PICMG PCI Industrial Computer Manufacturer Group

PICMG 3.0, 3.1 PICMG 3.0 is the base specification that defines the mechanical, power distribution, system management, data transport, and regulatory guidelines. PICMG 3.1 builds on the PICMG 3.0 base specification and on IEEE 802.3-2003.

PMEM Persistent memory

POST Power-on self-test

R

RMA Return material authorization

S

SATA Serial ATA is a computer bus interface for connecting host bus adapters to mass storage devices such as hard disk drives and optical drives.

SERDES	Serializer and Deserializer
ShMM	Shelf Manager
SOL	serial over LAN
SunVTS	Sun Validation Test Suite

T

TCC	Thermal Control Circuit
TPM	Trusted Platform Module chip

X

XAUI	Attachment Unit Interface for 10GbE

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