



# Sun Fire™ X4150 Volume Configuration Guide

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Sun Microsystems, Inc.  
[www.sun.com](http://www.sun.com)

Part No. 820-6409-10  
March 2009 Revision A

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# How to Add Components to Your Limited Configuration Server

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## Test the Current Configuration

Always test the current configuration *before* upgrading the server.

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### Testing the Current Configuration

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- 1 Ensure that all internal components are properly seated and install the cover.
  - 2 Boot the server using the server's Tools and Drivers CD/DVD.
  - 3 The server should pass POST and boot to the Tools and Drivers CD's main menu.
  - 4 Troubleshoot any front panel fault indicators before customizing the server.
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## Adding Components to the Server

The component installation procedures in this document contain important installation and validation information that can assist you in successfully configuring the server.

## How to Add Memory (DIMMs)

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**Note** – Sun-approved memory is the *only* memory guaranteed to meet the reliability and quality levels required for optimal performance of Sun Fire servers. Use only DIMMs approved and supported by Sun.

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### *Install DIMMs in Matched Part Number Pairs Only.*

DIMMs *must* be installed in matched part number pairs. Matched part number pair DIMMs have the same *size*, the same *speed*, and the same *manufacturer*.

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#### **Installing DIMMs in Matched Part Number Pairs**

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- Inspect the label on the DIMMs to ensure the following:
    - Same manufacturer
    - Same part number
- 

### *Install Larger Capacity DIMMs in Lower-Numbered Slots*

Larger capacity DIMMs *must* be installed in lower-numbered slots. If the DIMMs that you are installing are larger capacity than the DIMMs already installed in the server, do the following:

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#### **Installing Larger Capacity DIMMs in Lower-Numbered Slots**

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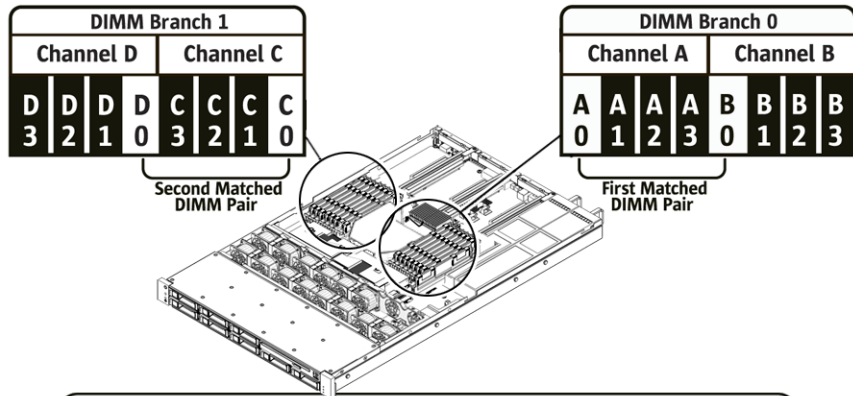
- 1**    *Remove* smaller capacity DIMMs from lower-numbered slots and *replace* with larger capacity DIMMs.
- 2**    Install smaller capacity DIMMs in the next available higher-numbered slots.

*For example:*

If the server is configured with two 2 GB DIMMs in slots A0/B0 and you want to install two additional 4 GB DIMMs:

- Remove the two 2 GB DIMMs from slots A0/B0
  - Install the two 4 GB DIMMs in slots A0/B0
  - Install the two 2 GB DIMMs in slots C0/D0
-

## Install DIMMs According to the Following Map



DIMM Population Sequence			
<b>ATTENTION:</b> •DIMMs must be installed in matched pairs and in the order shown. •Highest capacity DIMMs are to be located in the lowest numbered DIMM slots.			
QTY. DIMMS	Slot Location	QTY. DIMMS	Slot Location
2	A0, B0	10	All of above plus: A2, B2
4	All of above plus: C0, D0	12	All of above plus: C2, D2
6	All of above plus: A1, B1	14	All of above plus: A3, B3
8	All of above plus: C1, D1	16	All of above plus: C3, D3

## Insure DIMMs are Properly Seated and Locked

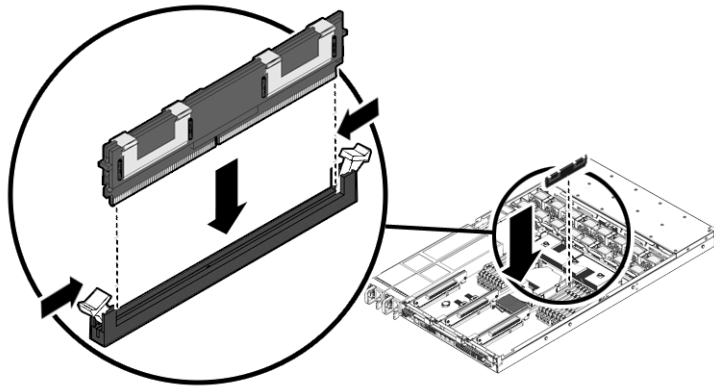
DIMMs that are not properly seated and locked are easily dislodged when shipped or moved.

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### Seating and Locking DIMMs

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- Insert DIMMs into the DIMM slots and lock the DIMMs using the two locking levers.
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## Test Installed DIMMs

Verify that the server can see all installed DIMMs.

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### Testing Installed Memory

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- Reassemble the server and use one of the following methods to verify the DIMMs:
    - Boot from the Tools and Drivers DVD and access the diagnostics by selecting the option to run hardware diagnostics (option 1).
    - Log in to the service processor's (SP) ILOM using ssh or a browser and the IP address of the SP.
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## How to Add a DVD/USB Drive

- The server ships with filler panels for a vacant DVD drive slot and each vacant HD slot.
- You *must* install the DVD drive/USB hub *before* you install the hard drives.

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### Adding a DVD/USB Drive Unit

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- 1 Eject all hard drives and HD filler panels.
  - 2 Remove the DVD filler panel.
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**Adding a DVD/USB Drive Unit (Continued)**

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- 3 Slide the DVD/USB drive\* unit into the DVD slot and engage the connector on the backplane.
  - 4 Populate the HD slots with hard drives or hard drive filler panels.
  - 5 Test the DVD drive by booting the server using the Tools and Drivers DVD and accessing the Pc-Check diagnostics.
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\* Use the -09 (or later) revision of the DVD/USB drive unit.

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**Note** – If the DVD drive hangs, during testing, contact Sun service. The issue might be a low-level inter-operability issue between the USB translation device and the system. The issue is usually resolved by replacing an internal board.

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## How to Add SAS Hard Drives

See the *Sun Intel Adaptec BIOS RAID Utility User's Manual* (820-4708).

### *SAS HD Installation Rules*

- Do *not* mix SAS and SATA drives in the same volume.
- SATA hard drives are not supported on the Sun Fire X4150.
- Supported HBA cards:
  - Sun StorageTek PCIe SAS 8-Port Internal HBA, **SGXPCIE8SAS-I-Z**, LSI SAS 1068E (hardware RAID support)
  - Sun StorageTek SAS RAID 8-Port Internal HBA, **SG-XPCIESAS-R-INT-Z**, Adaptec/Intel-based (hardware RAID support)
- If you are also adding a DVD/USB unit, install the unit *before* installing hard drives (see [“How to Add a DVD/USB Drive” on page 4](#)).
- Hard drives must be initialized *before* the drives can be seen by the HBA and before an OS can access the disks.

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## Adding SAS Hard Drives

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- 1 Install drives according to the following drive map:

	HD1	HD3	HD7	DVD/USB Drive		
	<b>HD0</b>	HD2	HD4	HD5	HD6	



- 2 Remove protective covers from the connectors on the card and install the HBA (PCIe SAS 8-port internal disk controller)\*
- 3 Take the free end of the cable that is attached to the disk backplane on the left-hand side (disks 0-3) and connect it to the Mini-SAS x4 connector on the card labeled Port 0, 0-3.
- 4 Take the free end of the cable that is attached to the disk backplane on the right-hand side (disks 4-7) and connect it to the Mini-SAS x4 connector on the card labeled Port 1, 4-7.

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\* Supported HBAs: Sun StorageTek PCIe SAS 8-Port Internal HBA, SGXPCIE8SAS-I-Z, LSI SAS 1068E and Sun StorageTek SAS RAID 8-Port Internal HBA, SG-XPCIESAS-R-INT-Z, Adaptec/Intel-based

## Verify Hard Drives

Use the PCIe HBA's BIOS utility to verify that the card sees the hard drives.

- When using the Sun StorageTek (Adaptec) HBA card, you must *first* initialize the hard drives using the card's BIOS (even for single-disk configurations) so the an OS can see the drives (use the Adaptec-based procedure below). The LSI card automatically manages this step and does *not* require manual initialization of drives (use the LSI-based procedure below).



- After installation, if you see inconsistent or non-illuminated HD LEDs, you might need to update the backplane and the controller firmware using the server's Tools and Drivers DVD.

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**Verifying Hard Drives Using the LSI-Based Sun StorageTek PCIe SAS 8-port Internal HBA**

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- 1 Power on the server and watch the output for the prompt to press Ctrl-C.
  - 2 When the prompt appears, press Ctrl-C.
  - 3 From the main menu, select SAS Topology.
  - 4 Verify that all installed drives are seen by the HBA, and replace any drives that are not seen.
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**Verifying Hard Drives Using the Adaptec-based Sun StorageTek PCIe SAS 8-port Internal HBA**

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- 1 Boot the server and watch the output for the prompt to press Ctrl-A to enter the Adaptec RAID Configuration Utility (ARCU).
- 2 When the prompt appears, press Ctrl-A. *The Adaptec RAID Configuration Utility main menu appears.*

**Initializing the Disks**

- 1 From the Adaptec RAID Configuration Utility main menu, select Create Array.
- 2 Select Initialize Disks. *A list appears showing disks seen by the HBA card.*
  - a. If an installed disk does not appear in the list, replace it.
- 3 Use the Insert key to add each disk to the list on the right.
- 4 When done adding disks to the list, press Enter.
- 5 To verify the drives, press the ESC key to exit to the main menu.

**Verify the Hard Disks**

- 1 Select Disk Utilities.
- 2 Highlight a drive in the list by using the up or down arrow key, press enter and, from the menu that appears, select Identify Drive and press Enter. *This action blinks the HD LED.*
- 3 Verify that the selected HD LED blinks.
- 4 Select Identify Drive for each HD.
- 5 When done, press ESC to exit to the main menu. *The main menu appears.*

**Creating a Volume for Each Drive**

- 1 From the utility's main menu, Select Array Configuration Utility.
  - 2 From the main menu, select Create Array to create a volume for *each* disk.
  - 3 Use the arrow key to highlight drive 0.
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**Verifying Hard Drives Using the Adaptec-based Sun StorageTek PCIe SAS 8-port Internal HBA**

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- 4 Use the insert key to add drive 0 to the Selected Drives list on the right and press enter.
  - 5 Label the volume (you can use the drive volume number) and press Enter
  - 6 Accept the defaults for Read Caching and Write Caching and press Enter.
  - 7 Select Build for the Create RAID Via option and press Enter
  - 8 Press Enter to build the volume.
  - 9 Repeat the steps to create a volume for each drive.
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### *Test Hard Drives*

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**Testing Hard Drives Using Pc-Check**

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- 1 Boot the server with the Tools and Drivers CD to access the diagnostics.
  - 2 Select the option to Run Hardware Diagnostics.
  - 3 Select the option to test hard drives.
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**Note** – To expedite hard drive testing use the 1% test coverage.

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## How to Add and Test PCIe Cards

- Slot0 - slot2 can accommodate x16 mechanical cards.
  - The disk controller HBA card *must* be inserted into slot 1 (the middle slot).
  - After installation, update the firmware level for each card as specified by the manufacturer.
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**Adding PCIe Cards**

- 1 Connect PCIe cards to a riser assembly.
- 2 Insert the PCIe card and riser assembly into a PCIe slot on the motherboard.
- 3 Update the firmware level for each card as specified by the manufacturer.

**Testing PCIe Cards**

- 1 If the option exists invoke the cards built in self-test.
  - 2 Test the card by performing basic rudimentary activities. *For example, establish network connectivity (for a GigabitEthernet card).*
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# How to Check and Update Your Firmware

Sun frequently provides new firmware updates, so it is possible that a newer version of firmware is available for your server. *Sun recommends that you update to the latest version of firmware.* Firmware versions for your server are described in the *Sun Fire X4150 Server Product Notes*.

## Firmware Update Notes

- The BIOS and SP firmware are matched and, unless specified, should always be updated in unison.
- There are two types of SP firmware, ELOM (Embedded Lights Out Manager) and ILOM (Integrated Lights Out Manager).
- Before updating your server, you *must* know the type of firmware (ELOM or ILOM) installed on the SP.
- Do *not* update an ELOM-based SP using ILOM firmware. If you need to convert an ELOM-based SP to an ILOM-based SP, use the ELOM-to-ILOM migration process, which is described in the *ELOM-to-ILOM Migration Guide*.
- Downgrading firmware is *not* recommended, because downgrading firmware might eliminate important security and functionality updates.
- Recovery procedures for failed updates are described in the product's Service Manual.

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### Checking and Updating Your Firmware

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- 1 Reboot the server and watch the screen for the prompt to press F2 to enter the BIOS Setup Utility.
  - 2 When the prompt appears, press F2. *The BIOS Setup Utility main menu appears.*
  - 3 From the main menu, make note of the BIOS Version and the SP Firmware Version
  - 4 Exit the BIOS setup utility.
  - 5 Access the Sun Fire X4150 server download site at:  
<http://www.sun.com/servers/x64/x4150/downloads.jsp>
  - 6 Compare the most recent BIOS and SP version numbers to the firmware versions of the server.
  - 7 If necessary, download the firmware and update the server using the ILOM.
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