

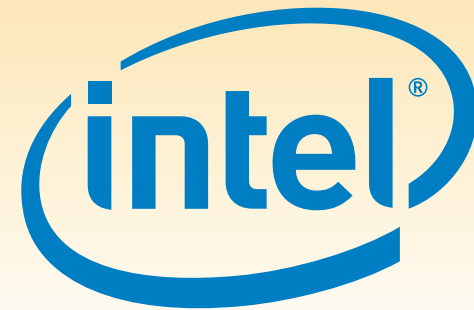
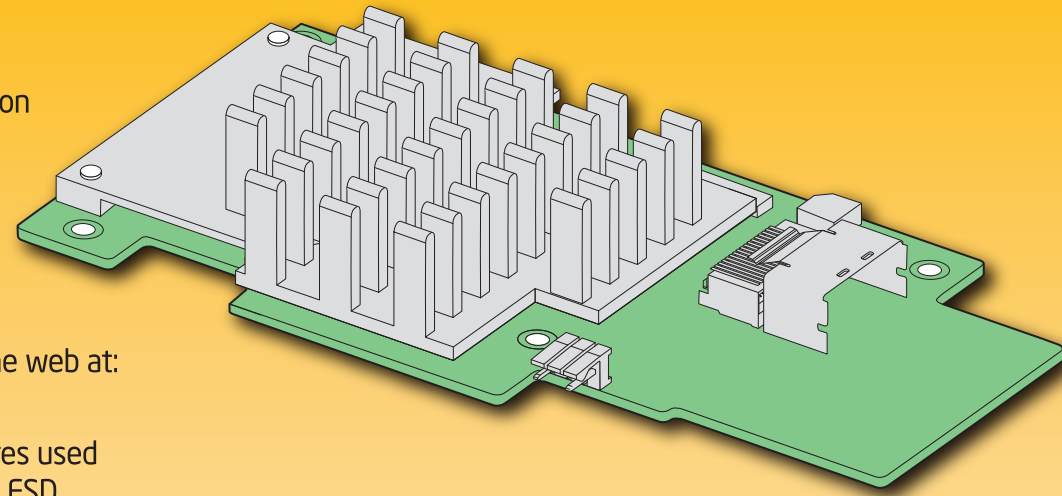
Intel® Integrated RAID Module RMS25CB040 Quick Start User's Guide

This guide contains step-by-step instructions for installing the Intel® Integrated RAID Module RMS25CB040 and information on using the BIOS setup utility to configure a single logical drive array and install the driver into the operating system. For more advanced RAID configurations, or to install with other operating systems, please refer to the Hardware User's Guide.

These guides and other supporting documents (including a list of supported server boards) are also located on the web at: <http://www.intel.com>

If you are not familiar with ESD (Electrostatic Discharge) procedures used during system integration, see your Hardware Guide for complete ESD procedures. For more details on Intel® RAID controllers, see: www.intel.com/go/serverbuilder.

Read all cautions and warnings first before starting your RAID Controller integration.



Choosing the Right RAID Level

RAID	Minimum Physical Drives	Fail PDs Allowed	Method	Capacity	Read Speed	Write Speed	Good Usage
0	2	NONE	Striping (speed)	100%	Excellent	Excellent	High throughput workstation
1	2	1	Mirroring (redundancy)	50%	Very good	Good	OS, apps entry level
5	3	1	Striping and distributed parity (fault tolerance)	n-1 (67-94%)	Very good	Good	Data, web/media server
6	3	2	Striping with dual distributed parity	n-2 (50-88%)	Good	Good	High fault tolerance
10	4	1 per mirror set	Striping across mirrors	50%	Very good	Good	Database, file, mail servers
50	6	1 per R5 set	Striping across R5 arrays	n-2 (67-94%)	Excellent	Very Good	Database, file, mail servers
60	6	2 per R6 set	Striping across R6 arrays	n-4 (50-88%)	Very good	Good	Critical data

Warning

Read all caution and safety statements in this document before performing any of the instructions. Also see the *Intel® Server Board and Server Chassis Safety Information* document at: <http://www.intel.com/support/motherboards/server/sb/cs-010770.htm> for complete safety information.

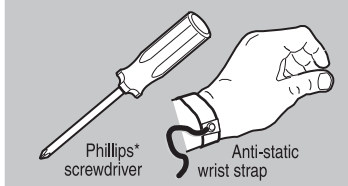
Warning

Installation and service of this product should only be performed by qualified service personnel to avoid risk of injury from electrical shock or energy hazard.

Caution

Observe normal ESD (Electrostatic Discharge) procedures during system integration to avoid possible damage to server board and/or other components.

Tools Required



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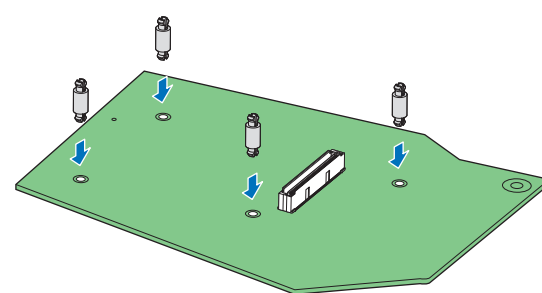
What you will need to begin

- SAS 2.0 or SATA III hard disk drives (backward compatible to support SAS 1.0 or SATA II hard disk drives)
- Intel® Integrated RAID Module RMS25CB040
- Intel® Server Board with SAS Module connector
- Resource CD, which is shipped with systems or boards
- Operating system installation media: Microsoft Windows Server 2003*, Microsoft Windows Server 2008*, Microsoft Windows 7*, Microsoft Windows Vista*, Red Hat® Enterprise Linux, or SUSE® Linux Enterprise Server and VMware® ESX Server 4.

Notes: The module will support PCI Express® Revision 3.0 at post launch.

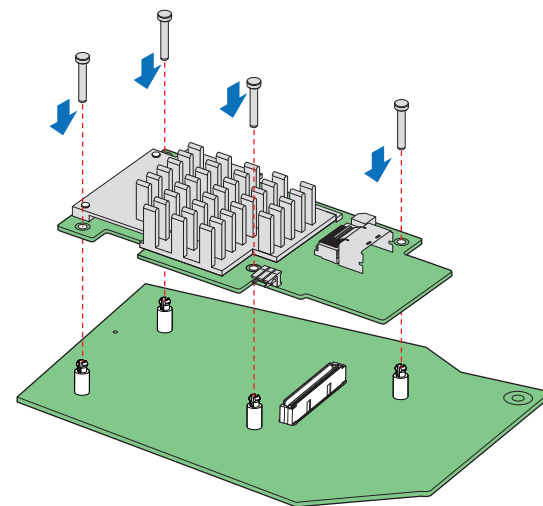
1 Installing the Barrel Standoff

- Power down the system and disconnect the power cord.
- Locate the matching SAS Module connector on your server board, see your server board documentation.
- Insert the barrel standoffs into the matching holes in the server board. The Intel® Server Board S2600IP is shown for illustrative purpose.



2 Install the RAID Module

- Attach the RAID Module to the matching server board connector and press the module card firmly to engage the barrel standoffs.
- Press down gently but firmly to ensure that the card is properly seated in the connectors, and then insert the four pin standoffs into the barrel standoffs respectively.



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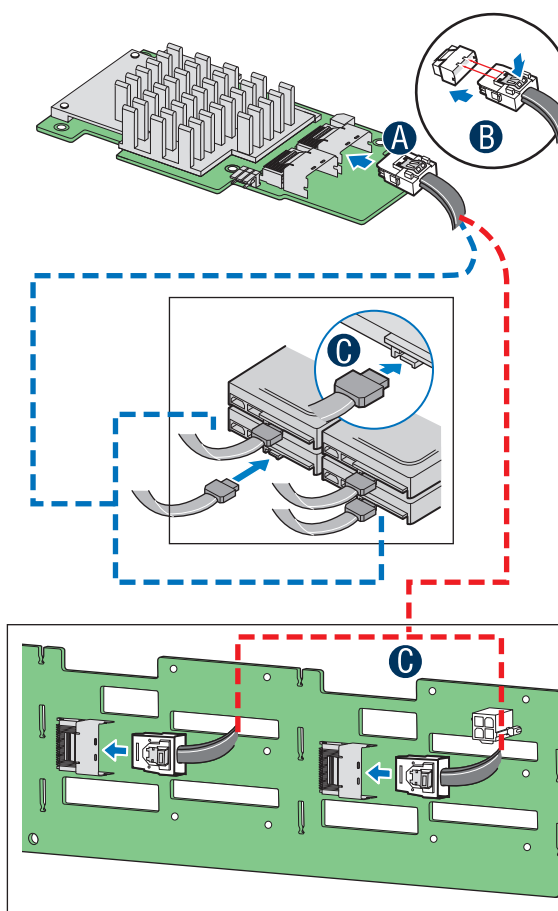
For more information on Intel's added-value server offerings, visit the Intel® ServerBuilder website at: www.intel.com/go/serverbuilder.

¹Available only to Intel® Channel Program Members, part of Intel® e-Business Network.

3 Connect the RAID Module

- Connect the wide end of the provided cable to the up silver connector (ports 0-3).
- Push the cable into the silver connector until it makes a slight click.
- Connect the other ends of the cables to SATA drives or to the ports on a SATA or SAS backplane.

Notes: Both non-expander backplanes (one cable per drive) and expander backplanes (one or two total cables) are supported. Drive power cables (not shown) are required.



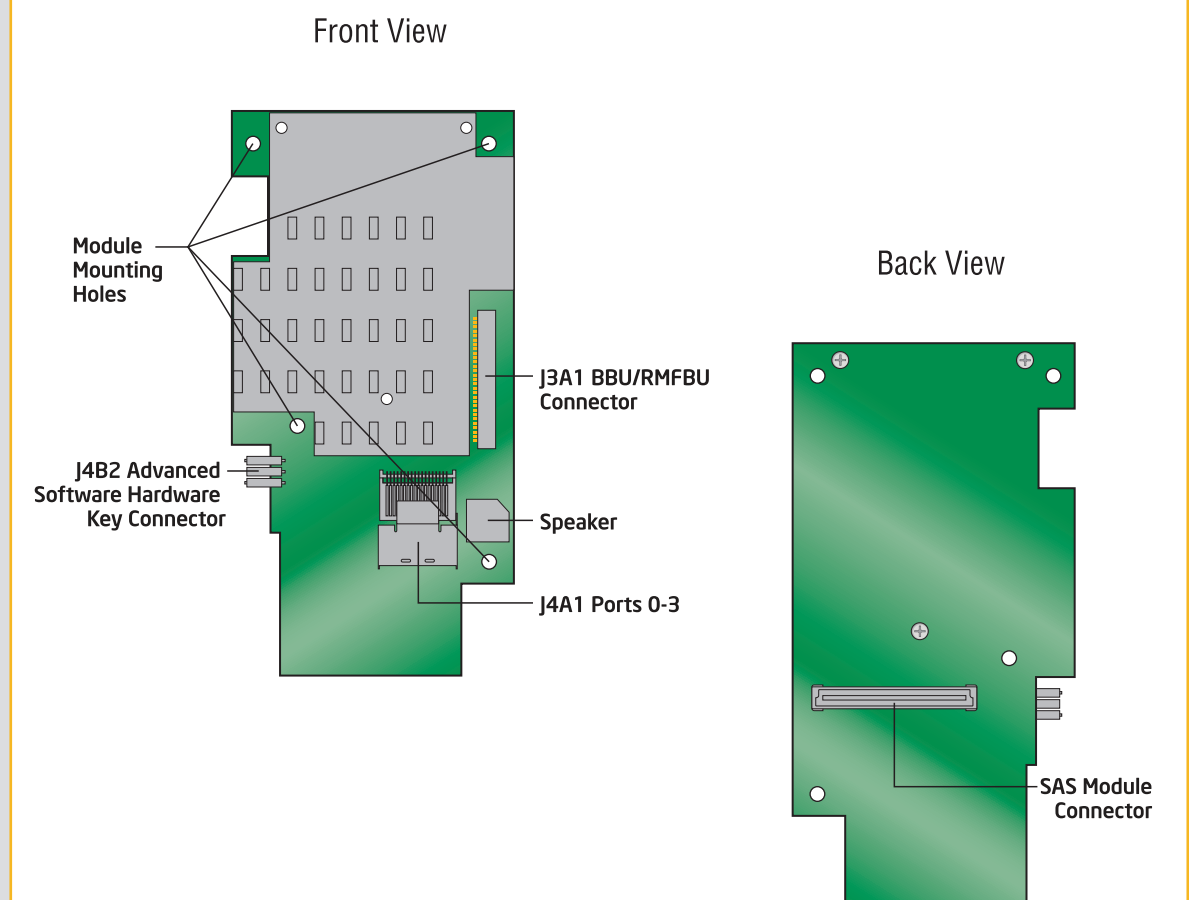
Rear view of four SATA drives or backplane connected to ports on the Intel® Integrated RAID Module RMS25CB040.

Go to Step 4 on Side 2

Audible Alarm Information

For information about the audible alarm and how to silence or disable it, see the reverse side of this document.

Intel® Integrated RAID Module RMS25CB040 Reference Diagram

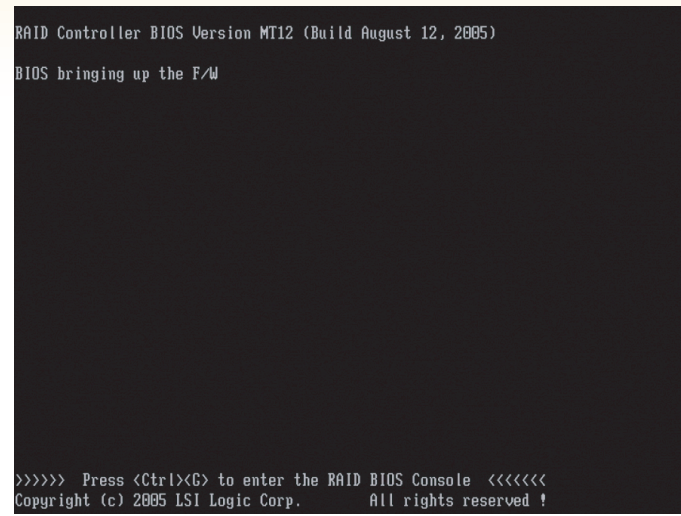


For more information on the jumpers referenced in this diagram, refer to user guide located on the web at: http://www.intel.com/pl/en_US/support/server/.

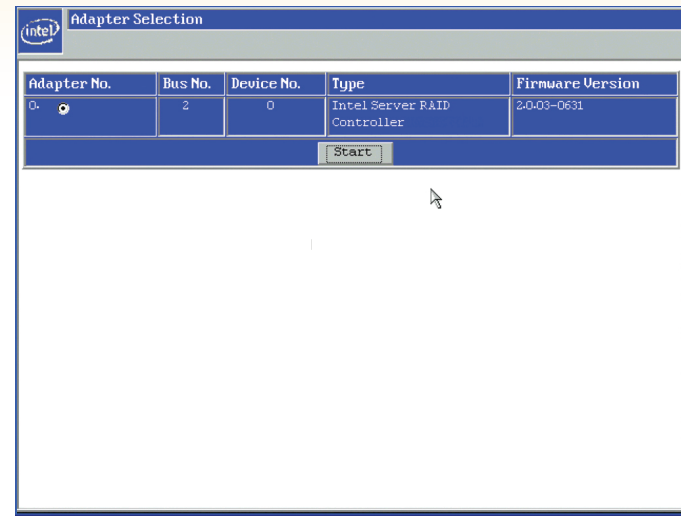
4 Use the Intel® RAID BIOS Console Utility to Create a RAID Volume

Note: As necessary, see "Choosing the Right RAID Level" on side 1 of this Quick Start User's Guide for a brief description of the RAID levels.

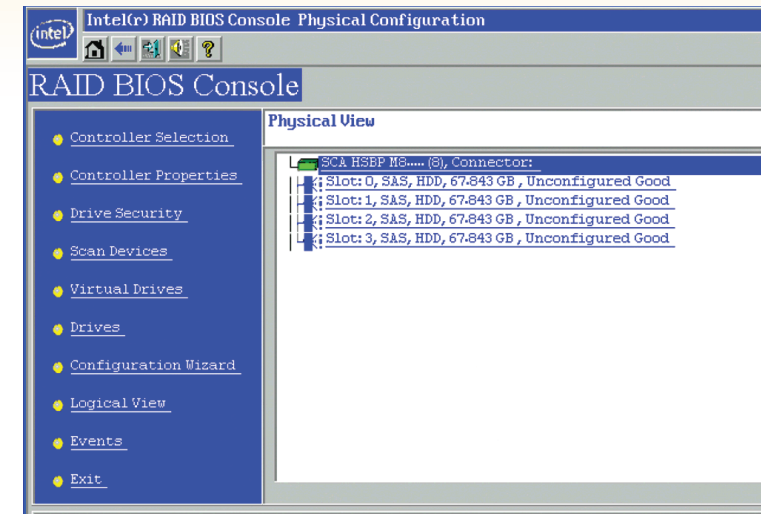
1 Power on the system and press <Ctrl> + <G> when the following screen is displayed.



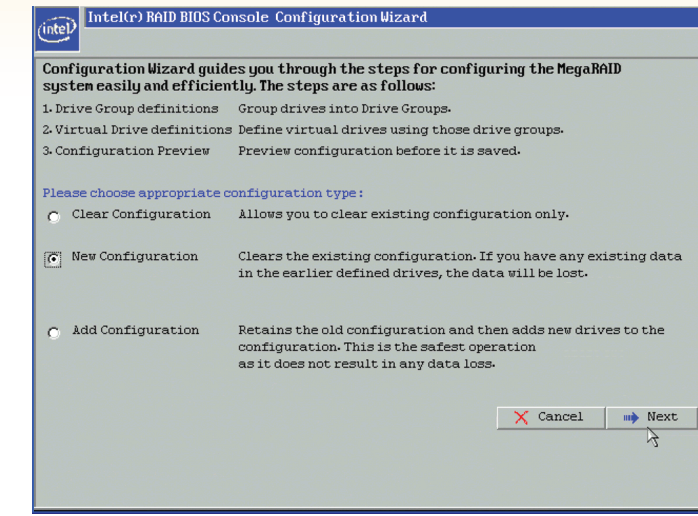
2 When the Intel® RAID BIOS Console starts, it will display the Intel® Integrated RAID Module RMS25CB040 installed in the system. Click on the "Adapter No." radio button to choose the controller, and then click **Start**.



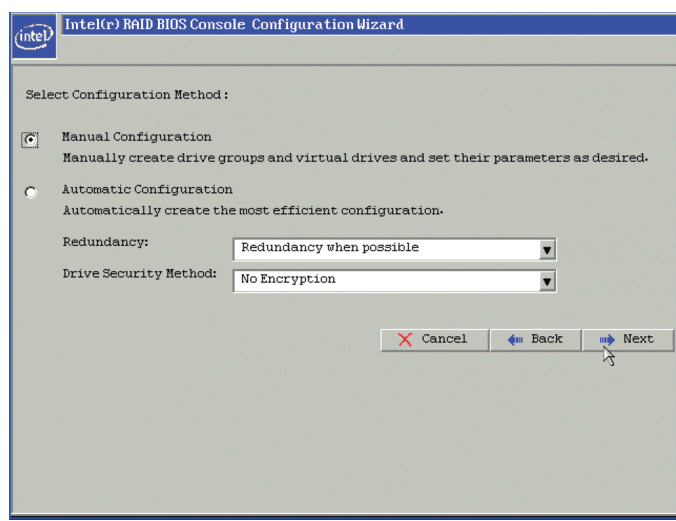
3 After a brief pause, the RAID BIOS Console screen is displayed. Click **Configuration Wizard**.



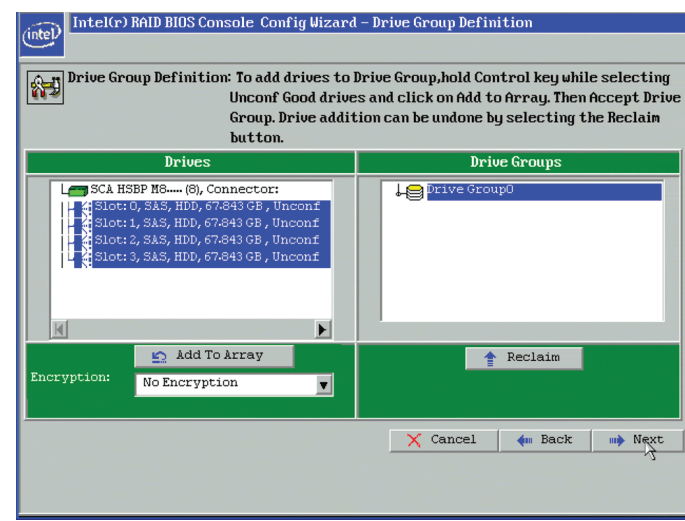
4 Select **New Configuration** and click **Next**.



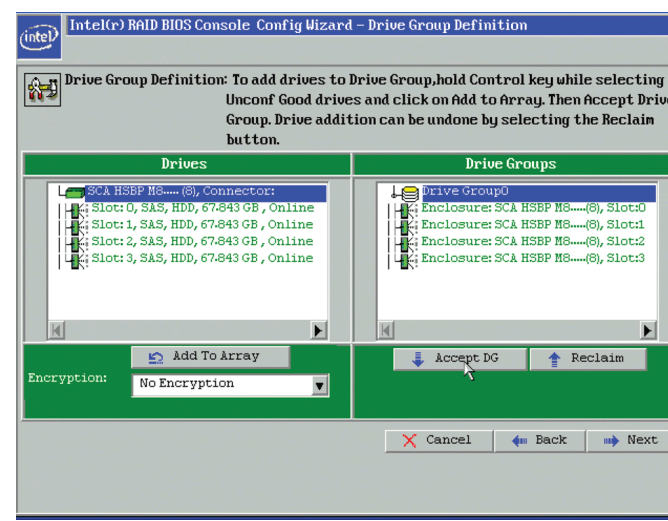
5 For this example, **Manual Configuration** is used. Click **Next**. (For further information, see the Intel® RAID Software User's Guide on the Resource CD.)



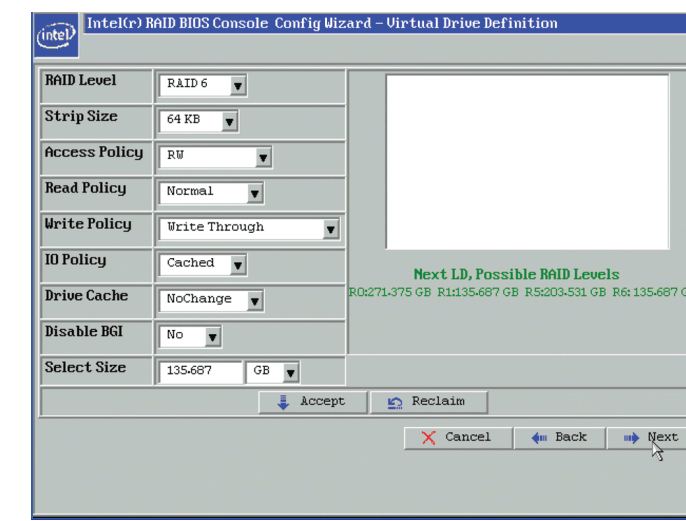
6 Add physical drives to the array by pressing the <Ctrl>-key while clicking on entries under Physical Drives. Once you have selected all the drives you wish to add to the array, click **Add To Array**. Then, click **Next**.



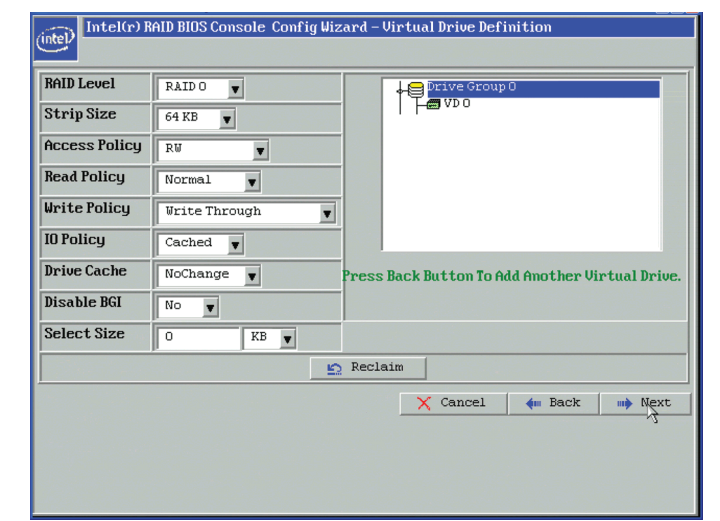
7 Define further arrays or click **Accept DG** if finished. Then, click **Next**.



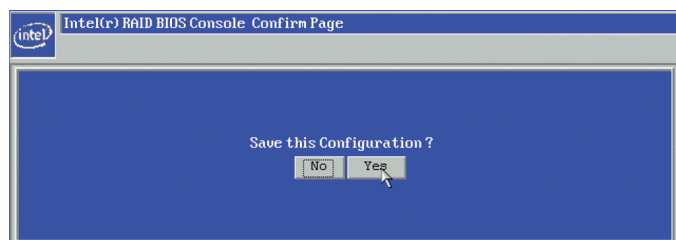
8 Select the **RAID Level** from the drop-down list. Select the **Stripe Size**. Enter the size of the logical drive. Click **Accept**.



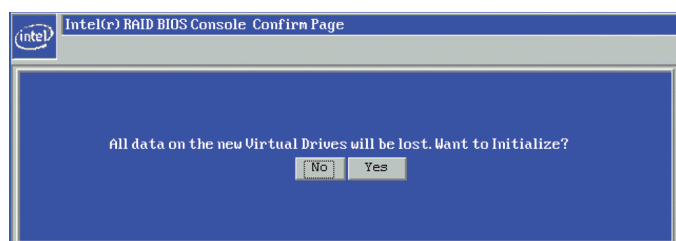
9 Click **Next**.



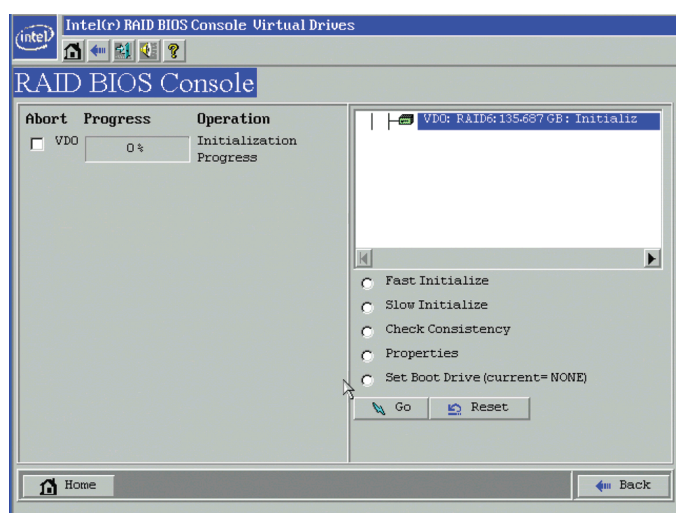
10 Click **Yes**.



11 Click **Yes**.



12 Select **Fast Initialize** to do a preliminary initialization of the drives for loading the operating system. A full initialization will occur in the background.



Creation of a RAID volume is now complete.

5 Install the Operating System Drivers

Note: Below section lists the general driver loading process for frequently used operating systems. For more details, and for other supported operating systems, refer to the corresponding driver release notes to get latest information.

Microsoft Windows 2003* OR **Microsoft Windows 2008*** OR **Red Hat* Enterprise Linux** OR **SuSE* Linux Enterprise Server**

- Create installation media (floppy disk required for Microsoft Windows 2003*; removable media, such as a floppy disk, USB device, or CD/DVD-ROM, required for Microsoft Windows 2008*). See the instructions at the right.
- Boot the server and start the OS installation.
- Press the <F6> key as soon as the first screen appears.
- When prompted to specify a mass storage controller:
 - Press <S> to specify additional storage devices.
 - Insert the installation driver disk that you created in step 1 above.
 - Press the <Enter> key to select the "Installation Driver" and continue with the Windows installation.

When you see: "Where do you want to install windows?", select **Load Driver**, and then click Next.

When prompted by the Load Driver dialog:

- Insert the removable installation media that you created in step 1 above.
- Press the <Enter> key to select the "Installation Driver" and continue with the Windows installation.

5 Follow the on-screen instructions to complete the Windows installation.

- Create installation media (removable media, such as a floppy disk, USB device, or CD/DVD-ROM, required). See the instructions at the right.
- Boot the system with Red Hat* Enterprise Linux CD-ROM.
- At the boot prompt, insert the Linux installation disk that you created in step 1.
- Type Linux dd, and press the <Enter> key.
- Follow the on-screen instructions to complete the installation. The RAID controller driver is automatically detected and installed.

Boot the system with SuSE* Linux Enterprise Server (SLES) CD-ROM.

When the first screen displays, insert the Linux installation disk that you created in step 1.

Press the <F5> key for SLES 10 or the <F6> key for SLES 9 to load the driver, and then select an installation menu option.

To manage a RAID array, install Intel® RAID Web Console 2

Install the Intel® RAID Web Console 2 package from the Resource CD. Extract the contents of the ZIP file and run Setup.exe from the Disk1 folder.

Install the Intel® RAID Web Console 2 package from the Resource CD.

Unpack Linux_rwc2_*.tar.gz.
Remove any line breaks and allow permissions by typing
\$> tr -d '\1532' < existing_file_name > new_file_name
\$> chmod a+x new_file_name
Run ./install.sh

Choose one of four installation modes: Complete (installs all features), Client (administrative machine only), Server (can be managed remotely), or StandAlone (only manages itself).

To start Intel® RAID Web Console 2 from within the OS: Choose Start | Programs | RAID WebConsole | RAID WebConsole 2. For additional details, see the Intel® RAID Software User's Guide.

Create Installation Media

- Obtain the drivers either from the resource CD or the Intel web site.
- If using the Resource CD, insert the resource CD. Browse to \Drivers and then the matching OS folder.
OR
Go to <http://downloadcenter.intel.com> and locate your product under Server Products in the left menu.

Microsoft Windows*

- Extract the files from the zip file to your hard drive. Copy the appropriate files to a floppy disk (for Microsoft Windows 2003*) or removable media (for Microsoft Windows 2008*).
- Copy the matching .sys, .cat, .oem, and .inf driver files to a floppy disk or removable media.

Linux*

Extract the driver update disk (DUD) image (file extension .img) from the zip file to your hard drive. If you have a system with Microsoft Windows*, you will need a third-party utility such as 'rawrite' to extract the DUD image to a floppy disk. For a system under Linux or Sun Solaris*, use the 'dd' command as follows:
dd if=<image_file_name> of=<path-to-media>
'path-to-media' is usually /dev/fd0, but may differ if you are using a USB floppy drive.

Understanding the Audible Alarm

The audible alarm will beep under two conditions: When a drive has failed, and during and following a rebuild.

The drive failure alarms are as follows:

- Degraded Array: Short tone, one second on, one second off
- Failed Array: Long tone, three seconds on, one second off
- Hot Spare Commissioned: Short tone, one second on, three seconds off

The drive failure tones will repeat until the problem is corrected or until the alarm is silenced or disabled.

The rebuild alarm tone remains ON during the rebuild. After the rebuild completes, an alarm with a different tone will sound, signaling the completion of the rebuild. This is a one-time (non-repeating) tone.

The alarm can be *disabled* either in the Intel® BIOS Console or in the Intel® Web Console 2 management utilities. When disabled, the alarm will not sound unless it is re-enabled in one of the utilities.

The alarm can be *temporarily silenced* either in the Intel® BIOS Console or in the Intel® Web Console 2 management utilities. The alarm is not disabled and will sound again if another event occurs. The temporarily silenced alarm will be enabled if the system is power cycled.