Intel® Integrated RAID Module RMS25KB080 Quick Start User's Guide

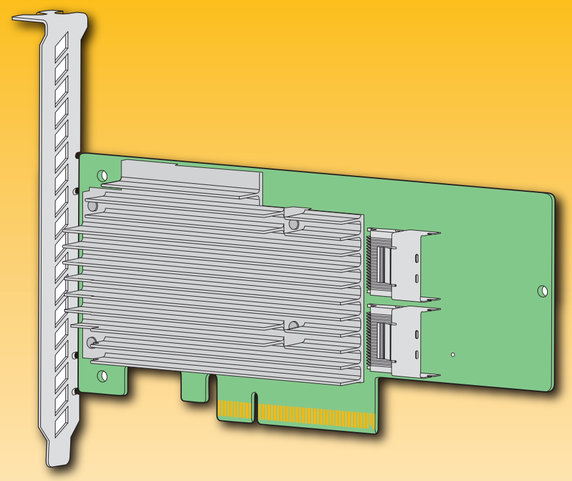
This guide contains step-by-step instructions for installing the Intel® Integrated RAID Module RMS25KB080 and information on using the BIOS setup utility to configure a single logical drive array and install the driver into the operating system.

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.



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://support.intel.com/support/motherboards/server/sb/cs-010770.htm for complete safety information.

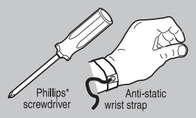
Warning

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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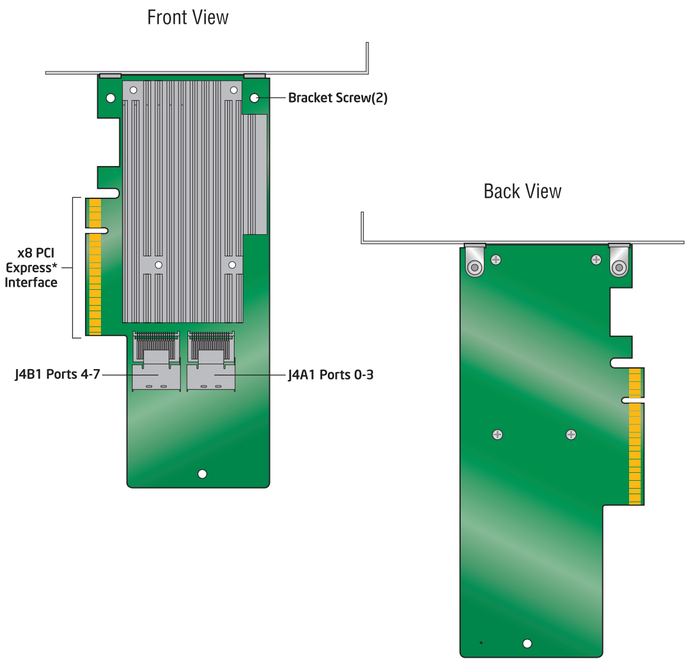
Intel® Integrated RAID Module RMS25KB080 Reference Diagram



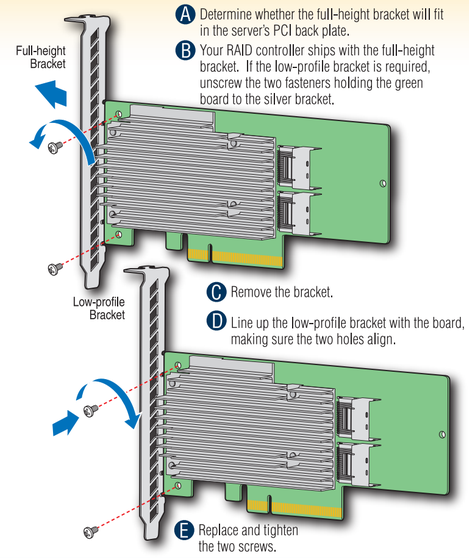
For more information on the jumpers referenced in this diagram, refer to user guide located on the web at: http://support.intel.com/support/motherboards/server.

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 RMS25KB080
- Server board with a x8 or x16 PCI Express* slot (this controller is designed to meet the x8 PCI Express* Generation 3 specification and is backward compatible with generation 2 or 1 slots)
- 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 Check the Bracket Height



A. Determine whether the full-height bracket will fit in the server's PCI back plate.

B. Your RAID controller ships with the full-height bracket. If the low-profile bracket is required, unscrew the two fasteners holding the green board to the silver bracket.

C. Remove the bracket.

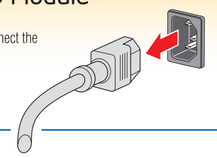
D. Line up the low-profile bracket with the board, making sure the two holes align.

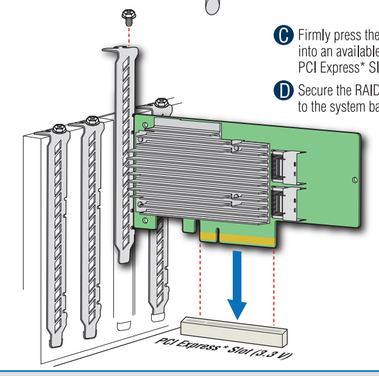
E. Replace and tighten the two screws.

2 Install the RAID Module

A. Power down the system and disconnect the power cord.

B. Remove the system cover and any other pieces to access the PCI Express* slot.





C. Firmly press the RAID module into an available x8 or x16 PCI Express* Slot.

D. Secure the RAID module bracket to the system back panel.

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

3 Connect the RAID Module

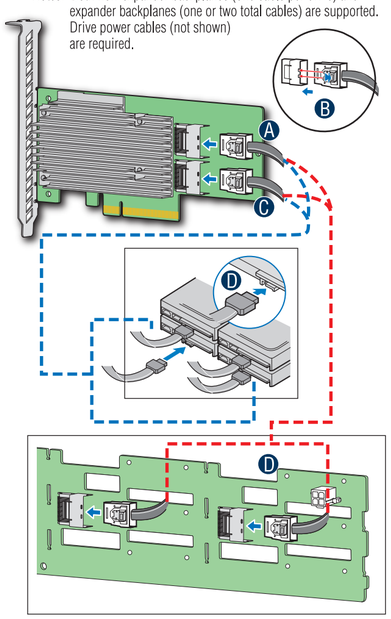
A. Connect the wide end of the cable to the up silver connector (ports 0-3).

B. Push the cable into the silver connector until it makes a slight click.

C. If using more than four drives, connect the wide end of the second cable to the down silver connector (ports 4-7).

D. 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.

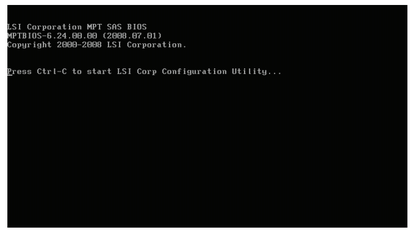


Rear view of four SATA drives or backplane connected to ports on the Intel® Integrated RAID Module RMS25KB080.

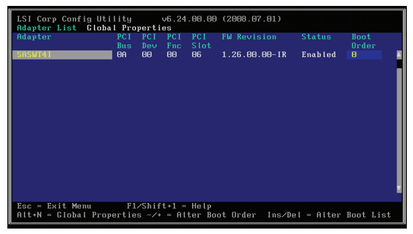
4 Use the LSI MPT SAS BIOS Configuration Utility* to Create a RAID Virtual Drive

Note: As necessary, see "Choosing the Right RAID Level" on side 2 of this Quick Start User's Guide for a brief description of RAID levels.

1. Power on the system and press <**Ctrl**> + <**C**> when the screen below is displayed.

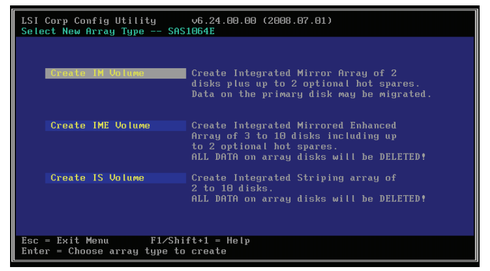


2. In the Adapter List Global Properties window select SASWT4I in the Adapter column and press <**Enter**>.



3. Highlight RAID Properties and press <**Enter**>.

4. On the Select New Array Type screen, select the appropriate configuration, for example Create IM Volume, and press <**Enter**>.

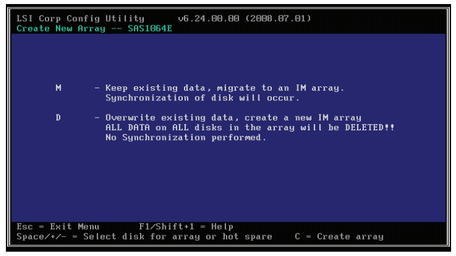


Side 2

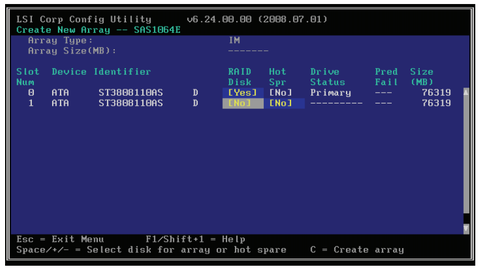
4 (Cont.) Use the LSI MPT SAS BIOS Configuration Utility* to Create a RAID Virtual Drive

5 In the RAID Disk column highlight **No** and press <**Space**>.

6 Press <M> to keep existing data, or press <**D**> to overwrite existing data.

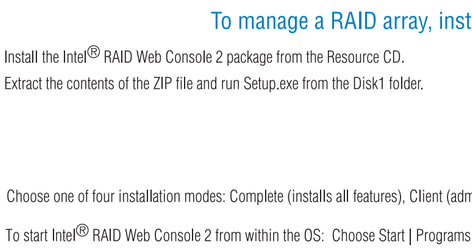


7 In the RAID Disk column highlight **No** and press <**Space**>.

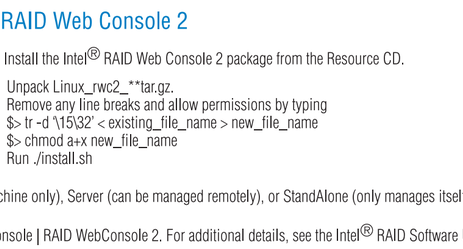


8 When the RAID Disk status is listed as shown below, press <**C**> to create an array.

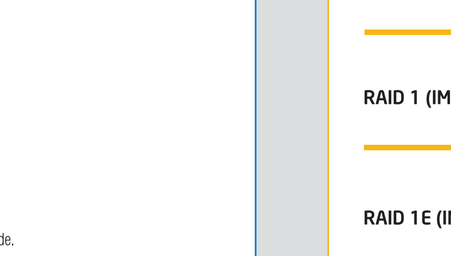
9 Select **Save changes then exit this menu**, then press <**Enter**>.



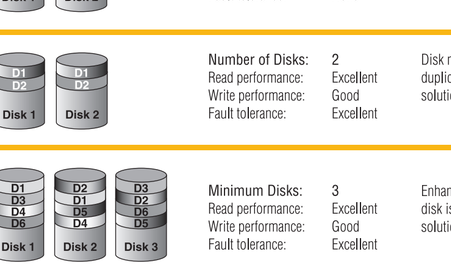
10 After the RAID array is created, the following screen will appear. Press <**Esc**> to return to the main menu.



11 Choose **Exit the Configuration Utility and Reboot** and press <**Enter**> to reboot the system.



12 During system reboot, verify that Logical Volume is displayed in the Product column.



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**

1. 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.
2. Boot the server and start the OS installation.
3. Press the <F6> key as soon as the first screen appears.
4. When prompted to specify a mass storage controller:
   a. Press <S> to specify additional storage devices.
   b. Insert the installation driver disk that you created in step 1 above.
   c. 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:
   a. Insert the removable installation media that you created in step 1 above.
   b. 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.

Red Hat Enterprise Linux* OR *SuSE* Linux Enterprise Server*

1. Create installation media (removable media, such as a floppy disk, USB device, or CD/DVD-ROM, required). See the instructions at the right.
2. Boot the system with Red Hat* Enterprise Linux CD-ROM.

   Boot the system with SuSE* Linux Enterprise Server (SLES) CD-ROM.
3. At the boot prompt, insert the Linux installation disk that you created in step 1.

   When the first screen displays, insert the Linux installation disk that you created step 1.
4. Type **Linux dd**, and press the **<Enter>** key.

   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.
5. Follow the on-screen instructions to complete the installation. The RAID controller driver is automatically detected and installed.

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 '\15\32' < 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

1. Obtain the drivers either from the resource CD or the Intel web site.
2. 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*

3. 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 utlity 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.

Choosing the Right RAID Level

RAID 0 (IS)

Minimum Disks: 2
Read performance: Excellent
Write performance: Excellent
Fault tolerance: None

Striping of data across multiple drives in an array. This provides high performance, but no data protection.

RAID 1 (IM)

Number of Disks: 2
Read performance: Excellent
Write performance: Good
Fault tolerance: Excellent

Disk mirroring, meaning that all data on one disk is duplicated on another disk. This is a high availability solution, but only half the total disk space is usable.

RAID 1E (IME)

Minimum Disks: 3
Read performance: Excellent
Write performance: Good
Fault tolerance: Excellent

Enhanced disk mirroring, meaning that all data on one disk is duplicated on other disks. This is a high availability solution, but only half the total disk space is usable.