

MAN-471-QH
5/30/00

MegaRAID® Enterprise 1600

64-Bit 66 MHz PCI RAID Controller With Four
Ultra 160M SCSI Channels



Thank you for purchasing the MegaRAID Enterprise 1600 PCI RAID controller. Please take a few minutes to review this quick guide before beginning the installation process. If you require a further explanation of any item covered in this guide, please refer to the complete hardware manual.

Hardware Installation Requirements

You must have the following items before installing the MegaRAID Enterprise 1600 PCI RAID controller in a server:

- Enterprise 1600 64-bit Ultra 160M RAID controller with cache memory
- Host computer with an available 64-bit PCI expansion slot (it will also work in a 32-bit slot and non-160M drives)
- Enterprise 1600 installation CD
- Necessary SCSI cables and terminators
- An Uninterruptible Power Supply (UPS) for the entire system is recommended
- 160/m SCSI hard disk drives and other SCSI devices, as desired
- Optional: SCSI cables that interconnect the Enterprise 1600 to external SCSI devices
- Offset connectors are needed for external connectors if stacked.

Installation Steps

If you need only the basic MegaRAID features and your computer does not use other adapter cards with resource settings that may conflict with the MegaRAID Enterprise 1600 settings, the following steps will make your installation quick and easy. For all other configurations, please refer to the hardware manual.

Check	Step	Action
<input type="checkbox"/>	1	Unpack the controller and inspect for damage.
<input type="checkbox"/>	2	Turn the computer off and remove the cover.
<input type="checkbox"/>	3	Make sure the motherboard jumper settings are correct.
<input type="checkbox"/>	4	Install cache memory on the MegaRAID Enterprise 1600 controller. A minimum of 8 MB of cache is required.
<input type="checkbox"/>	5	Check the jumper settings on the MegaRAID Enterprise 1600 controller. See Step 5 in the hardware installation manual for more details.
<input type="checkbox"/>	6	Set SCSI termination.
<input type="checkbox"/>	7	Set SCSI terminator power (TermPWR).
<input type="checkbox"/>	8	Connect the Battery Harness (optional).
<input type="checkbox"/>	9	Install the MegaRAID Enterprise 1600 card.
<input type="checkbox"/>	10	Connect the SCSI cables to the SCSI devices.
<input type="checkbox"/>	11	Set target IDs for the SCSI devices.
<input type="checkbox"/>	12	Replace the computer cover and turn the power on.
<input type="checkbox"/>	13	Run MegaRAID Enterprise 1600 configuration utility (optional).
<input type="checkbox"/>	14	Install software drivers for the desired operating systems.

Contents for the MegaRAID Enterprise 1600

You should have received:

- MegaRAID Enterprise 1600 RAID controller
- MegaRAID Driver and Documentation CD, which includes:
 - MegaRAID Enterprise 1600 Drivers and Utilities
 - MegaRAID Enterprise 1600 Hardware Guide*
 - MegaRAID Configuration Software Guide*
 - MegaRAID Operating Systems Drivers Guide*
- Software License Agreement
- Warranty Registration Card

Technical Support

If you need help installing, configuring, or running the MegaRAID Enterprise 1600, call American Megatrends Technical Support at 770-246-8645. Before you call, please complete the **MegaRAID Problem Report** in the hardware manual.

Web Site: <http://www.ami.com>.

Universal Operating System Software Drivers

All MegaRAID controllers include configuration utilities and drivers for:

- Novell® NetWare® 4.x and 5.0
 - HAM, DDFS and ASPI Driver
- Windows NT® 4.0/2000
 - Miniport Driver
- SCO® Unix® 5.0
 - MSCSI Driver
- OS/2® Warp 4.x and E-business
 - MSCSI Driver
- UnixWare® & SMP 2.x, 7.0
 - PDI Driver
- DOS 5.0 and Above
 - ASPI driver
- Linux Redhat
- Solarisx86 2.6, 7 and 8

NOTE: The DOS drivers for the MegaRAID Express are contained in the firmware,

Step 1 - Unpack

Unpack and install the hardware in a static-free environment. The MegaRAID controller card is packed inside an anti-static bag between two sponge sheets. Remove the controller card and inspect it for damage. If the card appears damaged or if any items (listed in the box to the left) are missing, contact American Megatrends Technical Support at 770-246-8645. The MegaRAID Controller is shipped with the following items on CD:

- MegaRAID Configuration Software, Operating System and Enterprise 1600 Hardware Guides
- MegaRAID Drivers and Configuration Utilities
- Software License Agreement
- Warranty registration card

Step 2 - Power Down

Turn off the computer and remove the cover. Make sure the computer is disconnected from any networks before installing the controller card.

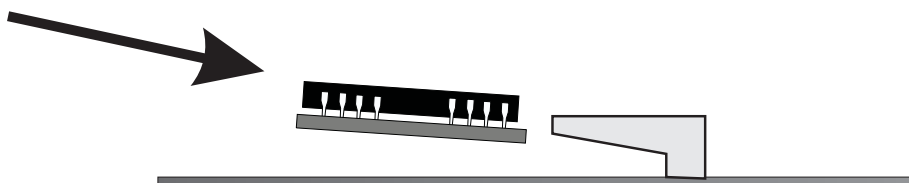
Step 3 - Configure Motherboard

Make sure the motherboard is configured correctly for MegaRAID. MegaRAID is essentially a SCSI Controller. Each MegaRAID card you install will require an available PCI IRQ; make sure an IRQ is available for each controller you install.

Step 4 - Install Cache Memory

Important - A minimum of 8 MB of cache memory is required. The cache memory must be installed before MegaRAID Enterprise 1600 is operational.

Install cache memory DIMMs on the MegaRAID Enterprise 1600 controller card in the cache memory socket. Use a 64-bit 3.3V single-sided or double-sided 168-pin unbuffered DIMM. Lay the controller card component-side up on a clean static-free surface. The memory socket is mounted flush with the MegaRAID card, so the DIMM is parallel to the MegaRAID card when properly installed. The DIMM clicks into place, indicating proper seating in the socket. The MegaRAID card is shown laying on a flat surface below.



Lay the controller card component-side up on a clean static-free surface and install the DIMMs. The DIMMs click into place, indicating proper seating in the socket, as shown above.

Step 5 - Set Jumpers

Make sure the jumper settings on the MegaRAID Enterprise 1600 card are correct. Jumper setting details can be found in the *Enterprise 1600 Hardware Guide*.

Step 6 - Set SCSI Termination

Each MegaRAID SCSI channel can be individually configured for termination enable mode by setting the J2, J3, J5 and J7 jumpers.

You must terminate the SCSI bus properly. Set termination at both ends of the SCSI cable. The SCSI bus is an electrical transmission line and must be terminated properly to minimize reflections and losses. Typical configuration is to set the Termination Enable jumpers to allow software to set termination automatically.

Note: The default jumper settings on the controller for both Termination and TermPWR normally do not need to be changed.

Step 7 - Set SCSI Terminator Power (TermPWR)

Important - All MegaRAID Enterprise 1600 SCSI channels need TermPWR to operate. If a channel is not being used, make sure the TermPWR jumper for that channel is set to supply TermPWR from the PCI bus. Jumpers J9, J10, J11, and J12 control TermPWR on the Enterprise 1600.

Step 8 - Connect the Battery Harness (Optional)

You can install a battery pack onto the Series 471 MegaRAID Enterprise 1600 160M RAID controller. Call Technical Support at 770-246-8645 for more information.

Step 11 - Set Target IDs

Set target identifiers (TIDs) on the SCSI devices. Each device in a specific SCSI channel must have a unique TID in that channel. Non-disk devices, such as CD-ROM or tape drives, should have unique SCSI IDs regardless of the channel to which they are connected.

Step 12 - Power Up

Replace the computer cover and reconnect the AC power cords. Turn power on to the host computer. Set up the power supplies so the SCSI devices are powered up at the same time as or before the host computer. If the computer is powered up before a SCSI device, the device might not be recognized.

During boot, the MegaRAID Enterprise 1600 BIOS message appears:

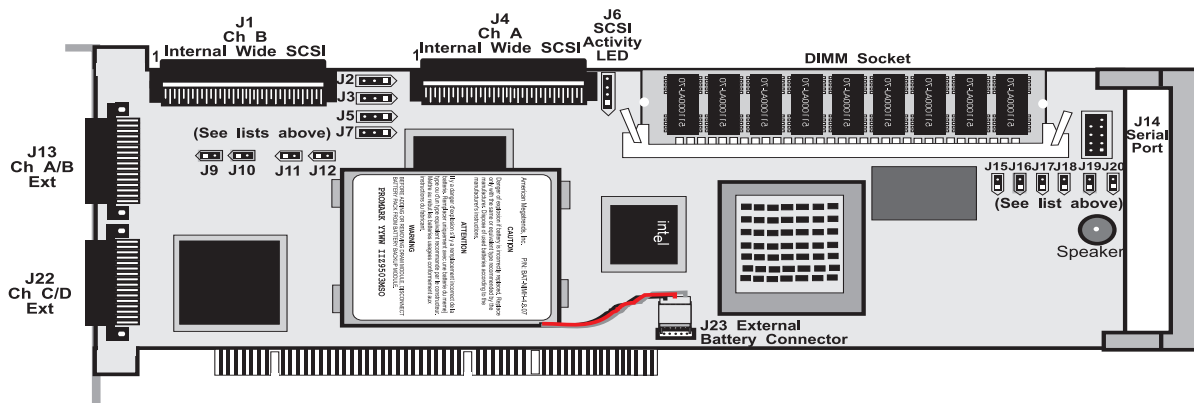
```
MegaRAID Enterprise 1600 Disk Array Adapter BIOS Version x.xx date
Copyright (C) American Megatrends, Inc.
Firmware Initializing . . . [Scanning SCSI Device ...(etc)... ]
```

The firmware takes several seconds to initialize. During this time the adapter will scan each SCSI channel. When it is ready, the following lines will appear:

```
host Adapter-1 Firmware Version x.xx date DRAM Size 8 MB
0 Logical Drives found on the Host Adapter
0 Logical Drives handled by BIOS
Press <Ctrl><M> to run MegaRAID Enterprise 1600 BIOS Configuration
Utility
```

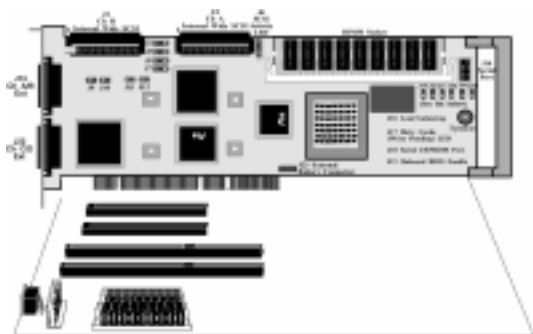
The <Ctrl> <M> prompt times out after several seconds. The MegaRAID Enterprise 1600 host adapter (controller) number, firmware version and cache DRAM size are displayed in the second portion of the BIOS message. The numbering of the controllers follows the PCI slot scanning order used by the host motherboard.

MegaRAID Enterprise 1600 Card Layout



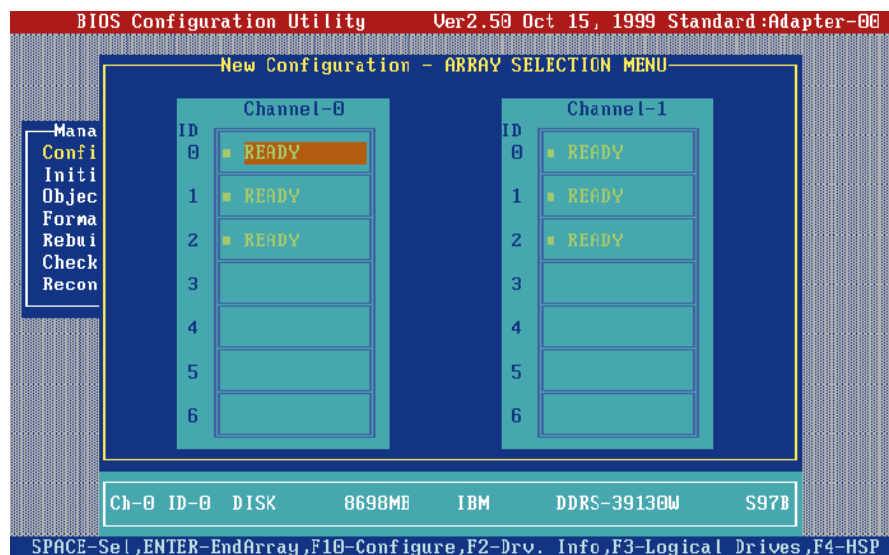
Step 9 - Install the MegaRAID 1600 Card

The MegaRAID card can plug into a 32-bit or 64-bit PCI slot that receives 5 V and, optionally, 3.3 V through the motherboard. Choose a PCI slot and align the MegaRAID controller card bus connector to the slot. Press down gently but firmly to make sure that the card is properly seated in the slot. The bottom edge of the controller card should be flush with the slot. **Insert the MegaRAID card in a PCI slot as shown below:**



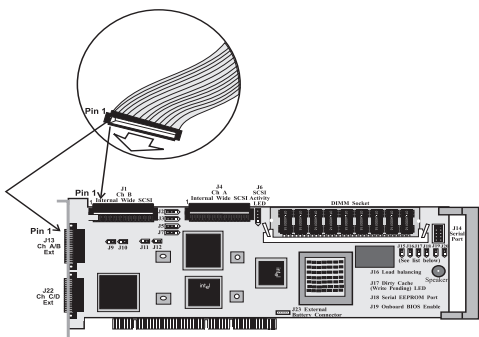
Step 13 - Run MegaRAID Enterprise 1600 Configuration Utility

Press <Ctrl><M> or <Ctrl><H> to run the MegaRAID Enterprise 1600 Configuration Utility. A screen such as the one shown below displays. See the *MegaRAID Configuration Software Guide* for information about running MegaRAID Configuration Utility.



Step 10 - Connect the SCSI Cables to the SCSI Devices

Connect the SCSI cables to the SCSI devices. The MegaRAID Enterprise 1600 controller provides two types of connectors: two internal high-density 68-pin SCSI connectors and four external ultra high-density 68-pin SCSI connectors. Offset connectors are needed for external connectors if stacked.



Step 14 - Installing Software Drivers for the Desired Operating Systems

For driver installation procedures, please refer to the *MegaRAID Operating Systems Drivers Guide* on the Drivers and Documentation CD.

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