



# MegaRAID® Express 500

Low-Cost, Ultra 160M RAID Controller



Thank you for purchasing the MegaRAID Express 500 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 Express 500 PCI RAID controller in a server:

- Express 500 controller with cache memory
- Host computer with an available 3.3v or 5v, 32-bit PCI expansion slot
- Express 500 installation CD
- Necessary SCSI cables and terminators,
- An Uninterruptible Power Supply (UPS) for the entire system is recommended

## 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 Express 500 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/BIOS settings are correct.
<input type="checkbox"/>	4	Install cache memory on the MegaRAID Express 500 controller. A minimum of <b>16 MB</b> of cache is required.
<input type="checkbox"/>	5	Check the jumper settings on the MegaRAID Express 500 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	Install the MegaRAID Express 500 card.
<input type="checkbox"/>	9	Connect the SCSI cables to the SCSI devices.
<input type="checkbox"/>	10	Set target IDs for the SCSI devices.
<input type="checkbox"/>	11	Replace the computer cover and turn the power on.
<input type="checkbox"/>	12	Run MegaRAID Express 500 configuration utility (optional).
<input type="checkbox"/>	13	Install operating system and MegaRAID software drivers for the desired operating systems.

## Contents for the MegaRAID Express 500

You should have received:

- MegaRAID Express 500 RAID controller
- MegaRAID Driver and Documentation CD, which includes:
  - MegaRAID Express 500 Drivers and Utilities
  - MegaRAID Express 500 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 Express 500 PCI RAID Controller, call your American Megatrends Technical Support representative at 770-246-8645. Before you call, please complete the *MegaRAID Problem Report* form on the next page.

## Step 1 - Unpack

Unpack and install the hardware in a static-free environment. The MegaRAID Express 500 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, call your American Megatrends Technical Support representative at 770-246-8645.

## 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 Express 500. MegaRAID Express 500 is essentially a SCSI controller. Each MegaRAID Express 500 card you install requires an available PCI IRQ; make sure an IRQ is available for each controller you install.

## Step 4 - Install Cache Memory

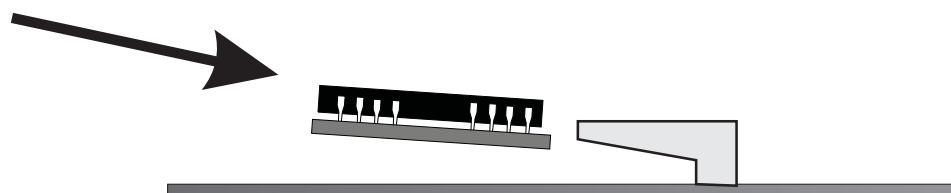
Use 72-bit 3.3V unbuffered SDRAM only. The maximum memory bandwidth is 528 MB/sec.

For more information on SDRAM specifications, refer to the *MegaRAID Express 500 Hardware Guide*.

**Important - A minimum of 16 MB of cache memory is required. The cache memory must be installed before MegaRAID Express 500 is operational.**

Install cache memory on the MegaRAID Express 500 card in the DIMM socket. This socket accepts a 168-pin DIMM.

Lay the controller card component-side up on a clean static-free surface to install the DIMM. The memory socket is mounted flush with the MegaRAID Express 500 card, so the DIMM will stand at a right angle to the MegaRAID card when properly installed. The DIMM clicks into place, indicating proper seating in the socket, as shown below. The MegaRAID card is shown laying on a flat surface in the illustration below.



## 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
- UnixWare® & SMP 2.x, 7.0
  - PDI Driver
- Linux Redhat
- Solarisx86 2.6, 7 and 8
- DOS 5.0 and Above
  - ASPI driver

NOTE: The DOS drivers for the MegaRAID Express are contained in the firmware, except the DOS ASPI and CD-ROM drivers.

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### Step 5 - Set Jumpers

Make sure the jumper settings on the MegaRAID Express 500 card are correct. Jumper setting details can be found in the *MegaRAID Express 500 Hardware Guide*.

### Step 6 - Set Termination

The MegaRAID SCSI channel can be configured for termination enable mode by setting the J1 Termination Enable jumper.

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 Terminator Power (TermPWR)

**Important** - Both MegaRAID Express 500 SCSI channels need TermPWR to operate. If a channel is not being used and no auxiliary power source is connected, change the jumper setting for that channel to supply TermPWR from the PCI bus.

### Step 11 - 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 Express 500 BIOS message appears:

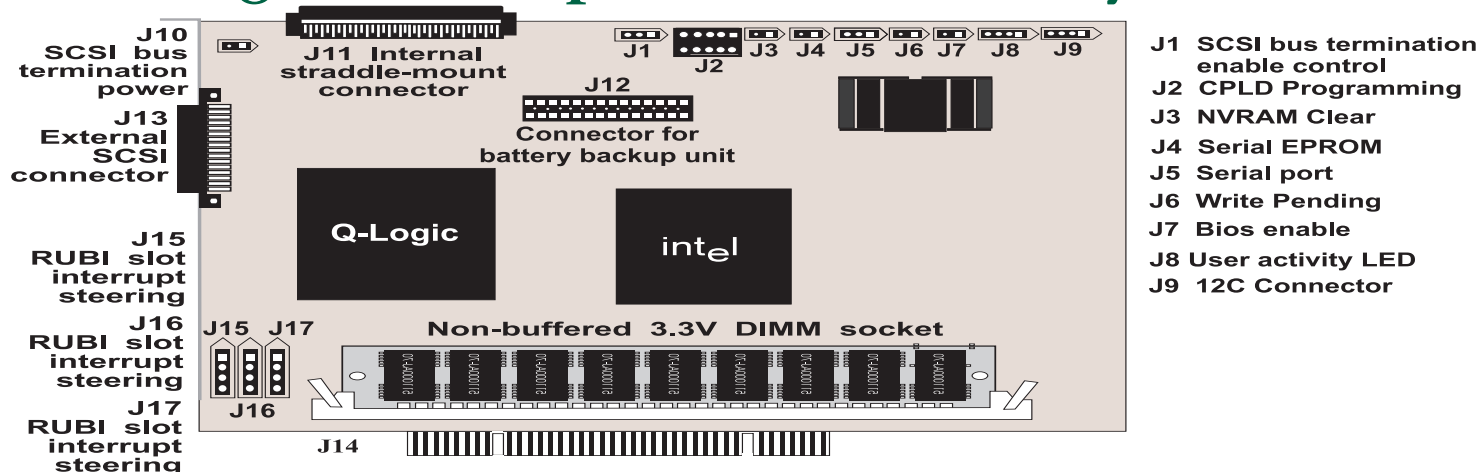
```
MegaRAID Express 500 Disk Array Adapter BIOS Version x.xx date
Copyright (C) American Megatrends, Inc.
Firmware Initializing . . . [Scanning SCSI Device ...(etc)... ]
```

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

```
host Adapter-1 Firmware Version x.xx date DRAM Size 4MB
0 Logical Drives found on the Host Adapter
0 Logical Drives handled by BIOS
Press <Ctrl><M> to run MeagRAID Express 500 BIOS Configuration
Utility
```

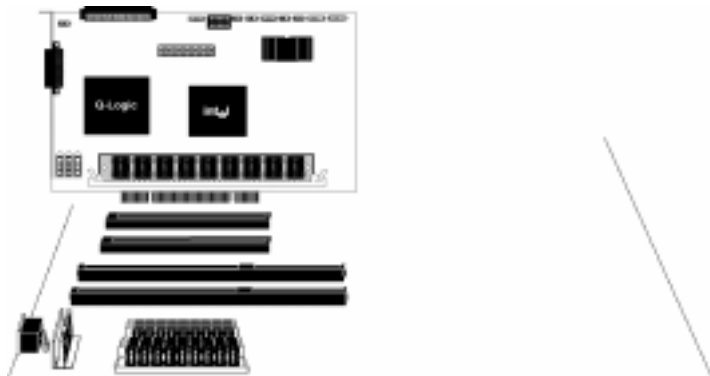
The <Ctrl> <M> prompt times out after several seconds. The MegaRAID Express 500 host adapter (controller) number, firmware version and cache DRAM size are displayed in the second portion of the BIOS message. The numbering of the controllers follows the PCI slot scanning order used by the host motherboard.

## MegaRAID Express 500 Card Layout



### Step 8 - Installing the MegaRAID Express 500

Choose a 3.3 V PCI slot and align the MegaRAID Express 500 controller card bus connector to the slot. Press down gently but firmly to make sure the card is properly seated in the slot. The bottom edge of the controller card should be flush with the slot.



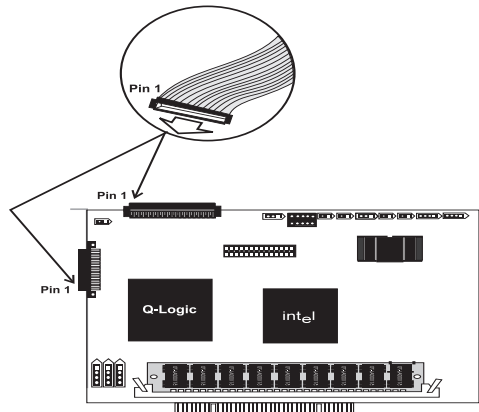
### Step 12 - Running the MegaRAID Express 500 BIOS Setup

Press <Ctrl><M> or <Ctrl><M> to run the MegaRAID Express 500 BIOS setup utility. A screen such as the one below displays. See the *MegaRAID Configuration Software Guide* for information about running MegaRAID-64 LVD BIOS setup.



### Step 9 - Installing the MegaRAID Express 500

Connect the SCSI cables to the SCSI devices. The MegaRAID Express 500 controller provides two types of connectors: one internal high-density 68-pin SCSI connector and one external ultra high-density 68-pin SCSI connector.



### Step 10 - 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 13 - Installing Software Drivers for the Desired Operating System

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

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