

INSTALLATION GUIDE

**MegaRAID IDE
66/100/133 Controller
FreeBSD**

October 2002

This document contains proprietary information of LSI Logic Corporation. The information contained herein is not to be used by or disclosed to third parties without the express written permission of an officer of LSI Logic Corporation.

Document DB11-000016-00, First Edition (October 2002)

This document describes the installation of FreeBSD for LSI Logic Corporation's MegaRAID IDE 66/100/133 controller and will remain the official reference source for all revisions/releases of these products until rescinded by an update.

LSI Logic Corporation reserves the right to make changes to any products herein at any time without notice. LSI Logic does not assume any responsibility or liability arising out of the application or use of any product described herein, except as expressly agreed to in writing by LSI Logic; nor does the purchase or use of a product from LSI Logic convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual property rights of LSI Logic or third parties.

Copyright © 2002 by LSI Logic Corporation. All rights reserved.

TRADEMARK ACKNOWLEDGMENT

LSI Logic, the LSI Logic logo design, and MegaRAID are trademarks or registered trademarks of LSI Logic Corporation. Microsoft, Windows NT, and Windows are registered trademarks of Microsoft Corporation. All other brand and product names may be trademarks of their respective companies.

CD

To download the latest drivers and documentation, and to receive product literature, visit us at <http://www.lsillogic.com>.

For a current list of our distributors, sales offices, and design resource centers, view our web page located at

http://www.lsillogic.com/contacts/na_salesoffices.html

Contents

1	Overview	1
2	Installing FreeBSD on the MegaRAID IDE RAID Controller	1
2.1	Preparing Your System for Installation	1
2.2	Preparing a Driver Update Diskette	2
2.3	Installing FreeBSD	2
3	Installing the MegaRAID IDE Driver on an Existing System	4
4	Updating the Driver	6
5	Uninstalling the Driver	6

MegaRAID IDE 66/100/133 Controller

FreeBSD Installation Guide



1 Overview

This document contains the instructions for installing and using the MegaRAID IDE RAID controller on a FreeBSD-4.5/4.6 system. FreeBSD is an operating system that can be used for x86-compatible, DEC Alpha, and PC-98 architectures. It provides advanced features for networking, security, and performance. For additional information, refer to the following web site: <http://www.freebsd.org/>.

2 Installing FreeBSD on the MegaRAID IDE RAID Controller

This section describes the installation of FreeBSD on the MegaRAID IDE controller. There are three parts to this procedure:

1. Preparing your system for installation
2. Preparing the driver update diskette
3. Installing FreeBSD

Perform the following steps to install FreeBSD:

2.1 Preparing Your System for Installation

- Step 1. Connect your hard disk drives to the MegaRAID controller.
- Step 2. Boot up the system.
- Step 3. During bootup, press <Ctrl> <M> to access the BIOS Configuration Utility.
- Step 4. Configure your hard disk drives as RAID 0, RAID 1, or RAID 10 arrays.

Step 5. Use the BIOS setup menu to select Boot Sequence to boot in the following order:

1. CDROM
2. Floppy drive
3. SCSI

Note: Refer to the BIOS documentation for instructions on setting the boot sequence. If your BIOS settings do not allow booting in the order listed above, set the BIOS to boot first from CDROM. After installation is complete, set SCSI as the first boot option for booting up the system.

2.2 Preparing a Driver Update Diskette

Step 1. Prepare a driver update diskette for the MegaRAID controller.

Step 2. Access the driver diskette image file with the appropriate driver version, `fbsd<driver version>.img`.

- On a DOS or Windows system, use the file `rawrite.exe` to make the boot disk. You can find this file on the FreeBSD CD, in the “/tools” directory. Run the program in a command window and follow the prompts.
- On a FreeBSD system, use the “dd” command to create the driver diskette. Insert a floppy diskette into the floppy drive and type the following (enter the appropriate driver version):

```
# dd if=fbsd_<driver-version>.img
```

2.3 Installing FreeBSD

Step 1. Boot from the FreeBSD CD to begin installing FreeBSD.

On the loader screen, you are asked whether to boot immediately.

Step 2. Press the spacebar to stop the loader from autobooting when the following displays:

```
BTX loader 1.00 BTX version is 1.01
Console: internal video/keyboard
BIOS driver A: is disk0
BIOS driver B: is disk1
```

```
BIOS driver C: is disk2
BIOS 636kB/74512kB available memory
```

```
FreeBSD/i386 bootstrap loader, Revision 0.8
```

```
-
```

```
Hit [Enter] to boot immediately, or any other key
for command prompt.
```

```
Booting [kernel] in 9 seconds...
```

```
<-press SPACE key
```

The message “ok” displays at the bottom of the screen.

Step 3. When the following prompt displays:

```
Type '?' for a list of commands, 'help' for more
detailed help
```

```
ok load mide
```

```
/kernel text=0x24f1db data=0x300ed+0x2062c
```

type the following:

```
load kernel
```

Step 4. Insert the driver update diskette into the floppy drive.

Step 5. Type the following, depending on the FreeBSD release:

– For the FreeBSD 4.5 release:

```
ok load disk1:mide-4.5
```

```
disk1:/mide-4.5.ko text=0xf571 data=0x2c8+0x254
```

– For the FreeBSD 4.6 release:

```
ok load disk1:mide-4.6
```

```
disk1:/mide-4.6.ko text=0xf571 data=0x2c8+0x254
```

Step 6. Press <Enter>.

Step 7. Type the following:

```
boot
```

Step 8. Continue the normal installation steps.

See the FreeBSD installation manual for more information.

Note: The system device maps in the same order as shown in the BIOS setup menu. If there are no other SCSI devices, the device marked at “BOOT” (or “HDD0”) is known as **/dev/da0**. “HDD1” is known as **/dev/da1**, “HDD2” as **/dev/da2**, and so on.

Before you complete installation, you must copy the mide driver module to the system. Use the setup script “**postinstall**” on the driver disk to do this.

Step 9. Before you reboot the system, press <Alt><F4> at the command shell and type the following:

```
# mount -o ro /dev/fd0 /mnt
# /mnt/postinstall
# umount /mnt
```

Step 10. Press <Alt><F1> to return to the setup screen.

Step 11. Select [**X Exit Install**] to complete setup.

3 Installing the MegaRAID IDE Driver on an Existing System

Perform the following steps if you are currently running FreeBSD and would like to access drives or arrays that are connected to the MegaRAID IDE controller.

Step 1. Insert the driver diskette in the floppy drive.

Step 2. To copy the driver module, type the following commands:

– For the FreeBSD 4.5 release:

```
# mount -o ro /dev/fd0 /mnt
# cp /mnt/mide-4.5.ko /modules/mide.ko
# umount /mnt
```

– For the FreeBSD 4.6 release:

```
# mount -o ro /dev/fd0 /mnt
# cp /mnt/mide-4.6.ko /modules/mide.ko
# umount /mnt
```

Step 3. Load the module during system bootup to confirm that it works for your system.

If the module has loaded successfully, an LSI MegaIDE banner appears, along with a screen showing the attached drives. After it loads, you can access the drives as SCSI devices (if there are no other SCSI devices, the devices are listed as **/dev/da0**, **/dev/da1**, **/dev/da2**, and so on).

The following is an example of the code that displays:

```
F1      FreeBSD
Default: F1

>> FreeBSD/i386 BOOT
Default: 0:ad(0,a)/boot/loader
boot:

BTX loader 1.00 BTX version is 1.01
Console: internal video/keyboard
BIOS driver A: is disk0
BIOS driver C: is disk2
BIOS 636kB/74512kB available memory

FreeBSD/i386 bootstrap loader, Revision 0.8
Loading /boot/defaults/loader.conf
/kernel text=0x24f1db data=0x3007ec+0x2062c -
/
Hit [Enter] to boot immediately, or any other key
  for command prompt.
Booting [kernel] in 9 seconds...

<-press SPACE key
Type '?' for a list of commands, 'help' for more
  detailed help
ok load mide

/module/mide.ko text=0xf571 data=0x2c8+0x254
```

Note : If you have configured a RAID 0 or RAID 1 array that contains four hard drives, it is presented to the system as device **/dev/da0**. You can use the command `/stand/sysinstall` to create partitions and disk labels (such as `da0s1e`) on device **/dev/da0**. Next, you can mount **/dev/da0s1e** to access it.

Step 4. To avoid having to type “load mide” each time at bootup, you can configure the system to load the driver automatically using the following command:

```
# echo "mide_load="YES"" >> /boot/defaults/
  loader.conf
```

This step installs the module and notifies the system about it. The command makes the loader load the mide module along with the kernel.

Step 5. Reboot the system.

The mide module should load automatically each time the system boots.

Step 6. Configure the system to mount the array automatically by modifying the file **/etc/fstab** and adding the following line to have the system mount **/dev/da0s1e** to location **/mnt/mide** after bootup:

```
/dev/da1s1e/mnt/mide ext2 defaults 0 0
```

4 Updating the Driver

Perform the following steps to update the driver if you have more up-to-date driver diskettes.

Step 1. Insert the diskette into the floppy drive.

Step 2. Type the following commands to update the driver:

```
# mount -o ro /dev/fd0 /mnt
# cp /mnt/mide.ko /modules
# umount /mnt
```

Step 3. Reboot your system for the driver to take effect.

5 Uninstalling the Driver

You can uninstall the driver only when your system is not booting from a device that is attached to the MegaRAID IDE controller. Perform the following steps to uninstall the driver.

Step 1. Delete the following line in **/boot/defaults/loader.conf**:

```
mide_load="YES"
```

Step 2. Delete the driver module **/modules/mide.ko**.