IBM ATA 133 RAID Controller

Thank you for purchasing the IBM ATA 133 RAID controller. Please take a few minutes to review this *Quick Hardware Setup Guide* before you install the controller. If you require a further explanation of any item covered in this guide, please refer to the installation instructions on your Driver and Documentation CD.

Contents for the IBM ATA 133 RAID Controller

The following items are included with the IBM ATA 133 RAID controller:

- Two standard length 40-pin connector ATA-100/133 cables with two drive connectors
- Two extended length 40-pin connector ATA-100/133 cables with one drive connector
- A Driver and Documentation CD with utility programs, device drivers for various operating systems, and the following documentation:
- *IBM ATA 133 RAID Controller User's Guide*
- Software license agreement

Technical Support

If you need help installing, configuring, or running the IBM ATA 133 RAID controller, contact IBM Support. See the *IBM ATA 133 RAID Controller User's Guide* for contact information.

Hardware Installation

⚠️ **Caution**

Make a backup of your data before you change your system configuration; otherwise you may lose data.

Perform the following steps to install the RAID controller. Each step is explained more fully in the following text.

Step	Action
1	Unpack the IBM ATA 133 RAID controller.
2	Turn the computer off, remove the power cord, and remove the cover.
3	Configure the motherboard.
4	Check the jumper settings on the RAID controller.
5	Install the RAID controller.
6	Set the jumpers on the IDE drives.
7	Connect the IDE drives to the RAID controller.
8	Replace the computer cover and turn the power on.
9	Run the BIOS Configuration Utility.
10	Install the operating system driver.

Step 1 Unpack

Unpack and install the hardware in a static-free environment. Remove the controller and inspect it for damage. If the card appears damaged or if any items that you should have received are missing, contact IBM Support.

Step 2 Power Down

Turn off the computer and physically remove the power cord from the back of the power supply. Remove the cover from the chassis. *Make sure the computer is disconnected from any networks before you install the controller card.*

Step 3 Configure Motherboard

Make sure the motherboard is configured correctly for the IBM ATA 133 RAID controller. The IBM ATA 133 is essentially an IDE controller. Each IBM ATA 133 card you install requires an available PCI IRQ; make sure one is available.

Step 4 Set Jumpers

Make sure the jumper settings on the RAID controller are correct. The jumpers are set at the factory and you probably do not need to change them. The following table lists all the jumpers and connectors on the RAID controller.

Item	Description	Type
J1	Secondary IDE channel connector: connects the secondary IDE drive to the RAID controller.	40-pin connector
J2	Secondary channel activity LED: this can be connected to an LED on the computer case to show activity on the secondary IDE channel.	2-pin header
J3	Primary IDE channel connector: connects the primary IDE drive to the RAID controller.	40-pin connector
J4	BA5_ENABLE (Base address 5): *must be open* (not jumpered) so that Base address 5 is enabled.	2-pin header
J5	Primary channel activity LED: this can be connected to an LED on the computer case to show activity on the primary IDE channel.	2-pin header
J6	Drive activity connector	2-pin header

The following diagram shows the location of the headers and connectors on the RAID controller.
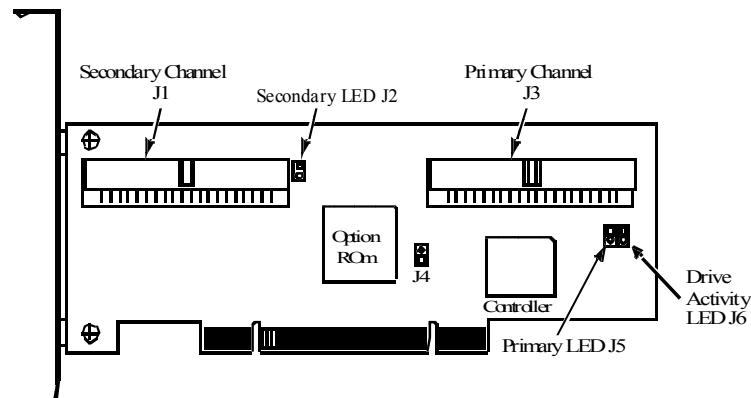
Step 5 Install the IBM ATA 133 RAID Controller

Select a 3.3 V **or** 5 V PCI slot and align the IBM ATA 133 RAID controller bus connector to the slot, as shown below. 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. Attach the controller to the computer chassis with the bracket screw.

Bracket Screw

32-bit slots

Edge of Motherboard
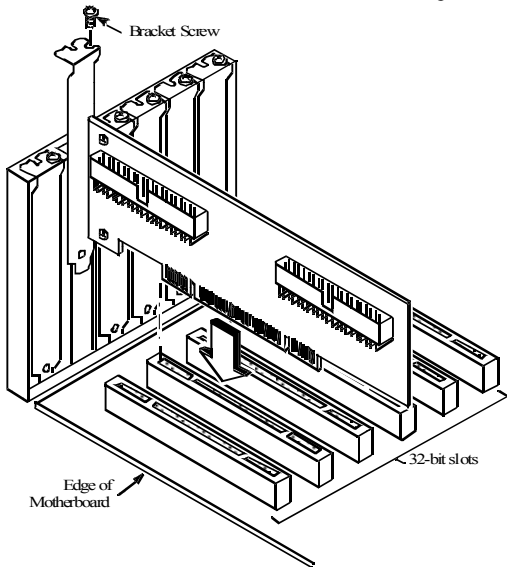
Step 6 Set up the IDE devices

Before you install and connect the IDE drives, you must verify that each drive is set to Cable Select (CS) addressing mode. To verify this, see the IDE drive documentation.

Step 7 Connect IDE Cables

Select the appropriate cables from the two types included with the RAID controller:

*   For any configuration where more than two drives will be connected to the controller, select the standard length ATA-100/133 cables with two drive connectors.

*   For 1U rack-mounted servers or in configurations where only two drives will be connected to the controller, select the extended length ATA-100/133 cables with single drive connector.

Use the selected ATA-100/133 cables to connect up to two IDE drives (one master and one slave) to each 40-pin IDE connector on the IBM ATA 133 RAID controller. When using the extended length cables, only one drive will be connected to each channel.

The two connectors are:
*   Primary IDE Channel connector (J3)

*   Secondary IDE Channel connector (J1)

Be sure to align Pin 1on the cable connectors with Pin 1 on IDE connectors J1 and J3, as shown in the following figure.

40-pin Connector/ IDE Cable

Secondary IDE Channel J1

Pin 1   Pin 1

Pin 1

Primary IDE Channel J3
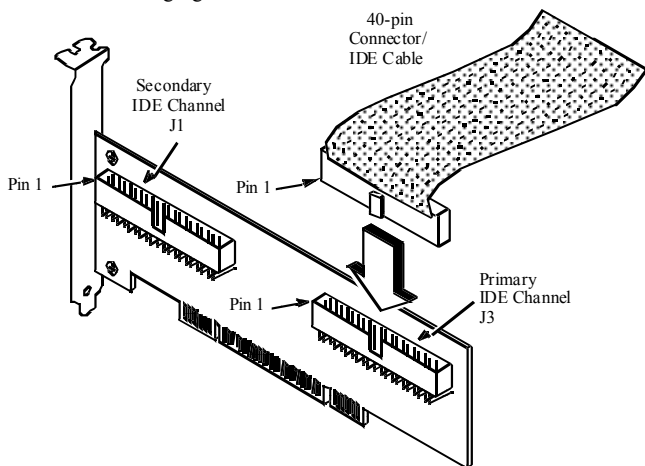
Correct Order for Attaching the Drives

Each of the standard length ATA-100/133 cables has a connector at each end for a master IDE device and another connector for a slave device. The following bullets explain how to properly connect one, two, three, or four IDE drives:

*   **One IDE drive:** Attach it to the master connector on the cable for the primary IDE channel.
*   **Two IDE drives:** Attach them to the master connectors on the two ATA-100/133 cables.

The following bullets apply only to the standard-length ATA 100/133 cable with two drive connectors:
*   **Three IDE drives:** Attach them to the master and slave connectors on the cable for the primary IDE channel and the master connector on the cable for the secondary connector.
*   **Four IDE drives:** Attach them to the master and slave connectors on both ATA-100/133 cables.

The following table displays the order in which you should connect the drives to the RAID controller (as described above).

Total Number of Drives	Primary IDE Channel (J3)	Secondary IDE Channel (J1)
1	Master	---
2	Master	Master
3	Master and Slave	Master
4	Master and Slave	Master and Slave

Step 8 Power Up

Replace the computer cover and reconnect the power cords. Turn on the power to the computer. Observe the messages that display during the boot process until you see the following message:

```
Press Ctrl-M to run MegaRAID IDE Setup Utility
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Step 9 Run the BIOS Configuration Utility

When the "Press Ctrl-M" message appears on the screen, press the <Ctrl> key and <M> key immediately to run the BIOS Configuration Utility. See the *IBM ATA 133 RAID Controller User's Guide* on the Driver and Documentation CD for information about how to run and use this program.

Step 10 Install the Operating System Driver

The IBM ATA 133 RAID controller can operate under MS-DOS® or any DOS-compatible operating system using the standard AT BIOS INT 13h Hard Disk Drive interface. To operate with other operating systems, you must install software drivers. IBM provides software drivers on the Driver and Documentation CD for the following operating systems:

*   Microsoft Windows 2000 Server, Advanced Server, and Professional
*   Microsoft Windows XP Professional
*   Red Hat Linux 7.3

Refer to the *IBM ATA 133 RAID Controller User's Guide* on the Driver and Documentation CD for more information.

RAID Levels Supported

The IBM ATA 133 RAID controller supports disk arrays using the following RAID levels:

RAID 0 (Disk striping)
Data is striped across all drives in the array, enabling very fast data throughput. No data redundancy. All data is lost if any drive fails. (1-4 hard drives)

RAID 1 (Drive mirroring)
Data is written simultaneously to two drives, providing complete data redundancy in case one drive fails. Array capacity is half of available drive space. (2 hard drives)

RAID 10 (RAID 0 and RAID 1 combined in a single array)
Uses mirrored pairs of drives to provide complete data redundancy. High data throughput rates, greater capacity than RAID 1. (4 hard drives)