Acer Altos® Server

Installation and Configuration Guide for Microsoft Server Clustering on Acer Altos Servers, Altos RS710, Altos S300, and LSI MegaRAID Elite/Enterprise 1600 Controllers

This installation guide provides instructions for installing and configuring hardware for creating a cluster on Altos Servers, Altos storage subsystems, and LSI MegaRAID products. The Cluster Service runs with Microsoft Windows® 2000 Advanced Server on Acer Altos servers.

This installation also incorporates a broad range of hardware components, including a cluster kit. This cluster kit includes MegaRAID controllers, cluster enablers, and SCSI cables.

Microsoft Windows® 2000 Advanced Server supports a two-node per server cluster while Windows 2000 Datacenter Server supports a four-node server cluster. The document "Installation and Configuration Guide for Cluster Services running on Microsoft® Windows 2000 Advanced Server using Acer Altos Servers", provides instructions for installing a Cluster Service and configuring a two-node server cluster under Microsoft Windows 2000 Advanced Server.

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INTRODUCTION

This installation guide provides information and procedures needed to install, configure, and test Hardware for Cluster Services running Microsoft Windows® 2000 Advanced Server on Acer Altos Servers, Acer Altos storage Subsystems, and LSI MegaRAID Controllers. This guide contains configuration and installation information only.

Acer Altos servers are engineered to deliver reliable, economical clustering using standard hardware and software components. Acer utilizes the strength of its high- end servers and subsystems to create a clustering solution that warrants high availability for business critical applications.

Acer facilitates simplified clustering by bundling LSI components that incorporate fault resilient design, adding industry strength with the Altos 22000, and by combining the massive storage capabilities of the Acer Altos RS710/S300 Subsystem. A portfolio of enterprise class functions backs the Acer Altos 22000 while the Altos RS710/S300 is able to keep critical information and applications available whenever needed.

This document describes the steps involved in configuring the Acer Altos 22000, Acer Altos RS710/S300 Subsystem with LSI's (LSI Logic Corporation) RAID controllers and with custom cluster kit components. It details the steps involved in installing the basic unit, setting up the subsystem, and putting together the cluster kit.

Who should read this Guide

This configuration guide is intended for:

- Acer field site engineers who are setting up and installing cluster hardware for the first time.
- Acer resellers who are providing technical support to customers
- System Engineers who are configuring the devices for operation
- Customers implementing this architecture in their environment

Contents of this Guide

This guide's chapters contain the following information:

1. **Hardware**—presents a list of hardware used.
2. **System Specifications**—presents a list of system requirements necessary before installation.
3. **Installation**—presents step-by-step procedures for installing the MegaRAID controller
4. **Configuration**—presents a list of tasks required to configure the MegaRAID controller on the Acer Altos RS710/S300.

ACER ALTOS 22000 OVERVIEW

The Acer Altos 22000 was designed to simplify clustering of business-critical applications. This configuration utilizes two Acer Altos 22000's, bundled with Windows 2000 clustering software, to work cooperatively to maintain the availability of applications, even in the event of hardware or software component failure.

FEATURES

- Quad Pentium III Xeon® Processors
- 100MHz Front Side Bus
- 16GB ECC PC-100 SDRAM Memory (16 DIMM slots)
- ServerWork® Champion 2 HE Chipset
- 64bit/66MHz PCI bus architecture
- Ultra 160 SCSI interface
- Redundant Hot-Pluggable Power Supply

ALTOS R500

The Acer Altos R500 system is a PCI bus based dual processor system built on an optimized baseboard. It comes with two socket 370 processor slots utilizing two Intel® Coppermine D0 or Tualatin® processors integrated with the ServerWorks HE-SL chipset. The dual-channel SCSI architecture supports Ultra 160 SCSI with a bandwidth of up to 160 MB/s for each channel. The motherboard also integrates the Intel 82550 10/100 Mbps PCI Ethernet chipset that supports WOL (Wake on LAN) for better remote site management.

For expandability, the system includes two 64-bit/66 MHz PCI bus slots and four DIMM slots that allow memory installation up to a maximum of 4 GB.

For connectivity, the motherboard provides two USB (Universal Serial Bus) connectors, PS/2 interface for mouse and keyboard, one UART serial port, and four LAN ports.

For its storage features, Altos R500 supports one slim-type CD-ROM drive, one slim-type floppy disk drive and three hot-swappable SCSI hard disk drives.

The system is fully compatible with Windows NT 4.0, Windows 2000 Server, SCO UNIX OpenServer SCO 5.x, SCO UnixWare 7.x and Red Hat Linux 7.x.

FEATURES

- FC-PGA (Flip-Chip Pin Grid Array) 370 processor socket that supports Intel Coppermine D0 Stepping or Tualatin processors running at 133 MHz to 1/1.26 GHz and future generations of Pentium CPUs
- ServerWorks HE-SL chipset which includes the north, south and I/O bridge
- SCSI controller Adaptec AIC-7899 chipset supports dual channel 64-bit LVD Ultra 160 device connection in 64-bit/66 MHz PCI bus
- Onboard 10/100 Mb/s Intel 82550 LAN chip that supports WOL
- Four DIMM sockets that accept 128-, 256-, 512-MB and 1-GB SDRAM (synchronous DRAM) DIMMs for a maximum memory capacity of 4 GB
- Storage support for:
  - One slim-type CD-ROM drive
  - One slim-type floppy disk drive
  - Three hot-swappable SCSI hard disk drives
- Two 64-bit/66 MHz PCI slots
- NS PC87414 Super I/O chipset
- ATI Rage XL video chipset
- System clock/calendar with battery backup
- Auxiliary power connector for ATX power supply

- Advanced Server Management (ASM) and Remote Diagnostic Management (RDM) controller chipsets
- External ports:
  - 2 USB ports
  - PS/2-compatible keyboard port
  - PS/2-compatible mouse port
  - 1 serial port
  - 4 LAN ports (RJ-45)
  - Monitor/VGA port

Acer Altos R500

ACER ALTOS RS710 OVERVIEW

As storage infrastructures become more and more complex, companies of all sizes are seeking easier, most cost-effective ways of managing data. The Acer Altos RS710 provides a simple, yet powerful subsystem for improving performance, ensuring continuous availability, and minimizing infrastructure costs. The fast, scalable, and reliable data management solutions overcome challenges inherent in sharing, and managing data in today's global high-growth infrastructures.

FEATURES

- Ultra 160 SCSI
- JBOD RAID Controller
- Up to 15 Hot swappable HDD (270GB)
- 2 × 250 Watts Redundant Power Supply
- SCA-II (80pin) HDD Interface

ALTOS S300

The Altos S300 is a new concept in data storage that provides the optimum in investment protection and versatility. The Altos S300 will meet the performance, capacity, and high availability needs of the widest variety of applications, such as video, imaging, prepress, data warehouse, OLTP, and web servers.

FEATURES

- Fourteen disk drive slots, which can install 36 GB and 73 GB 10k RPM or 15k RPM SCA-2 SCSI HDD.
- Redundant AC power supplies.
- Redundant input power cords.
- A total of four fans in two Advanced Cooling Modules (ACM)
- Providing n+1 redundancy on fans.
- Two rear removable I/O option modules provide active/passive failure redundancy on environmental monitoring, or per Bus Monitoring.
- Multi-MODE LVD SCSI Interface Ultra 320/160.
- Hot plug of power supplies and ACM's.
- A maximum configuration of drives supported with one or two power supplies.
- Failure indication of all Field Replaceable Units (FRU) via LEDs and audible alarm (with alarm mute button).
- Disk drive hot plug support.
- Auto-sense termination at end of bus (busses) if no cable present.
- Automatically bus split, if two cables are present.
- Up to 10M of LVD SCSI cable.
- SCSI ID is hard-wired.
- Global remote spins up enable capability.
- Global delayed spins up enable capability.
- Rail Kit mounting for 19" equipment racks.
- Carrier cam lever allows controlled insertion and extraction of disk carriers.

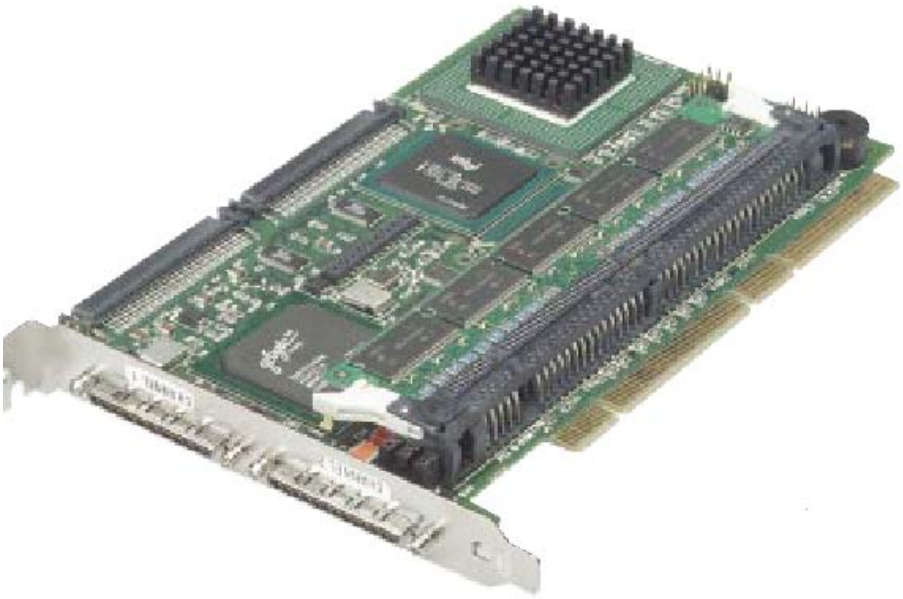
Acer Altos S300

LSI MEGARAID ELITE 1600

The MegaRAID Elite 1600 is a true performer. Employing the latest 64-bit technology means more memory can be addressed with 64-bit addressing in one PCI cycle. 64-bit PCI bus transactions are also more efficient, for both addressing and data, because the number of PCI cycles is reduced to half.

FEATURES

- IA 64 Ready
- Two Ultra 160 Channels
- 64bit/66MHz PCI
- PCI 2.2 Compliant
- Management Utilities
- Auto Resume during Array Rebuild
- 40 logical drives per controller



CLUSTER KIT

The LSI MegaRAID Cluster Kit includes the following:

- 2 × MegaRAID Elite 1600 Controllers
- 2 × Cluster Enablers (Terminator Box)
- 4 × SCSI cables (Two 68pin SCSI cables (One end VHDCI male, other end standard 68pin male) (1 meter in length), and two standard 68pin SCSI cables (male to male) (0.5m in length)

The Cluster Kit is designed for installing the Microsoft Cluster Server with Altos RS710. For installing the Microsoft Cluster Server with Altos S300, you only need:

- 2 × MegaRAID Elite 1600 Controllers
- 2 × VHDCI-to-VHDCI SCSI cables

SYSTEM REQUIREMENTS AND CONFIGURATIONS

System Requirements

Servers

- Two Cluster Nodes
- Domain Controller

Cluster Nodes

- Host Bus Adapters
- SCSI Interface Adapter (LSI MegaRAID Elite1600)
- Network Interface Cards
- One or more Network Interface Cards (Two is recommended)
- Hard Drive for Operating System (Microsoft Windows 2000 Advanced Server with SP2)

Shared Storage devices

- SCSI Interface Storage (RS710)
  - ✓ Hard Drive(s) for applications of the cluster
  - ✓ 2 internal, 68pin [male] to external, 68pin [female] SCSI cables (orange)
  - ✓ 1 internal 68pin [male] to internal 68pin [male] SCSI cables (orange)
  - ✓ 2 SAF-TE boards
- SCSI Interface Storage (S300)
  - ✓ Hard Drive(s) for applications of the cluster
  - ✓ CSM+TSM I/O modules

LAN

- Hub/Switch for public network connections and domain controller
- Cross-over network cable or Hub/Switch for interconnection

OS

- Microsoft Windows 2000 Advanced Server on each node
- Service Pack 2 for Microsoft Windows 2000 Advanced Server

Software

- Microsoft Cluster Service
- LSI MegaRAID Elite 1600 drivers version 5.22 for Microsoft Windows 2000 Advanced Server

Cluster Enabler

- Two LSI 437 Terminator Boxes (only for RS710 configuration)

External Cabling to connect subsystem to server boxes

- For RS710 connection
  - ✓ Two 68pin SCSI cables (One end VHDCI male, other end standard 68pin male) (1 meter in length)
  - ✓ Two standard 68pin SCSI cables (male to male) (0.5m in length)
- For S300 connection
  - ✓ 2 VHDCI-to-VHDCI SCSI cables (male to male)

You must configure your network settings and join both nodes into the domain before installing Cluster Service and configure the cluster. Before

installation, make sure the following information is available:

- Domain controller on the network
- Each node uses SCSI adapters to access shared storage
- Each node contains two network adapters (recommend)

The next section shows the necessary configuration for creating a cluster.

System Configuration

The following are Server Cluster system configurations compliant with Microsoft Server Cluster Hardware Compatibility Testing (HCT).

Configuration 1

Acer Altos 22000 RS710 with LSI MegaRAID Elite 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	
Model	2 × Acer Altos 22000
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-B2
CPU	4 × PIII Xeon 700/100 MHZ w/ 1024KB of L2 cache
Memory	16 × PC100 128MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899 on board BIOS: v2.57 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Elite 1600 RAID controller BIOS: v3.11, Driver: v5.22.0, Firmware: v. L148
Network Adapter	1 × Intel 82559 onboard 1 × Intel 82559 NIC
Internal Hard Disk	1 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM)
Share Storage Configuration	
Model	Acer Altos RS710
RAID Controller	None (use PCI RAID controller)
Hard Disk	5 × Seagate ST318404LC 5 × IBM DPSS-318350 (18.2GB, Ultra160, 10000RPM) Use 10 HDD to create 3 logical drives (2 to RAID 1, 3 to RAID 5, and 5 to RAID 5)
SCSI Cable	2 × internal – external SCSI cables (orange)

	1 × internal – internal SCSI cables (orange)
SAF-TE	Two
Others	
Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × HVDCI 68pin – standard 68pin SCSI cables 2 × standard 68pin – standard 68pin SCSI cables
Terminator	Two LSI Terminator Box 437

Configuration 2

Acer Altos 22000 RS710 with LSI MegaRAID Enterprise 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	
Model	2 × Acer Altos 22000
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-B2
CPU	4 × PIII Xeon 700/100 MHZ w/ 1024KB of L2 cache
Memory	16 × PC100 128MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899 on board BIOS: v2.57 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Enterprise 1600 RAID controller BIOS: v3.11, Driver: v5.22.0, Firmware: v. L148
Network Adapter	1 × Intel 82559 onboard 1 × Intel 82559 NIC
Internal Hard Disk	1 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM)
Share Storage Configuration	
Model	Acer Altos RS710
RAID Controller	None (use PCI RAID controller)
Hard Disk	5 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM) Use 5 HDD to create 2 logical drives (2 to RAID 1, 3 to RAID 5)
SCSI Cable	2 × internal – external SCSI cables (orange) 1 × internal – internal SCSI cables (orange)
SAF-TE	Two
Others	

Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × HVDCI 68pin – standard 68pin SCSI cables 2 × standard 68pin – standard 68pin SCSI cables
Terminator	Two LSI Terminator Box 437

Configuration 3

Acer Altos 1200LP RS710 with LSI MegaRAID Elite 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	
Model	2 × Acer Altos 1200LP
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-C4
CPU	2 × PIII 800/133 MHZ w/ 256KB of L2 cache
Memory	1 × PC133 256MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899 on board BIOS: v2.57 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Elite 1600 RAID controller BIOS: v3.11, Driver: v5.22.0, Firmware: v. L148
Network Adapter	2 × Intel 82559 onboard
Internal Hard Disk	1 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM)
Shared Storage Configuration	
Model	Acer Altos RS710
RAID Controller	None (use PCI RAID controller)
Hard Disk	5 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM) Use 5 HDD to create 2 logical drives (2 to RAID 1, 3 to RAID 5)
SCSI Cable	2 × internal – external SCSI cables (orange) 1 × internal – internal SCSI cables (orange)
SAF-TE	Two
Others	
Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × HVDCI 68pin – standard 68pin SCSI cables 2 × standard 68pin – standard 68pin SCSI cables
Terminator	Two LSI Terminator Box 437

Configuration 4

Acer Altos 1200LP RS710 with LSI MegaRAID Enterprise 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	
Model	2 × Acer Altos 1200LP
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-C4
CPU	2 × PIII 800/133 MHZ w/ 256KB of L2 cache
Memory	1 × PC133 256MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899 on board BIOS: v2.57 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Enterprise 1600 RAID controller BIOS: v3.11, Driver: v5.22.0, Firmware: v.L148
Network Adapter	2 × Intel 82559 onboard
Internal Hard Disk	1 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM)
Shared Storage Configuration	
Model	Acer Altos RS710
RAID Controller	None (use PCI RAID controller)
Hard Disk	5 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM) Use 5 HDD to create 2 logical drives (2 to RAID 1, 3 to RAID 5)
SCSI Cable	2 × internal – external SCSI cables (orange) 1 × internal – internal SCSI cables (orange)
SAF-TE	Two
Others	
Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × HVDCI 68pin – standard 68pin SCSI cables 2 × standard 68pin – standard 68pin SCSI cables
Terminator	Two LSI Terminator Box 437

Configuration 5

Acer Altos 1200 RS710 with LSI MegaRAID Elite 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	

Model	2 × Acer Altos 1200
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-C4
CPU	2 × PIII 866/133 MHZ w/ 256KB of L2 cache
Memory	4 × PC133 256MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899 on board BIOS: v2.57 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Elite 1600 RAID controller BIOS: v3.11, Driver: v5.22.0, Firmware: v. L148
Network Adapter	2 × Intel 82559 onboard
Internal Hard Disk	1 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM)
Share Storage Configuration	
Model	Acer Altos RS710
RAID Controller	None (use PCI RAID controller)
Hard Disk	5 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM) Use 5 HDD to create 2 logical drives (2 to RAID 1, 3 to RAID 5)
SCSI Cable	2 × internal – external SCSI cables (orange) 1 × internal – internal SCSI cables (orange)
SAF-TE	Two
Others	
Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × HVDCI 68pin – standard 68pin SCSI cables 2 × standard 68pin – standard 68pin SCSI cables
Terminator	Two LSI Terminator Box 437

Configuration 6

Acer Altos 1200 RS710 with LSI MegaRAID Enterprise 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	
Model	2 × Acer Altos 1200
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-E1
CPU	2 × PIII 866/133 MHZ w/ 256KB of L2 cache
Memory	4 × PC133 256MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899 on board BIOS: v2.57 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Enterprise 1600 RAID controller BIOS:v3.11, Driver:v5.22.0, Firmware:v.L148
Network Adapter	2 × Intel 82559 onboard
Internal Hard Disk	1 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM)
Share Storage Configuration	
Model	Acer Altos RS710
RAID Controller	None (use PCI RAID controller)
Hard Disk	5 × Seagate ST318404LC (18.2GB, Ultra160, 10000RPM) Use 5 HDD to create 2 logical drives (2 to RAID 1, 3 to RAID 5)
SCSI Cable	2 × internal – external SCSI cables (orange) 1 × internal – internal SCSI cables (orange)
SAF-TE	Two
Others	
Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × HVDCI 68pin – standard 68pin SCSI cables 2 × standard 68pin – standard 68pin SCSI cables
Terminator	Two LSI Terminator Box 437

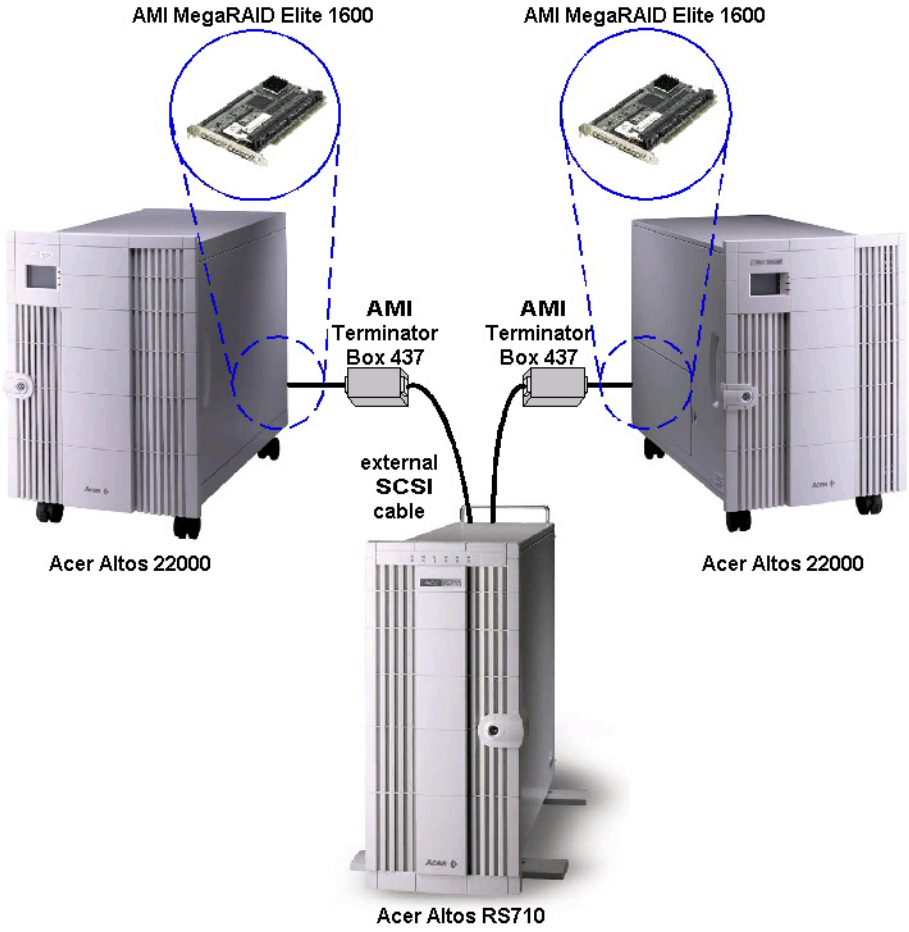
Configuration 7

Altos R500 S300 with LSI MegaRAID Elite 1600

HCT version	HCT 9.502 (HCT 9.5 upgrade to 9.502)
Server Configuration	
Model	2 × Altos R500
OS	Windows 2000 Advanced Server (Service Pack 2)
System BIOS	R01-C4
CPU	2 × PIII 1GHz w/ 256KB of L2 cache
Memory	2 × PC133 256MB of SDRAM
Internal Disk Controller	Adaptec AIC-7899w on board BIOS: v3.1 Driver: Microsoft Windows 2000 Driver
SCSI Channel Disk Controller	LSI MegaRAID Elite 1600 RAID controller BIOS: v3.11, Driver: v5.22.0, Firmware: v. L148
Network Adapter	4 × Intel 82550 onboard
Internal Hard Disk	1 × Seagate ST318437LC (18GB, Ultra160, 7200RPM)
Share Storage Configuration	
Model	Altos S300
RAID Controller	None (use PCI RAID controller)
Hard Disk	10 × Seagate ST336605LC (36GB, Ultra160, 10000RPM) Use 10 HDDs to create 2 logical drives (5 to one RAID 5, 5 to the other RAID 5)
I/O Module	CSM+TSM
Others	
Network Switch	2 × Acer SOHO Switch 6008
SCSI Cable	2 × VHDCI-to-VHDCI 68pin SCSI cables

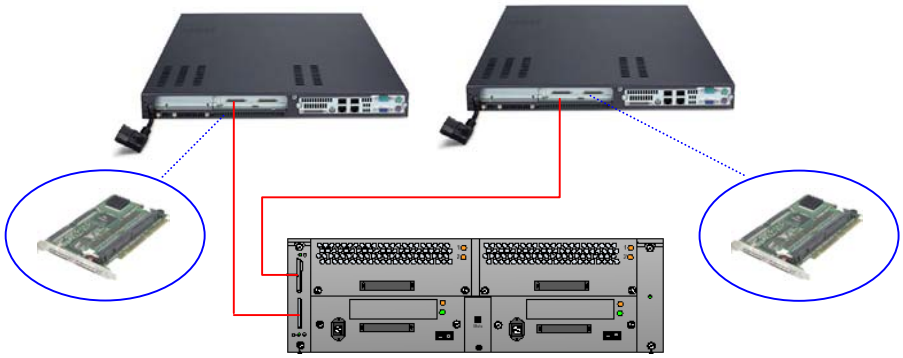
SYSTEM OVERVIEW

The following graphic illustrates what the complete system should look like when using Altos RS710 as the storage subsystem.

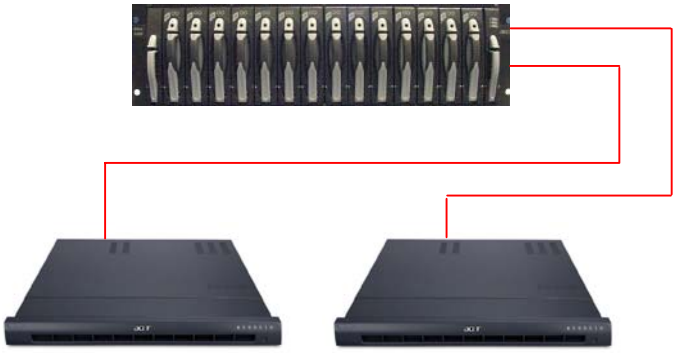


The following graphic illustrates what the complete system should look like when using Altos S300 as the storage subsystem.

Rear View



Front View

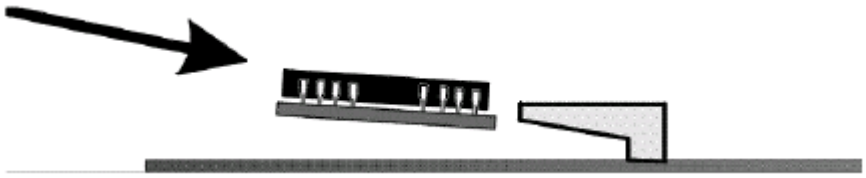


Configuring the LSI MegaRAID 1600 Controller

This section describes how to install and set up the LSI controller.

➲ Installing Memory Cache

1. Install the cache memory DIMMs on the MegaRAID controller card in the cache memory socket. Use a 64-bit 3.3V single-sided or double-sided 168-pin unbuffered DIMM. The DIMMs will be parallel to the MegaRAID card when properly installed.
2. The picture below shows the MegaRAID card placed on a flat surface. Use this method to install cache memory.



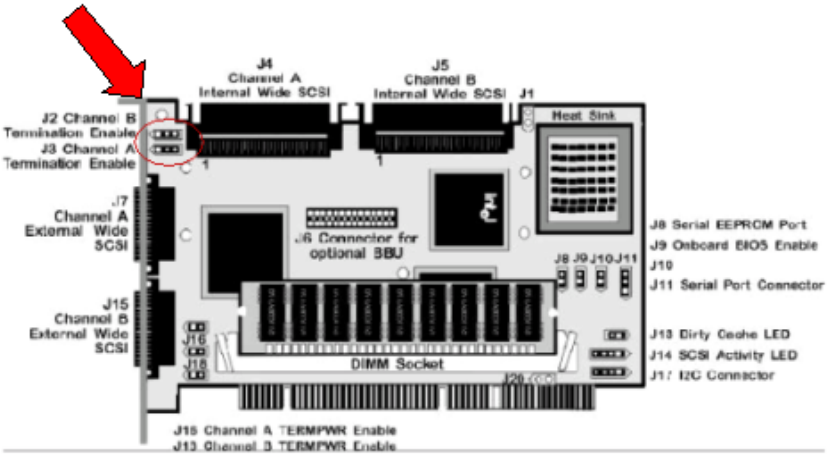
➲ Jumper Settings

A terminator is added to each MegaRAID controller in order to force termination of each channel.

1. In the example, Jumper 2 (J2) and Jumper 3 (J3) are terminators. The following table shows the function of these two jumpers.

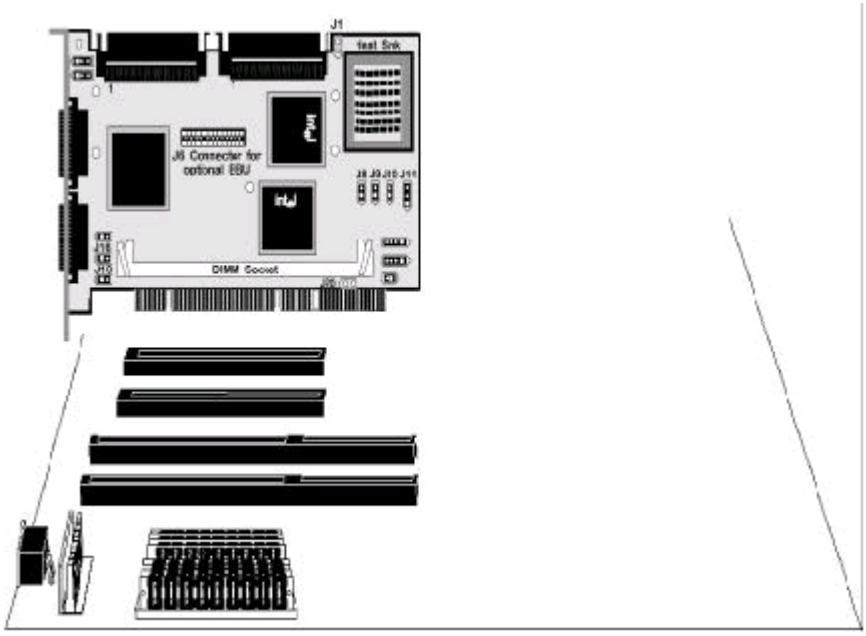
Jumper	SCSI Channel	SCSI Termination Controlled by Software (by default)	SCSI Termination Always Disable	SCSI Termination Always Enable
J2	A	Short Pins 1-2	Short Pins 2-3	OPEN
J3	B	Short Pins 1-2	Short Pins 2-3	OPEN

Remove these two jumpers.



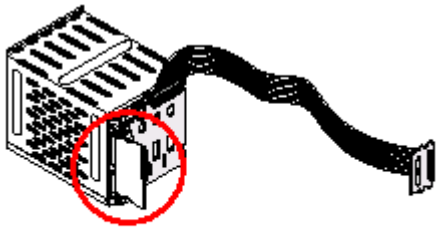
➲ Installing the MegaRAID Controller card

1. 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 edge connector with the slot.
2. Insert the MegaRAID card into the PCI slot as shown below.

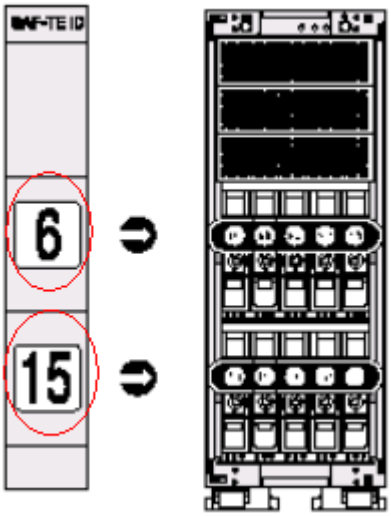


➲ Configuring the Subsystem Hardware (RS710)

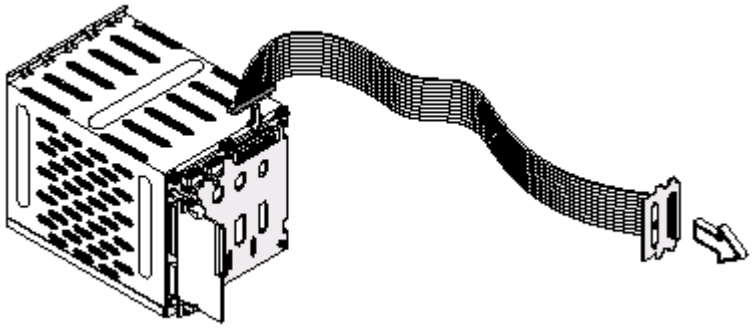
There are two BPL5M cages in the RS710. One gem 318 SAF-TE board is attached to each BPL5M cage, as shown in the diagram below.



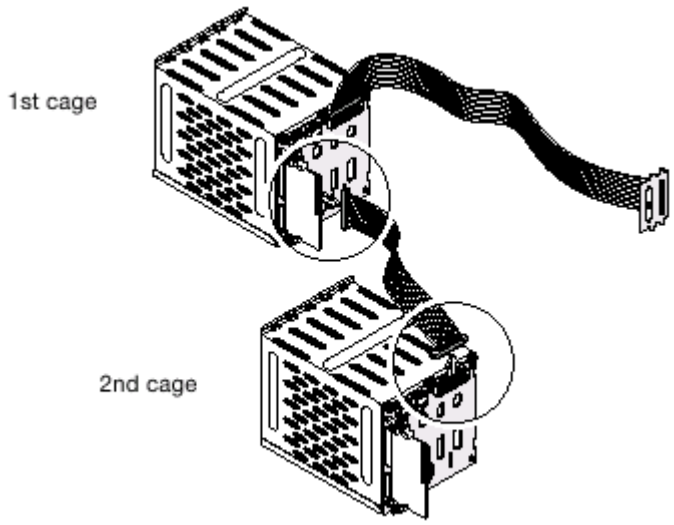
1. The default SAF-TE board ID settings are: one at 6 and the other at 15.



2. Connect the orange (internal, 68pin [male] to external, 68pin [female]) cable to the first cage.



3. Connect the orange (internal, 68pin [male] to internal, 68pin [male]) cable to cascade the first BPL5M and second BPL5M cages.



4. Connect the last (internal to external cable) from the empty SAF-TE board to the external connector.

➲ **Configuring the Subsystem Hardware (S300)**

For Altos S300, you don't have to change any internal settings. All you have to take care is to prevent the SCSI ID conflict. For example, if you set the SCSI ID of the RAID controller to 6 and 7, remember to remove the SCSI ID 6 HDD from Altos S300 enclosure and insert one blank board into the same slot.

➲ **Cable Connections Between the Server and Subsystem Unit**

For Altos RS710 connection:

1. After completing the RS710 internal cabling, you must connect the two servers to the RS710.
2. Use 68pin SCSI cable (One end VHDCI male, other end standard 68pin male) (1 meter in length) to connect the MegaRAID controller card and the Cluster Enabler (Terminator box 437). The VHDCI 68pin SCSI connector is connected to the controller in the server and a standard 68pin SCSI connector is connected to the Cluster Enabler (Terminator box). Make sure the standard 68pin SCSI connector is connected to the "server side" of the Cluster Enabler (Terminator box).
3. Use the standard 68pin SCSI cable (male to male) (0.5m in length) SCSI connector to connect to the Cluster Enabler (Terminator box 437) and RS710. Make sure the standard 68pin SCSI connector is connected to the "storage side" of the Cluster Enabler (Terminator box).
4. Repeat steps 2 and 3 to connect the other server to the RS710.

For Altos S300 Connection:

1. Use one VHDCI-to-VHDCI 68pin SCSI cable (male to male) to connect first server and Altos S300 SCSI connector.
2. Use another VHDCI-to-VHDCI 68pin SCSI cable (male to male) to connect second server and Altos S300 SCSI connector.
3. Please notice that you have to connect the SCSI cables to the same SCSI channel on the LSI MegaRAID Elite 1600 controller.

BIOS CONFIGURATION UTILITY

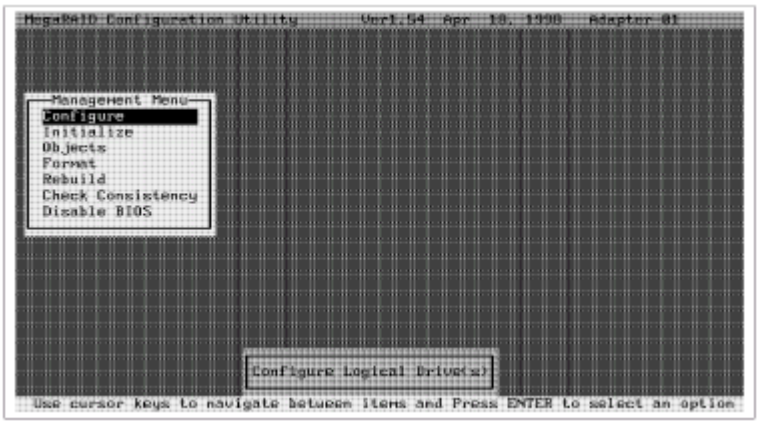
MegaRAID Configuration Utility

1. Boot up the Server
2. The following message appears:

```
MegaRAID Elite 1600 Disk Array Adapter BIOS Version 3.11 Dec 13,2000
Copyright (c) American Megatrends, Inc.
Firmware Initializing... [ Scanning SCSI Device ...(etc.)... ]

Standard Firmware Version l148 DRAM Size 32 MB
0 Logical Drives found on the Host Adapter
0 Logical Drives handled by BIOS
Press <Ctrl><M> to run MegaRAID Elite BIOS Configuration Utility
```

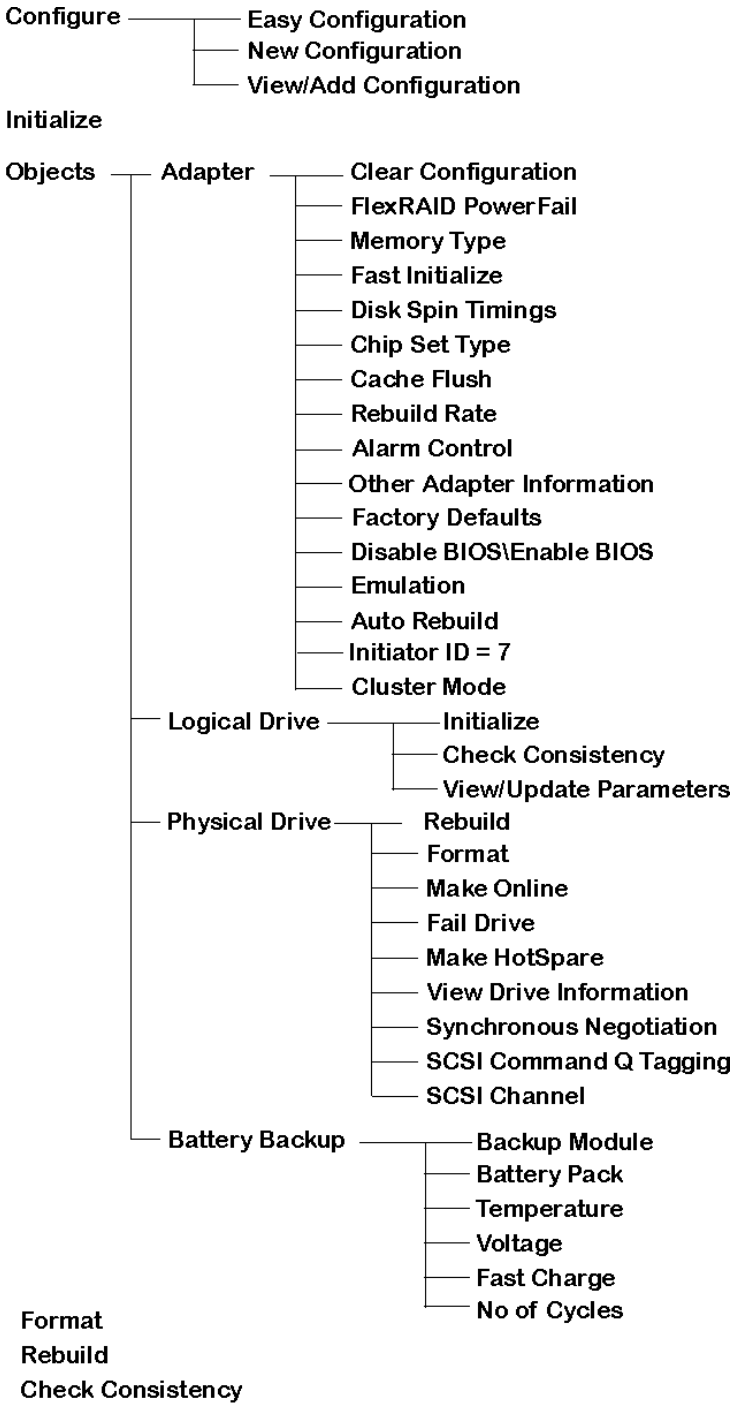
3. Press <Ctrl-M> to proceed to the MegaRAID Configuration Utility screen.



The Configuration Utility menu options follow:

Option	Description
Configure	Choose this option to configure physical arrays and logical drives.
Initialize	Choose this option to initialize one or more logical drives.
Objects	Choose this option to individually access controllers, logical drives, and physical drives.
Format	Choose this option to low-level format hard disk drives.
Rebuild	Choose this option to rebuild failed disk drives.
Check Consistency	Choose this option to verify that the redundancy data in logical drives using RAID level 1, 3, or 5 is correct.
Select Adapter	Choose this option to select a MegaRAID host adapter to work on. This menu item appears only if more than one MegaRAID host adapter is installed in the computer.
Disable BIOS	Choose this option to disable the MegaRAID BIOS.

The following is an expansion of the menus in the MegaRAID Configuration Utility:



➲ **Enabling Cluster Mode**

1. Start the MegaRAID Configuration Utility. Choose Objects -> Adapter.

2. Select “Cluster Mode”.
3. Click <Enter>
4. Choose “Enable”.

Cluster mode allows the controller to operate as part of a cluster. When you enable cluster mode, the system automatically disables the BIOS to support cluster functions.

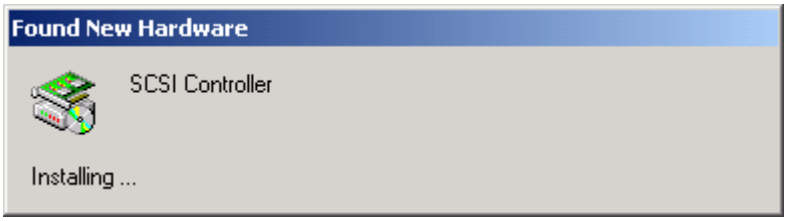
➲ **Initiating ID Settings**

1. Restart the MegaRAID Configuration Utility. Choose Objects -> Adapter.
2. The “Initiator ID” option appears.
3. Move the cursor to Initiator ID and press <Enter>
4. This option identifies the number for the MegaRAID card. You can change the Initiator ID only when you are in cluster mode. You cannot change the ID while in standard mode. The ID can be a number from 0 to 15. It is recommended that you select 5 for one server and 7 for the other server when you use Altos RS710 as the storage subsystem.
5. If you use Altos S300 storage subsystem, you will be recommended to select 6 for one server and 7 for the other server.

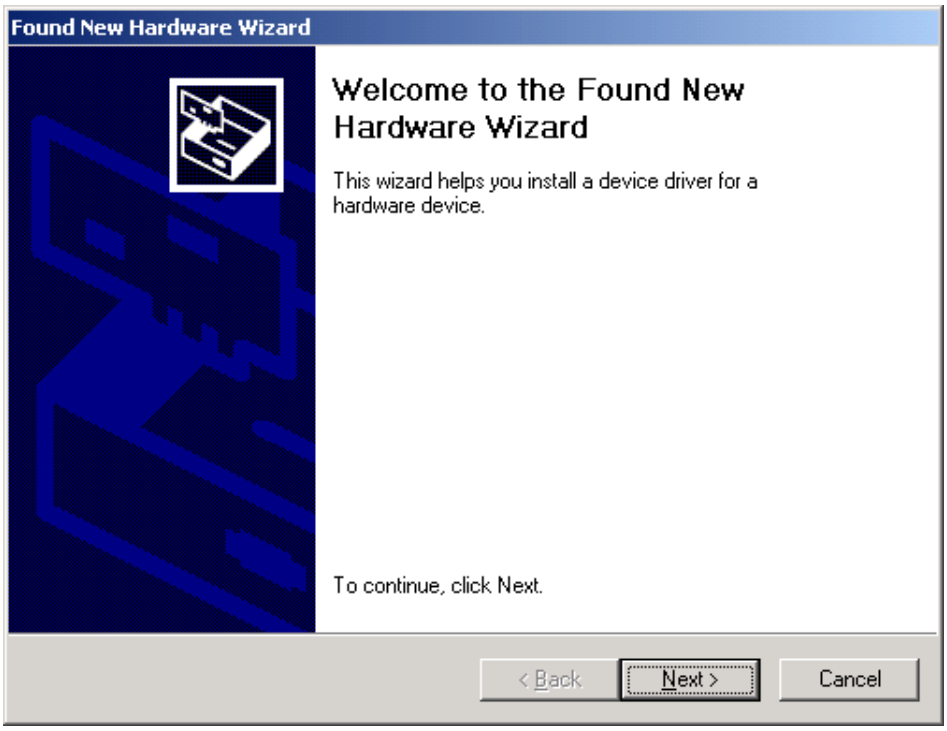
DRIVER INSTALLATION

➲ Installing Drivers on Microsoft Windows 2000 Advanced Server

1. After inserting the controller into the server and booting Windows 2000 Advanced Server, the following messages appear

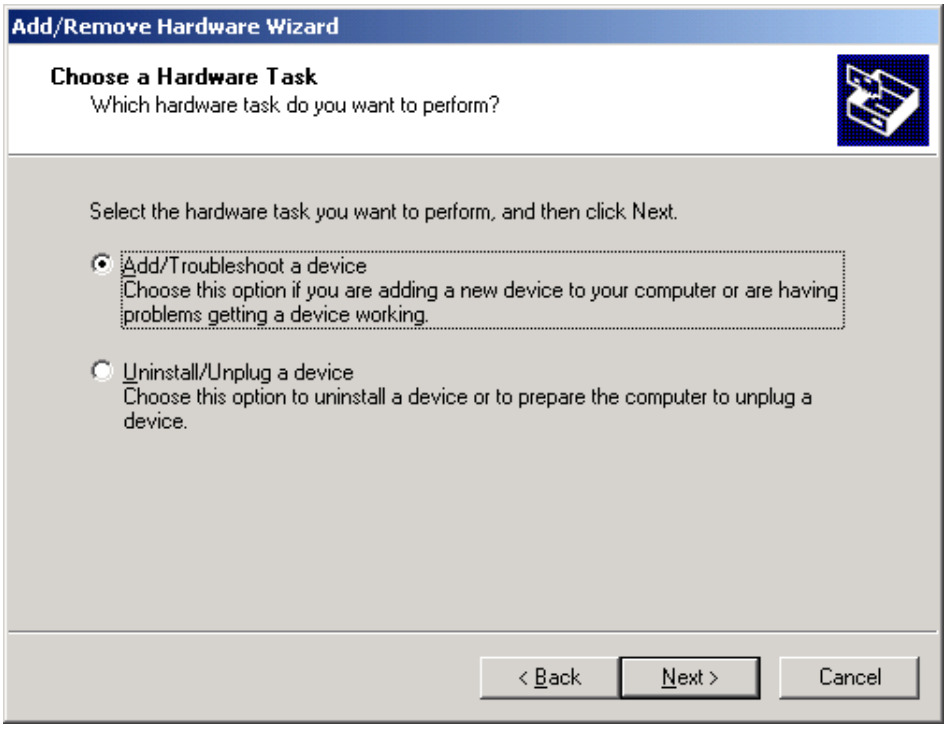


2. Click Cancel. The following messages appear:

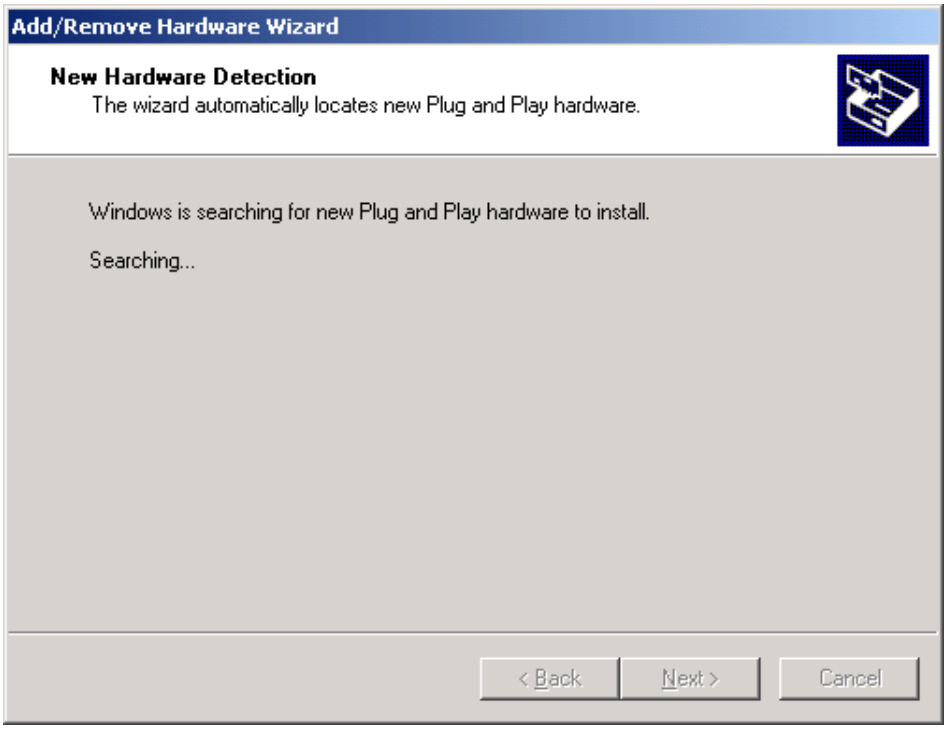


3. Click Cancel.
4. Click Start -> Settings -> Control Panel.
5. Click Add/Remove Hardware. The following dialog box appears:

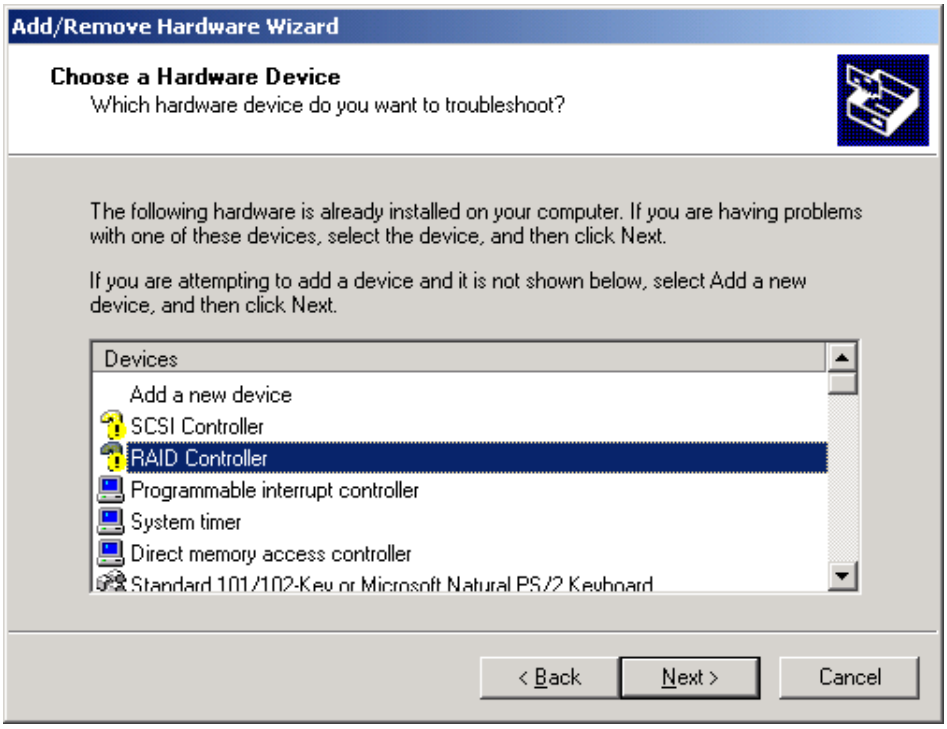
6. Click Next. The following dialog box appears:



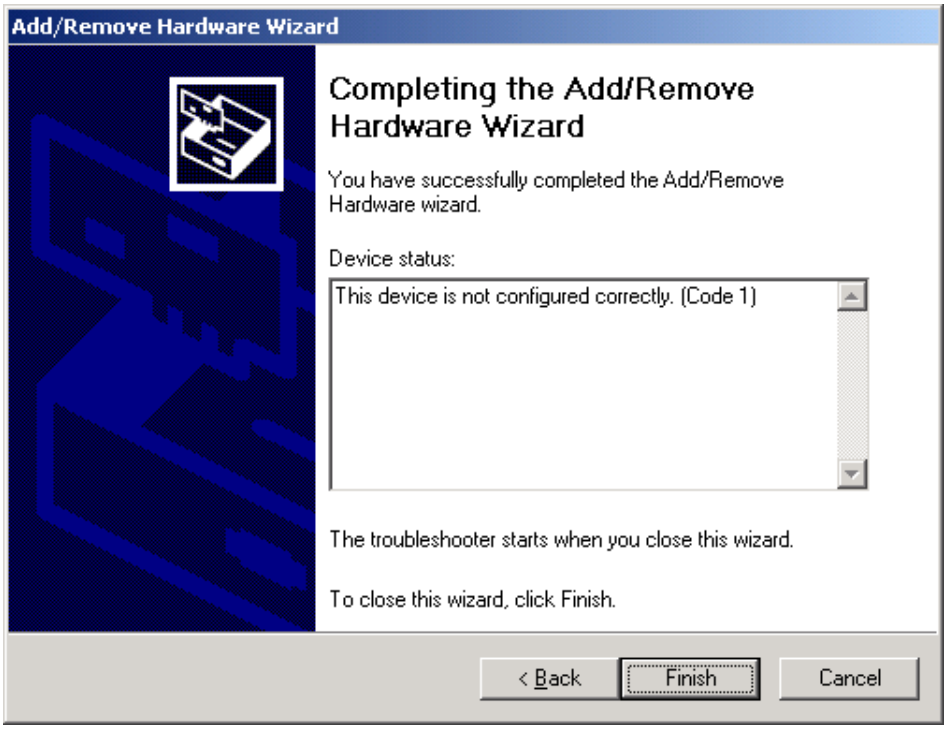
7. Select Add/Troubleshoot a device, and click Next. The following dialog box appears:



8. Windows begins searching for new Plug and Play hardware to install.

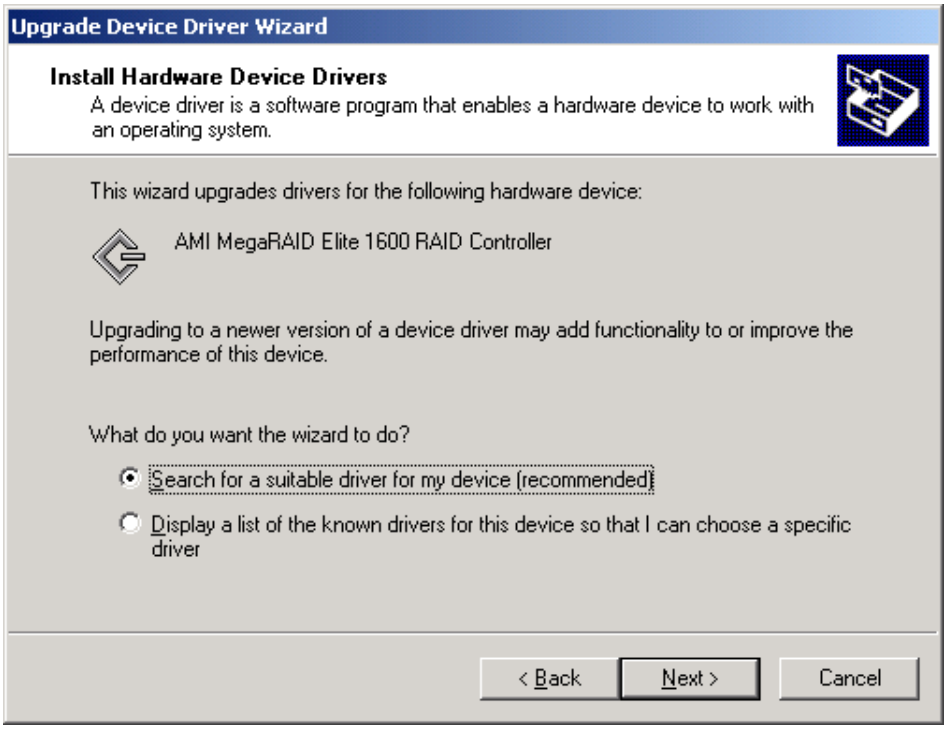


9. Select RAID Controller with exclamation mark "!", and click Next.

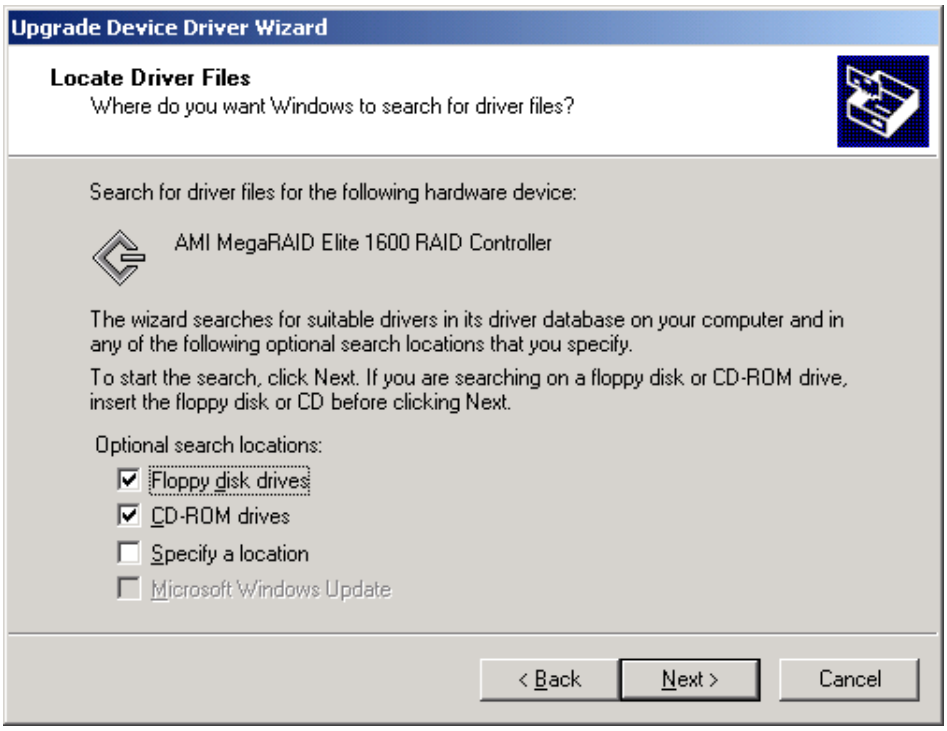


10. Click Finish.

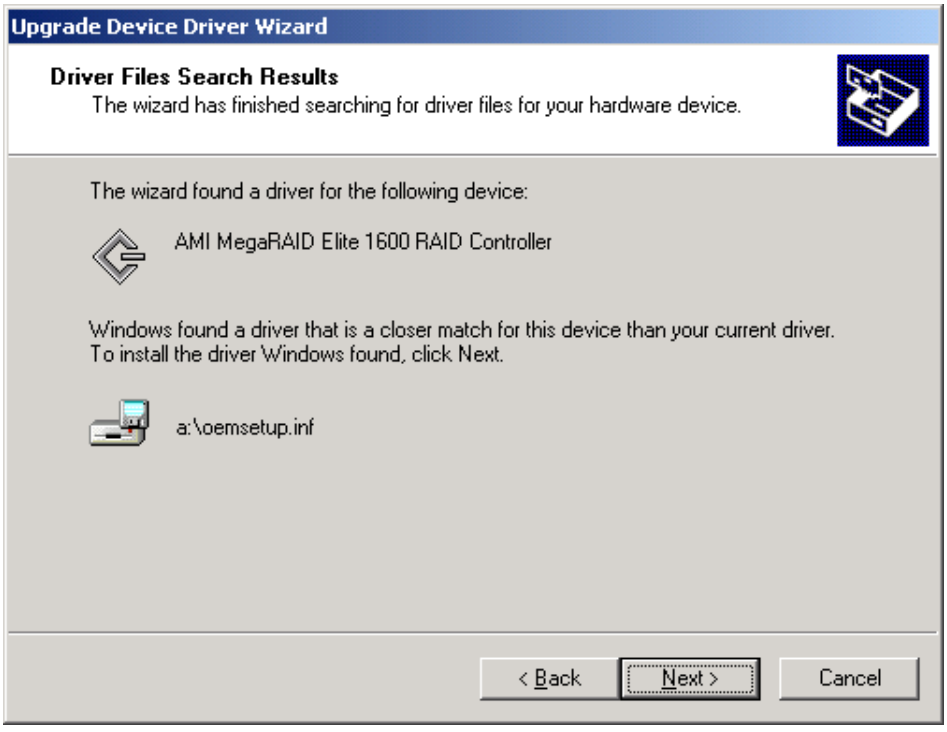
11. To install the device drivers, click Next.



12. Select Search for a suitable driver for my device(recommended), and click Next.



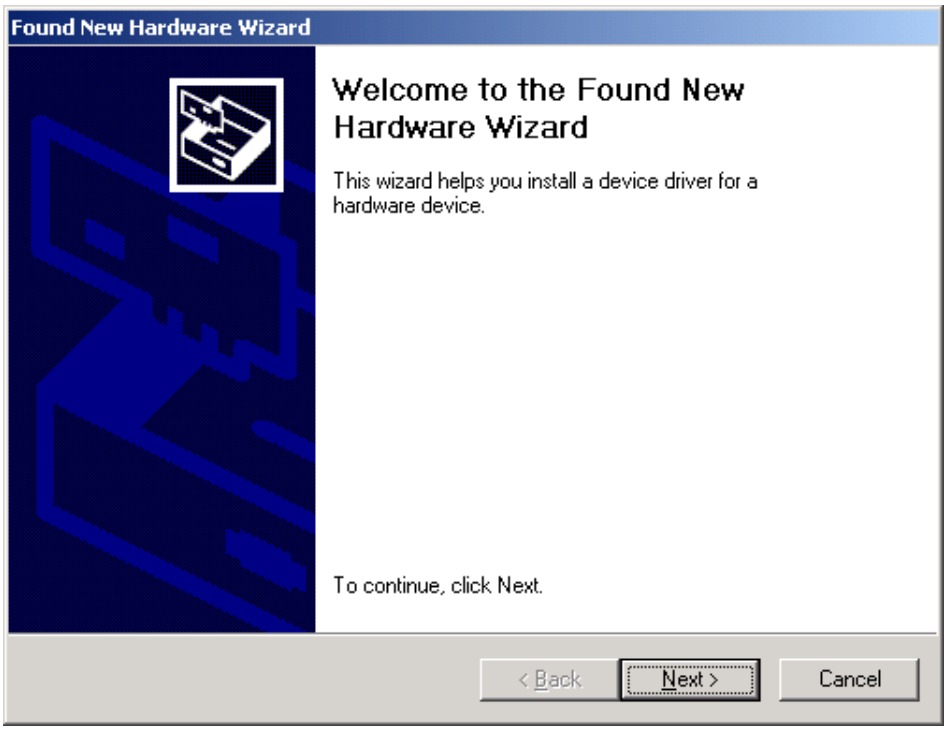
13. Select the locations where you want to search for the drivers and insert Driver 5.22 into the floppy disk drive. Click Next.



14. Windows will automatically find the oemsetup.inf file to install the LSI MegaRAID Elite 1600 RAID Controller drivers. Click Next.

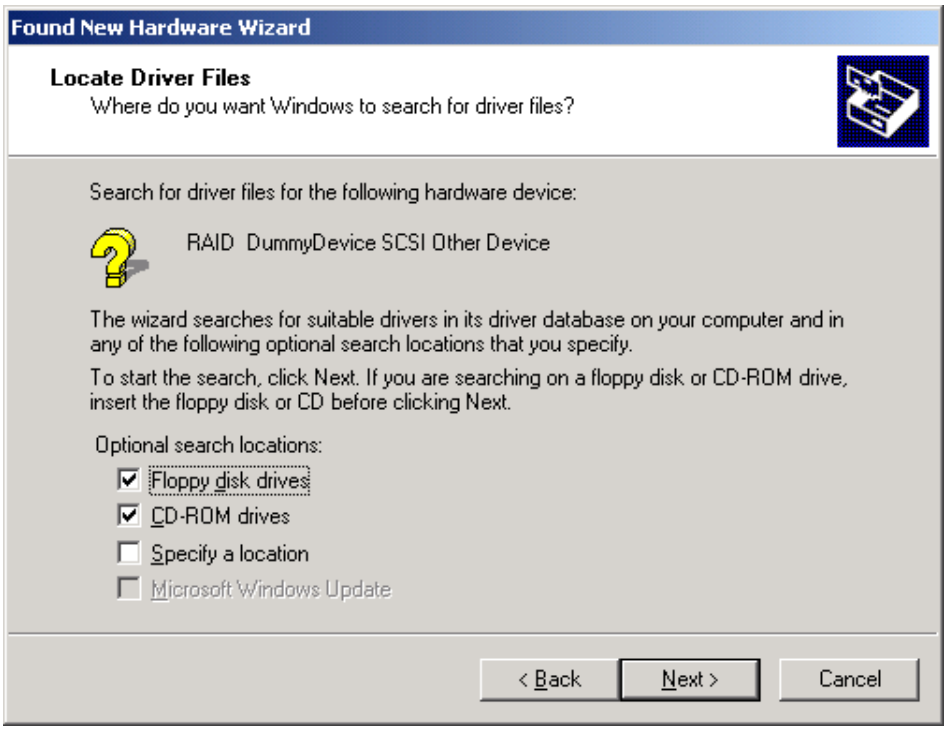
15. Once complete. Click Finish

16. Another device, the RAID DummyDevice SCSI Other Device is automatically resolved. Start installing the LSI MegaRAID Virtual Device.

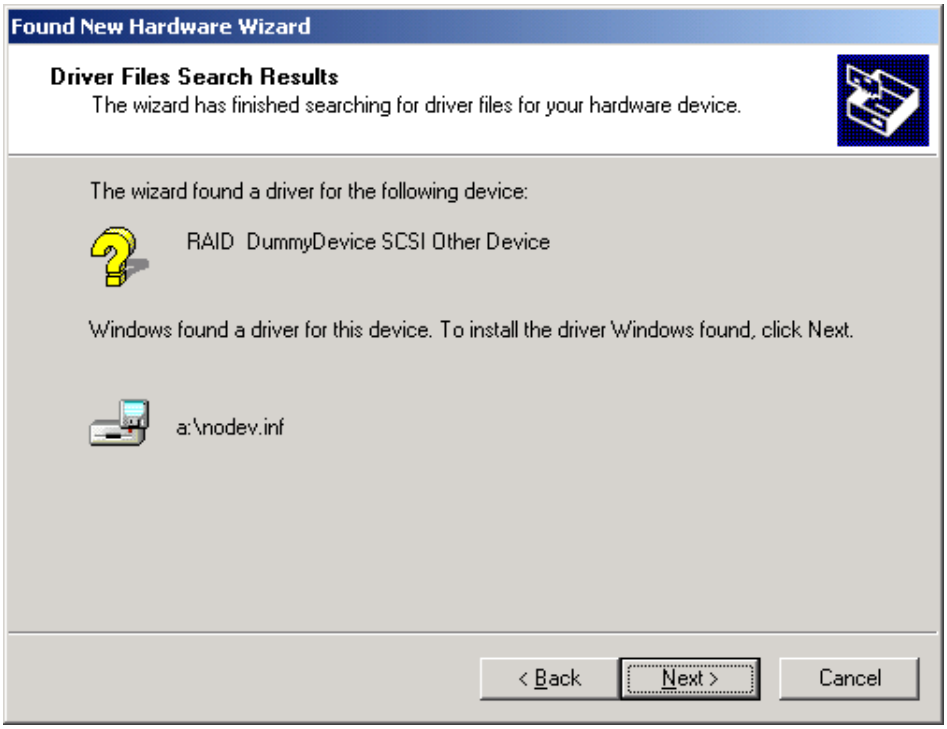


17. Click Next.

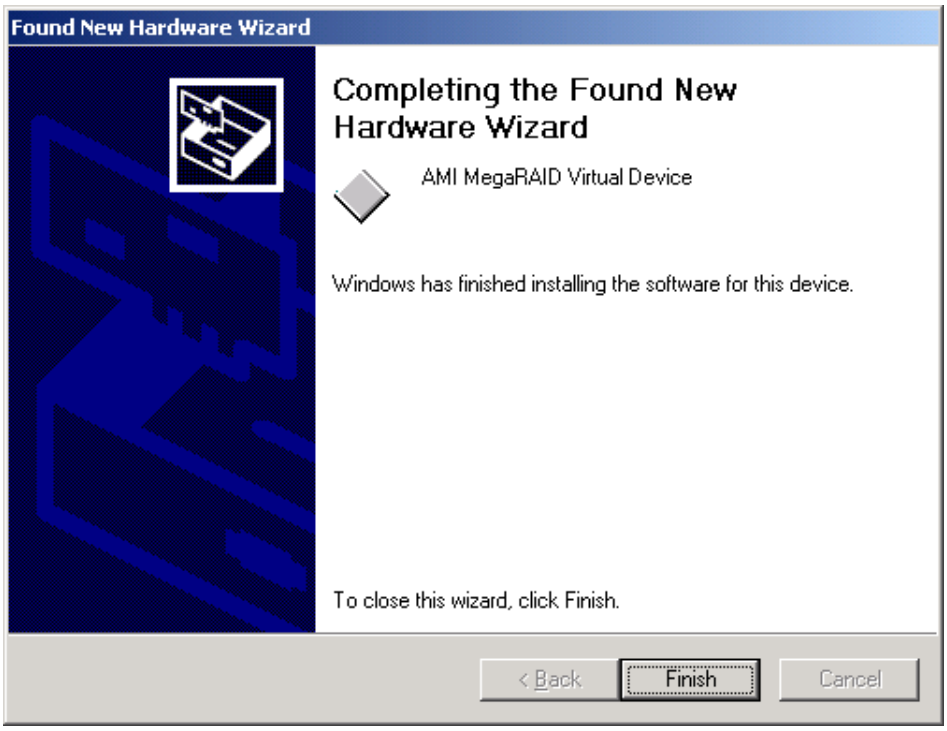
18. Select “Search for a suitable driver for my device (recommended)”, and then click Next.



19. Select the locations you want to search. Insert Driver 5.22 into the floppy disk drive and click Next.

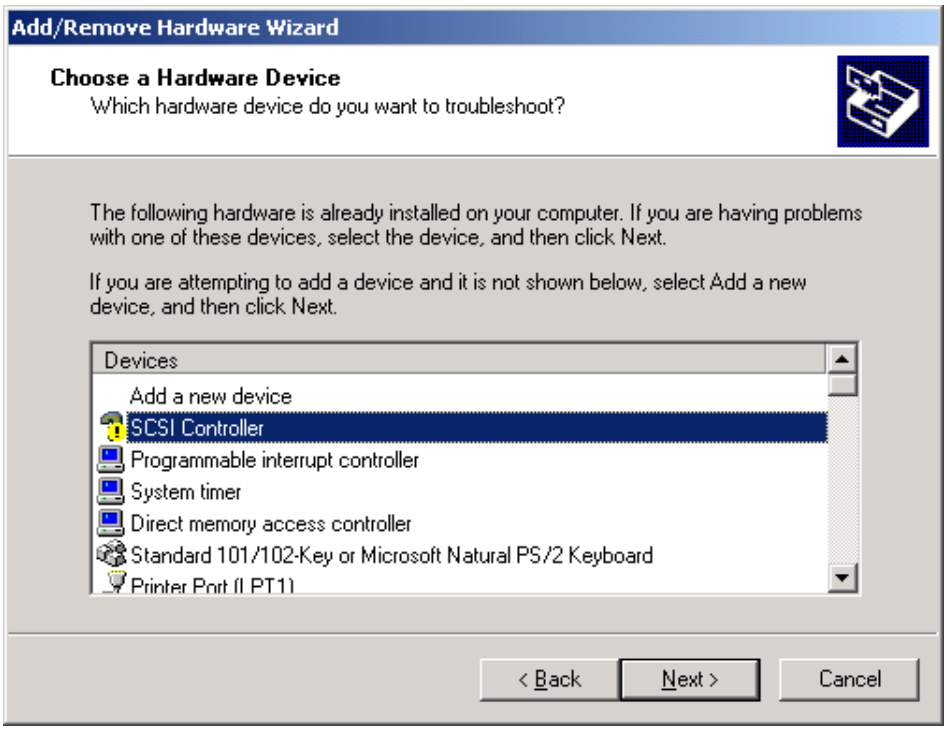


20. The system will locate the nodev.inf file to install the RAID DummyDevice SCSI Other Device drivers. Click Next.

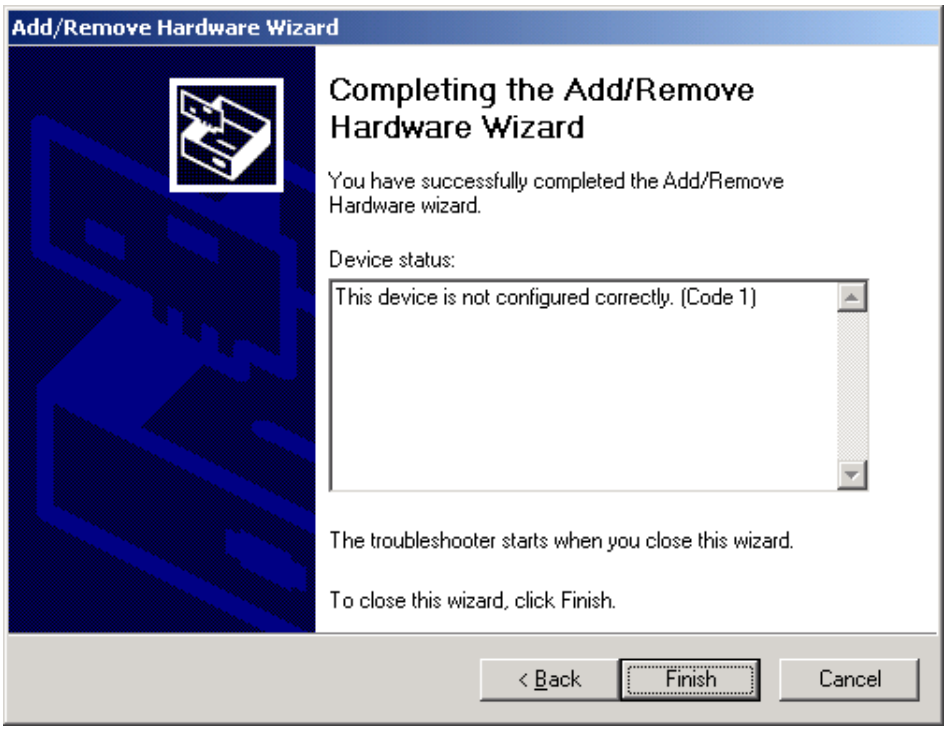


21. Click Finish.

22. Repeat steps 7 through 11.



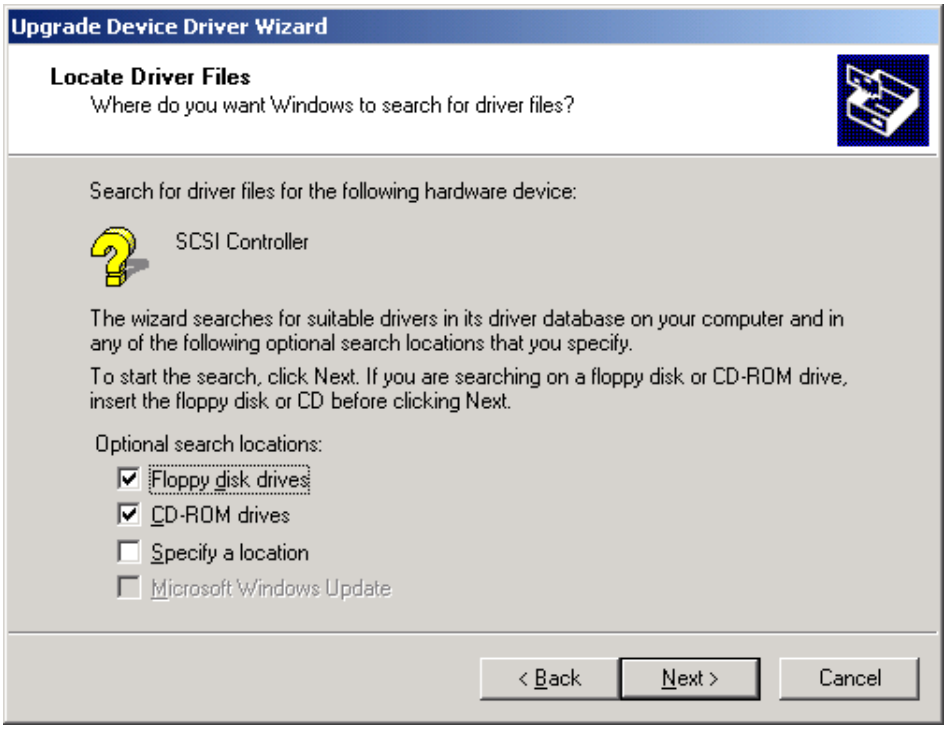
23. Select SCSI Controller and click Next.



24. Click Finish.

25. Click Next.

26. Select "Search for a suitable driver for my device (recommended)", and then click Next.



27. Select the locations you want to search. Insert the Driver 5.22 into the floppy disk drive. Then click Next.

28. Having already copied the drivers to the system, Windows finds the file in c:\winnt\inf\oem1.inf. Click Next.

29. Click Finish. The drivers are successfully installed.

CLUSTER SERVICE INSTALLATION

Installing the Cluster Service

1. Make sure the public and private network configurations are complete on both nodes. This enables the public network to be accessed by client machines and the private network can exchange heartbeats.
2. Join the domain to the cluster service.
3. Set up the shared storage (RS710/S300). Partition the logical hard disks on the RS710/S300 as basic and NTFS partitions. Make sure the drive volume mappings are the same on both nodes.
4. Install the Microsoft Cluster Service on both nodes.
5. Configure the first node. After it runs the cluster service, configure the second node to join the cluster. This completes the cluster service configuration.
6. For a detailed installation and configuration of Microsoft Cluster Service on Acer Altos Server, please refer to another document "Installation and Configuration Guide for Cluster Services running on Microsoft® Windows 2000 Advanced Server using Acer Altos Servers".

INSTALLING CONFIGURATION MONITORING TOOL

Installing Power Console Plus

Power Console Plus is an object-oriented GUI utility that lets you efficiently configure and monitor a large RAID array of disks locally or over a network with several servers. This is for servers that support Windows NT and 2000 and are capable of monitoring and being monitored.

Please refer to LSI's software guide.

http://www.lsilogic.com/

http://megaraid.lsilogic.com/support/doclib.cfm

FOR MORE
INFORMATION

For more detailed information about Acer Altos servers, please refer to: http://www.acer.com.

For more information on the MegaRAID Elite 1600 controller, check out LSI's web site at: http://www.lsilogic.com

For detailed installation and configuration of Microsoft Cluster Service on Acer Altos Server, please refer to another document "Installation and Configuration Guide for Cluster Services running on Microsoft® Windows 2000 Advanced Server using Acer Altos Servers".

For the latest information on Windows 2000 Advanced Server and Microsoft Cluster Service, check out Microsoft's web site at: http://www.microsoft.com/windows2000/library/technologies/cluster/default.asp.