



IBM ServeRAID-4Mx and -4Lx Ultra160 SCSI Controllers – New Levels of Performance for RAID Applications

Overview

Optimize performance in your mission-critical RAID data storage application with new ServeRAID™-4Mx or -4Lx Ultra160 SCSI Controllers. Using an Intel 80303 I/O 100 MHz² processor, these 64-bit, 66 MHz ServeRAID Ultra160 controllers are great price/performers for entry- and mid-range IBM eServer xSeries servers.

Besides providing top-line performance for their class, they support:

- Active PCI (hot-swap/hot-add)
- Up to 14 HDDs per channel
- Full RAID functions
- FlashCopy
- Clustering failover

ServeRAID-4Mx Ultra160 SCSI Controller

- Two channels — Support for mid-range RAID storage requirements
 - Two internal 68-pin ANSI connectors
 - Two external .8-mm VHDCI connectors
- 64 MB ECC SDRAM battery-backed cache

ServeRAID-4Lx Ultra160 SCSI Controller

- Economical single-channel controller — Support for entry requirements
 - One internal 68-pin ANSI connector
 - One external .8-mm VHDCI connector
- 32 MB ECC SDRAM cache

They include an advanced, Java™-based ServeRAID Manager that easily integrates into IBM Director to provide leading setup, monitoring, and administration of the RAID array.

The ServeRAID-4Mx and -4Lx support clustering and failover using Microsoft™ Cluster Services for Windows NT® and Windows® 2000 applications. These controllers are supported and have been rigorously tested through ServerProven™ with a wide range of popular network operating systems.

- ¹ For information on IBM's Statement of Limited Warranty, call 800-772-2227 or contact your IBM representative or reseller. Copies are available upon request.
- ² MHz denotes the clock speed of the microprocessor only, not application performance. Many factors affect application performance

Planned Availability Date

May 31, 2001

At a Glance

IBM advanced ServeRAID-4Mx and -4Lx Ultra160 SCSI controllers are updated to 66 MHz PCI bus performance. They deliver excellent performance, scalability, and control for mid- and entry-range storage environments.

- New offerings join the popular ServeRAID-4 family to provide:
 - Compatibility with current line
 - Same ease-of-use and setup features
 - Common support requirements across the enterprise
 - High-performance features include:
 - Wide band-width — Supports 64- or 32-bit PCI installations
 - High-speed, 66 MHz PCI bus performance
 - Supports Ultra160 SCSI technology — 160 MB/s data transfers
 - Industry-leading RAID support — levels 0, 00, 1, 1E, 1E0, 5, 50, 5E, and 10
 - IBM X-architected Active PCI
 - Supports clustering and failover
 - Excellent price/performers for basic to moderate RAID data storage
 - Three-year, limited warranty¹
- For technical support:
- Call the HelpCenter® (800-772-2227).
or
 - Request technical information via IBM Faxback (800-426-3395) or the PCD Web site at:

<http://www.pc.ibm.com>

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.

Description

ServeRAID Ultra160 SCSI Family

The ServeRAID-4 Ultra160 SCSI products offer advanced RAID technology to help manage your business storage needs. These new offerings complement this line by improving performance over the predecessor ServeRAID-4M and -4L Ultra160 SCSI Controllers. Combining a ServeRAID-4 controller with an xSeries or Netfinity® server results in superior performance, availability, and scalability to meet your business storage requirements.

New ServeRAID Ultra160 SCSI Controllers

The ServeRAID-4Mx and -4Lx Ultra160 SCSI Controllers provide higher levels of performance. They are powered by a 100 MHz Intel Zion GC80303 processor that provides:

- 66 MHz PCI bus performance for xSeries and Netfinity servers containing a 66 MHz PCI bus
- Up to 528 MB/s data transfers across the PCI bus

As members of the popular ServeRAID-4 SCSI Controller family, they offer:

- Leadership performance and reliability
- Support for up to 14 HDDs per channel — Provides massive RAID-protected data storage
- Support for adapter fail-over and clustering
- Manageability and ease-of-use through ServeRAID Manager software
- Support for nine RAID levels — More choices to meet unique business needs

ServeRAID-4Mx Ultra160 SCSI Controller: This dual-channel, mid-range controller:

- Includes 64 MB ECC SDRAM battery-backed ECC cache
- Contains two channels supporting internal and external connections:
 - Two internal, 68-pin, ANSI connectors — Flexible internal connections
 - Two external industry-standard .8-mm VHDCI connectors — Supports moderate external RAID-protected data storage

ServeRAID-4Lx Ultra160 SCSI Controller: This very affordable, single-channel, entry-level controller includes:

- 32 MB of ECC cache — Provides balanced performance
- Support for either an internal or an external connection:
 - One internal, 68-pin, ANSI connector
 - One external industry-standard .8-mm VHDCI connector

Key Features of ServeRAID-4Mx and -4Lx Controllers

- Support for Ultra160 SCSI data transfer rates — up to 160 MB/s
- Support for RAID levels 0, 1, 1E, 5, 5E, 00, 10, 1E0, and 50
 - RAID levels 1E, 1E0 and 5E are IBM exclusives
- Up to 14 HDDs supported per channel
- ServeRAID Manager RAID Configuration and Monitoring Software for powerful, easy-to-use RAID management across your storage assets
- Support for Active PCI (hot-swap and hot-add of controllers) for Windows NT, Windows 2000, and NetWare environments
- Support for adapter failover in Windows NT environments
- Support for clustering with Microsoft Cluster Services and NetWare High-Availability Services

ServeRAID-4Mx and -4Lx Useability: Excellent usability features are provided by the ServeRAID-4 controllers for setting up, monitoring, and modifying the disk array. Logical Drive Migration (LDM) is included with ServeRAID controllers. It allows various complex RAID setup and maintenance operations to be administered in a simple straightforward manner.

Product Positioning

The ServeRAID-4Mx and -4Lx Ultra160 SCSI Controllers outperform the predecessor products, the ServeRAID-4M and -4L Ultra160 SCSI Controllers. These new controllers are positioned beneath the ServeRAID-4H Ultra160 SCSI Controller that provides greater performance and additional channels for greater storage function.

These new controllers are scheduled to replace the ServeRAID-4M and -4L controllers in the upcoming months.

Euro Currency

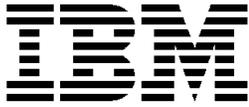
This product is not impacted by euro currency.

Trademarks

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IBM US Announcement Supplemental Information

May 22, 2001

ServeRAID™ -4Mx and -4Lx Ultra160 SCSI Controllers (06P5736/06P5740)

Technical Information

ENERGY STAR-Compliant: No

Note: The ENERGY STAR emblem does not represent EPA endorsement of any product or service.

Physical Specifications

ServeRAID-4Mx Ultra160 SCSI Controller:

- Up to 66 MHz PCI bus speed
- 64-bit, full-length PCI adapter card
- Two VHDCI .8-mm external connectors
- Two internal, industry-standard, 68-pin connectors
- Two RAID channels
- Supports Ultra160 SCSI (160 MB/s)

ServeRAID-4Lx Ultra160 SCSI Controller:

- Up to 66 MHz PCI bus speed
- 64-bit, half-length PCI adapter card
- One VHDCI .8-mm external connector
- One internal, industry-standard, 68-pin connector
- One RAID channel
- Supports Ultra160 SCSI (160 MB/s)

The above Ultra160 SCSI controllers are backward compatible with legacy SCSI modes:

- Wide Ultra2 SCSI (80 MB/s)
- Wide Ultra SCSI (40 MB/s)
- Fast/Wide SCSI (20 MB/s)

Operating Environment

- Temperature:
 - 10° to 35°C (50° to 95°F) at 0 to 914 m (0 to 3,000 ft)
 - 10° to 32°C (50° to 90°F) at 914 to 2,133 m (3,000 to 7,000 ft)
- Relative humidity: 8% to 80%

Agency Approvals

- Verified to comply with Part 15 of the FCC Rules for a Class A digital device
- CISPR-22:1997
- AS/NZS 3548: 1995, Amendment 1: 1997, Amendment 2: 1997 (C-Tick)
- VCCI V-1/98.04, V-2/97.04 (Japan)
- EN55022: 1998 (CE-Mark)
- EN55024: 1998 (CE-Mark)
- CNS-13438 BSMI (Taiwan)

Hardware Requirements: The ServeRAID-4Mx and -4Lx Ultra160 SCSI Controllers are supported in the following xSeries and Netfinity® servers where an open full-length (-4Mx) or half-length (-4Lx) PCI slot is available:

Description	Machine Type	ServeRAID -4Lx	ServeRAID -4Mx
xSeries 200	8478	Yes	Yes
xSeries 220	8645	Yes	Yes
xSeries 230	8658	Yes	Yes
xSeries 240	8664 ³	Yes	Yes
xSeries 250	8665 ³	Yes	Yes
xSeries 300	8672	Yes	Yes
xSeries 330	8654 ⁴	Yes	Yes
xSeries 340	8656	Yes	Yes
xSeries 350	8682 ³	Yes	Yes
xSeries 370	8681 ³	Yes	Yes
Netfinity 4500R	8656	Yes	Yes
Netfinity 5000	8659	Yes	Yes
Netfinity 5100	8658	Yes	Yes
Netfinity 5600	8664 ³	Yes	Yes
Netfinity 6000R	8682 ³	Yes	Yes
Netfinity 7100	8666 ³	Yes	Yes
Netfinity 7600	8665 ³	No	Yes
Netfinity 8500R	8681 ³	No	Yes

³ To support hot-adding of the ServeRAID-4Mx and 4Lx controllers on these servers, the following updates must be installed:

- Windows® 2000 — IBM Active PCI Software for Windows 2000 v1.0.0.9
- Windows NT® — IBM Hot-Plug for Windows NT 4.0 Package v4.2
- NetWare — IBM Hot Plug PCI System Bus Driver (v1.08b for active PCI servers except xSeries 370/Netfinity 8500R and v1.10a for xSeries 370/Netfinity 8500R)

These updates can be obtained from our Web site at:
<http://www.ibm.com/pc/us/compat/hotplug>

⁴ Only one ServeRAID-4 controller is supported in this server due to system ROM limitations.

Software Requirements: These ServeRAID-4 Ultra160 SCSI Controllers are supported with the following network operating systems:

- NetWare 4.2
- NetWare 5.1
- Windows NT 4.0 Server
- Windows NT 4.0 Enterprise Edition
- Windows 2000 Advanced Server
- Windows 2000 Server
- SCO Open Server 5.0.6
- UnixWare 7.1.1
- Linux: Red Hat 6.2, 7.0
- OS/2 Warp® Server Advanced V4.0 SMP
- OS/2® Server for e-Business V5.0

Compatibility: These ServeRAID Ultra160 Controllers can be attached to the following:

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Storage Units

Description	Part Number
Netfinity EXP200	35301RU
EXP300	35311RU

Cables

Netfinity 2 M Ultra2 SCSI Cable	03K9310
Netfinity 4.3 M Ultra2 SCSI Cable	03K9311
Netfinity 20 M Ultra2 SCSI Cable	37L7101

Planning Information

Cable Orders Required: External cables are required when attaching external SCSI storage enclosures. Refer to **Compatibility** section for supported SCSI cables.

Installation Time: Approximately 1 hour

Packaging: One box

Shipment Group

- Controller card assembly
- ServeRAID support CD-ROM
- ServeRAID User's Guide/Warranty

Security, Auditability, and Control

These products use the security and auditability features of the server in which they are installed.

Terms and Conditions

Field Installable	Yes
Customer Setup	Yes
Warranty Period	3 Years ⁵
Service Type	CCE ⁶
Maintenance Agreement	No
Optional Upgrade	No
Central Facility Maintenance Service (CFMS) Option	No
Licensed Programs	Yes

Note: IBM programs are licensed under the terms and conditions of the IBM License Agreements that ship with the product. Non-IBM programs are available from IBM as distributed by the program supplier.

⁵ Optional features initially installed with an xSeries or Netfinity server carry the same warranty and warranty classification type as the system. If installed after the initial system installation, they carry the balance of the system warranty or the optional feature warranty, whichever is greater.

⁶ These optional features are designated as Customer Carry-in Exchange/Repair (CCE/CCR).

International Warranty Service (IWS): IWS is available to customers who travel or need to move selected IBM products as identified by their 4-digit IBM machine type to countries where their product is sold and serviced by IBM or an IBM authorized service provider. Upon registering with the IWS office, IBM will issue an IWS certificate that will be honored wherever the specific IBM product is sold and serviced. During the original warranty period, customers will be provided service through the service delivery methods available for their IBM product in the servicing country. Service procedures vary by country, and some service and or parts may not be available in all countries. Some countries have fees and restrictions that apply when service is provided.

For more information on IBM International Warranty Service in the United States and Canada or to register your IBM product, contact IBM at 800-IWS-7426 (497-7426) or 248-740-1215.

Help and Service Information

During the warranty period, call 800-772-2227 for technical support 24 hours a day, 7 days a week, to answer any questions regarding your new IBM option. Response time will vary depending on the number and nature of calls received. If you need warranty service, return or exchange is available. Additionally, if your IBM option is installed in an IBM computer, you may be entitled to service at your location. Your technical support representative can help you determine the best alternative.

Prices

Description	Part Number	IBM List Price ⁷
ServeRAID-4Mx Ultra160 SCSI Adapter	06P5736	\$1,299
ServeRAID-4Lx Ultra160 SCSI Adapter	06P5740	659

⁷ IBM price; does not include tax or shipping and is subject to change without notice. Reseller prices may vary.

Trademarks

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