Lenovo ThinkSystem RAID 730-8i Internal RAID Adapter

Product Guide

The Lenovo ThinkSystem RAID 730-8i is a 12 Gb SAS/SATA internal RAID adapter that offers a cost-effective RAID solution for small to medium business customers. This adapter has 1 GB of cache, supports RAID levels 0/1/10/5/50, and includes an extensive list of RAS and management features.

The ThinkSystem RAID 730-8i is shown in the following figure.

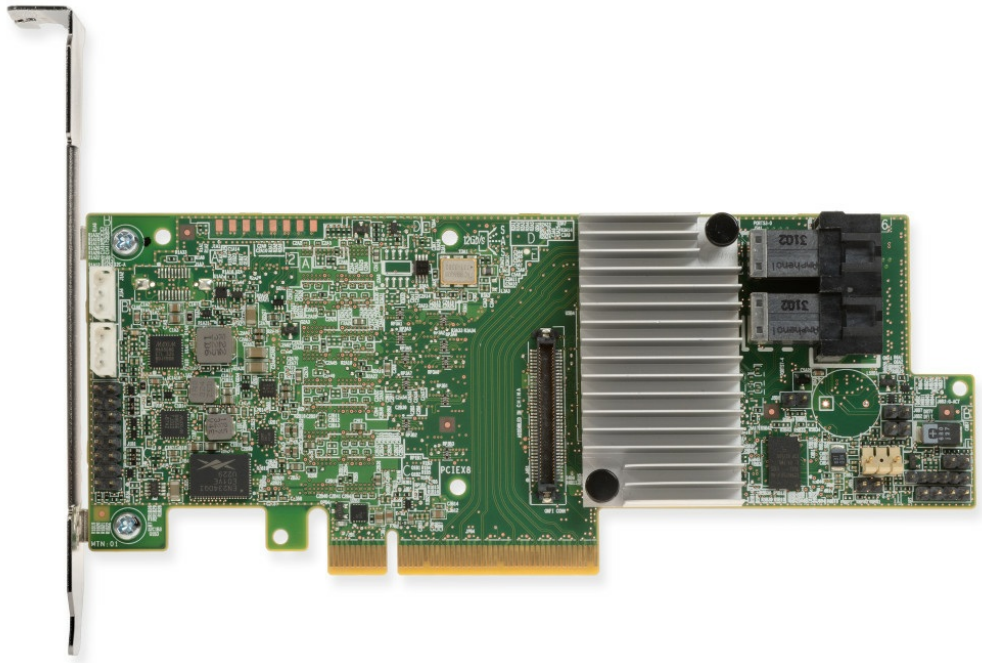

Figure 1. ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter

Did you know?

RAID on Chip-based controllers such as the RAID 730-8i adapters have a dedicated processor that offloads RAID functions from the server's CPU. With hardware acceleration for RAID 5 and 50 operations plus dedicated 1 Gb memory for caching, the 730-8i is a cost-effective storage solution for ThinkSystem servers.

Part number information

The following table provides the ordering part numbers for the adapters.

US and Canada customers: The ThinkSystem RAID 730-8i adapter is not available in US or Canada.

Table 1. Part numbers and feature codes

Part number	Feature code	Description
7Y37A01083	AUNH	ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter

Technical specifications

The ThinkSystem RAID 730-8i Adapter has the following specifications:

- PCIe 3.0 x8 host interface
- 12 Gbps SAS/SATA RAID controller
- 1 Gb cache (not upgradeable)
- Connectivity for up to 8 internal SAS or SATA drives
- Support for intermixing SAS and SATA HDDs and SSDs. Mixing SAS and SATA drives in the same array is not supported. Mixing of HDDs and SSDs in the same array is not supported.
- Support for intermixing of 12 Gbps and 6 Gbps drives.
- Support for RAID 0, 1, 10, 5, and 50 standard
- Support for JBOD (non-RAID) drive state
- Support for up to 64 virtual disks, up to 128 arrays, up to 16 virtual disks per array
- Support for logical drive sizes greater than 2 TB.
- Configurable stripe size from 64 KB up to 1 MB
- Supports 512e, 512n and 4K sector formatted drives
- Compliant with Disk Data Format (DDF) configuration on disk (CoD).
- S.M.A.R.T. support.
- Configuration through
    - XClarity Provisioning Manager UEFI interface
    - XClarity Controller web interface
    - XClarity Administrator Configuration Patterns
    - StorCLI command-line interface
    - LSI Storage Authority (LSA) GUI interface
    - UEFI Human Interface Infrastructure (HII)

Note: CacheCade is not supported by these adapters

The following table lists the specifications of the RAID 730-8i.

Table 2. Specifications

Feature	**RAID 730-8i**
Form factor	PCIe low profile
Controller chip	LSI SAS3108
Host interface	PCIe 3.0 x8
Port interface	12 Gb SAS
Number of ports	8
Port connectors	2x Mini-SAS HD x4 (SFF-8643) internal
Drive interface	SAS, SATA
Drive type	HDD, SSD
Hot-swap drives	Yes
Max devices	8
RAID levels	0, 1, 10, 5, 50
JBOD mode	Yes
Cache	1GB (standard)
CacheVault cache protection	No
Performance Accelerator (FastPath)	No
SSD Caching (CacheCade Pro 2.0)	No
SED support	No

Features

The ThinkSystem RAID 730-8i adapter has the following standard features:

- MegaRAID FastPath SSD performance acceleration

  MegaRAID FastPath software provides high-performance I/O acceleration for SSD-based virtual drives by using a low latency I/O path to increase the maximum I/O per second (IOPS) capability of the controller. This feature boosts the performance of applications with a highly random data storage access pattern, such as transactional databases.

- Auto-resume on array rebuild or array reconstruction after the loss of system power

  Auto-resume uses non-volatile RAM (NVRAM) to save the rebuild progress during a host reboot or power failure to automatically resume from the last checkpoint. Auto-resume ensures that data integrity is maintained throughout the process. The card supports a number of features that can be implemented without rebooting the server. Applications, such as email and web server, benefit from avoiding downtime during the transition.

- Online Capacity Expansion

  Online Capacity Expansion (OCE) allows the capacity of a virtual disk to be expanded by adding new physical disks or making use of unused space on existing disks, without requiring a reboot.

- Online RAID Level Migration

  Online RAID Level Migration (RLM), which is also known as logical drive migration, can migrate a virtual disk from any RAID level to any other RAID level without requiring a reboot. System availability and application functionality remain unaffected.

- Fast initialization for quick array setup

  Fast initialization quickly writes zeros to the first and last sectors of the virtual drive. This feature allows you to immediately start writing data to the virtual drive while the initialization is running in the background.

- Consistency check for background data integrity

  Consistency check verifies that all stripes in a virtual disk with a redundant RAID level are consistent. The consistency check mirrors data when an inconsistent stripe is detected for RAID 1 and re-creates the parity from the peer disks for RAID 5 or RAID 6. Consistency checks can be scheduled to take place periodically.

- Extensive online configuration options and advanced monitoring and event notification

  Management tools provide convenience for the configuration of logical volumes and alerting when errors have occurred or are about to occur.

- Patrol read for media scanning and repairing

  Patrol read is a background sentry service that pro-actively discovers and corrects media defects (bad sectors) that arise normally as a disk drive ages. The service issues a series of verify commands, and if a bad block is discovered, the card's firmware uses RAID algorithms to re-create the missing data and remap the sector to a good sector. The task is interruptible based on controller activity and host operations. The firmware also provides an interface where the patrol read task can be initiated, set up for continuous operation, and terminated from a management application. Patrol read can be activated by a manual command or automatically.

- Global and dedicated hot spare with revertible hot spare support

  A hot spare rebuilds data from all virtual disks within the disk group in which it is configured. You can define a physical disk as a hot spare to replace a failed drive. Hot spares can be configured as either global or dedicated. A global hot spare allows any physical drive to be designated as a hot spare. A dedicated hot spare allows the user to assign a hot spare drive to a particular array of the same drive type.

- Drive roaming

  Drive roaming occurs when the physical disks are changed to different ports on the same controller. When the drives are placed on different channels, the controller detects the RAID configuration from the configuration data on the drives.

- MegaRAID SafeStore support for self-encrypting drive (SED) services

  MegaRAID SafeStore encryption services offer instant secure erase and local key management for self-encrypting drives. This technology represents a step forward in securing data on a disk drive from any unauthorized access or modification resulting from theft, loss, or repurposing of drives. Instant secure erase permanently removes data when repurposing or decommissioning SEDs. SafeStore local key management provides the necessary management and protection of SEDs by using a simple pass phrase, security key identifier, and security key file that can be set and applied to all SEDs that are assigned to a RAID adapter. This feature removes the complexity of managing each SED's unique encryption key, and it essentially relieves the administrator of most of the daily tasks of securing data.

- XClarity Provisioning Manager for pre-boot array configuration and management

  Provisioning Manager is the ThinkSystem UEFI-based application that includes a RAID setup wizard to help you configure drive groups and virtual disks before installing or booting the operating system.

- XClarity Controller web interface for remote storage management

  XClarity Controller (XCC) is the systems management processor integrated in all ThinkSystem servers. The XCC web interface allows you to perform storage inventory, create and edit virtual disks, view events, import a new controller configuration, and perform firmware updates on the adapter.

Note: MegaRAID CacheCade and MegaRAID Storage Manager are not supported.

Server support

The following table lists the ThinkSystem servers that are compatible.

Table 3. ThinkSystem server support

Part number	Description	1S Rack & Tower				2S Rack & Tower								4S Rack			Dense/ Blade			
		ST50 (7Y48/7Y50)	ST250 (7Y45/7Y46)	SR150 (7Y54)	SR250 (7Y51/7Y52)	ST550 (7X09/7X10)	SR530 (7X07/7X08)	SR550 (7X03/7X04)	SR570 (7Y02/7Y03)	SR590 (7X98/7X99)	SR630 (7X01/7X02)	SR650 (7X05/7X06)	SR670 (7Y36/7Y37/7Y38)	SR850 (7X18/7X19)	SR860 (7X69/7X70)	SR950 (7X11/12/13)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)
7Y37A01083	ThinkSystem RAID 730-8i 1GB Cache PCIe 12Gb Adapter	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	N

Operating system support

The ThinkSystem RAID 730-8i adapter supports the following operating systems:

- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Microsoft Windows Server 2019
- Microsoft Windows Server version 1709
- Microsoft Windows Server version 1803
- Red Hat Enterprise Linux 6.10
- Red Hat Enterprise Linux 6.9
- Red Hat Enterprise Linux 7.3
- Red Hat Enterprise Linux 7.4
- Red Hat Enterprise Linux 7.5
- SUSE Linux Enterprise Server 11 SP4
- SUSE Linux Enterprise Server 11 SP4 with Xen
- SUSE Linux Enterprise Server 12 SP2
- SUSE Linux Enterprise Server 12 SP2 with Xen
- SUSE Linux Enterprise Server 12 SP3
- SUSE Linux Enterprise Server 12 SP3 with Xen
- SUSE Linux Enterprise Server 15
- SUSE Linux Enterprise Server 15 with XEN
- VMware vSphere Hypervisor (ESXi) 6.0 U3
- VMware vSphere Hypervisor (ESXi) 6.5
- VMware vSphere Hypervisor (ESXi) 6.5 U1
- VMware vSphere Hypervisor (ESXi) 6.5 U2
- VMware vSphere Hypervisor (ESXi) 6.7
- VMware vSphere Hypervisor (ESXi) 6.7 U1

For more information about the specific versions and service levels that are supported and any other prerequisites, see the ServerProven website: http://www.lenovo.com/us/en/serverproven

Warranty

The adapter carries a 1-year limited warranty. When installed in a supported ThinkSystem server, the adapter assumes the server's base warranty and any warranty upgrades.

Operating environment

The adapter is supported in the following environment:

- Operating:
  - Temperature: 10°C to 55°C (50°F to 131°F)
  - Relative humidity: 20% to 90% (non-condensing)
- Storage
  - Temperature with package: -40°C to 70°C (-40°F to 158°F)
  - Relative humidity: 5% to 95% (non-condensing)

Agency approvals

The adapter has the following agency approvals:

- FCC Part 15 Class A
- Australia/New Zealand (AS/NZS CISPR 22)
- Canada (ICES-003 Class B)
- Europe (EN55022/EN55024)
- Japan (VCCI V-3)
- Korea (RRA no 2013-24 & 25)
- RoHS compliant
- EN/IEC/UL 60950
- Taiwan (CNS 13438)
- USA (FCC 47 CFR part 15 Subpart B class B)
- WEEE

Related publications and links

For more information, see the following documents:

- Lenovo ThinkSystem product publications:
  http://thinksystem.lenovofiles.com/help/index.jsp
- ServerProven hardware compatibility:
  http://www.lenovo.com/us/en/serverproven
- Lenovo RAID Management Tools and Resources:
  https://lenovopress.com/lp0579-lenovo-raid-management-tools-and-resources
- Lenovo RAID Introduction
  https://lenovopress.com/lp0578-lenovo-raid-introduction

Related product families

Product families related to this document are the following:

- RAID Adapters

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