Intel® RAID

Intel offers multiple categories of RAID products to protect data, increase performance, scale storage, and enhance server availability. A brief description of each category is listed below.

Controller Cards and Modules

- **Excellent:** Intel® Integrated Server RAID signifies unique system boards that are designed to add value above that of a standard RAID add-in card to Intel® Server Boards and Systems.
- **Better:** Intel® RAID Controllers are add-in cards designed to enable a wide variety of RAID solutions.
- **Good:** Intel® Embedded Server RAID Technology Software RAID Activation Keys are designed for entry-level RAID solutions.

RAID Cache Backup

- Battery Backup Units (BBU) and Maintenance Free Backup Units (MFBU) are available for hardware RAID products with embedded cache. The backup options are listed in the “Backup Option” row of the product tables.

Expander Boards

- Intel® RAID Expander Cards are intended for any system with more than 8 drives. As an example of use, 8 RAID ports can be expanded to 24 ports.

Premium Feature Keys

- Several upgrade features can be added to enhance the performance and data protection of Intel’s intelligent RAID cards and modules.

Cable Kits and Converter Boards

- Newer-generation RAID products do not ship with cables, as multiple options exist depending on the system in which the RAID products are installed. Therefore, Intel offers a variety of cables. A converter board that allows for two internal 8087 connectors to be converted to two external 8088 connectors is also available.

For more information, visit **www.intel.com/go/RAID**

Intel® Integrated RAID SAS 3.0 Generation Products

CONTROLLER	INTEL® INTEGRATED RAID MODULE RMS3CC080 / 040	INTEL® INTEGRATED RAID MODULE RMS3HC080	INTEL® INTEGRATED RAID MODULE RMS3JC080
DESCRIPTION	12 Gb/s SAS 3.0 intelligent hardware RAID module with storage I/O connector	12 Gb/s SAS 3.0 IOC-based RAID module with advanced management, Hybrid RAID 5/50, and storage I/O connector	12 Gb/s SAS 3.0 IOC-based RAID module with storage I/O connector
MARKET SEGMENT	Mainstream	Entry-level with advanced management	Entry-level / limited feature
ORDER CODE	**RMS3CC080 / RMS3CC040**	**RMS3HC080**	**RMS3JC080**
PROCESSOR	**LSI* 3108 ROC**	**LSI* 3008 IOC**	**LSI* 3008 IOC**
MEMORY	Embedded 1 GB ECC DDR3 SDRAM	N/A	N/A
PCI BUS	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8
CHANNELS	8 / 4 SAS / SATA ports supporting point-to-point 12 Gb/s data-transfer rates	8 SAS / SATA ports supporting point-to-point 12 Gb/s data-transfer rates	8 SAS / SATA ports supporting point-to-point 12 Gb/s data-transfer rates
FORM FACTOR	1U capable system board	1U capable system board	1U capable system board
RAID LEVELS	0, 1, 5, 6, 10, 50, and 60	0, 1, 10, Hybrid 5/50 (firmware-based, but requires system resources) and JBOD mode	0, 1, and 1E and JBOD mode
CACHE BACKUP OPTIONS	AXXRMFBU5	N/A	N/A
CABLES	Purchased separately	Purchased separately	Purchased separately
INTEL® SERVER BOARD SUPPORT	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector	Select Intel® Xeon® server boards with a storage I/O module connector
AVAILABILITY	Now	Now	Now
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty

Intel® Integrated RAID SAS 2.1 Generation Products

CONTROLLER	INTEL® INTEGRATED RAID MODULE RMS25CB080 / 040	INTEL® INTEGRATED RAID MODULE RMT3CB080	INTEL® INTEGRATED RAID MODULE RMS25JB080 / 040
DESCRIPTION	6 Gb/s SAS 2.1 intelligent hardware RAID module with storage I/O connector	6 Gb/s SATA 3.0 intelligent hardware RAID module with storage I/O connector	6 Gb/s SAS 2.1 entry-level hardware RAID module with storage I/O connector
MARKET SEGMENT	Mainstream	Mainstream	Entry-level / limited feature
ORDER CODE	**RMS25CB080 / RMS25CB040**	**RMT3CB080**	**RMS25JB080 / RMS25JB040**
PROCESSOR	**LSI* 2208 ROC**	**LSI* 2208 ROC**	**LSI* 2308 ROC**
MEMORY	Embedded 1 GB ECC DDR3 SDRAM	Embedded 512 MB ECC DDR3 SDRAM	N/A
PCI BUS	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8
CHANNELS	8 / 4 SAS / SATA ports supporting point-to-point 6 Gb/s data-transfer rates	8 SATA ports supporting point-to-point 6 Gb/s data-transfer rates	8 / 4 SAS / SATA ports supporting point-to-point 6 Gb/s data-transfer rates
FORM FACTOR	1U capable system board	1U capable system board	1U capable system board
RAID LEVELS	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, and 1E
CACHE BACKUP OPTIONS	AXXRSBBU9 (battery backup) AXXRMFBU2 (flash and supercap)	AXXRSBBU9 (battery backup) AXXRMFBU2 (flash and supercap)	N/A
CABLES	Purchased separately	Purchased separately	Purchased separately
INTEL® SERVER BOARD SUPPORT	Intel® Xeon® E5 Series server boards with a storage I/O module connector	Intel® Xeon® E5 Series server boards with a storage I/O module connector	Intel® Xeon® E5 Series server boards with a storage I/O module connector
AVAILABILITY	Now	Now	Now
WARRANTY	1 year limited warranty (AXXRSBBU9) 3 year limited warranty (AXXRMFBU2)	1 year limited warranty (AXXRSBBU9) 3 year limited warranty (AXXRMFBU2)	3 year limited warranty

CONTROLLER	INTEL® INTEGRATED RAID MODULE RMS25PB080 / 040	INTEL® INTEGRATED RAID MODULE RMT3PB080	INTEL® INTEGRATED RAID MODULE RMS25KB080 / 040
DESCRIPTION	6 Gb/s SAS 2.1 intelligent hardware RAID module with standard PCI Express* x8 connector	6 Gb/s SATA 3.0 intelligent hardware RAID module with standard PCI Express* connector	6 Gb/s SAS 2.1 entry-level hardware RAID module with standard PCI Express* connector
MARKET SEGMENT	Mainstream	Mainstream	Entry-level / limited feature
ORDER CODE	**RMS25PB080 / RMS25PB040**	**RMT3PB080**	**RMS25KB080 / RMS25KB040**
PROCESSOR	**LSI* 2208 ROC**	**LSI* 2208 ROC**	**LSI* 2308 IOC**
MEMORY	Embedded 1 GB ECC DDR2 SDRAM	Embedded 512 MB ECC DDR2 SDRAM	N/A
PCI BUS	PCI Express 3.0 x8	PCI Express 3.0 x8	PCI Express 3.0 x8
CHANNELS	8 / 4 SAS / SATA ports supporting point-to-point 6 Gb/s data-transfer rates	8 SATA ports supporting point-to-point 6 Gb/s data-transfer rates	8 / 4 SAS / SATA ports supporting point-to-point 6 Gb/s data-transfer rates
FORM FACTOR	Low-profile PCI Express add-in card	Low-profile PCI Express add-in card	Low-profile PCI Express add-in card
RAID LEVELS	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, and 1E
CACHE BACKUP OPTIONS	AXXRSBBU9 (battery backup) AXXRMFBU2 (flash and supercap)	AXXRSBBU9 (battery backup) AXXRMFBU2 (flash and supercap)	N/A
CABLES	Purchased separately	Purchased separately	Purchased separately
INTEL® SERVER BOARD SUPPORT	Intel® Xeon® E5 Series server boards	Intel® Xeon® E5 Series server boards	Intel® Xeon® E5 Series server boards
AVAILABILITY	Now	Now	Now
WARRANTY	1 year limited warranty (AXXRSBBU9) 3 year limited warranty (AXXRMFBU2)	1 year limited warranty (AXXRSBBU9) 3 year limited warranty (AXXRMFBU2)	3 year limited warranty

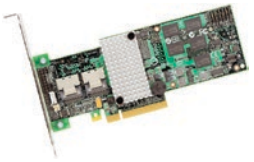
SAS 3.0 Intel® RAID Controller Add-In Cards

CONTROLLER	 INTEL® RAID CONTROLLER RS3DC080	 INTEL® RAID CONTROLLER RS3DC040	 INTEL® RAID CONTROLLER RS3SC008	 INTEL® RAID CONTROLLER RS3MC044
DESCRIPTION	12 Gb/s SAS, 6 Gb/s SATA intelligent hardware RAID controller with 8 internal ports for SAS / SATA drives	12 Gb/s SAS, 6 Gb/s SATA intelligent hardware RAID controller with 4 internal ports for SAS / SATA drives	12 Gb/s SAS, 6 Gb/s SATA intelligent hardware RAID controller with 8 external ports for SAS / SATA drives	12 Gb/s SAS, 6 Gb/s SATA intelligent hardware RAID controller with 4 internal and 4 external ports for SAS / SATA drives
MARKET SEGMENT	Mainstream	Mainstream	Scalable performance	Scalable performance
ORDER CODE	**RS3DC080**	**RS3DC040**	**RS3SC008**	**RS3MC044**
PROCESSOR	**LSI* SAS3108 ROC**	**LSI* SAS3108 ROC**	**LSI* SAS3108 ROC**	**LSI* SAS3108 ROC**
MEMORY	1 GB DDR3	1 GB DDR3	1 GB DDR3	1 GB DDR3
PCI BUS	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8
CHANNELS	8 internal SAS / SATA ports	4 internal SAS / SATA ports	8 external SAS / SATA ports	4 internal and 4 external SAS / SATA ports
FORM FACTOR	Low-profile, half-length (MD2 compliant)	Low-profile, half-length (MD2 compliant)	Low-profile, half-length (MD2 compliant)	Low-profile, half-length (MD2 compliant)
RAID LEVELS	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60
CACHE BACKUP OPTIONS	AXXRMFBU4	AXXRMFBU4	AXXRMFBU4	AXXRMFBU4
CABLES	Purchased separately	Purchased separately	Purchased separately	Purchased separately
AVAILABILITY	Now	Now	Now	Now
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty	3 year limited warranty

CONTROLLER	 INTEL® RAID CONTROLLER RS3WC080	 INTEL® RAID CONTROLLER RS3UC080	 INTEL® RAID CONTROLLER RS3FC044	 INTEL® RAID CONTROLLER RS3GC008
DESCRIPTION	12 Gb/s SAS, 6 Gb/s SATA entry-level hardware RAID controller with advanced management and 8 internal ports for SAS / SATA drives	12 Gb/s SAS, 6 Gb/s SATA entry-level hardware RAID controller with 8 internal ports for SAS / SATA drives	12 Gb/s SAS, 6 Gb/s SATA entry-level hardware RAID controller with 4 internal and 4 external ports for SAS / SATA drives	12 Gb/s SAS, 6 Gb/s SATA entry-level hardware RAID controller with 8 external ports for SAS / SATA drives
MARKET SEGMENT	Entry-level	Entry-level	Entry-level	Entry-level
ORDER CODE	**RS3WC080**	**RS3UC080**	**RS3FC044**	**RS3GC008**
PROCESSOR	**LSI* SAS3008 IOC**	**LSI* SAS3008 IOC**	**LSI* SAS3008 IOC**	**LSI* SAS3008 IOC**
MEMORY	N/A	N/A	N/A	N/A
PCI BUS	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8
CHANNELS	8 internal SAS / SATA ports	8 internal SAS / SATA ports	4 internal and 4 external SAS / SATA ports	8 external SAS / SATA ports
FORM FACTOR	Low-profile, half-length (MD2 compliant)	Low-profile, half-length (MD2 compliant)	Low-profile, half-length (MD2 compliant)	Low-profile, half-length (MD2 compliant)
RAID LEVELS	0, 1, 10, and hybrid RAID 5 / 50	0, 1, 1E, 10, and JBOD	0, 1, 1E, 10, and JBOD	JBOD (SAS Connectivity)
CACHE BACKUP OPTIONS	N/A	N/A	N/A	N/A
CABLES	Purchased separately	Purchased separately	Purchased separately	Not included
AVAILABILITY	Now	Now	Now	Now
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty	3 year limited warranty

SAS 2.0 Intel® RAID Controller Add-In Cards

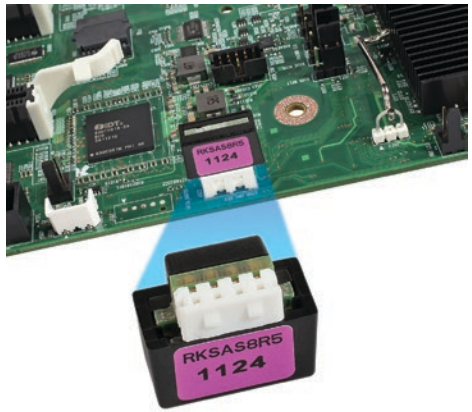
CONTROLLER	 INTEL® RAID SSD CACHE CONTROLLER RCS25ZB040	 INTEL® RAID CONTROLLER RS25NB008	 INTEL® RAID CONTROLLER RS25SB008	 INTEL® RAID CONTROLLER RS2MB044
DESCRIPTION	4-port intelligent hardware RAID card with a large capacity integrated NAND cache to significantly boost performance.	Dual-core 6 Gb/s SAS RAID controller with 8 external ports for SAS / SATA drives	Scalable performance dual-core 6 Gb/s SAS RAID controller with 8 external ports for SAS / SATA drives and Maintenance Free Backup Unit (Flash-based) included	Scalable performance 6 Gb/s SAS RAID controller with 4 internal and 4 external ports for SAS / SATA drives
MARKET SEGMENT	Scalable performance	Scalable performance	Scalable performance	Scalable performance
ORDER CODE	**RCS25ZB040 (256 GB cache)** **RCS25ZB040LX (1024 GB cache)**	**RS25NB008**	**RS25SB008**	**RS2MB044**
PROCESSOR	**LSI* SAS2208 ROC**	**LSI* SAS2208 ROC**	**LSI* SAS2208 ROC**	**LSI* SAS2108 ROC**
MEMORY	1 GB embedded DDR3 ECC memory plus either 256 or 1024 GB NAND	1 GB embedded DDR3 ECC memory	1 GB embedded DDR2 ECC memory	512 MB embedded DDR2 ECC memory
PCI BUS	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 2.0 x8
CHANNELS	4 internal SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	8 external SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	8 external SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	4 internal and 4 external SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates
FORM FACTOR	Low-profile, 6.6” length (MD2 compliant)	Low-profile, 6.6” length (MD2 compliant)	Low-profile, 6.6” length (MD2 compliant)	Low-profile, 6.6” length (MD2 compliant)
RAID LEVELS	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60
CACHE BACKUP OPTIONS	AXXRMFBU3	AXXRSBBU9	Maintenance Free Backup Unit (Flash-based) included with add-in card	AXXRSBBU7 AXXRSBBU8 (new longer life)
CABLES	Purchased separately	Purchased separately	Purchased separately	One 8087 to four 7-pin SATA cable included
AVAILABILITY	Now	Now	Now	Now
WARRANTY	3 year limited warranty	1 year limited warranty	3 year limited warranty	1 year limited warranty

CONTROLLER	 INTEL® RAID CONTROLLER RS25AB080	 INTEL® RAID CONTROLLER RS25DB080	 INTEL® RAID CONTROLLER RS2VB080 / 040	 INTEL® RAID CONTROLLER RT3WB080
DESCRIPTION	Mainstream dual-core 6 Gb/s SAS RAID controller with 8 internal ports for SAS / SATA drives and Maintenance Free Backup Unit (Flash-based) included	Mainstream dual-core 6 Gb/s SAS RAID controller with 8 internal ports for SAS / SATA drives	Mainstream 6 Gb/s SAS RAID controller with 8 internal ports for SAS / SATA drives and Maintenance Free Backup Unit (Flash-based) included	Mainstream SATA-only RAID controller with 8 ports and SAS expansion support for up to 16 SATA drives
MARKET SEGMENT	Mainstream	Mainstream	Mainstream	Mainstream
ORDER CODE	**RS25AB080**	**RS25DB080**	**RS2VB080 / RS2VB040**	**RT3WB080**
PROCESSOR	**LSI* SAS2208 ROC**	**LSI* SAS2208 ROC**	**LSI* SAS2108 ROC**	**LSI* SAS2108 ROC**
MEMORY	1 GB embedded DDR2 ECC memory	1 GB embedded DDR3 ECC memory	512 MB embedded DDR2 ECC memory	256 MB embedded DDR2 ECC memory
PCI BUS	PCI Express* 3.0 x8	PCI Express* 3.0 x8	PCI Express* 2.0 x8	PCI Express* 2.0 x8
CHANNELS	8 internal SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	8 internal SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	8 / 4 internal SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	8 internal SATA ports supporting SAS expansion and point-to-point 6 Gb/s and 3 Gb/s data-transfer rates
FORM FACTOR	Low-profile, 6.6” length (MD2 compliant)	Low-profile, 6.6” length (MD2 compliant)	Low-profile, 6.6” length (MD2 compliant)	Low-profile, 6.6” length (MD2 compliant)
RAID LEVELS	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60	0, 1, 5, 6, 10, 50, and 60
CACHE BACKUP OPTIONS	Maintenance Free Backup Unit (Flash-based) included with add-in card	AXXRSBBU9	Maintenance Free Backup Unit (Flash-based) included with add-in card	AXXRSBBU7 AXXRSBBU8 (new longer life)
CABLES	Purchased separately	Purchased separately	Included	Included
AVAILABILITY	Now	Now	Now	Now
WARRANTY	3 year limited warranty	1 year limited warranty	3 year limited warranty	1 year limited warranty

Intel® Software RAID Activation Keys

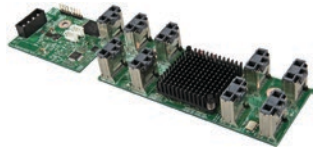
Most Intel® Xeon® 5500 and 5600 Series server boards include Intel® Embedded Server RAID Technology 2, which provides RAID 0, 1, and 10. Software RAID 5 can be enabled on these server boards by adding the AXXRAKSW5 activation key.

Most Intel Xeon E5 Series server boards include 4 SCU storage ports and Intel Embedded Server RAID Technology 2, which provides RAID 0, 1, and 10 for SATA devices. Additional storage ports, SAS, and RAID 5 are available with activation keys corresponding to the following table.



ACTIVATION KEY	PRODUCT NAME	SCU STORAGE FUNCTIONALITY
None	N/A	4-port SATA key with Intel® Embedded Server RAID Technology 2, RAID 0, 1, and 10, and Intel® Rapid Storage Technology Enterprise RAID 0, 1, 5, and 10 (no key)
RKSATA4R5	Intel® RAID C600 Upgrade Key RKSATA4R5	4-port SATA key with Intel Embedded Server RAID Technology 2, RAID 0, 1, 5, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, 5, and 10 (BLACK)
RKSATA8	Intel RAID C600 Upgrade Key RKSATA8	8-port SATA key with Intel Embedded Server RAID Technology 2, RAID 0, 1, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, 5, and 10 (BLUE)
RKSATA8R5	Intel RAID C600 Upgrade Key RKSATA8R5	8-port SATA key with Intel Embedded Server RAID Technology 2, RAID 0, 1, 5, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, 5, and 10 (WHITE)
RKSAS4	Intel RAID C600 Upgrade Key RKSAS4	4-port SAS key with Intel Embedded Server RAID Technology 2, RAID 0, 1, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, and 10 (GREEN)
RKSAS4R5	Intel RAID C600 Upgrade Key RKSAS4R5	4-port SAS key with Intel Embedded Server RAID Technology 2, RAID 0, 1, 5, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, and 10 (YELLOW)
RKSAS8	Intel RAID C600 Upgrade Key RKSAS8	8-port SAS key with Intel Embedded Server RAID Technology 2, RAID 0, 1, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, and 10 (ORANGE)
RKSAS8R5	Intel RAID C600 Upgrade Key RKSAS8R5	8-port SAS key with Intel Embedded Server RAID Technology 2, RAID 0, 1, 5, and 10, and Intel Rapid Storage Technology Enterprise RAID 0, 1, and 10 (PURPLE)

Intel® RAID Expander Boards (SAS Expanders)



EXPANDER BOARD	INTEL® RAID EXPANDER RES3FV288	INTEL® RAID EXPANDER RES3TV360	INTEL® RAID EXPANDER RES2SV240	INTEL® RAID EXPANDER RES2CV360 / 240
DESCRIPTION	28 internal port and 8 external port, 12 Gb/s-capable expander card for use with Intel® RAID products	36-port, 12 Gb/s-capable expander card for use with Intel® RAID products	24-port, 6 Gb/s-capable expander card for use with Intel® RAID products	36 / 24-port, 6 Gb/s-capable expander card for use with Intel® RAID products
ORDER CODE	**RES3FV288 (includes 2 short cables to connect to RAID card or module)**	**RES3TV360 (includes short cables to connect up to 24 ports to backplane)**	**RES2SV240 (with 6 cables)** **RES2SV240NC (no cables)**	**RES2CV360 (with 6 short cables to connect up to 24 ports to backplane)** **RES2CV240 (with 4 cables to connect up to 16 ports to backplane)**
PROCESSOR	**12 Gb/s Expander featuring 6 Gb/s data aggregration for 12 Gb/s data transfer with 6 Gb/s devices**	**12 Gb/s Expander featuring 6 Gb/s data aggregration for 12 Gb/s data transfer with 6 Gb/s devices**	**6 Gb/s Expander**	**6 Gb/s Expander**
CHANNELS	36 total SAS / SATA ports supporting point-to-point 12, 6, and 3 Gb/s data-transfer rates	36 total SAS / SATA ports supporting point-to-point 12, 6, and 3 Gb/s data-transfer rates	24 SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates	36 / 24 SAS / SATA ports supporting point-to-point 6 Gb/s and 3 Gb/s data-transfer rates
FORM FACTOR	Low-profile, 6.6” length (MD2 compliant) can be mounted in PCI Express* slot or chassis wall	Unique system board that requires chassis mounting point	Low-profile, 6.6” length (MD2 compliant) can be mounted in PCI Express* slot or chassis wall	Unique system board that requires chassis mounting point
POWER OPTIONS	Standard PCI Express* x4 connector or RA 4-pin power connector	RA 4-pin power connector	Standard PCI Express* x4 connector or RA 4-pin power connector	RA 4-pin power connector
MANAGEMENT	SGPIO	SGPIO	SGPIO	SGPIO
FAULT LED HEADERS	Includes 2 pin headers to support each SAS port	Includes 2 pin headers to support each SAS port	Includes 2 pin headers to support each SAS port	Includes 2 pin headers to support each SAS port
AVAILABILITY	Now	Now	Now	Now
WARRANTY	3 year limited warranty	3 year limited warranty	3 year limited warranty	3 year limited warranty

Intel® RAID Premium Features

These features are available as an upgrade for all LSI* SAS2108 processor-based Intel® RAID products. To identify products with this processor, please refer to the Processor row of the preceding feature tables. The Premium Feature Keys are described below.

PREMIUM FEATURE	SSD CACHE WITH FAST-PATH I/O	DRIVE ENCRYPTION MANAGEMENT	RAPID RECOVERY SNAPSHOT
Key Benefits	• SSD Cache allows Solid-State Drives (SSD) to be utilized as additional cache for the RAID controller. The cache can be used for both reads and writes to assist storage performance. • Fast-Path I/O accelerates communication with SSDs providing up to 150,000 I/O reads per second for small, random block-size I/O activity. This is a dramatic increase over solutions not using Fast-Path.	• Drive encryption management enables authentication key management, auto-lock, and instant erase of self-encrypting drives (SED). • All drives eventually leave the data center and the use of SEDs helps reduce risk of data breaches. • Instant-erase significantly reduces the cost and time of repurposing or retiring drives.	• Rapid Recovery Snapshot allows users to capture source volume data changes and either restore files or rollback applications to a previous Point in Time (PiT). • Rapid recovery of lost data from disk can occur within minutes, minimizing the downtime experienced by users, and eliminating the lengthy process of restoring data from tape. • By isolating a server's boot volume to a separate virtual drive and enabling the auto snapshot feature, users can gain confidence knowing that bootable snapshots exist, should operating system corruption occur.
Order Code	AXXRPFKSSD	AXXRPFKDE	AXXRPFKSNSH
Availability	Now	Now	Now

These features are available as an upgrade for all LSI* SAS2208 and SAS3108 processor-based Intel® RAID products. To identify products with these processors, please refer to the Processor row of the preceding feature tables. The Premium Feature Keys are described below.

PREMIUM FEATURE	SSD CACHE 2	DRIVE ENCRYPTION MANAGEMENT	RAPID RECOVERY SNAPSHOT[1]
Key Benefits	• SSD Cache allows Solid-State Drives (SSD) to be utilized as additional cache for the RAID controller. Frequently accessed information is stored in the cache, allowing rapid access. • **NEW:** SSD Cache capacity of up to 2 TB possible for SAS3108-based products. • **NEW:** SSD partitioning so that a portion of the drive is available to the operating system and the remainder for cache.	• Drive encryption management enables authentication key management, auto-lock, and instant erase of self-encrypting drives (SED). • All drives eventually leave the data center and the use of SEDs helps reduce risk of data breaches. • Instant-erase significantly reduces the cost and time of repurposing or retiring drives.	• Rapid Recovery Snapshot allows users to capture source volume data changes and either restore files or rollback applications to a previous Point in Time (PiT). • Rapid recovery of lost data from disk can occur within minutes, minimizing the downtime experienced by users, and eliminating the lengthy process of restoring data from tape. • By isolating a server's boot volume to a separate virtual drive and enabling the auto snapshot feature, users can gain confidence knowing that bootable snapshots exist, should operating system corruption occur.
Order Code	AXXRPFKSSD2	AXXRPFKDE2	AXXRPFKSNSH2
Availability	Now	Now	Now

Intel® RAID High Availability Storage Kit

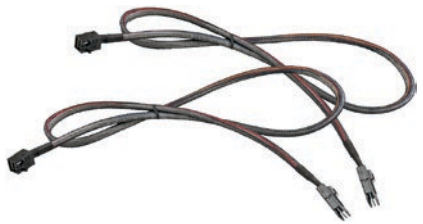
- The High Availability Storage solution provides fault tolerance capabilities as a key part of a high-availability data storage system by combining redundant RAID controllers, computer nodes, cable connections, SAS expanders, and dual-port SAS drives.
- Shared storage across two servers can improve performance and at the same time support either failover clustering or cluster-in-a-box configurations. Also supported is Microsoft* failover clustering, controller-to-controller intercommunication over SAS, write-back cache coherency, shared and exclusive DB I/O policies, and exclusive access that allows the operating system to boot from the controller.
- **NEW:** The High Availability Storage kit is now available for LSI3108-based products. When used with 12 Gb/s SAS-3, cache coherency performance between the two RAID controllers is significantly improved.
- **NEW:** The High Availablilty Storage feature now includes the capability of Single Server High Availability when used with an LSI3108-based Intel® RAID product.

Order code: AXXRPFKHA2
Availability: Now

Cable Kits and Converter Boards

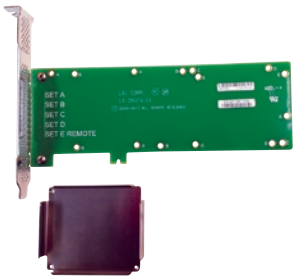
The following cables are available for connecting Intel® RAID cards and modules to storage devices and drive bays. Intel® cables are designed to a high-quality specification and include the ability to bend at a very small radii. These cables allow low-profile Intel RAID products with vertical 8087 connectors to be used in 2U rack chassis while installed in a standard PCI Express* slot. Intel offers many other cable kits that help optimize the integration of RAID products into specific Intel® Server Systems. For a list of these cables, refer to the Server Board and System Configuration Guide available on the support web site for each given Intel Server System.

CABLE KIT ORDER CODE	NUMBER OF CABLES INCLUDED IN KIT	INITIATOR CONNECTOR	TARGET CONNECTOR	LENGTH
AXXCBL650HDMS	2	HD mini-SAS straight[2]	8087 mini-SAS straight[2]	650mm
AXXCBL730HDMS	2	HD mini-SAS straight[2]	8087 mini-SAS straight[2]	730mm
AXXCBL750MS7P	2	8087 mini-SAS straight[2]	Four x 7-pin SATA style	750mm
AXXCBL650MSMS	2	8087 mini-SAS straight[2]	8087 mini-SAS straight[2]	650mm



CONVERTER BOARDS	ORDER CODE	DESCRIPTION	INTERNAL CONNECTORS	EXTERNAL CONNECTORS
Intel® RAID Converter Board RCVT8788	AXXRCVT8788	Small form factor board with brackets for installation in a standard or low-profile chassis cutout. Intended to be used to convert internal ports to external ports. Cables are not included.	Two x 8087 mini-SAS[2]	Two x 8088

MOUNTING BRACKET	ORDER CODE	DESCRIPTION	INTERNAL CONNECTORS	EXTERNAL CONNECTORS
Intel® RAID Battery Remote Mounting Bracket	AXXBBUBRKTP	A mounting bracket that fits in a low-profile PCI Express* slot and holds two RAID batteries or Maintenance Free Backup Units.	None	None



For more information, visit **www.intel.com/go/RAID**

[1] Rapid Recovery Snapshot is only available for LSI2108-based products.

[2] Cable is reversible so that either connector can be on the target or initiator side.

Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

All products and dates specified are preliminary based on current expectations and are subject to change without notice. Availability in different channels may vary.

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