Intel® Integrated RAID Module RMS3 Product Family

12Gb/s SAS/RAID Modules for Select Intel® Xeon® Processor E5 Family-based Server Boards

PRODUCT BRIEF

Industry-leading performance, versatility and scalability for leading-edge datacenters

Product Family Overview

The new Intel® RAID Modules of the RMS3 family are uniquely designed to offer advanced RAID and configuration flexibility to select Intel® Xeon® Processor E5 Family-based server boards. Their 1U capable, mezzanine board form factor affords configuration flexibility by delivering a wide range of storage options without taking up a standard add-in card slot. The Intel RMS3 family of products, powered by LSI technology, is designed with new IOC and ROC controllers and the latest in RAID technology to drive exceptional storage performance and scalability.

Tailor a solution to any need

Choose the right Intel RMS3 model to meet the exact needs of your solution:

- **Mainstream Intelligent RAID:** The Intel® Integrated RAID Modules RMS3CC080/040 include 1GB DDR 1833MHz cache for write back and read ahead performance acceleration. The cache can be protected from power loss using a Maintenance Free Backup Module. Advanced management tools make navigating through change easy.

- **High Transaction Applications:** By connecting one or more SSD's to an Intel RMS3CC080/040 module and adding the SSD Cache 2.0 upgrade feature, the performance of most applications can be accelerated significantly.

- **Small Medium Business or Mid-Tier Datacenter:** The Intel® Integrated RAID Module RMS3HC080 is a unique product in that it is based on a lower performance I/O controller (rather than a ROC), but still offers all the management features of Mainstream products; plus Hybrid RAID 5/50 capability.

- **OS mirror or JBOD mode:** The Intel® Integrated RAID Module RMS3JC080 is an I/O controller-based product designed to provide low cost, simple functionality.

- **High Drive Count Solutions:** All of these modules can be teamed with a SAS expander board such at the Intel® RAID Expander RES3TV360 to offer scalable performance solutions for applications such as streaming media.

Why Intel® RAID?

Intel provides a broad portfolio of RAID products to allow for storage solutions tailored to meet every business need. All Intel RAID components are thoroughly validated across multiple platforms with Intel® boards, chassis and systems for seamless installation and interoperability with other technology. Customized training, as well as Intel® service and support, make Intel the primary source for customers seeking data protection, increased productivity and simplified IT.
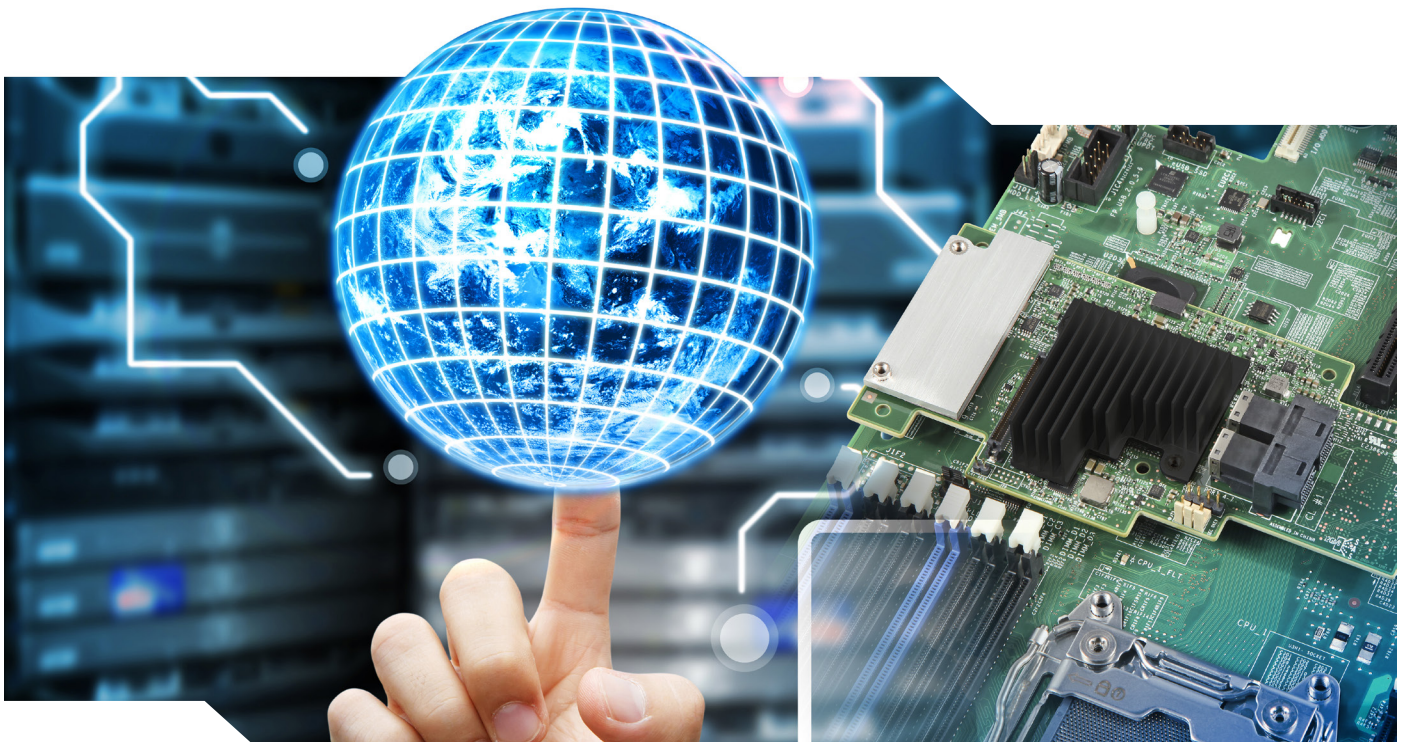
Key Advantages

- **System design flexibility** – 1U capable system boards connect to the Storage I/O expansion slot on select Intel® Xeon® E5 server boards. These modules can be used with Intel and 3rd party chassis without taking up a standard add-in card slot and without the need for a riser card or low profile chassis cutout.

- **Exceptional data protection and performance** – Supports data redundancy using SAS or SATA hard disk drives through mirroring, parity and advanced RAID-level options up to double parity (RAID 6). It also provides striping capability for spans (Ranging from RAID levels 10, 50, and 60 depending on model). A PCI Express Generation 3 host interface helps to ensure top performance.

- **Reduced maintenance costs with an optional MFBU** – For models with embedded DDR3, a Maintenance Free Backup Unit (MFBU) offers NAND flash that can retain data for up to ten years. It provides near-instant optimal RAID performance versus traditional Lithium Ion (LiON) battery backup units (BBUs), which are limited to just days of retention and can take up to eight hours to charge. In addition, this longer-lasting technology allows for the same standard three year warranty as other Intel RAID products.

- **Support for premium feature upgrades** – The RMS3CC080/040 includes a connector for an optional hardware-based key which unlocks one or more advanced software algorithms designed to improve performance and enhance data protection. For instance, the SSD Cache upgrade enables the use of one or more SSDs as a large cache pool for the RAID controller. This can significantly improve the performance of many server applications.

Features
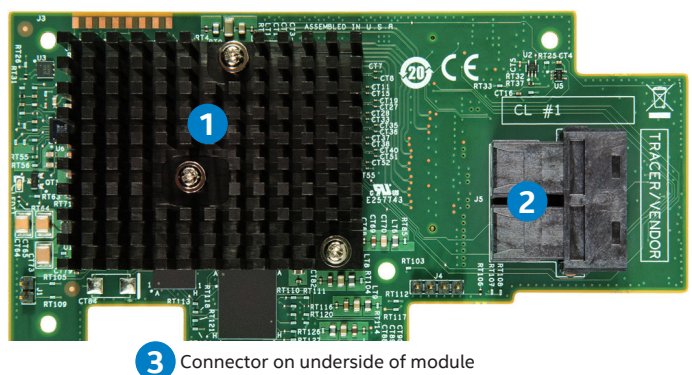
Intel® Integrated RAID Modules

RMS3CC080/040

1. LSI SAS3108 ROC controller provides SAS 3 compliance, including up to 12Gb/s data transfer

2. Up to 1GB DDRIII 1833MHz cache (ECC DDR3 memory) that efficiently stores data in transition

3. Up to two Mini-SAS HD SFF8643 SAS/SATA connectors for up to eight internal ports

4. x8 PCI Express Generation 3 interface for fast communication with the server board

5. Optional Intel® RAID Maintenance Free Backup Unit AXXRMFBU5

6. Optional Intel® RAID Premium Feature Key connector for features such as SSD Cache 2.0 and Disk Encryption Management

4 Connector on underside of module
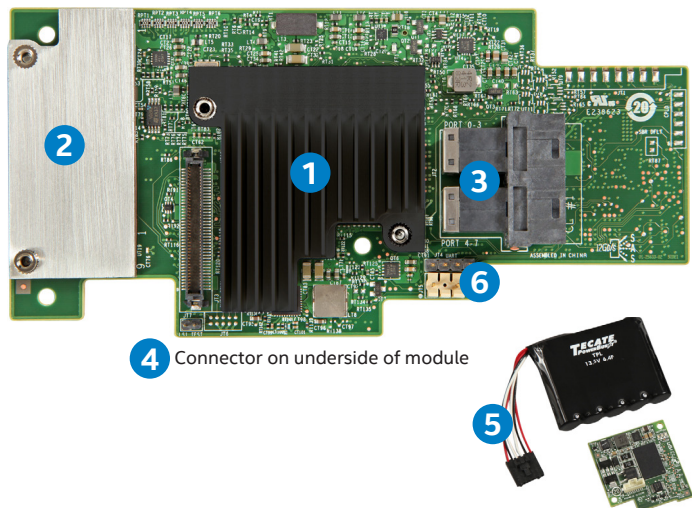
RMS3HC080 and RMS3JC080

1. LSI SAS3008 IOC controller providing SAS 3.0 technology including up to 12Gb/s data transfer and compatibility with SAS or SATA drives

2. Two Internal Mini-SAS HD SFF8643 SAS/SATA connectors for connectivity inside the server

3. x8 PCI Express* Generation 3 interface for fast communication with the server board

3 Connector on underside of module

Intel® Integrated RAID RMS3 Family – Powered by LSI* technology

Technical Specifications

Intel Integrated RAID Module	RMS3CC080/040	RMS3HC080	RMS3JC080
Order Codes	8 Port Module: RMS3CC080 4 Port Module: RMS3CC040 MFBU (Cache backup): AXXRMFBU5	RMS3HC080	RMS3JC080
Cable Kits	Multiple available. See intel.com/go/RAID for guidance		
Compatible Server Boards and Systems	Compatible with specific Intel® Server Boards. A unique Storage I/O connector is required on the server board. See intel.com for details regarding Intel Server Boards.		
I/O Processor	LSI SAS3108 ROC	LSI SAS3008 SAS I/O Controller	LSI SAS3008 SAS I/O Controller
RAID Levels and Spans	RAID 0, 1, 5, 6, 10 ,50 & 60	JBOD, RAID 0,1,10 & Hybrid 5,50	JBOD, RAID 0,1,1E, 10
Cache Memory	Embedded 1GB DDR3 at 1866MHz	128MB server board memory utilized for RAID 5/50	N/A
Data Protection Features			
Online Capacity Expansion	x	x	
Hot-Spare Support – Global & Dedicated	x	x	x
Distributed Sparing	x	x	
Single Controller Multipathing (Failover)	x	x	
Background Consistency Checking	x	x	x
Patrol Read for Media Functionality	x	x	
S.M.A.R.T. Support	x	x	x
Enclosure Management	x	x	x
RAID Support Before Operating System Loaded	x	x	x
Expander Support	x	x	x
Write Back Cache with optional Protection	x		
Intel® RAID Software	Intel® RAID Web Console 2, Intel® RAID Command Line Tool, Intel® RAID Flash Utilities		
Other Specfications			
Connectors	One or two Mini-SAS HD SFF8643 internal connectors		
PCI Interface	x8 PCI Express* 3.0		
Form Factor	1U capable mezzanine board		
Data Transfer Rates	Up to 12Gb/s per port		
Operating Temperature	Maximum ambient: 65°C (55°C with optional MFBU)		
Operating System	Microsoft Windows, Linux (SuSE , Red Hat), Solaris, Vmware, FreeBSD See http://www.intel.com for details on specific versions		
Drive Types	SAS 6Gb/s, SAS 3Gb/s or SATA 3Gb/s		
Maximum Physical Devices (Drives)	Up to 128 physical devices supported	Non-RAID: 64 RAID 1: 2 per volume plus hotspare RAID 5: 16 per volume, RAID 10: 16 per volume, RAID 50: 16 per volume	Non-RAID: 1024 RAID 0: 10 per volume RAID 1: 2 per volume plus hotspare RAID 1E: 10 per volume RAID 10: 10 per volume Total Drives in RAID and hotspare mode: 14
Maximum Array Volumes	64	16	2
Standard Warranty	3 years, AWR option		
Maintenance Free Backup Unit for Cache (MFBU)	Optional Intel® Maintenance Free Backup Unit AXXRMFBU5	N/A	N/A
Self-Encrypting Drive Support	Optional AXXRPFKDE2 (Disk Encryption) upgrade key enables SafeStore* Encryption Services with Instant Secure Erase and Local Key Management	N/A	N/A
SSD Cache Support	Optional AXXRPFKSSD2 (SSD Cache) upgrade key enables Solid State Drives to be used as super-sized cache by the RAID controller	N/A	N/A

For more information on the Intel® RAID Modules, visit: www.intel.com/go/RAID

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