Entry-level Intel® RAID RS3 Controller Family
12Gb/s connectivity and basic data protection

RAID matters. Rely on Intel® RAID.

Cost-effective 12Gb/s SAS-3 with Mirroring, Striping, JBOD and RAID 5 Options
Entry-level Intel® RAID RS3 Controller
12Gb/s SAS-3 technology for connectivity and basic data protection

As big data continues to increase exponentially and becomes the foundation that supports productivity, growth and innovation, organizations require a higher performance storage solution. Now with Intel® RAID RS3 controllers, powered by LSI technology, organizations can achieve a higher level of storage performance designed to meet the demands of I/O-intensive applications, cloud datacenters and virtualized server environments. By utilizing Intel® RAID RS3 controllers as a basis for their storage infrastructure, businesses can achieve more than 1 million IOPs in JBOD mode, accelerating business-critical applications in enterprise, Web and cloud datacenters.¹

12Gb/s SAS-3 technology doubles the available bandwidth of current 6Gb/s SAS solutions unlocking the full potential of PCI Express® 3.0-based systems and solid-state storage solutions. The greatly improved throughput and I/O processing capabilities maximize link utilization thereby supporting the highest performance SSD and increased scaling of traditional hard disk drives.

The entry-level Intel RAID RS3 controllers provides powerful performance and scalability without relying on system resources for RAID 0,1,1e. While many other SAS controllers utilize large RAID software stacks between the host CPU and controller, the Intel RAID RS3 family uses the embedded CPU in the LSI 3008 ASIC to perform RAID 0,1 and 1E/10 operations. The ultra-thin driver affords low RAID overhead for high host CPU offload with excellent read/write performance. Plus, Intel RAID RS3 controllers offer backwards compatibility, which can enhance the performance of 3Gb/s and 6Gb/s infrastructures. Furthermore, the Intel RAID RS3 controllers deliver scalability, with support for up to 244 physical devices, multiple RAID arrays and industry-leading interoperability.

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Did you know that by replacing older products with Intel RAID RS3 controllers organizations can achieve more than 1 million IOPs in JBOD mode, which can significantly accelerate critical applications?¹

Why Intel RAID controller RS3 family?

- High throughput with 12Gb/s SAS data transfer rates
- Supports solutions with over 1M IOPs¹
- Optimized drivers support multiple operating systems with low overhead
- Intel documentation and support provide ease of mind and enable low TCO
The new Intel® RAID 12Gb/s controller RS3 family provides the next generation of storage performance to meet the current and future demands of today’s datacenters. These entry-level controllers are also perfect for 3Gb/s and 6Gb/s as they provide a faster processor and also allow for 12Gb/s data transfer when teamed with a SAS-3 compliant expander. This provides room to grow by paving the way for 12Gb/s infrastructures as server demands increase and technology progresses.

Features

**Entry-Level Intel® RAID Controller RS3**

1. LSI SAS 3108 I/O processor supporting over 1 million IOPs
2. Up to 2 internal High Density Mini-SAS connectors with up to eight ports of 12Gb/s bandwidth per port
3. Up to 2 external High Density Mini-SAS connectors with up to eight ports of 12Gb/s bandwidth per port
4. x8 PCI Express* connector with support for Generation 3 protocol
5. “Heartbeat” LED for visual verification that the card is functioning properly

- **Internal and External Connectivity** - Internal ports allow for a RAID array within a system while external ports allow for connecting to a JBOD or SAS switch.
- **Cost Effective Data Protection** - Provides a low-cost RAID 0,1, and 1E solution for entry-level server and workstation environments that need high-performance and reliable data protection.
- **Hybrid RAID 5 with RS3WC080** - The Intel® RAID Controller RS3WC080 design is based on LSI MegaRAID* technology that offers RAID 5 capability with many of the same features as Intel's mainstream RAID products. (Note: RAID 5 is firmware based but utilizes system resources, which makes it “Hybrid”.)
- **SAS or SATA Storage** - Connect SAS or SATA devices within the array for speed, reliability and scalability and use high-capacity SATA drives for budget-friendly storage.
- **Featuring Compatibility with Intel® Server Products** - All Intel RAID solutions are validated across multiple platforms with Intel® boards, chassis and systems. When used together, they deliver the best combination of performance, built-in capabilities, and cost-efficiencies that meet the demands of big data now and into the future.

**Entry-Level or Mainstream?**

The Intel® RAID Controller RS3DC080 is a Mainstream Intelligent RAID product that offers more performance and features compared to entry-level products. Features such as RAID 6/60, SSD Cache, advanced management and Maintenance Free Cache Backup are available with the RS3DC080.2

Entry-Level Intel® RAID Controller RS3 Product Family

Technical Specifications

<table>
<thead>
<tr>
<th>Compatible Server Boards,</th>
<th>Compatible with most Intel® Server Boards and Systems supporting the Intel® Xeon® E5 and E3 processors, Intel® Storage Systems (JBODs) and a wide range of third party-based servers and JBODs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems and JBODs</td>
<td></td>
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</tbody>
</table>

Data Protection Feature Highlights
- Distributed Sparing
- Hot Spare Support
- Expander Support
- Background Consistency Checking
- Enclosure Management / S.M.A.R.T. Support
- RAID Support Before Operating System Loaded

Intel® RAID Software
- Intel® RAID Web Console 2, Intel® RAID Command Line Tool, Intel® RAID Flash Utilities

Maximum Devices/Drives

<table>
<thead>
<tr>
<th>Models: RS3UC080, RS3FC044, RS3GC008</th>
<th>Models: RS3WC080</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-RAID: 256</td>
<td>Non-RAID: 64</td>
</tr>
<tr>
<td>Integrated RAID (IR): 14 spread across 2 volumes</td>
<td>RAID 0: 16 per volume</td>
</tr>
<tr>
<td>RAID 0, 1E, 10: 10 per volume</td>
<td>RAID 1: 2 per volume plus hotspare</td>
</tr>
<tr>
<td>RAID 1: 2 per volume plus hotspare</td>
<td>RAID 10: 16 per volume</td>
</tr>
<tr>
<td></td>
<td>RAID 5/50: 16 per volume</td>
</tr>
</tbody>
</table>

Connectors
- Internal connectors are mini-SAS HD SFF8643 and external connectors are mini-SAS HD SFF8644
- O80 models offer 8 internal ports, O08 model offers 8 external ports, O44 model offers 4 internal and 4 external ports

PCI Interface
- x8 PCI Express* 3.0

Form Factor
- Low profile, MD2 compliant

Data Transfer Rates
- Up to 12Gb/s per port and a cumulative bandwidth of up to 8000 MB/s

Drive Types
- SAS 12Gb, SAS and SATA 6Gb, and SAS and SATA 3Gb

Operating Temperature
- Maximum ambient: 55°C with 200 LfM airflow

Operating Voltage
- +12V ±10%

Standard Warranty
- 3 years, extended warranty available

Operating System Support
- Microsoft Windows*, Linux (SuSE, Red Hat), Solaris*, VMware*, FreeBSD
- See http://www.intel.com for details on versions and support

Quick Order Reference Table for Intel® RAID Controller RS3 Family

<table>
<thead>
<tr>
<th>Intel Order Codes</th>
<th>RS3UC080</th>
<th>RS3FC044</th>
<th>RS3GC008</th>
<th>RS3WC080</th>
<th>RS3DC080*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Ports</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>External Ports</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RAID Levels</td>
<td>0, 1, 1E, 10, JBOD</td>
<td>0, 1, 1E, 10, JBOD</td>
<td>0, 1, 1E, 10, JBOD</td>
<td>0, 1, 10, 5, 50</td>
<td>0, 1, 10, 5, 50, 6, 60</td>
</tr>
<tr>
<td>I/O Processor</td>
<td>LSI SAS3008 IOC</td>
<td>LSI SAS3008 IOC</td>
<td>LSI SAS3008 IOC</td>
<td>LSI SAS3008 IOC</td>
<td>LSI SAS3108 ROC</td>
</tr>
</tbody>
</table>

Cable Kits

<table>
<thead>
<tr>
<th>AXXCBL650HDMS</th>
<th>One kit with two 650mm cables. The initiator end connector is HD SFF8643 Mini-SAS. The target end connector is 8087 Mini-SAS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXXCBL730HDMS</td>
<td>One kit with two 730mm cables. The initiator end connector is HD SFF8643 Mini-SAS. The target end connector is 8087 Mini-SAS.</td>
</tr>
</tbody>
</table>

For more information on how to make the entry-level Intel® RAID 12Gb/s Controller RS3 Family part of a successful storage solution, visit: www.intel.com/go/RAID

1 - Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing.

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