Intel® RAID Controllers SRCSASPH16I, SRCSASBB8I, SRCSASLS4I, SASMF8I Configuration Guide

All Items Subject to Change

A reference guide to assist customers in ordering components to install a RAID solution based on:

Intel® RAID Controller SRCSASPH16I, Intel® RAID Controller SRCSASBB8I,
Intel® RAID Controller SRCSASLS4I and Intel® RAID Controller SASMF8I

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Enterprise Platforms and Services Marketing

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2. Revision History

Date	Rev	Modification
Feb 20, 2008	0.9	Internal Use Only Version
Feb 26, 2008	1	First Published Version

3. Legal Disclaimer

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4. RAID Controller and Accessory Ordering Information

4.1 Table 1: RAID Controllers

Image	MM / UPC	Product Code	Description of Product	Qty Per	Min Order
	896897	SRCSASPH16I	Intel® RAID Controller SRCSAS16PHI (Pine Haven) - PCIe x8, 16P SAS RAID Controller, 256MB 667MHz memory embedded. Includes 4 internal cables, Quick Start Users Guide, and CD ROM with technical documentation and software.	5	5
	896943	SRCSASBB8I	Intel® RAID Controller SRCSASBB8I (Black Butte) - PCIe x8, 8P SAS RAID Controller, 256MB embedded memory, MD2 Low Profile, half length form factor. Includes 2 internal cables, Quick Start Users Guide, and CD ROM with technical documentation and software.	5	5
	896952	SRCSASLS4I	Intel® RAID Controller SRCSASLS4I (Lakeside) - PCIe x8, 4P SAS RAID Controller, 128MB embedded memory, MD2 Low Profile, half length form factor. Includes 1 internal cable, Quick Start Users Guide, and CD ROM with technical documentation and software.	5	5
	896960	SASMF8I	Intel® RAID Controller SASMF8I (Mesa Falls) - PCIe x4, 8P SAS Controller with Intel Embedded Server RAID technology, Low Profile, half length form factor. Includes 2 internal cables, Quick Start Users Guide, and CD ROM with technical documentation and software.	5	5

4.2 Table 2: Accessories

Image	MM / UPC	Product Code	Description of Product	Qty Per	Min Order
	897528	AXXRSBBU6	Intel® RAID Smart Battery AXXRSBBU6, optional battery back up for use with Intel® RAID Controllers SRCSASBB8I and SRCSASLS4I. Provides 48 hours of cache data retention. RoHS Complaint.	5	5
	883471	AXXRSBBU3	Intel® RAID Smart Battery AXXRSBBU3, optional battery back up for use with SRCSASPH16I, SRCSASJV, AXXRAK18E and SRCSAS144E. Provides 48 hours of cache data retention. RoHS Complaint.	5	5

5.   RAID Controller Feature Comparsion

The high level features of Intel® RAID Controllers SRCSASPH16I, SRCSASBB8I, SRCSASSLS4I, and SASMF8I are shown below. In addition, Intel® RAID Controller SRCSASJV ("Jordan Valley"), Intel® RAID Controller SRCSASRB ("Rocky Butte"), and Intel® Server Controller SRCSATAWB ("Willapa Bay") features are listed for comparison.

	Intel® RAID Controller SRCSASJV	Intel® RAID Controller SRCSASPH16I	Intel® RAID Controller SRCSASBB8I	Intel® RAID Controller SRCSASRB	Intel® RAID Controller SRCSATAWB	Intel® RAID Controller SRCSASLS4I	Intel® RAID Controller SASMF8I
Drive Type	SAS / SATA	SAS / SATA	SAS / SATA	SAS / SATA	SATA only	SAS / SATA	SAS / SATA
Max Drives	240	240	32	32	16	16	8
Ports	8 Flexible (8 internal/8 external; 4internal/4external)	16 Internal	8 Internal	8 Internal	8 Internal	4 Internal	8 Internal
Cache Memory	512 MB Included Up to 1 GB	256 MB Embedded	256 MB Embedded	256 MB Embedded	128 MB Embedded	128 MB Embedded	None
PCI Express* Interface	x8	x8	x8	x4	x4	x8	x4
Backup Battery	AXXRSBBU3 AXXRPCM3	AXXRSBBU3	AXXRSBBU6	AXXRSBBU4	AXXRSBBU4	AXXRSBBU6	No
Form Factor	Low Profile	Full Height	Low Profile, MD2	Low Profile	Low Profile	Low Profile, MD2	Low Profile
RAID Levels	0,1,10, 5,6,50,60	0,1,10, 5,6,50,60	0,1,10, 5,6,50,60	0,1,10, 5,6,50,60	0,1,10, 5,6,50,60	0,1,10, 5,6,50,60	0,1,10, 5
Expander Support	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Additional features common to all RAID cards described herein are:

- Online RAID level migration and capacity expansion*

- RAID array roaming*

- Instant availability and background initialization

- Auto resume during array reconstruction

- Support cache memory battery backup*

- Automatic detection of failed drives

- Automatic rebuild with hot-spare drives

- Hot-plug drive support

- SES2 Enclosure Management support

*not supported by SASMF8I

6. Solution Guidance

The information in this section is intended to provide assistance in selecting RAID controllers and accessories that will deliver the appropriate RAID solution.

6.1 Positioning of Intel® RAID Controllers

The primary target segments for the latest generation of Intel® RAID Controllers are as follows:

SRCSASJV "Jordan Valley"

- (8 flexible SAS ports/MUX, upgradeable memory, 240 physical device support and multiple battery options) Offers highest performance, scalability and flexibility

SRCSASPH16I "Pine Haven"

- (16 SAS ports) Offers least expensive HW RAID solution for chassis with high number of 2.5" or 3.5" drive bays

SRCSASBB8I "Black Butte"

- (8 SAS ports with LP, half-length size) Offers mainstream HW RAID solution for wide variety of system layouts & main board form factors

SRCSASRB "Rocky Butte"

- (8 SAS ports) Offers mainstream HW RAID solution for solutions where highest performance or small form factor is not required

SRCSATAWB "Willapa Bay"

- (8 SATA ports with expander backplane support) Offers support for up to 16 SATA drives for high value solutions

SRCSASLS4I "Lakeside"

- (4 SAS ports) Offers the best value for customers using expander backplanes

SASMF8I "Mesa Falls"

- (8 SAS ports with embedded RAID 0, 1, 10 & 5) Offers lowest price RAID add-in card solution for customers not requiring HW RAID

6.2 SAS, SATA, or Mixed Hard Drives

Most volume server solutions will utilize either Serial Attached SCSI (SAS), Serial ATA (SATA) hard disk drives, or a mixture of SAS and SATA depending on the performance, reliability, and capacity requirements of the RAID solution. Typically, SAS offers the highest performance and Mean Time Before Failure (MTBF); whereas SATA offers the best price per GB.

For solutions requiring SAS, a mixture of SAS and SATA, more than 16 hard drives, or an option to upgrade to SAS, one of Intel's SRC**SAS**XX (where XX = PH16I, BB8I, RB, or LS4I) RAID cards should be selected.

For solutions based entirely on SATA, with fewer than 16 hard drives, and no expectation to add SAS drives in the future, the Intel® RAID Controller SRCSATAWB could be appropriate.

6.3   Internal, External, or Mixed Storage

For solutions requiring external storage or an option to add external storage in the future, the Intel® RAID Controller SRCSASJV should be selected. This controller can support up to 240 hard disk drives installed in JBOD devices.

For solutions requiring internal storage only, any of the Intel® RAID controllers listed herein could be appropriate depending on the requirements of the solution.

6.4   Expander Backplane, Non-Expander Backplane or Direct Cabling

For solutions with expander-based backplanes with support for more than 16 hard disk drives, the Intel® RAID Controller SRCSASJV, SRCSASPH16I, SRCSASBB8I or SRCSASRB are appropriate.

For expander-based backplanes with support for up to 16 hard disk drives, any of the Intel® RAID Controllers listed herein are appropriate. (Note SASMF8I only supports up to 8 drives.)

For backplanes that do not integrate an expander and support between 8 and 16 hard disk drives, the Intel® RAID Controller SRCSASPH16I is appropriate.

For backplanes that do not integrate an expander and support up to 8 hard disk drives, any of the Intel® RAID Controllers SRCSASJV, SRCSASRB, SRCSATAWB or SASMF8I are appropriate.

For direct cabling between 8 and 16 hard disk drives, Intel® RAID Controller SRCSASPH16I is appropriate.

For direct cabling 8 or few hard disk drives, any of the Intel® RAID Controllers listed herein are appropriate.

6.5   Performance and Scalability Considerations

For solutions requiring the highest performance or the greatest scalability, the Intel® RAID Controller SRCSASJV should be considered. Features such as PCI Express x8 and 512MB mini-DIMM cache module (installed and upgradeable) allow this card to deliver higher performance in many scenarios. This card supports up to 240 physical devices and also has the option of a standard Intel® RAID Smart Battery or Intel® Portable Cache Module.

At the budget conscience end of the spectrum, the Intel® RAID Controller SASMF8I provides Intel® Embedded Server RAID Technology support which uses the processor(s), chipset, and memory embedded in the server board for RAID calculations.   RAID solutions based on the SASMF8I can be upgraded to full hardware RAID by installing one of the other Intel® RAID Controllers listed herein.

6.6   Additional Information

For additional information, visit the RAID section of **http://www.intel.com/go/serverproducts**.