RAID and Storage Options Available on Intel® Server Boards and Systems
based on Intel® 5500/5520 Chipset

Revision History

Date	Revision Number	Modifications
March 2009	1.0	Initial Release.

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1.   High-Level Comparison Of the RAID Options

	RAID-Entry			RAID-Enterprise
Intel Solution	Intel® Embedded RAID Technology II (ESRT2 Software RAID)		Entry Hardware RAID (IR RAID)	Intelligent Hardware RAID (IR3 RAID)
Technology	SATA Only SATA controller with OS-level RAID driver utilizing system processors and memory	SAS/SATA SAS controller with OS-level RAID driver utilizing system processors and memory	SAS/SATA SAS controller with basic RAID logic implemented at silicon level	SAS/SATA Intelligent RAID logic running on a dedicated I/O processor with dedicated cache memory
Storage Controller Option On Intel® Server Boards and Related Accessories[1]	On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Intel® SAS Entry RAID Module AXX4SASMOD[2]		Intel® Integrated RAID Controller SROMBSASMR[2] (AXXROMBSASMR)
		Hot-swap active backplane[2] (Order Code: ASR1500SASBP)	Active midplane 2[2] (Order Code: FALSASMP2)	
Fault Tolerance	★	★★	★★	★★★
Troubleshooting	★	★	★	★★★
Performance	★	★★	★★	★★★
RAID 5	Optional	Optional	No	Yes
RAID 6	No	No	No	Yes
OS Support	Microsoft Windows* and select Linux*	Microsoft Windows* and select Linux*	Broad OS Support	Broad OS Support

Notes:
1. All references to Intel® Server Boards in this document refer to server boards that use the Intel® 5500/5520 chipset. For information about additional storage options available with Intel® Server Boards and related accessories, see "Chapter 4. Storage Controller Modes and Capabilities".
2. This is an optional accessory available for purchase from Intel.

The following is a description of the values in the table:

- The green color highlights the advantages.
- The stars represent the features offered by the RAID solution, with one star identifying basic features and three stars identifying more advanced features.

2.   RAID Options Available With Intel® Server Boards and Related Accessories

Intel® Server Board SKU	Storage Controller¹	Storage Ports Supported	RAID Types and Levels Supported
S5520HC S5500HCV S5520SC S5520UR S5500WB	On-board Intel® 82801JR I/O Controller Hub (ICH10R)	6 SATA ports	Software RAID 0/1/10 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5
	Optional Intel® SAS Entry RAID Module AXX4SASMOD	4 SAS ports *Up to 10 SAS or SATA drives via expander backplanes*	Entry Hardware RAID 0/1/1E/10E standard
			Software RAID 0/1/10 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5
	Optional Intel® Integrated RAID Controller SROMBSASMR (AXXROMBSASMR)	4 SAS ports *Up to 16 SAS or SATA drives via expander backplanes*	Intelligent Hardware RAID 0/1/10/5/50/6/60
S5500BC	On-board Intel® 82801JR I/O Controller Hub (ICH10R)	6 SATA ports	Software RAID 0/1/10 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5

Note 1: For information about additional storage options available with Intel® Server Boards and related accessories, see "Chapter 4. Storage Controller Modes and Capabilities".

3. RAID Options Available With Intel® Server Systems

Intel® Server System SKU	Embedded / Integrated RAID		Drives Supported in The Chassis (On-board controller may not support some configurations)	Add-in RAID Card Support for Internal Drives
	Controller Type	RAID Types and Levels		
SR1630BC	SATA On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Software RAID 0/1 standard	Two fixed SAS[1]/SATA 3.5-inch drives	Yes
SR1600UR	SATA On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Software RAID 0/1 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5	Three fixed SAS[1]/SATA 3.5-inch drives	Yes
SR1600URHS (with hot-swap passive backplane ASR1500PASBP)	SATA On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Software RAID 0/1 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5	Three hot-swap SAS[1]/SATA 3.5-inch drives	Yes
SR1600URHS (with hot-swap active backplane ASR1500SASBP)	SAS/SATA Optional hot-swap active backplane	Software RAID 0/1 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5	Three hot-swap SAS/SATA 3.5-inch drives	No
SR1625UR	SATA On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Software RAID 0/1/10 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5	Eight hot-swap SAS[1]/SATA 2.5-inch drives *Seventh and eighth drive slots optional with FXX25HDDCAR*	Yes
SR1625URSAS	SAS/SATA Active midplane 2 (FALSASMP2)	Entry Hardware RAID 0/1/1E/10E standard Intelligent Hardware RAID 0/1/10/5/50/6/60 with Intel® RAID Activation Key AXXRAKSAS2 and RAID mini-DIMM AXXMINIDIMM512	Eight hot-swap SAS/SATA 2.5-inch drives *Seventh and eighth drive slots optional with FXX25HDDCAR*	No
SR2600URBRP	SATA On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Software RAID 0/1/10 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5	Six hot-swap SAS[1]/SATA 3.5-inch drives *Sixth drive slot optional with ASR2500SIXDRV*	Yes
SR2600URLX	SAS/SATA Active midplane 2 (FALSASMP2)	Entry Hardware RAID 0/1/1E/10E standard Intelligent Hardware RAID 0/1/10/5/50/6/60 with Intel® RAID Activation Key AXXRAKSAS2 and RAID mini-DIMM AXXMINIDIMM512	Six hot-swap SAS/SATA 3.5-inch drives *Sixth drive slot optional with ASR2500SIXDRV*	No
SR2625URBRP	SATA On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Software RAID 0/1/10 standard Software RAID 5 with Intel® RAID Activation Key AXXRAKSW5	Six hot-swap SAS[1]/SATA 2.5-inch drives	Yes
SR2625URLX	SAS/SATA Active midplane 2 (FALSASMP2)	Entry Hardware RAID 0/1/1E/10E standard Intelligent Hardware RAID 0/1/10/5/50/6/60 with Intel® RAID Activation Key AXXRAKSAS2 and RAID mini-DIMM AXXMINIDIMM512	Eight hot-swap SAS/SATA 2.5-inch drives	No

Note 1: An add-in SAS adapter is required.

4. Storage Controller Modes and Capabilities

Storage Controller	Storage Mode	Description	RAID Types and Levels Supported	Driver and OS Support	RAID Management Software	RAID Software User's Guide
On-board Intel® 82801JR I/O Controller Hub (ICH10R)	Enhanced	6 SATA ports in native mode	N/A	Chipset driver or operating system embedded Broad OS support	N/A	N/A
	Compatibility	6 SATA ports: ▪ Port 0, 1, 2, 3 in Legacy IDE mode ▪ Port 4, 5 in native mode	N/A	Chipset driver or operating system embedded Broad OS support	N/A	N/A
	AHCI	6 SATA ports using the Advanced Host Controller Interface with NCQ support	N/A	AHCI driver or OS embedded Broad OS support	N/A	N/A
	Software RAID	6 SATA Ports	Software RAID 0/1/10 standard Software RAID 5 with optional Intel® RAID Activation Key AXXRAKSW5	ESRT2 Driver Microsoft Windows* and selected Linux* versions only	Intel® RAID Web Console 2	Intel® RAID Software User's Guide
Optional Intel® SAS Entry RAID Module AXX4SASMOD	Entry Hardware RAID	4 SAS Ports *Up to 10 SAS or SATA drives via expander backplanes*	Native SAS pass-through mode without RAID function; Entry Hardware RAID: • RAID 1 (IM mode) • RAID 10/10E (IME mode) • RAID 0 (IS mode)	SAS MPT driver (Fully open-source driver) Broad OS support.	Intel® RAID Web Console 2	Intel® IT/IR RAID Software User's Guide
	Software RAID	4 SAS Ports *Up to 8 SAS or SATA drives via expander backplanes*	Software RAID 0/1/10 standard Software RAID 5 with optional Intel® RAID Activation Key AXXRAKSW5	ESRT2 Driver Microsoft Windows* and selected Linux* versions only	Intel® RAID Web Console 2	Intel® RAID Software User's Guide
Optional Intel® Integrated RAID Controller SROMBSASMR (AXXROMBSASMR)	Intelligent Hardware RAID	4 SAS Ports *Up to 16 SAS or SATA drives via expander backplanes*	Intelligent Hardware RAID 0/1/10/5/50/6/60	IR3 Driver (Fully open-source driver) Broad OS support.	Intel® RAID Web Console 2	Intel® RAID Software User's Guide

Storage Controller	Storage Mode	Description	RAID Types and Levels Supported	Driver and OS Support	RAID Management Software	RAID Software User's Guide
Optional hot-swap active backplane (ASR1500SASBP)	Software RAID	Up to 3 SAS or SATA drives	Software RAID 0/1/10 standard Software RAID 5 with optional Intel® RAID Activation Key AXXRAKSW5	ESRT2 Driver Microsoft Windows* and selected Linux* versions only	Intel® RAID Web Console 2	Intel® RAID Software User's Guide
	Native SAS	Up to 3 SAS or SATA drives	Native SAS pass-through mode without RAID function	SAS MPT driver (Fully open-source driver) Broad OS support.	N/A	N/A
Optional active midplane 2 (FALSASMP2)	Entry Hardware RAID	Up to 8 SAS or SATA drives	Native SAS pass-through mode without RAID function Entry Hardware RAID: • RAID 1 (IM mode) • RAID 10/10E (IME mode) • RAID 0 (IS mode)	SAS MPT driver (Fully open-source driver) Broad OS support.	Intel® RAID Web Console 2	Intel® IT/IR RAID Software User's Guide
	Intelligent Hardware RAID	Up to 8 SAS or SATA drives	Intelligent Hardware RAID 0/1/10/5/50/6/60 with Intel® RAID Activation Key AXXRAKSAS2 and RAID mini-DIMM AXXMINIDIMM512	IR3 Driver (Fully open-source driver) Broad OS support.	Intel® RAID Web Console 2	Intel® RAID Software User's Guide