

Product Brief

Intel® Storage System
SSR212PP based on
EMC AX150* technology

Storage

Networked Storage

Intel® Storage System SSR212PP based on EMC AX150* technology

Simple, affordable, and scalable enterprise-class storage for small to medium businesses



The Intel® Storage System SSR212PP provides fast, reliable networked storage designed for a wide range of application environments. The Intel SSR212PP family provides an ideal, low-cost platform for small businesses that need to consolidate storage for a small number of applications. Dual-active storage processor-based server models are well suited for medium-sized businesses that require high availability and wish to consolidate a large number of applications on a single, robust platform. Organizations can choose from high-performance Fibre Channel network connectivity, or standards-based, cost-effective iSCSI connectivity. The Intel SSR212PP family provides an ideal foundation for flexible, reliable, high-performance networked storage solutions.

- Single- and dual-controller models
- Fibre Channel or iSCSI connection models
- Up to 12 serial advanced technology attachment (SATA II) disks—250 GB or 500 GB HDD models
- Up to 6TB of raw storage capacity in a 2U form factor
- Simple installation and integrated management software with Navisphere* Express
- Affordable networked storage

A look inside

The Intel SSR212PP storage family extends the benefits of networked storage—including consolidation, automation, and advanced data protection—to a broad range of customers by providing a cost-effective alternative to direct-attached storage. The Intel SSR212PP combines the advanced functionality and data protection features of redundant array of independent disks (RAID) architecture with high-capacity SATA II disk drives to help deliver highly functional and cost-effective network storage.

Users who previously relied on direct-attach and internal server-based storage capacity to support Microsoft Windows*, NetWare*, and Linux* servers can now take advantage of a networked storage solution from Intel that can scale with their data storage needs. Designed for easy installation and use, the Intel SSR212PP includes software for simple Web-based array and storage management. The Intel SSR212PP fits uniquely with small to medium business requirements and distributed workgroup environments.

The system features up to 12 SATA drives in a 2U (3.5-inch) rack-mountable enclosure. Capacity can scale from three to twelve drives, and, with 250 GB and 500 GB disks, can provide up to 6 TB of raw storage capacity. The Intel SSR212PP supports a variety of server platforms with either storage area network (SAN) or direct-attach connections.

Flexible connectivity options for networked storage

iSCSI and Fibre Channel models allow users to choose the network interconnect right for their environment.

- **iSCSI arrays** provide cost-effective shared storage using readily available Internet protocol (IP) networking components, for either SAN or direct-attach connectivity using Ethernet* switches.
- **Fibre Channel arrays** can be connected to local servers with low-cost Fibre Channel fabric host bus adapters (HBAs) to provide a simple direct-attached shared storage solution. With the addition of one or more fabric switches, up to 10 servers per array can be supported.

Each Intel SSR212PP can support up to 10 hosts and 256 virtual disks¹. The dual-controller Intel SSR212PP models support up to 20 initiators for 10 high-availability host connections. PowerPath* for Intel SSR212PP provides enhanced data availability and performance through path failover and load balancing in high-availability installations.

Two sets of models support a range of application requirements, deployment, and scalability needs

The Intel SSR212PP family includes two sets of models that support a range of application requirements, deployments, and scalability needs.

- **Single controller system supports varying application, deployment, and scale requirements.** The single-controller Intel SSR212PP provides a low-cost RAID solution that includes key data-integrity features, such as RAID 5 and RAID 1/0 data protection and battery-backed cache, and is ideally suited for customers beginning to implement network storage.

With two front-end host ports, the Intel SSR212PP supports two direct-attached servers, or up to 10 network-attached hosts connected through a switch.

The Intel SSR212PP features 512 MB of processor memory with battery-backed cache to protect against data loss in an outage (for up to 96 hours). RAID technology combines efficiency with availability and protection against data loss if a disk drive fails.

With hot-swap disk drives and power supplies, the Intel SSR212PP is simple to maintain, while redundant cooling fans and an optional redundant power supply provide an extra measure of reliability.

- **Dual-controller system provides high availability at an affordable price.** The dual-controller Intel SSR212PP provides dual-active storage processors, mirrored cache, and dual power supplies to deliver high availability and end-to-end data protection for business-critical applications.

Dual storage processors, dual hot-swappable power supplies, and N+1 redundant cooling result in superior availability, data protection, and integrity. An available rack-mount uninterruptible power supply (UPS)² allows the array to de-stage data from cache to disk in the event of a power failure. The operation of the UPS is

¹ Or logical unit numbers (LUNs)

² Required with the Intel* SSR212PP dual-controller models

fully integrated with the Intel SSR212PP to provide a smooth shutdown of the array in the event of a power outage, further enhancing data protection and recovery. The dual controller Intel SSR212PP provides high-availability storage for up to four direct-attached hosts or two-host clusters, or for up to 10 fabric-connected servers in a department.

Improved I/O performance with SATA II disk drive technology

The Intel SSR212PP family supports SATA II disk drives, providing high disk capacity, cost-effective performance, and advanced data integrity. SATA II provides as much as 3.0 GB of data transfer and native command queuing (NCQ), to streamline sequential data transfers. SATA II technology significantly improves performance for I/O-intensive applications, such as messaging, file serving, and databases. The Intel SSR212PP hot-swap design and user-friendly configuration tools make it practical to start small and easily add additional drives as storage needs grow.

Data is protected with array-based failover and replication

The Intel SSR212PP improves availability and reduces exposure to outages. The system cooling modules provide N+1 redundancy. Dual hot-swappable power supplies ensure no single point of failure.

The Intel SSR212PP also includes an integrated, array-based snapshot capability. Up to eight concurrent snapshots can be created, enabling users to improve and simplify backup and recovery operations.

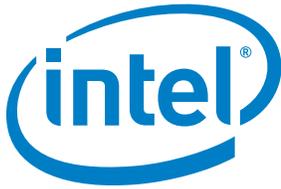
Simple installation and integrated management

The Intel SSR212PP is designed for simple installation, ease of use, and convenient maintainability. All functionality is included and loaded. A wizard-based utility guides users through the installation process. All major components, including disk drives, power supplies, cooling fans, and processor modules, are designed as customer-replaceable units (CRUs).

The Navisphere* Express interface, included with the Intel SSR212PP, provides new levels of ease of use and simplified management. The functionality required to install, configure, and manage the Intel SSR212PP is pre-installed in host environments. The Intel SSR212PP includes a wizard-driven management interface for user-friendly array setup and monitoring, shared storage management, and automated path failover across host and networked connections.

Intel® Storage System SSR212PP

Features	Benefits
Flexible connectivity options for networked storage	Allows you to choose the network interconnect that is right for your environment
Single controller system supports varying application, deployment, and scaling requirement	Provides a low-cost RAID solution that includes key data integrity features
Dual-controller system provides dual-active storage processors, mirrored cache, and dual power supplies	Delivers high availability and end-to-end data protection at an affordable price
Improved I/O performance with SATA II disk drive technology	Delivers high-volume data throughput to significantly improve performance of I/O-intensive applications, such as messaging, file serving, and databases
Array-based failover and replication	Offers excellent data protection and availability
Simple installation	Reduces time to benefit
Integrated management software	Provides comprehensive system management



Intel® Storage System SSR212PP Specifications

Specifications	SSR212PPf-500	SSR212PPi-500	SSR212PPf-250	SSR212PPi-250	SSR212PP2f-500	SSR212PP2i-500	SSR212PP2f-250	SSR212PP2i-250
Controllers per array	1	1	1	1	2	2	2	2
Ports per controller	2	2	2	2	2	2	2	2
Number of HDDs	3	3	3	3	4	4	4	4
HDD capacity	500 GB	500 GB	250 GB	250 GB	500 GB	500 GB	250 GB	250 GB
Connectivity	Fibre Channel	iSCSI	Fibre Channel	iSCSI	Fibre Channel	iSCSI	Fibre Channel	iSCSI
Operating system support	Windows*, Linux*, Netware*							
Max. cable length	Shortwave optical: 300 m (2 GB/s), FC-AI and FC-SW support							
Support for up to 10 servers (high availability or non-high-availability)								

Back-end disk connectivity and RAID levels		
Connectivity	Each storage processor connects to up to 12 SATA drives	
RAID levels	RAID 5: Independent data access to as many as 3 to 12 drives (with striped parity) RAID 5/10: Data mirrored, then striped across as many as 2 to 12 drives Configurable global hot spare	

Drive interface		
Failover from each storage processor to all drives is possible	250 GB SATA II	500 GB SATA II
Formatted capacity per drive	233 GB	465 GB
Form factor	3.5 in.	3.5 in.
Height	1.0 in.	1.0 in.
Rotational speed	7200 RPM	7200 RPM
Interface	3.0 serial ATA I	3.0 serial ATA II
Data buffer	16 MB	16 MB
Transfer rates, buffer to/from media	41-77 MB/sec	31-64 MB/sec
SP to/from buffer	300 MB/sec (max.)	300 MB/sec (max.)
Access time		
Average seek	9.0 ms read	8.2 ms read
Rotational latency	4.17 ms	4.17 ms

Integrated management features	
Array-based management utility	Web-accessible configuration and management for an individual array
Shared storage control	Data protection, shared storage access, and security for heterogeneous SAN environments
Path management	Path failover for continuous data access and load balancing for optimal performance
Snapshot management	Create local point-in-time snapshots for flexible backup

System expansion	Single processor	Dual processor
Total LUNs	256	256
Total snap LUNs	8	8
Total hosts	10 (1 HBA per)	10 (1 or 2 HBAs per)
Total SAX1 50PP per host	4	4
Total clustered hosts	4 nodes	8 nodes

Dimensions	Single processor chassis with battery-backed cache	Dual processor chassis with UPS
Form factor	Rack	Rack
Height	3.415 in. (8.68 cm)	5.165 in. (13.12 cm)
Width	17.72 in. (45.0 cm)	17.72 in. (45.0 cm)
Depth	24.5 in. (62.3 cm)	24.5 in. (62.3 cm)
Weight (max. configuration)	48 lb. (21.8 kg)	98.3 lb. (44.6 kg)
EIA units	2	3

Power	Single-processor chassis	Dual-processor chassis
Power supplies per array	One ³	Two
Frequency	47-63 Hz	47-63 Hz
AC voltage phase	90-264 Vrms, single phase	90-264 Vrms, single phase
Power factor	96 (typ.)	96 (typ.)
Power consumption (max.)	275 VA, 250W	360 VA, 250W
Heat dissipation (max.)	850 Btu/hour (each supply)	1110 Btu/hour
Protection	10 A, internally fused (each supply)	10 A, internally fused
AC circuits	Single, external AC circuits	Redundant, external AC circuits
Inlet type	Single inlet IE320, C14 appliance coupler	Dual inlet IE320, C14 appliance coupler
AC power capability	40U cabinet (optional) Dual inlets NEMA L6-30P or IEC309-332P6 or Australia (Clipsal 56PA332) 200-240 VAC +/-10 percent, single phase 47-63 Hz 4800 VA at 200 V; 5760 VA at 240 V 30A, 2-pole circuit breakers	

Operating environment	
Temperature	50° F to 104° F; 10° C to 40° C
Temperature Gradient	10° C/hr
Relative Humidity	From 20 percent to 80 percent (non-condensing)
Altitude	8000 ft. (2438.4 m) at 104° F (40° C) max. 10000 ft. (3048 m) at 98.6° F (37° C) max.

Regulatory standards	
Electromagnetic Emissions and Immunity	FCC Class A EN55022 Class A CE Mark VCCI Class A (for Japan) ICES-003 Class A (for Canada) AS/NZS 3548 Class A (for Australia and New Zealand)
Quality and Safety Standards	UL 1950 CSA C22.2-950 EN60950 Manufactured under an ISO 9000-registered quality system

³ Second power supply optional

For general information on storage systems from Intel, visit: www.intel.com/design/servers/storage/index.htm

For product information about Intel® Storage System SSR212PP, visit: www.intel.com/design/servers/storage/ssr212pp/index.htm

For more information on how to make the Intel® Storage System SSR212PP part of your server environment, contact an Intel® Channel Membership Programs participant.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. Intel products are not intended for use in medical, life saving or life sustaining applications.

Intel may make changes to specifications and product descriptions at any time, without notice. Availability in different channels may vary.

Intel, the Intel logo, Intel. Leap ahead. and Intel. Leap ahead. logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2006 Intel Corporation. All rights reserved. 0306/EOH/MESH/HOP/1K Intel Literature Center: 1-800-548-4725

312362-001US