



Intel[®] Storage System SSR212PP

Based on EMC AX-150* Technology

Technical Product Specification (Hardware)

Revision 1.1

Storage Group Technical Marketing

Revision History

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1. Hardware Overview

This Technical Product Specification provides detailed information about the hardware components of the Intel® Storage System SSR212PP based on EMC AX150* Technology. The SSR212PP-Series storage system consists of rack-mountable storage-system enclosures powered by one (single processor) or two (dual processor) Intel® processors, 3.5 inches (2U) high, that contain from 3 to 12 Serial Advanced Technology Attachment (SATA) disk drives. The SSR212PPf and SSR212PP2f storage systems use a Fibre Channel Arbitrated Loop (FC-AL) or Fibre Channel Switch (FC-SW) as an interconnect interface to host servers. The SSR212PPi and SSR212PP2i storage systems use the Internet Small Computer System Interface (iSCSI) protocol. Navisphere® Express software manages the storage systems from any qualified workstation on a separate shared Ethernet LAN. RAID (redundant array of independent disk) technology and data caching prevent data loss in case of component failure. Redundant hardware options provide levels of high availability.

Table 1. Intel Storage System SSR212PP-Series Hardware Feature Summary

| | |
|-----------------------------|---|
| Storage Capacity | Expandable to 3.0 TB – using twelve 250 GB drives. Expandable to 6.0 TB – using twelve 500 GB drives. |
| Drive Bays | 12 Serial ATA II (SATA II) Hot Pluggable. |
| Disk Drive Supported | 3.5 inch SATA II |
| Processor | One (single SP) or two (dual SP) Intel® Celeron® processor 1.2 GHz, 256K L2 cache. |
| Memory Capacity | 512 MB maximum per SP, using DDR memory. |
| Memory Type | Synchronous Dynamic Random Access Memory (SDRAM), PC2100, Registered, ECC. |
| DIMM Slots | One (single SP) or two (dual SP) 184-pin DIMM sockets. |
| SATA Compliance | SATA 1.5, 3.0. |
| Client Connectivity | Client Connectivity via Internet Protocol Small Computer System Interface (iSCSI) Gb Ethernet or 2 Gb Fibre Channel (FC). |
| Serial Port | Management console port. |

1.1 System Components

Besides SATA II disks, the SSR212PP-Series storage systems include the following major components:

One (SSR212PPf or SSR212PPi) or two (SSR212PP2f or SSR212PP2i) storage processors, each with:

- One CPU fan
- One serial port (RJ45 connector) for service
- One 10/100 Ethernet LAN port (RJ45 connector) for management
- For the SSR212PP2f or SSR212PP2i only, one serial port (RJ45 connector) for uninterruptible power supply (UPS)
- One power supply per processor. A second power supply is optional for SSR212PPf or SSR212PPi storage systems

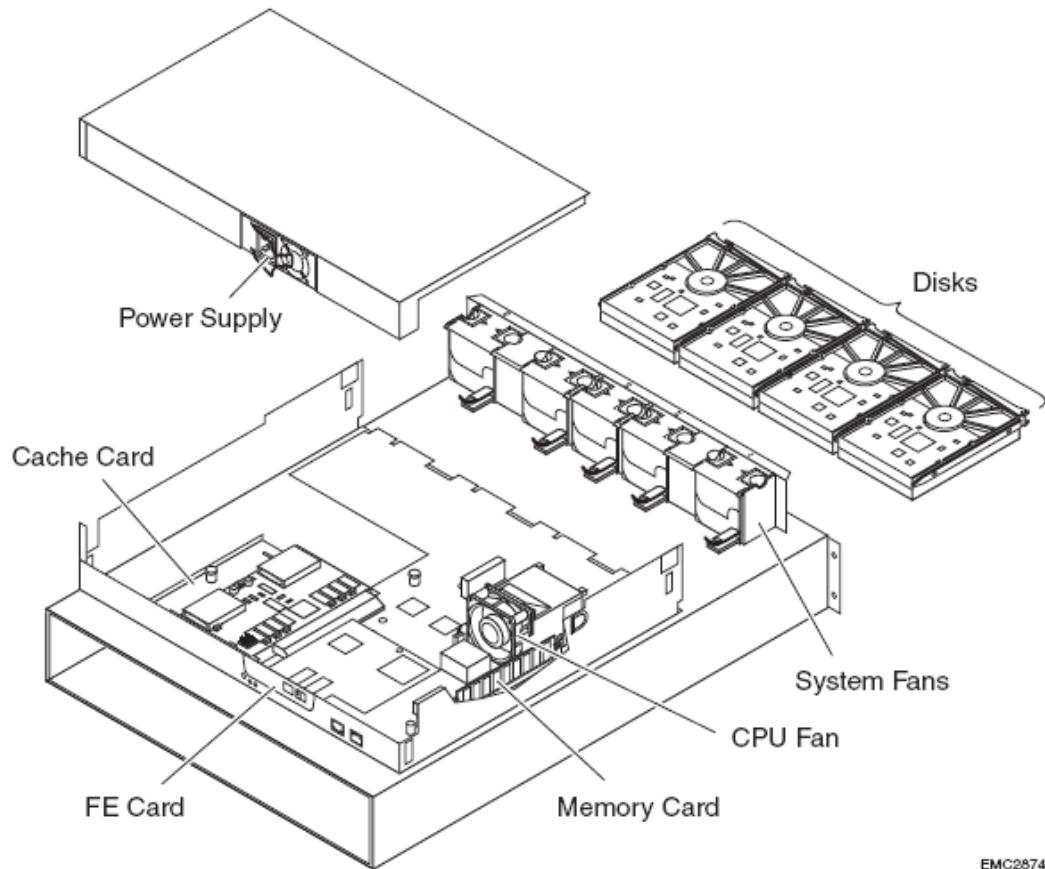
One front-end (FE) card per processor, each with:

- **SSR212PP2f or SSR212PPf** — two 2-Gbps Fibre Channel host ports (small form factor - SFF - connectors)
- **SSR212PP2i or SSR212PPi** — two 10/100 gigabit Ethernet iSCSI ports (RJ45 connector).
- A battery-backed cache card (SSR212PPf or SSR212PPi only)
- One 512-megabyte memory card per processor
- Four (SSR212PPf or SSR212PPi) or five (SSR212PP2f or SSR212PP2i) system fans

One uninterruptible power supply (UPS) (SSR212PP2f and SSR212PP2i systems only)

You can install, upgrade, or replace all of the major SSR212PP-Series components without professional assistance. The only component that is not replaceable in the field is the fibre channel or iSCSI Input/Output module. The I/O module is part of the field-replaceable storage processor assembly.

Figure 1 shows the major components in an SSR212PP-Series storage system.



EMC2874

Figure 1. System Components (SSR212PPf shown)

1.2 Disk and Filler Modules

Each SSR212PPf or SSR212PPi storage system includes at least three serial ATA hard disk drives. Each SSR212PP2f or SSR212PP2i storage system includes at least four disks. These system disks are marked 0-3 (0-2 in single-processor models) and contain vital software specific to the physical slot they occupy in the chassis. Do not move a system disk from its assigned slot to another slot. Remove it only to replace the disk.

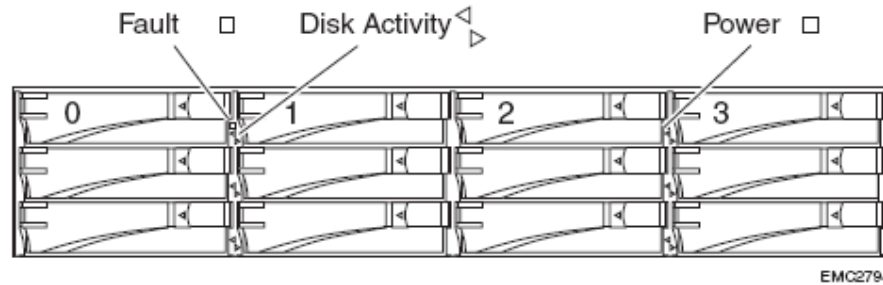


Figure 2. SSR212PP Front View (Bezel Removed)

If a drive fails, you can replace it with another while the storage system continues running; software will rebuild the contents of the original disk onto its replacement.

The chassis has twelve slots for disk modules. Any unoccupied disk module slot requires a filler module to maintain air flow.

Each disk module, shown in Figure 3, consists of one serial ATA disk drive in a carrier. You can add or remove a disk module while the storage system is powered up, but you should exercise special care when removing drives while they are in use.

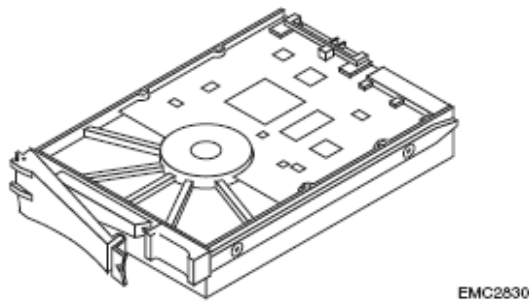


Figure 3. Disk Module

1.2.1 Disk Drives

The disk drives are standard 3.5-inch (8.75 cm) by 1.0-inch (2.54 cm) serial advanced technology attachment (SATA) 1.5 or 3.0 drives.

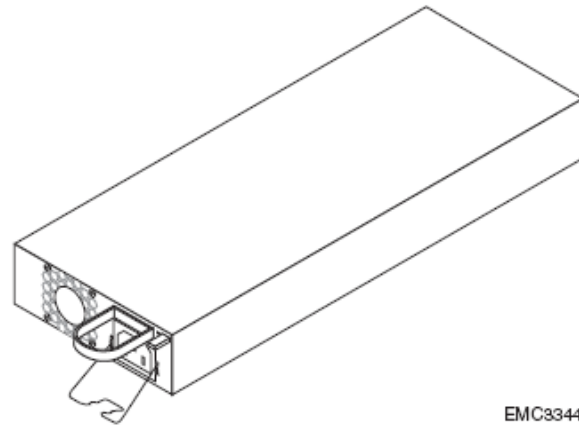
1.2.2 Drive Carrier

The disk drive carrier is a plastic assembly that provides smooth, reliable contact with the enclosure slot guides and system board connectors. It has a handle with a latch and spring clips. The latch holds the disk module in place to ensure proper connection with the connectors.

1.3 Power Supplies

The power supplies are located at the rear of the storage system, above the front-end connectors. Each 300-W power supply is an auto-ranging, power-factor-corrected, multi-output,

offline converter with its own line cord. Each supply supports 12 disk modules, all system fans, and its associated CPU fan and storage processor. Systems with two power supplies share 12-volt load currents to the disk drives. A failed power supply prevents operation of a single-supply SSR212PPf or SSR212PPi storage system. A dual-processor SSR212PP2f or SSR212PP2i storage system with a failed power supply continues operating in a degraded mode until the power supply is replaced.



EMC3344

Figure 4. SSR212PP-Series Power Supply

Each power supply has visible status lights (light-emitting diodes, or LEDs), as shown in Figure 5. The power LED indicates power to the system, and the fault LED indicates a power supply fault.

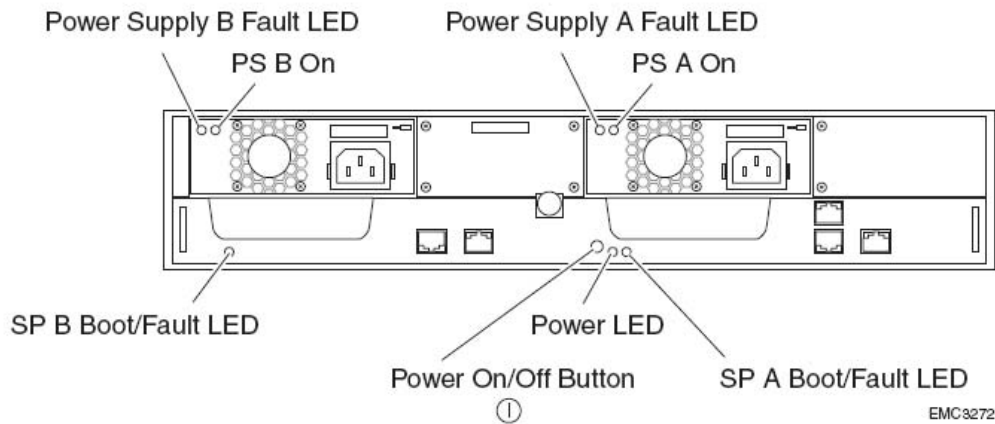


Figure 5. SSR212PP-Series power status lights (SSR212PP2f shown)

1.4 SSR212PP-Series Storage Processor Assembly

The AX150-Series storage processor assembly (SP assembly) includes system and CPU fans, memory cards, front-end cards, storage processors and, in AX150SC or AX150SCi storage systems, the battery-backed cache card. You can replace the cache card, fans, and memory cards independently. To replace a storage processor or front-end (FE) card, or to upgrade your system from one to two processors, you must replace the entire SP assembly (retaining the original power supplies and cache card).

Figure 6 shows the SP assembly components visible from the rear of an AX150 storage system. Figure 7 shows the rear of an AX150i storage system. The single-processor AX150SC or AX150SCi storage system does not include a UPS port, or any of the visible SP B components left of the Power On/Off button.

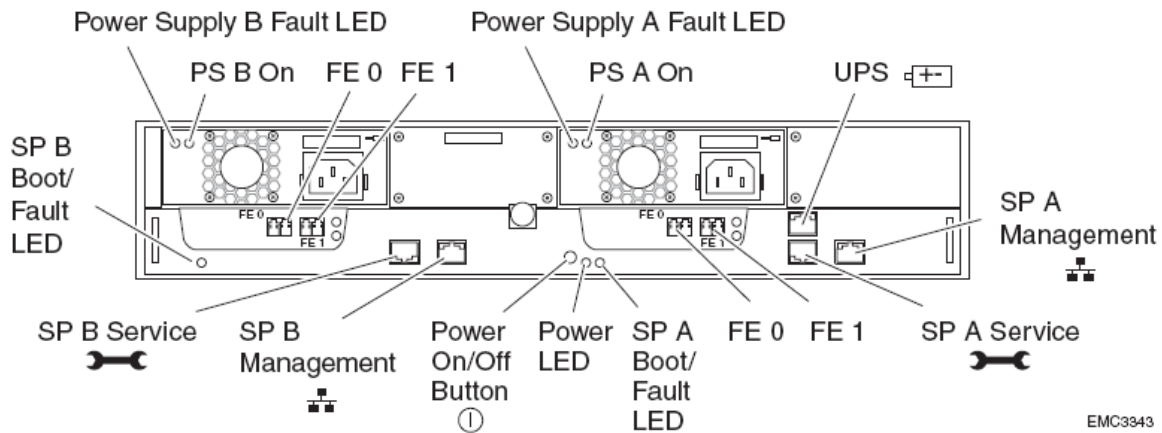


Figure 6. SSR212PP2f storage processor assembly – rear view

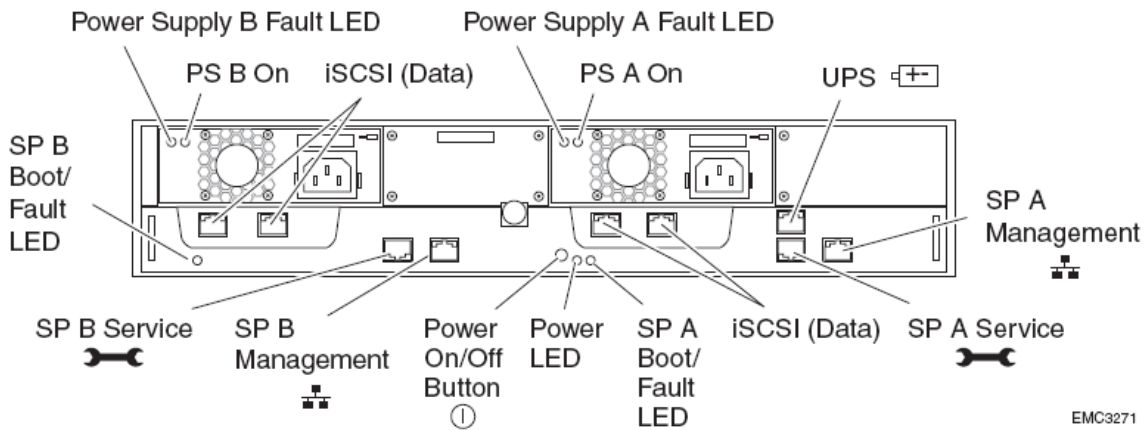


Figure 7. SSR212PP2i storage processor assembly – rear view

1.4.1 Storage Processor

The storage processor (SP) board and its companion FE card manage input/output from connected servers (sometimes referred to as hosts) and the disks. 10/100 LAN and serial ports on the processor provide management and service access from a management console (possibly one of your system servers).

1.4.2 Battery-Backed Cache Card

The 256-megabyte battery-backed cache card (cache card) allows write caching in single processor systems. The cache card can maintain data for 96 hours, providing time to replace a failed processor or power supply, or to restore site power, before it saves the data to disk. Input/output continues with write caching disabled while the cache card battery recharges.

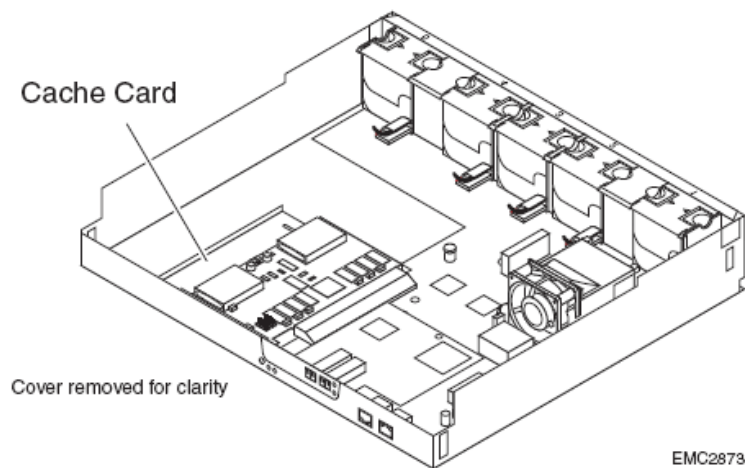


Figure 8. Battery-Backed Cache Card

1.4.3 Memory Cards

Each storage processor includes a 512-megabyte dual-inline memory module (DIMM, or memory card). Figure 9 shows the location of a memory card in an SSR212PPf or SSR212PPi enclosure.

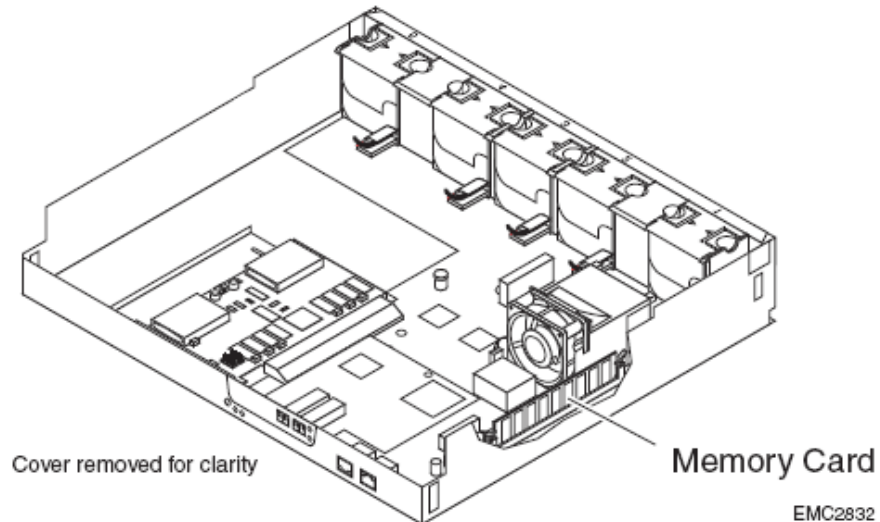


Figure 9. SSR212PP-Series Memory Card (SSR212PPf shown)

1.4.4 Fans

SSR212PPf or SSR212PPi storage processor assemblies include one fan dedicated to the central processing unit (CPU) and four system fans that cool the entire unit, including disks. SSR212PP2f or SSR212PP2i storage systems include two CPU fans and five system fans. All SSR212PP -Series systems use N+1 cooling; if any fan in the unit fails, the remaining fans compensate until the failed fan is replaced. Should any two fans (CPU or system) fail, the storage system attempts to save any cached data to disk and then shuts down.

1.4.5 System (disk) Fans

SSR212PPf or SSR212PPi storage systems include four system fans, in fan slots 1, 2, 4, and 5. SSR212PP2f or SSR212PP2i storage systems require fans in all five slots. You can replace each fan individually. Figure 10 shows the location of the system fans.

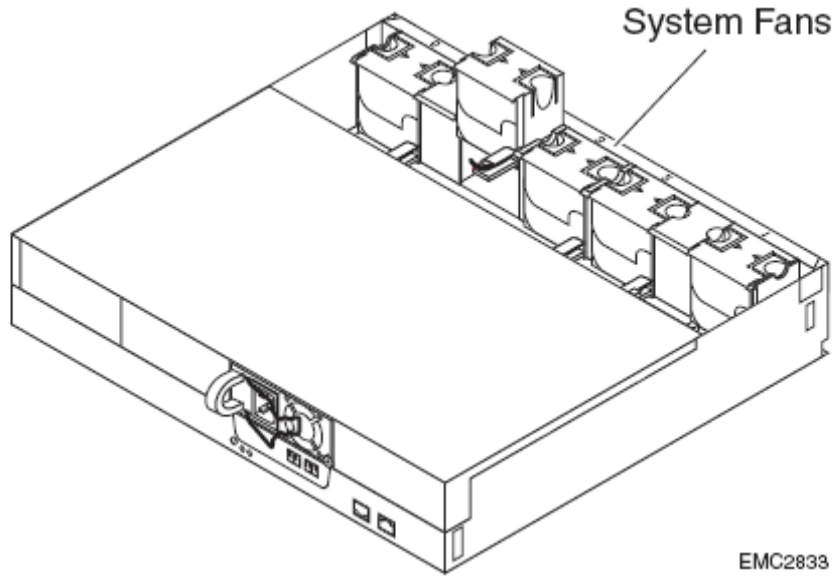


Figure 10. SSR212PP-Series System Fans

1.4.6 CPU Fans

CPU fans on the storage processor board provide dedicated cooling to the central processing units. Figure 11 shows the location of the CPU fan in a single-processor SSR212PPf system.

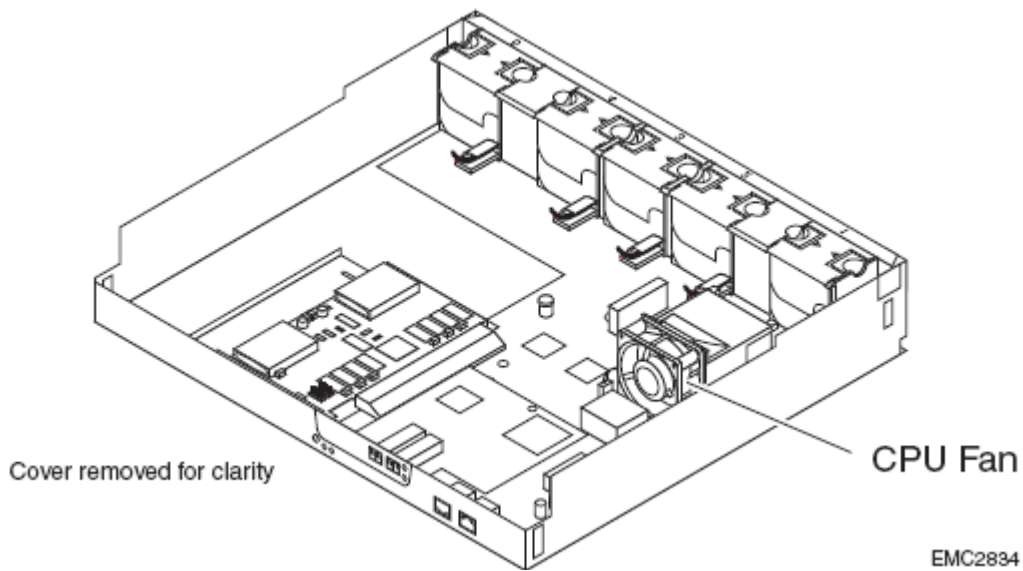


Figure 11. SSR212PP-Series CPU Fan (SSR212PPf shown)

1.5 Uninterruptible Power Supply (UPS)

SSR212PP2f and SSR212PP2i storage systems require an uninterruptible power supply (UPS). If storage processor A loses power (for example, during a site-wide power outage), the UPS supplies battery power to keep SP A running long enough to write cached data to disk. Once the cache-flushing procedure completes, the UPS removes power from SP A and enters a sleep mode (during which all six UPS LEDs flash sequentially). When ac power is restored to the UPS, it will power up and restore power to SP A, which automatically reboots.

If either storage processor ceases operating, the system immediately flushes cache to disk. The remaining SP will continue to run with cache disabled until the failed SP is restored.

For a detailed description of the UPS supplied with your system, refer to the vendor documentation for the uninterruptible power supply. For other information, contact your SSR212PP-Series sales and/or service provider.

2. Technical Specifications

Technical specifications for the SSR212PP-Series storage system include storage-system power requirements, size, drive, interface, environment, and standards, operating limits and shipping and storage requirements.

2.1 AC Power Requirements

The input current, power (VA), and dissipation per storage system listed in this document are based on the maximum capability of the power supplies and cooling system to provide internal regulated power. Typical values will be less, depending on the number of disk modules. These values represent either:

- the values for a single power supply line cord, or
- the sum of the values shared by the line cords of two power supplies in the same enclosure, with the division between the line cords and supplies at the current sharing ratio (approximately 50% each).

With two power supplies, a failure of one supply leaves the remaining supply and cord supporting the full load. Any cabinet you use for mounting storage systems must have ac power distribution. The main branch ac distribution must be able to handle the requirements for all SSR212PP-Series systems connected to it.

Table 2. AC Power Specifications

| Requirement | Storage system | |
|-----------------------|--|---|
| | SSR212PP2f/SSR212PP2i (two storage processors) | SSR212PPf/SSR212PPi (one storage processor) |
| ac line voltage | 100 to 240 V ac + 10%, single phase, 47 to 63 Hz | |
| ac line current | 3.6 A max at 100 V ac, 1.7 A max at 200 V ac | 3.15 A max at 100 V ac, 1.5 A max at 200 V ac |
| Power consumption | 360 VA (350 W) max | 315 VA (300 W) max |
| power factor | 0.96 min at full load, low voltage. | |
| Heat dissipation | 1.24 x 10 ⁶ J/hr, (1,180 BTU/hr) max | 1.08 x 10 ⁶ J/hr, (1,024 BTU/hr) max |
| in-rush current | 30 A max for ½ line cycle at 240 V ac, 15 A max for ½ line cycle at 120 V ac | |
| Startup surge current | 17 Apk (11 Arms) max for 100 ms, any line voltage | |
| ac protection | 10 A fuse on each power supply, both phases | |
| ac receptacle type | IEC320-C14 appliance coupler, per power supply | |
| Ride-through time | 10 ms min | |
| Current sharing | 70% max, 30% min, between +12V channels | |

2.2 Size and Weight

Table 3. Size and Weight

| Measurement | Specification |
|-------------|---|
| Height | 88.9 mm (3.5 in) 2 NEMA units including mounting hardware |
| Width | 450 mm (17.72 in) |
| Depth | 622.3 mm (24.5 in) |
| Weight | 22.8 kg (50.3 lbs) dual-SP system with 12 disks (maximum configuration) 21.55 kg (47.4 lbs) single-SP system with 12 disks 0.61 kg (1.35 lbs) per disk module 1.25 kg (2.75 lbs) per power supply 6.73 kg (14.85 lbs) single SP plus cache card 7.48 kg (16.5 lbs) chassis and cables |

2.3 Drive Type

Up to twelve Serial ATA (Advanced Technology Attachment) disk drives used in SSR212PP-Series storage systems are standard 8.75 cm (3.5 inches) x 2.54 cm (1.0 inch) drives.

Drive module power is approximately 16 W maximum per drive slot.

2.4 Optical Cabling

SSR212PP-Series Fibre Channel storage systems (SSR212PPf and SSR212PP2f) use optical cables from the SP's SFF (Small Form Factor) LC transceivers to the external Fibre Channel environment.

Table 4. Optical Cabling

| Type | | 50 µm or 62.5 µm, multi-mode, dual LC |
|-------------|---------------------|--|
| Length | 50 µm @2.125 Gbit | 2 m (6.6 ft) min to 300 m (985 ft) maximum |
| | 62.5 µm @2.125 Gbit | 2 m (6.6 ft) min to 150 m (492 ft) maximum |
| Bend radius | | 3 cm (1.2 in) min |

Note:

The maximum length for either the 62.5 µm or 50 µm cable (noted in the table above) includes two connections or splices between source and destination.

CAUTION:

It is not recommended mixing 62.5 µ and 50 µm optical cables in the same link. In certain situations you can add a 50 µm adapter cable to the end of an already installed 62.5 µm cable plant.

2.5 iSCSI Network Cabling

iSCSI storage systems (SSR212PPi and SSR212PP2i) use standard Ethernet LAN cables from the LAN ports (RJ45 connectors) on each SP to the external network environment. For

distances up to 100 meters, Category 5E cables are the commonly used gigabit Ethernet standard; the system also supports CAT 5 and CAT 6 cables. CAT 6 LAN cables should be used whenever possible.

3. Operating Limits

The ambient temperature specification is measured at the front bezel inlet. The site must have air conditioning of the correct size and placement to maintain the specified ambient temperature range and offset the heat dissipation listed in the table below.

Table 5. Thermal Operating Limits

| Requirement | Description |
|----------------------|---|
| Ambient temperature | 10 °C to 40 °C (50 °F to 104 °F) |
| Temperature gradient | 10 °C/hr (18 °F/hr) |
| Relative humidity | 20% to 80% noncondensing |
| Elevation | 2438 m (8,000 ft) at 40 °C, 3077 m (10,000 ft) at 37 °C |

For systems mounted in a cabinet, the operating limits listed above must not be exceeded inside the closed cabinet. Equipment mounted directly above or below an AX150-Series storage system must not restrict the front to rear airflow of the storage system. The cooling airflow through the AX150 or AX150i storage system is approximately 45 cubic feet per minute and approximately 42 cubic feet per minute for the AX150SC or AX150SCi storage system. Cabinet doors must not impede the front to rear airflow. Exhaust temperatures will be about 12° C (21.6° F) above the intake temperatures.

If the storage system exceeds maximum ambient temperature by approximately 10°C/18°F, the storage processors will begin an orderly shutdown that saves cached data, shuts off the SPs, and powers down the disks.

3.1 Shipping and Storage

Table 6. Shipping and Storage Limits

| Requirement | Description |
|----------------------|------------------------------------|
| Ambient temperature | -40 °C to 65 °C (-40 °F to 149 °F) |
| Temperature gradient | 25 °C/hr (45 °F/hr) |
| Relative humidity | 10% to 90% noncondensing |
| Elevation | 7625 m (25,000 ft) |

4. Regulatory Information

Regulatory Notices Product Type(s) PAE2S, PAE2D, PAE2Si, PAE2Di

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Testing was done with shielded cables. Therefore, in order to comply with the FCC regulations, you must use shielded cables with your installation. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This Class A digital apparatus complies with Canadian ICES-003

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada

4.1 Manufacturers Declaration of Conformity – CE Mark

This equipment has been tested and found to comply with the requirements of European Community Council Directives 89/336/EEC, 73/23/EEC, and 98/68/EEC relating to electromagnetic compatibility and product safety respectively.

This product complies with EN55022, CISPR22 and AS/NZS 3548 Class A.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



기기의 명칭(모델명): Storage (PAE2D, PAE2Di, PAE2S, PAE2Si)
 인증받은 자의 상호: EMC Corporation
 제조년월일: 제품 상표를 보십시오
 제조자/제조국가: 제품 상표를 보십시오

4.2 Standards Certification and Compliance

Rackmount disk enclosures are tested and certified for compliance with the international environmental and safety specifications listed below and marked to indicate such compliance and certification as required.

4.2.1 Product Safety Compliance

UL60950 – CSA 60950(USA / Canada)
 EN60950 (Europe)
 IEC60950 (International)
 CB Certificate & Report, IEC60950 (report to include all country national deviations)
 GS License (Germany)
 GOST R 50377-92 - License (Russia)
 Belarus License (Belarus)
 Ukraine License (Ukraine)
 CE - Low Voltage Directive 73/23/EEE (Europe)
 IRAM Certification (Argentina)
 GB4943- CNCA Certification (China)

4.2.2 Product EMC Compliance – Class A Compliance

Note: Legally the product is required to comply with Class A emission requirements as it is intended for a commercial type market place. Intel targets 10db margin to Class A Limits

FCC /ICES-003 - Emissions (USA/Canada) Verification
 CISPR 22 – Emissions (International)
 EN55022 - Emissions (Europe)
 EN55024 - Immunity (Europe)
 EN61000-3-2 - Harmonics (Europe)
 EN61000-3-3 - Voltage Flicker (Europe)
 CE – EMC Directive 89/336/EEC (Europe)
 VCCI Emissions (Japan)
 AS/NZS 3548 Emissions (Australia / New Zealand)
 BSMI CNS13438 Emissions (Taiwan)

GOST R 29216-91 Emissions (Russia)
 GOST R 50628-95 Immunity (Russia)
 Belarus License (Belarus)
 Ukraine License (Ukraine)
 RRL MIC Notice No. 1997-41 (EMC) & 1997-42 (EMI) (Korea)
 GB 9254 - CNCA Certification (China)
 GB 17625 - (Harmonics) CNCA Certification (China)

4.2.3 Certifications / Registrations / Declarations

UL Certification (US/Canada)
 CE Declaration of Conformity (CENELEC Europe)
 FCC/ICES-003 Class A Attestation (USA/Canada)
 VCCI Certification (Japan)
 C-Tick Declaration of Conformity (Australia)
 MED Declaration of Conformity (New Zealand)
 BSMI Certification (Taiwan)
 GOST R Certification / License (Russia)
 Belarus Certification / License (Belarus)
 RRL Certification (Korea)
 IRAM Certification (Argentina)
 Ecology Declaration (International)
 GB4943- CNCA Certification (China)

4.3 RoHS

Intel has a system in place to restrict the use of banned substances in accordance with the European Directive 2002/95/EC. Compliance is based on declaration that materials banned in the RoHS Directive are either (1) below all applicable substance threshold limits or (2) an approved/pending RoHS exemption applies.

Note: RoHS implementing details are not fully defined and may change. Threshold limits and banned substances are noted below.

Quantity limit of 0.1% by mass (1000 PPM) for:

- Lead
- Mercury
- Hexavalent Chromium
- Polybrominated Biphenyls Diphenyl Ethers (PBDE)

Quantity limit of 0.01% by mass (100 PPM) for:

- Cadmium

4.4 EMI Standards

Table 7. EMI Standards

| Standard | Description |
|---------------------|---|
| CSA-C22.2 No. 60950 | Safety of Information Technology Equipment including Electrical |

| | |
|----------|---|
| EN 60950 | Business Equipment |
| UL 60950 | |
| CE Mark | European EMC Directive and Low Voltage Directive Requirements |

Table 8. EMI Standards

| Standard | Description |
|-------------------|--|
| FCC Part 15 | Class A, Radio Frequency Device Requirements |
| ICES-003 | Class A, Interference-Causing Equipments Standard – Digital Apparatus |
| CE Mark | European EMC Directive and Low Voltage Directive Requirements |
| VCCI | Class A, Voluntary Control Council for Interference |
| AS/NZS CISPR22 | Class A, Electromagnetic Interference – Limits and Methods of Measurement of ITE |
| CS13438 | BSMI EMC Requirements |

Appendix A: Spares and Accessories

Upgrade and Accessory Parts

Table 9. Intel® Storage System SSR212PP Upgrade and Accessory Parts

| Product Code | MM # | Qty. | Description |
|--------------|--------|------|-----------------------------------|
| APPHDD500 | 883650 | 1 | 500 GB drive module (single pack) |
| APPHDD250 | 883648 | 1 | 250 GB drive module (Single pack) |
| FPPCHASSIS | 883633 | 1 | Chassis assembly |
| FPPFCCASE | 883634 | 1 | Single fibre channel suitcase |

| | | | |
|------------|--------|---|--|
| FPPISCASE | 883635 | 1 | Single iSCSI suitcase |
| FPP2FCCASE | 883637 | 1 | Dual fibre channel suitcase |
| FPP2ISCASE | 883636 | 1 | Dual iSCSI suitcase |
| FPPCACHE | 883639 | 1 | Cache card assembly |
| FPPDIMM | 883638 | 1 | DIMM DDR, 512MB, PC2100, ECC, Samsung* P/N 116007453 |
| FPPSFAN | 883640 | 1 | System fan assembly |
| FPP300WPS | 883641 | 1 | Power supply module |
| FPPCPUFAN | 883642 | 1 | Processor fan assembly |
| FPPUPS120 | 883643 | 1 | UPS chassis 120v |
| FPPUPS100 | 883679 | 1 | UPS chassis 100v |
| FPPUPS230 | 883646 | 1 | UPS chassis 230v |
| FPPBEZEL | 883647 | 1 | Bezel assembly |
| FPPFILLER | 883649 | 1 | Hard disk drive filler |

Glossary

| Word / Acronym | Definition |
|-----------------------|--|
| A | Ampere |
| AC | Alternating Current |
| ACA | Australian Communication Authority |
| ACPI | Advanced Configuration and Power Interface |
| ANSI | American National Standards Institute |
| ATA | AT Attachment |
| BA | Decibel Average |

| | |
|--------|---|
| BMC | Baseboard Management Controller |
| BTU | British Thermal Units |
| C | Celsius |
| CF | Compact Flash® |
| CMOS | Complementary Metal Oxide Silicon |
| CPD | Component Data Sheet |
| D2D | DC-to-DC |
| dBA | Decibel Average |
| DDR | Double Data Rate |
| DIMM | Dual Inline Memory Module |
| DMA | Direct Memory Access |
| DOM | Disk On Module |
| ECC | Error Correcting Code |
| EEB | Entry-Level Electronics Bay |
| EEPROM | Electrical Erasable Programmable Read-Only Memory |
| EMC | Electro Magnetic Compatibility |
| EMP | Emergency Management Port |
| ESD | Electrostatic Discharge |
| FC | Fibre Channel |
| FE | Front End |
| FP | Front Panel |
| FRB | Fault Resilient Boot |
| FRU | Field Replaceable Unit |
| FW | Firmware |
| FWH | Firmware Hub |
| G | Giga (1.024 x 10 ⁹) |
| GB | Gigabyte |
| Gb/s | Gigabits per Second |

| | |
|-------|---|
| GHz | Gigahertz |
| HBA | Host Bus Adapter |
| HDD | Hard Disk Drive |
| HSBP | Hot Swap Backplane |
| Hz | Hertz |
| IBL | Intel Business Link |
| IC | Integrated Circuit |
| ICH | I/O Controller Hub |
| IDC | Internet Database Connector |
| IDE | Integrated Drive Electronics |
| IMM | Intel® Management Module |
| I/O | Input/Output |
| iSCSI | Internet Protocol Small Computer System Interface |
| ITE | Information Technology Equipment |
| K | Kilo (1.024 x 10 ³) |
| KB | Kilobyte |
| KV | Kilovolt |
| KHz | Kilohertz |
| LAN | Local Area Network |
| LED | Light-Emitting Diode |
| LPC | Low-Pin Count |
| MB | Megabyte |
| Mb/s | Megabits per second |
| MCH | Memory Controller Hub |
| MHz | Megahertz |
| mm | Millimeter |
| msec | Millisecond |
| MTBF | Mean Time Between Failure |
| MTTR | Mean Time to Repair |

| | |
|--------|---|
| NIC | Network Interface Card |
| OTP | Over-Temperature Protection |
| OVP | Over-Voltage Protection |
| PCI | Peripheral Component Interconnect |
| PDB | Power Distribution Board |
| PFC | Power Factor Correction |
| PIO | Programmed Input/Output |
| PLD | Programmable Logic Device |
| PSON | Power Supply On |
| PSU | Power Supply Unit |
| PWT | Processor Wind Tunnel |
| RAID | Redundant Array of Inexpensive Disks |
| RH | Relative Humidity |
| RI | Ring Indicate |
| SAN | Storage Area Network |
| SATA | Serial AT Attachment (aka., Serial ATA) |
| SCA | Single Connector Attachment |
| SCC | Storage Control Console |
| SDR | Sensor Data Record |
| SDRAM | Synchronous Dynamic Random Access Memory |
| SE | Single-Ended |
| SMBIOS | System Management Basic Input/Output System |
| SOIC | Small Outline Integrated Circuit |
| SP | Storage Processor |
| SRAM | Static Random Access Memory |
| SSI | Server System Infrastructure |
| TQFP | Thin Quad Flat Pack |
| TB | Terabyte |

| | |
|------|---|
| UART | Universal Asynchronous Receiver Transmitter |
| μF | Micro Farad (1 x 10 ⁻⁶ Farads) |
| μS | Micro Second (1 x 10 ⁻⁶ Second) |
| USB | Universal Serial Bus |
| V | Volt |
| VA | Volt-Amp |
| VCCI | Voluntary Control Council for Interference |
| VQFP | Very Thin Quad Flat Pack |
| VRM | Voltage Regulator Module |
| W | Watt |