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# Intel® Storage System SSR212MA

## Spares / Parts List & Configuration Guide

A reference guide to assist customers in ordering the necessary components to configure the Intel® Storage System SSR212MA

Rev 1.7  
Subject to Change

August 2006



# Change History:

<u>8/15/2005 Rev. 0.1:</u>	Initial Release
<u>9/13/2005 Rev. 0.2:</u>	Added Product Brief copy, added in MM#'s for base hardware & software upgrades
<u>9/16/2005 Rev. 0.5:</u>	Added UPCs, updated Product Brief copy, edited recommended memory section
<u>9/29/2005 Rev. 0.9:</u>	Updated MM#'s for software upgrade packs
<u>10/25/2005 Rev. 0.95:</u>	Corrected MM#'s for software upgrade packs & Jarrell2 baseboard
<u>10/28/2005 Rev. 0.96:</u>	Added North American SKU
<u>11/1/2005 Rev. 1.0:</u>	Final revision before product launch
<u>11/10/2005 Rev. 1.1:</u>	Corrected spares & accessories
<u>1/11/2006 Rev. 1.2:</u>	Updated MM# for SSR212MANA
<u>1/26/2006 Rev. 1.3:</u>	Changed product code for power supply. Old code is discontinued
<u>5/10/2006 Rev. 1.4:</u>	Changed product code for motherboard spare. Changed note on software keys. Changed some software key descriptions.
<u>5/31/2006 Rev 1.5:</u>	Removed DOM Spare
<u>6/28/2006 Rev 1.6:</u>	ROHS MM# changes
<u>8/25/2006 Rev 1.7:</u>	Changed MM# for NA sku to RoHS version. Updated power supply MM#

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## Production Configurations

### Base Unit Description

This section contains information needed to order and configure a production SSR212MA. The unit is shipped as a complete, fully integrated, system. The base system includes software, however there are optional software packages available to upgrade the functionality of the unit.

- 1) The SSR212MA storage system contains the following:

#### Hardware

- 1 x 2U system chassis (including SATA backplane, cooling module, power supply enclosure)
- 1 x 500 W power supply module
- 1 x Intel® Server Board SE7520JR2 (Jarrell)
- 2x Intel® PRO/1000 Network connections
- 1 x Intel Xeon™ Processor 2.8 GHz
- 2x Intel RAID Controller SRCS28X, w/ Battery Backup Units (BBU)
- 12 x Intel hard disk drive carriers (for use with Serial ATA drives)
- 12x hard disk drive labels
- 12x Serial ATA hard disk drive cable
- 1 x Disk On Module (DOM) containing the OS and SAN Application software
- 1x Rail Kit
- 1x Serial Configuration Cable
- 1x printed Quick Start Guide
- 1x Resource CD

#### Software

- SAN management software (installed on unit)
- Storage System Console (remote configuration and management tool)

- 2) The following optional software packages are offered as accessories for the SSR212MA base unit:

**Scalability Package:** allows clustering of multiple SSR212MA units

**Configurable Snapshot Package:** allows snapshots to be created automatically

**Remote Data Protection Package:** offers remote volume copy over IP networks

**IMPORTANT: Intel® Storage System SSR212MA memory upgrade guideline**

Intel® Storage System SSR212MA embedded operating system supports a maximum of 4 GB of system memory. See table below for recommended system memory based on drive quantities and drive capacity.

**Required minimum** (for functionality): 200 MB + 200 MB per 1 TB of raw disk capacity + 128 MB per RAID 5 array.

*Ex: for 12 x 500 GB HDDs and two RAID 5 arrays, memory requirements = 200 MB + (200 MB x 6.0) + 256 MB = 1.656 GB (or 2 GB)*

<b>Number of installed drives</b>	<b>Drive Capacity</b>	<b>RAID 5 Array</b>	<b>Minimum Required Memory</b>
6	250 GB	0	500 MB
6	250 GB	1	628 MB
6	500 GB	0	800 MB
6	500 GB	1	928 MB
12	250 GB	0	800 MB
12	250 GB	1	928 MB
12	250 GB	2	1056 MB
12	500 GB	0	1400 MB
12	500 GB	1	1528 MB
12	500 GB	2	1656 MB

Production System Codes

<b>Product Code</b>	<b>MM #</b>	<b>UPC</b>	<b>Description</b>
SSR212MA	883516	00735858177665	Production SSR212MA unit. Each unit is sold separately.
SSR212MANA	883545	00735858180429	Production SSR212MA unit, with North American power cord.

Production Optional Software Accessories

<b>Product Code</b>	<b>MM #</b>	<b>UPC</b>	<b>Description</b>
AMASWSC **	877841	00735858179577	Scalability Package upgrade for the SSR212MA. Allows multiple SSR212MA units to pool storage and connectivity resources. A separate key must be purchased for each SSR212MA unit in the cluster.
AMASWSN **	877845	00735858179591	Configurable Snapshot Package upgrade for the SSR212MA. Allows snapshots to be created automatically and the physical size of a snapshot to be changed. A separate key must be purchased for each SSR212MA unit in the cluster.
AMASWRM **	877846	00735858179607	Remote Data Protection Package upgrade for the SSR212MA. Allows for volumes to be copied to a remote SSR212MA unit over an IP network. A separate key must be purchased for each SSR212MA unit in both the local and remote clusters.

\*\* Package is pre-installed on the base production SSR212MA and may be used for a 30 day trial period. For continued usage, software upgrade packages must be purchased and software key must be entered into each system individually via the Storage System Console. Keys are purchased on a 1-for-1 basis, one key must be purchased for each machine for each upgrade function.

#### Production Hardware Spares (Field Replaceable Units)

Product Code	MM #	UPC	Description
FXSCABLES	873826	00735858177702	Cable Kit, including: 3 SATA (4 port) gang cables, 1 SMBus cable, 1 microswitch assembly (power & reset switches), 1 RJ45-DB9 Serial Cable.
FXSCHASSIS	884609	00735858177719	Chassis FRU, including Backplane, interposer and front panel boards, along with power supply cage.
FXSDRVCARR	873884	00735858177726	12 pack HDD Carrier, along with 1 torx driver and HDD label set.
FXSIPOSER	873885	00735858177733	Interposer board (connects Fan to backplane) and installation guide.
FXSRAIL	874323	00735858177771	Rail Kit (1 pair) plus Installation Guide.
FXSPSCAGE	884025	00735858177757	Power Supply cage with Installation Guide.
FXSFANTRAY	873921	00735858177764	Cooling module sub-assembly. Fan tray assembly (5 fans and distribution board) and Installation Guide.
FXSPKG	873922	00735858177788	Packaging - exterior box assembly including foam cushions.

#### Existing Production Spares & Accessories

Product Code	MM #	UPC	Description
SE7520JR2ATAD2	876355	00735858167376	Intel Server Board SE7520JR2 Boxed Board - DDR2 SATA (min order quantity = 5)
SRCS28X	866296	00735858171625	Intel RAID Controller SRCS28X (two ship with each SSR212MA system).
AXXRIBBU1	867464	00735858171649	Intel RAID Controller SRCS28X battery backup unit (two ship with each SSR212MA system).
TLPACPSU002	880162	00735858160759	Single 500W power supply module (one ships with each SSR212MA system).
ADRACTRIS	856546	00735858165037	3 slot active PCI-X riser card for add-in cards (RAID controllers or expansion card). One ships with each SSR212MA system.
AXXIMMPRO	865783	00735858167086	Intel Management Module (Professional Edition).

#### NOTES:

- 1) Unless noted otherwise, all items are individually orderable.
- 2) Reference base unit description (page 3) to determine components that initially ship with the SSR212MA system.

## Product Brief Copy

### Intel® Storage System SSR212MA

The Intel® Storage System SSR212MA offers a flexible, scalable and cost-effective Storage Area Network (SAN) system designed for easy deployment and future growth.

#### Easy-Attach, Low-Cost SAN Storage

Businesses today are inundated with data, from existing applications such as e-mail and digital photography, to emerging rich-media applications such as digital video recorders (DVRs). This influx of data has resulted in an increasing need for storage. Also, growing government regulatory requirements and corporate business continuity and disaster recovery plans are adding to the explosive growth of storage needs. According to the results of an Info-Tech survey of more than 1400 IT decision makers in mid-sized companies, overall spending on data storage will increase by 35 percent in 2005.<sup>1</sup> Storage Area Networks (SANs) offer highly scalable, efficiently accessible storage, as well as superior data management and added protection. However, high equipment and operational costs associated with Fibre Channel technology have put SANs beyond the budgetary reach of most small- and mid-sized companies. Today, the total cost of ownership (TCO) equation is changing. IP (Internet Protocol) SAN systems such as the Intel® Storage System SSR212MA use the emerging iSCSI standard for data transport over existing ethernet infrastructures. With industry-standard hardware architectures and simple new SAN management tools to further lower the cost of SAN systems, IP SANs are now within reach of most companies. Featuring dual Intel® Xeon™ processors, support for up to 16 SATA hard drives, iSCSI or optional Fibre Channel connectivity, and intuitive SAN management tools, the Intel Storage System SSR212MA provides easy management of storage resources with the built-in headroom to accommodate an IT administrator's rapidly growing storage needs.

#### Simplify Deployment and Administration

The Intel Storage System SSR212MA comes standard with a full lineup of compelling software features that simplify storage management and lower administrative costs. From a central console, you can configure and manage your SAN system using an intuitive graphical interface. You'll be able to configure and provision volumes quickly without system downtime, make incremental copies of data volumes and authenticate users for improved data security.

#### Lower Storage Costs

The Intel Storage System SSR212MA features Serial ATA (SATA) disk technology, which costs less than Fibre Channel or SCSI drives and also simplifies cabling. SATA storage combines software transparency, low cost, and scalability to help lower purchase and upgrade costs of SAN storage.

#### Manage Storage Across Multiple Sites

Optional features allow you to extend the capacity and performance of the Intel Storage System SSR212MA and provide business continuity by adding an additional layer of protection from natural disasters and outages affecting an entire site. You can cluster and manage multiple Intel® Storage Systems as a single virtualized storage pool, delivering higher availability with failover and load-balancing capabilities.

## Features and Benefits

Features	Benefits
Fully integrated, feature-rich SAN management software	Simplify SAN management by remotely configuring, provisioning, and managing data volumes.
Optional SAN management software features	Further extend the capacity and performance of your SAN by using optional management software to link multiple Intel Storage Systems, simplify back-up, and share storage across multiple sites.
Support for iSCSI connectivity	Provides connectivity into existing IP infrastructures.

Support for up to 12 hot-swappable 1.5 or 3.0 Gb/s SATA drives in a 2U form factor.	Easily add up to 6TB of raw storage (with 500GB HDDs) without system downtime for future storage capacity needs. SATA drives currently provide higher capacity at a lower cost than SCSI or Fibre Channel drives.
Support for RAID 0, 1, 5, 10 or 50.	Flexibility for optimizing performance and fault tolerance.
Intel® Xeon™ Processor	Processing performance to meet the demanding needs of storage virtualization.
Solid state Disk on Module (DOM) boot device, containing SAN management software .	Provides redundancy capability for SAN management software.

## SAN Management Software Overview

Base SAN Management Software	
<b>Storage Server Console (SSC)</b>	<ul style="list-style-type: none"> <li>• Easy to use graphical interface for Windows* and Linux.</li> <li>• Intuitive management console for configuration, auto-discovery, and remote diagnostics.</li> </ul>
<b>Volume Management &amp; Provisioning</b>	<ul style="list-style-type: none"> <li>• Ability to configure and provision volumes quickly without taking the system or existing volumes offline.</li> <li>• Manage disk volumes in real-time, including size and accessibility.</li> <li>• Ability to dynamically increase capacity of available storage pool.</li> </ul>
<b>Over Subscription</b>	<ul style="list-style-type: none"> <li>• Allows volume provisioning in excess of actual physical capacity.</li> <li>• Saves upfront disk investment until additional capacity is actually required.</li> </ul>
<b>Snapshots</b>	<ul style="list-style-type: none"> <li>• Ability to manually make single or multiple copies of data volumes.</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Provides authentication for secure access to data volumes using CHAP w/ iSCSI connectivity.</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• SAN Management application runs under a storage optimized Linux kernel.</li> <li>• Complete O/S and application is contained on redundant Disk on Memory (DOM).</li> </ul>

Optional SAN Management Software Features	
<b>Scalability Package</b>	<ul style="list-style-type: none"> <li>• Multi-node virtualization which allows a group of SAN systems to act as a single storage pool.</li> <li>• Load-balancing / pooling allows for resource sharing between the storage from all SAN systems in the cluster.</li> <li>• Replication enables data to be split among all systems in a group in redundant and non-redundant configurations.</li> </ul>
<b>Configurable Snapshot Package</b>	<ul style="list-style-type: none"> <li>• Ability to automate process of scheduling volume snapshot copies (base software only offers manual snapshot capability).</li> <li>• Allows dynamic snapshot sizing to capture only incremental changes between snapshots to optimize disk utilization.</li> </ul>
<b>Remote Data Protection Package</b>	<ul style="list-style-type: none"> <li>• Asynchronous remote copy feature that allows for snapshots to be taken between multiple sites (over LAN or WAN) for disaster recovery.</li> </ul>

## Hardware Specifications

<b>Raw Storage Capacity</b>	Expandable to 3.0 TB – using twelve 250 GB drives. Expandable to 4.8 TB – using twelve 400 GB drives. Expandable to 6.0 TB – using twelve 500 GB drives.
<b>Drive Bays</b>	12 Serial ATA (SATA) Hot Pluggable.
<b>Hard Disk Drive Supported</b>	3.5" SATA . <b>NOTE: For specific drive family and capacities supported, please refer to the <i>SSR212MA Tested Hardware and OS List (THOL)</i>.</b>
<b>Processor</b>	Intel® Xeon™ processor 2.80 GHz with 1 MB L2 cache.
<b>Memory Capacity</b>	Expandable to 16 GB maximum.  <b>NOTE: Please see memory expansion recommendations in section 1.2 of the <i>Intel Storage System SSR212MA Technical Product Specification</i>.</b>
<b>Memory Type</b>	Synchronous Dynamic Random Access Memory (SDRAM), DDR2-400, Registered, ECC.
<b>DIMM Slots</b>	Six 184-pin DIMM sockets.
<b>Enclosure Controller</b>	On-board Vitesse* VSC055 micro-controller .
<b>Temperature Sensor</b>	Two temperature sensors are located on the backplane that allows drive cage temperature monitoring by enclosure management.
<b>SAF-TE Support</b>	The backplane firmware complies with version 1.00, rev 041497, of the SAF-TE specification.
<b>SATA Compliance</b>	SATA 1.5 Gb/s, 3.0 Gb/s.
<b>Client Connectivity</b>	Client Connectivity via Internet Protocol Small Computer System Interface (iSCSI) Dual GB Ethernet.
<b>Serial Port</b>	Management console port.
<b>Front Panel</b>	
<b>LEDs</b>	Fault, ID, Power.
<b>Back Panel</b>	
<b>Buttons and Switches</b>	Power button, Reset button.
<b>I/O Connectors</b>	1x RJ-45 COM B Serial port, 2x RJ-45 Ethernet ports.
<b>Power Receptacle</b>	1x IEC AC per installed power supply module.
<b>Chassis</b>	
<b>Form Factor</b>	2U rack-mount chassis.
<b>Height</b>	86.7 mm, 3.41".
<b>Width</b>	447 mm, 17.6".
<b>Depth</b>	631 mm, 24.8".
<b>Weight</b>	As shipped (zero drives): approximately 16 kg, 35.2 pounds. Fully configured (twelve drives): approximately 27.5 kg, 61 pounds. Shipping container: 3.2 kg, 7 pounds.
<b>Color</b>	Black.
<b>Rack Support</b>	Rail mount, compatible with four-post rack mount only.



<b>System Cooling</b>	
<b>Fans</b>	Chassis includes four dual rotor 40 millimeter (mm) hot-swappable redundant system fans for cooling the hard drives, baseboard and SATA Host Bus Adapter (HBA) cards.  Power supply enclosure contains a 60 mm fan for cooling and runs whenever AC power is applied.
<b>Power</b>	
<b>Configuration</b>	500 W continuous, 1+1 redundant power supplies. Intel Storage System SSR212MA ships with one 500W power supply.
<b>Max AC input current</b>	7.2 Amperes at 110 Vrms, 3.5 A at 220 Vrms (each power supply).
<b>Max +12 V output1 current</b>	20.0 A (28.6 A max combined).
<b>Max +12 V output2 current</b>	20.0 A (28.6 A max combined).
<b>Max +12 V output3 current</b>	20.0 A (28.6 A max combined).
<b>Max -12 V output current</b>	0.5 A (each power supply).
<b>Max +5V Standby output current</b>	2.0 A
<b>Environment</b>	
<b>Ambient Temperature</b>	Operating (system): 10 °C to +35 °C, with maximum change not to exceed 10 °C ; non-operating (system): -40 °C to +70 °C.
<b>Relative Humidity</b>	Non-operating: 90% @ 35°C non-condensing.
<b>Acoustics</b>	<59 Decibel Average (dBA) (rack-mount) in an idle state in an normal office environment (23 °C).
<b>Electrostatic Discharge</b>	15 KV per Intel test specification.
<b>Safety Compliance</b>	
<b>Argentina</b>	IRAM
<b>Canada</b>	UL60950 – CSA (60950 (UL and cUL)
<b>Europe, CE Mark</b>	EN60950 (complies with 73/23/EEC)
<b>Germany</b>	GS License
<b>International</b>	IEC60950 (CB Report and Certificate)
<b>Nordic Countries</b>	EMKO-TSE (74-SEC) 207/94
<b>Russia</b>	GOST 50377-92
<b>United States</b>	UL– 60950 – CSA 60950 (UL and cUL)
<b>China</b>	GB4943- CNCA Certification
<b>Electromagnetic Capability (Class A) (EMC)</b>	
<b>Australia/New Zealand</b>	AS/NZS 3548 (based on CISPR 22)
<b>Canada</b>	ICES-003
<b>Europe, CE Mark</b>	EN55022; EN55024 & EN61000-3-2;-3-3 (complies with 89/336/EEC)
<b>International</b>	CISPR 22
<b>Japan</b>	VCCI

<b>Korea</b>	RRL, MIC 1997-41 & 1997-42
<b>Russia</b>	GOST 29216-91 & 50628-95
<b>Taiwan</b>	CNS13438
<b>United States</b>	FCC, Part 15
<b>China</b>	GB 9254 - CNCA Certification (China) GB 17625 - (Harmonics) CNCA Certification (China)

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