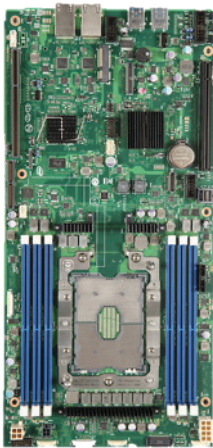## PRODUCT BRIEF

High Performance Computing (HPC) and Data Analytics
Intel® Server Board S7200AP Product Family featuring a bootable
Intel® Xeon Phi™ processor and Intel® Omni-Path Architecture

(intel®)

High Performance for Parallelized Workflows with Easy Serviceability and High Availability

Peak Performance and Efficiency for Parallelized Workflows

The Intel® Server Board S7200AP family is a purpose-built, single socket, half-width board ideal for HPC workloads demanding a high level of parallel compute processing performance. This product family features support for bootable Intel® Xeon Phi™ processors with 6 DIMMs (1DPC), up to 72 cores, and optional support for Intel® Omni-Path Architecture for up to 100 Gb/s of node interconnect throughput. Supported by a 2U/4 node chassis, S7200AP features easy serviceability and high availability, with hot-swappable compute modules, 2.5" or 3.5" drive bays, and redundant 2130 W power supply modules.

Purpose built for HPC with Flexible I/O and Storage Options

- Featuring Intel® Xeon Phi™ product family

- Supports Intel® Omni-Path Architecture via integrated silicon (-F processor) or PCIe*-based Add-In-Card

- Up to six DDR4-2400 Registered ECC memory modules (RDIMM/LRDIMM) for maximum 384 GB capacity

- Two PCIe Gen 3 x16 low profile slots, two USB 3.0 ports, four SATA Ports and mSATA port connector

- Dual 1 GbE Base-T ports for network and manageability

- Optional 2U/4 node chassis with dual 2130 W power supplies

Delivering the Power of Intel® Xeon Phi™ Processors and Intel® Omni-Path Architecture

Intel® Xeon Phi™ processors offer the ability to deploy Intel's next-generation fabric, Intel® Omni-Path Architecture, as a standard, integrated option. This combination provides the foundation for powerful and efficient data traffic control by using an advanced "on-load" design that cost-effectively maximizes performance. Intel® Omni-Path Architecture automatically scales to tens of thousands of nodes with extremely low power consumption, making the solution ideal for increasingly demanding high performance computing (HPC) and analytics workloads.

Accelerate Time to Marketing with HPC Solutions

The process of configuring and validating the foundational components of an HPC solution that is tuned to meet specific customer requirements is a complex and resource intensive process. To help address these challenges, the S7200AP boards and compute modules are also available in unbranded, pre-integrated, fully-validated Intel® Data Center Blocks for HPC that are based on Intel's latest data center technologies.

Already optimized to work better together, these S7200AP-based Data Center Blocks embody the Intel® Scalable System Framework—a flexible blueprint for developing high performance, efficient and reliable HPC systems—and help speed time to market for innovative HPC solutions. Available in build-to-order configurations, partners can take advantage of Intel's engineering and validation expertise to build HPC solutions faster and with a lower total cost of ownership.

Mix and Match: Build Your Own Rack

- 1U and 2U Rack form factors

- Intel® Server Board S2600WF-based systems

- Intel® Server Board S2600BP-based systems

- Intel® Server Board S7200AP-based systems

- Intel® Server Board S2600WT-based systems

- Intel® Server Board S2600KP-based systems

- Intel® Server Board S2600TP-based systems

- Intel® Xeon® processor family

- Intel® Xeon Phi™ processor family

- Intel® Omni-Path Architecture

- Intel® Ethernet Products and Intel® RAID Products

- Intel® Server Products hardware and accessories from supported families

Verify Authenticity with Intel® Transparent Supply Chain

To address customer security concerns and guard against counterfeiting and malware, the S7200AP family features the Intel Transparent Supply Chain which enables the ability to verify the authenticity of board components and firmware.

Features include:

- Digitally signed statement of conformance

- Platform Certificates provided with a secured Trusted Platform Module (TPM)

- Server component data tracked and saved for 20 years

- Firmware load verification

Built with Intel Quality, Reliability andPerformance

Intel® Server Products are backed by Intel's design excellence and manufacturing expertise to deliver processing power with high levels of flexibility, manageability and reliability. Product and design quality is paired with 3-year standard warranties and robust technical and incident resolution support to ensure customer satisfaction.
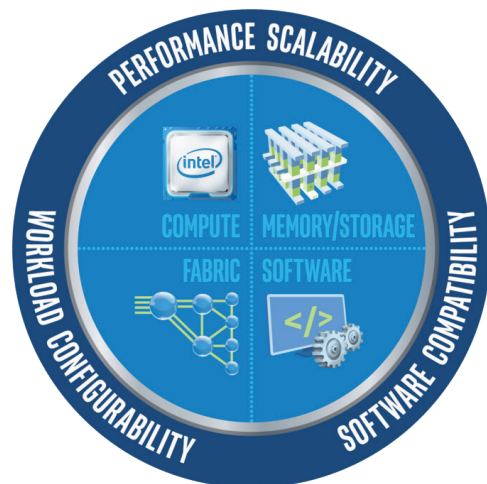

Fig.1. Intel® Scalable System Framework provides flexible support for the full range of HPC workloads, so integrating AI with other business and technical applications is simpler, cost models are improved, and there is reduced need to move large data sets from one specialized system to another.

INTEL® SERVER BOARD S7200AP FAMILY

SERVER BOARD SPECIFICATION	DETAILS	
	Intel® Server Board S7200AP	**Intel® Server Board S7200APR**
Processor Support	Bootable Intel® Xeon Phi™ processor x200 & x205 Single processor socket P (3647 pins) 36 lanes of Integrated PCIe* Gen 3 low-latency I/O OR Bootable Intel® Xeon Phi™ processor x200 with Host Fabric Interface Single processor socket P (3647 pins) Integrated 100 Gb/s Host Fabric Interface 4x lanes of Integrated PCIe* Gen 3 low-latency I/O	
Maximum Processor TDP	230 W	320 W
Chipset	Intel® C610 Series Chipset Platform Controller Hub (PCH)	
Memory Support	Six DIMM slots in total across six memory channels Registered DDR4 (RDIMM), Load Reduced DDR4 (LRDIMM) Memory DDR4 data transfer rates of 2400 MT/s 1 DIMM per channel Max memory 384 GB using 64 GB DIMMs	
External I/O Connectors	Two USB 3.0 ports on rear Two RJ-45 10/100/1000 Mbit Network Interface Controller (NIC) ports	
Internal I/O Connectors/ headers	One USB 2.0 header One TPM header One Intel® Omni-Path Architecture Misc. signal connector One mSATA connector (Board SKU only) One bridge Board Connector One 2x7 pin header for system fan module One Aux front panel connector Three 8-pin fan headers for third party chassis support One 4-pin CPU fan or liquid cooling pump support header One PSU control header One header for Intel® RMM4 Lite One RGMII header for 3rd party use One RGB video header One Serial Port A header	
PCIe* support	PCIe* Gen 3 (2.5, 5, 8 GT/s)	
Power Connections	2x2 and 2x4 power connectors One 8-pin power control connector One 4-pin power connector for disk drive support	
System fan support	Three 40x56 mm double rotor fans One 4-pin CPU fan or water pump header	
Video	Integrated 2D video graphics controller 128 MB DDR3 memory	
Riser support	One PCIe* Gen 3 x16 standard riser connector: Supports a low profile adapter in riser slot 1 One PCIe* Gen 3 x20 HSEC-8 fine pitch riser connector: When using x200 or x205, supports a x16 low-profile adapter in riser slot 2; when using x200 with Host Fabric Interface, supports a x4 low-profile adapter in riser slot 2	
One-board storage controllers and options	Integrated 10-port SATA 5x ports to bridge board 1x port to mSATA (Board SKU only) 4x ports to MiniSAS HD connector	
Fabric	Dual port Intel® Omni-Path Architecture via x200 with Host Fabric Interface processor OR Single port Intel® Omni-Path Architecture via x16 Gen 3 PCIe* adapter	
Network (LAN)	Dual i210 Springville Dual 10/100/1000MbE RJ45 connectors NC_SI sideband to BMC. Option to host share or dedicate a network port to management traffic	
Server Management	Onboard Emulex* Pilot III* Controller Support for Intel® Remote Management Module 4 Lite solutions Support for Intel® System Management Software Support for Intel® Intelligent Power Node Manager (Need PMBus*-compliant power supply)	
Security	Trusted Platform Module (TPM) 1.2/2.0 Compliant	
Board Form Factor	Length 14.17" (360 mm), width 6.81" (173 mm)	

INTEL® COMPUTE MODULE HNS7200AP FAMILY

COMPUTE MODULE SPECIFICATIONS	DETAILS		
	Intel® Compute Module HNS7200APR	**Intel® Compute Module HNS7200APRL**	**Intel® Compute Module HNS7200AP**
Server Board	Intel® Server Board S7200APR	Intel® Server Board S7200APR	Intel® Server Board S7200AP
Processor Support	Bootable Intel® Xeon Phi™ processor x200 & x205 OR Bootable Intel® Xeon Phi™ processor x200 with Host Fabric Interface		
Cooling	One 80x107 mm 1U Heatsink	One Liquid Assisted Air Cooling (LAAC) Unit	One 80x107 mm 1U Heatsink
Fans	Three 40x56 mm dual rotor system fans		
Riser Support	One PCIe* Gen 3 x16 standard riser connector Supports a low-profile adapter in Riser slot 1 One PCIe* Gen 3 x20 HSEC-8 fine-pitch riser connector Supports a x16 low-profile adapter in Riser slot 2 when x200 or x205 are used Supports a x4 low-profile adapter in Riser slot 2 when x200 with Host Fabric Interface is used		
Compute Module Board	Bridge Boards: 6G SATA Bridge Board (default) One compute module power docking board		
Air Duct	One transparent air duct		
Form Factor	Length 14.17" (360 mm), width 6.81" (173mm)		

INTEL® SERVER CHASSIS H2000 FAMILY

2U CHASSIS ;SPECIFICATIONS	DETAILS		
	Intel® Server Chassis H2204XXLRE	**Intel® Server Chassis H2216XXLR2**	**Intel® Server Chassis H2312XXLR2**
Intel® Compute Module Support	HNS7200APR HNS7200APRL	HNS7200AP	HNS7200AP
Form Factor	2U, 4 node rack chassis		
Dimensions	3.46" x 17.24" x 30.35" 88 mm x 438 mm x 771 mm	3.42" x 17.24" x 28.86" 87 mm x 438 mm x 733 mm	3.46" x 17.24" x 30.35" 88 mm x 438 mm x 771 mm
I/O Support	(8) I/O PCIe* x16 LP cards		
Storage – SATA Hot-swap	4x 2.5" drives	16x 2.5" drives	12x 3.5" drives
2U Power Supply	(2) 2130 W (@240 VAC) Redundant 80Plus Platinum efficiency PSUs included		
2U Fans	(6) managed hot swap system fans		

INTEL® TRANSPARENT SUPPLY CHAIN	DETAILS
Includes Statement of Conformance	Yes
Includes Platform Certificate	Yes
TPM Version	2.0

INTEL® SERVER BOARD S7200AP PRODUCT FAMILY ORDER CODES FOR APR

ORDER CODE	TYPE	MM NUMBER	DESCRIPTION
S7200APR	Server Board	959387	Intel® Server Board S7200APR
HNS7200APR	Compute Module	959388	Intel® Compute Module HNS7200APR
HNS7200APRL	Compute Module	959389	Intel® Compute Module HNS7200APR with liquid-assisted air cooling
H2204XXLRE	Server Chassis	957322	Intel® Server Chassis H2000P supporting 4x drives (2.5" held in 3.5" carriers); 2x 2130 W redundant power supplies included
AXX2PFABKIT	Fabric Upgrade Kit	945579	Intel IFT Carrier Fabric Upgrade Kit (required for processors with integrated fabric)

INTEL® SERVER BOARD S7200AP PRODUCT FAMILY ORDER CODES FOR AP

ORDER CODE	TYPE	MM NUMBER	DESCRIPTION
S7200AP	Server Board	942367	Intel® Server Board S7200AP
S7200APL	Server Board	950090	Intel® Server Board S7200AP, liquid-cooling-friendly
HNS7200AP	Compute Module	942355	Intel® Compute Module HNS7200AP
HNS7200APL	Compute Module	950091	Intel® Compute Module HNS7200AP, liquid-cooling-friendly
H2312XXLR2	Server Chassis	942352	Intel® Server Chassis H2000G supporting 12x 3.5" drives; 2x 2130 W redundant power supplies included
H2216XXLR2	Server Chassis	942353	Intel® Server Chassis H2000G supporting 16x 3.5" drives; 2x 2130 W redundant power supplies included
AXX2PFABKIT	Fabric Upgrade Kit	945579	Intel IFT Carrier Fabric Upgrade Kit (required for processors with integrated fabric)

See Configuration Guide for Accessory Kit and Spare Order Codes

For more information on Intel® Server Products and Solutions visit: intel.com/serverproducts

For product specifications visit: ark.intel.com

Product does not include memory, processors, or hard drives. For compatibility information please refer to the configuration guide at www.intel.com/support.