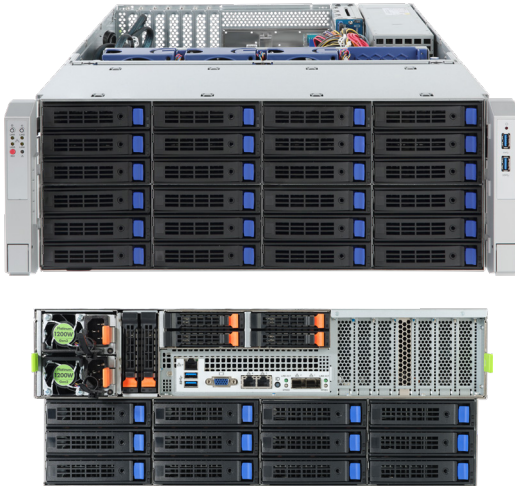


S451-3R1

Storage Server - 4U 42-Bay Dual Processors



Features

- 2nd Gen. Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- 2 x 10Gb/s SFP+ and 2 x 1Gb/s LAN ports
- 1 x dedicated management port
- 36 x 3.5" SATA/SAS hot-swap HDD/ SSD bays
- 6 x 2.5" SATA/SAS/NVMe hybrid hot-swap bays
- SAS expander with 12Gb/s transfer speed
- 3 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply

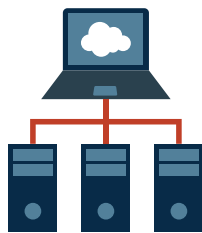
Intel® Xeon® Scalable Family Processors

GIGABYTE's Intel® Xeon® Scalable Processor family servers are available in dual socket configurations, and are compatible with the full family of different SKUs (Bronze, Silver, Gold and Platinum) that are workload optimized to support different applications, from enterprise IT database, cloud and storage to the most high-demand HPC workloads.



Intel® Optane™ DC Persistent Memory Ready

GIGABYTE's 2nd Gen. Intel® Xeon® Scalable family servers come ready to support Intel Optane DC Persistent Memory, a revolutionary new product that re-defines traditional memory & storage architectures by enabling a large persistent memory tier between DRAM and SSDs, that's higher capacity than DRAM and faster than SSDs, enabling the user to bring more data closer to the CPU for faster time for insight.



Easy, Flexible & Powerful Storage Deployment

The S451-3R1 offers the following advantages to your storage deployment:

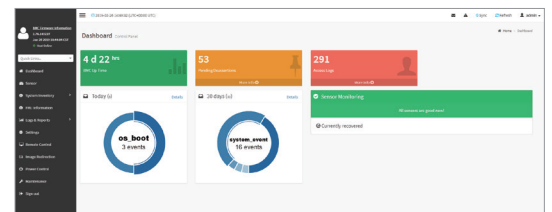
- x86 architecture means compatibility with a large variety of SDS (Software Defined Storage) platforms & applications
- 36 x 3.5" SATA / SAS drive bays for large scale out capacity, over 500TB raw capacity per server
- Rear 6 x 2.5" NVMe / hybrid drive bays for caching to improve I/O performance

GIGABYTE has also validated and created reference architectures for our products with various open source software defined storage systems to help make your deployment even faster and easier.

GIGABYTE Management Console (AMI MegaRAC SP-X)

This GIGABYTE server product utilizes a AMI MegaRAC SP-X platform for BMC server management, with a feature rich and easy to use browser-based graphical user interface.

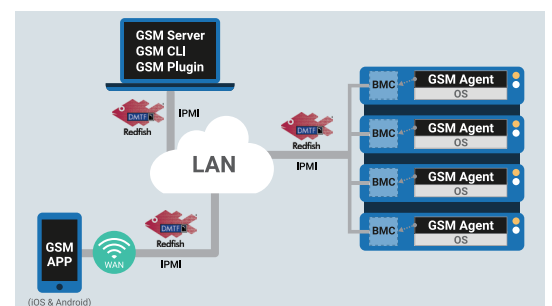
- **RESTful API support** (including the latest DMTF standards of Redfish) allows the administrator to integrate with 3rd party applications for server management
- **HTML5-based iKVM** remote management client included as a standard feature, no additional add-on license required to purchase
- **Detailed FRU information** from SMBIOS
- **Pre-event automatic video recording** feature from 10 to 30 seconds
- **SAS / RAID controller monitoring** feature



GIGABYTE Server Management (GSM)

GIGABYTE Server Management (GSM) is GIGABYTE's proprietary multiple server remote management software platform, available as a free download from each GIGABYTE server product page. GSM is compatible with either IPMI or Redfish (RESTful API) connection interfaces, and comprises the following sub-programs:

- **GSM Server** • **GSM CLI** • **GSM Agent** • **GSM Mobile** • **GSM Plugin**



Specification

Dimensions (WxHxD)	4U 482.6 x 177 x 625 mm	Power Supply	2 x 80 PLUS Platinum 1200W redundant PSUs AC Input: - 100-240V~/ 12-7A, 50-60Hz DC Input: - 240Vdc/ 6A DC Output: - Max 1000W/ 100-240V~ +12V/ 80.5A +12Vsb/ 3A - Max 1200W/ 200-240V~ or 240Vdc input +12V/ 97A +12Vsb/ 3A
Motherboard	MD61-SC2	System Management	Aspeed® AST2500 management controller GIGABYTE Management Console (AMI MegaRAC SP-X) Dashboard JAVA Based Serial Over LAN HTML5 KVM Sensor Monitor (Voltage, RPM, Temperature, CPU Status ...etc.) Sensor Reading History Data FRU Information SEL Log in Linear Storage / Circular Storage Policy Hardware Inventory Fan Profile System Firewall Power Consumption Power Control LDAP / AD / RADIUS Support Backup & Restore Configuration Remote BIOS/BMC/CPLD Update Event Log Filter User Management Media Redirection Settings PAM Order Settings SSL Settings SMTP Settings
CPU	2nd Generation Intel® Xeon® Scalable Processors Intel® Xeon® Scalable Processors Intel® Xeon® Platinum Processor, Intel® Xeon® Gold Processor, Intel® Xeon® Silver Processor and Intel® Xeon® Bronze Processor NOTE: If only 1 CPU is installed, some PCIe or memory functions might be unavailable	OS Compatibility	For Cascade Lake processors: Windows Server 2012 R2 with Update Windows Server 2016 Windows Server 2019 Red Hat Enterprise Linux 7.6 (x64) or later Red Hat Enterprise Linux 8.0 (x64) or later SUSE Linux Enterprise Server 12.3 (x64) or later SUSE Linux Enterprise Server 15 (x64) or later Ubuntu 18.04 LTS (x64) or later VMware ESXi 6.0 Update3 or later VMware ESXi 6.5 Update2 or later VMware ESXi 6.7 Update1 or later Citrix XenServer 7.1.0 CU2 or later Citrix XenServer 7.5.0 or later Citrix Hypervisor 8.0.0 or later
Socket	2 x LGA 3647, Socket P CPU TDP up to 165W	Weight	Net Weight: 30kg / Gross Weight: 55 kg
Chipset	Intel® C621 Express Chipset	System Fans	4 x 80x80x38mm (16,300rpm)
Memory	16 x DIMM slots DDR4 memory supported only 6-channel memory per processor architecture RDIMM modules up to 64GB supported LRDIMM modules up to 128GB supported Supports Intel® Optane™ DC Persistent Memory (DCPMM) 1.2V modules: 2933(1DPC)/2666/2400/2133 MHz NOTE: 1. 2933MHz for 2nd Generation Intel® Xeon® Scalable Processors only 2. Intel® Optane™ DC Persistent Memory for 2nd Generation Intel® Xeon® Scalable Processors only 3. The maximum number of DCPMM that can be installed is based on a maximum operating (ambient) temperature of 35°C 4. To enquire about installing a greater number of DCPMM, please consult with your GIGABYTE technical or sales representative	Operating Properties	Operating temperature: 10°C to 35°C Operating humidity: 8%-80% (non-condensing) Non-operating temperature: -40°C to 60°C Non-operating humidity: 20%-95% (non-condensing)
LAN	2 x 10Gb/s SFP+ LAN ports (QLogic® QL41102) 2 x 1Gb/s LAN ports 1 x 10/100/1000 management LAN	Packaging Dimensions	843 x 610 x 290 mm
Video	Integrated in Aspeed® AST2500 2D Video Graphic Adapter with PCIe bus interface 1920x1200@60Hz 32bpp, DDR4 SDRAM	Packaging Content	1 x S451-3R1, 2 x CPU heatsinks, 1 x Rail kit, 1 x VROC module, 2 x Non-Fabric CPU carrier
Storage	Front: 24 x 3.5" or 2.5" SATA/SAS hot-swap HDD/SSD bays Rear: 12 x 3.5" or 2.5" SATA/SAS hot-swap HDD/SSD bays 6 x 2.5" SATA/SAS/NVMe hybrid hot-swap SSD bays Default supports: 6 x SATA/SAS/NVMe drives in rear side 2 x Broadcom 12Gb/s expanders Bandwidth: SATAIII 6Gb/s or SAS 12Gb/s per port SAS card is required to enable the drive bays Suggested 12Gb/s SAS cards: CRA4648, CSA4648	Part Numbers	Barebone package: 6NS4513R1MR-00 - Motherboard: 9MD61SC2NR-00 - VROC module: 25FD0-R181N0-10R - 4-port NVMe card : 9CNV3124NR-00 - Rail kit: 25HB2-3A6104-I0R - CPU heatsink: 25ST1-253105-F2R - 1200W power supply: 25EP0-212003-D0S
SATA	2 x 7-pin SATA III 6Gb/s with SATA DOM supported		
SAS	Depends on SAS add-on Card		
RAID	For NVMe drives: Intel® Virtual RAID On CPU (VROC) RAID 0, 1, 10, 5 Note: VROC module is compatible for Intel®SSD only		
Expansion Slots	Slot_7 (PCIe_4): 1 x PCIe x16 (Gen3 x16) slot from CPU_1, Occupied by CNV3124, 4 x NVMe ports Slot_6 (PCIe_3): 1 x PCIe x16 (Gen3 x16) slot from CPU_1 Slot_5 (PCIe_2): 1 x PCIe x16 (Gen3 x16) slot from CPU_1 Slot_4 (PCIe_1): 1 x PCIe x16 (Gen3 x16) slot from CPU_0 1 x Mezzanine card slot: - PCIe Gen3 x16 (x8+x8) from CPU_0 - Optional for OCP mezzanine card with low profile type		
Internal I/O	2 x SATA 7-pin connectors, 1 x TPM header, 1 x VROC connector		
Front I/O	2 x USB 3.0, 1 x Power button with LED, 1 x ID button with LED, 1 x NMI button, 1 x System status LED, 4 x LAN activity LEDs,		
Rear I/O	2 x USB 3.0, 1 x VGA, 2 x SFP+, 2 x RJ45, 1 x MLAN, 1 x ID button with LED, 2 x LAN activity LEDs		
Backplane I/O	Bandwidth: SATAIII 6Gb/s or SAS 12Gb/s per port		
TPM	1 x TPM header with SPI interface Optional TPM2.0 kit: CTM010		

* All specifications are subject to change without notice. Please visit our website for the latest information.

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