GIGABYTE™

G481-H80

HPC System - 4U 8 x GPU Server

Features

- Up to 8 x NVIDIA Tesla® V100 PCIe GPGPU cards
- 2nd Gen. Intel® Xeon® Scalable Processors
- Intel® Omni-Path architecture technology support as an option
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- 2 x 10Gb/s BASE-T LAN ports (Intel® X550-AT2)
- 2 x GbE LAN ports (Intel® I350-AM2)
- 1 x dedicated management port
- 2 x NVMe/ SATA, 8 x SATA/SAS 2.5" hot-swap HDD/SSD bays
- 2 x low profile PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 3 x 80 PLUS Platinum 1600W redundant PSU
- Optimized performance with Mellanox Infiniband EDR and Ethernet 100G products

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.

Compute:
- Up to 28 cores / 56 threads per socket
- Up to 38.5 MB L3 cache (non-inclusive)
- Up to 3x UPI socket interconnects @10.4 GT/s
- CPU TDP 70W – 205W

I/O:
- 48 PCIe 3.0 lanes per socket

Memory:
- 6 channels, 2 DIMMs per channel
- Up to 12 DIMMS per socket
- Up to 2933MHz max memory speed
- Intel Optane DC Persistent Memory ready

NVIDIA® Tesla® V100 Support

GIGABYTE's Intel® Xeon® Scalable servers and motherboards are fully compatible and qualified to use with NVIDIA's Tesla® V100 GPU, an advanced data center GPU built to accelerate AI, HPC, and graphics. Powered by NVIDIA's Volta™ architecture and with 640 Tensor Cores, the Tesla® V100 has broken the 100 teraflops (TFLOPS) barrier of deep learning performance — enabling data scientists, researchers, and engineers to tackle challenges that were once impossible.

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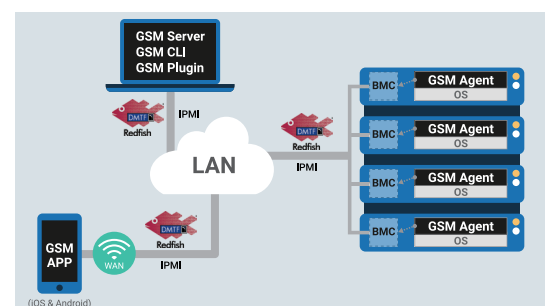
- **RESTful API support** (including the latest DMTF standards of Redfish) allows the administrator to integrate with 3rd party applications for server management
- **HTML5-based iKVM** remote management client included as a standard feature, no additional add-on license required to purchase
- **Detailed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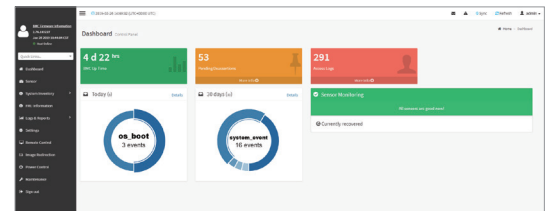
GIGABYTE Server Management (GSM)

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**

Dimensions (WxHxD)	4U 448 x 176 x 880	**Power Supply**	3 x 80 PLUS Platinum 1600W redundant PSUs

Dimensions (WxHxD)	4U 448 x 176 x 880
Motherboard	MG61-G40
CPU	2nd Generation Intel® Xeon® Scalable Processors Intel® Xeon® Platinum Processor, Intel® Xeon® Gold Processor, Intel® Xeon® Silver Processor and Intel® Xeon® Bronze Processor CPU TDP up to 205W NOTE: If only 1 CPU is installed, some PCIe or memory functions might be unavailable
Socket	2 x LGA 3647, Socket P
Chipset	Intel® C621 Express Chipset
Memory	24 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
LAN	Rear Side: 2 x 10Gb/s BASE-T LAN ports (Intel® X550-AT2) 1 x 10/100/1000 management LAN Front Side: 2 x 1Gb/s BASE-T LAN ports (Intel® I350-AM2) * 4 x QSFP28 LAN ports with Intel® Omni-Path Host Fabric Interface (as an option) - Provides 25Gb/s bandwidth per port, total 100Gb/s bandwidth with 4 QSFP28 LAN ports * NOTE: Please select Intel® Xeon processors with Omni-Path Architecture to enable Intel® Omni-Path Host Fabric Interface
Video	Integrated in Aspeed® AST2500 2D Video Graphic Adapter with PCIe bus interface 1920x1200@60Hz 32bpp, DDR4 SDRAM
Storage	10 x 2.5" hot-swappable HDD/SSD bays - 2 x amber HDD trays compatible with NVMe or SATA devices - 8 x blue HDD trays compatible with SATA/SAS devices only Pre-install with NVMe add-on card, CNV3024, 2 x NVMe ports
RAID	For SATA/SAS drives: Intel® SATA RAID 0/1/10/5 For NVMe drives: Intel® Virtual RAID On CPU (VROC) RAID 0, 1 Note: VROC module is compatible for Intel®SSD only
Expansion Slots	8 x PCIe x16 slots (Gen3 x16 bus) for GPUs 1 x PCIe x16 (Gen3 x8 bus) Half-length low-profile slot in front, occupied by CNV3024 1 x PCIe x16 (Gen3 x16 bus) Half-length low-profile slot at rear - System is validated for population with a uniform GPU model - Support is not provided for mixed GPU populations
Internal I/O	1 x TPM header, 1 x VROC connector, 1 x Front VGA header, 1 x Serial header
Front I/O	2 x USB 3.0, 1 x VGA, 2 x RJ45, 1 x MLAN (Reserved), 4 x Omni-Path QSFP28 LAN ports (Reserved), 1 x Power button with LED, 1 x ID button with LED, 1 x Reset button, 1 x NMI button, 1 x System status LED, 1 x HDD access LED, 1 x Omni-Path activity LED
Rear I/O	2 x RJ45, 1 x MLAN (Primary port)
Backplane I/O	10 x 2.5" ports, supports SATA 6Gb/s and PCIe Gen3 x4
TPM	1 x TPM header with SPI interface Optional TPM2.0 kit: CTM010

Power Supply	3 x 80 PLUS Platinum 1600W redundant PSUs AC Input: 100-127V~/ 12.9A, 50-60Hz 200-240V~/9.5A, 50-60Hz DC Output: Max 1000W@100-127V Max 1600W@200-240V +12V/ 83A +12V/ 133A +12Vsb/ 2.1A +12Vsb/ 2.1A
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
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
Weight	Net Weight: 39 kg / Gross Weight: 58.1 kg
System Fans	6 x 60x60x76mm (21,700rpm)
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) NOTE: Please contact Technical Support for more information about optimized GPU operating temperature
Packaging Content	1 x G481-H80, 2 x CPU heatsinks, 1 x Rail kit, 1 x VROC module, 2 x Non-Fabric CPU carrier
Part Numbers	Barebone with rail kit: 6NG481H80MR-00 - Motherboard: 9MG61G40NR-00 - VROC module: 25FD0-R181N0-10R - Rail kit: 25HB2-420100-CGR - CPU heatsink: 25ST1-323206-A0R - Fan module kit: 6NG481HAASR-00-100 - Power supply: 25EP0-216005-C1S