GIGABYTE™

G291-Z20

HPC System - 2U UP 8 x Gen3 GPU Server

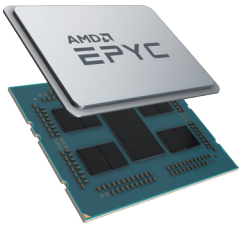
Features

Able to support up to 8 double slot GPGPU or co-processor cards, the G291 Series enables world-leading HPC within a 2U chassis.

- Supports up to 8 x double slot GPU cards
- AMD EPYC™ 7002 and 7001 series processor family
- 8-Channel RDIMM/LRDIMM DDR4, 8 x DIMMs
- 2 x 10Gb/s SFP+ LAN ports (Mellanox® ConnectX-4 Lx)
- 1 x Dedicated management port
- 8 x 2.5" SATA hot-swap HDD/SSD bays
- 2 x M.2 with PCIe Gen3 x4/x2 interface
- 8 x PCIe Gen3 expansion slots for GPU cards
- 2 x PCIe Gen3 x16 low-profile slots for add-on cards
- Aspeed® AST2500 remote management controller
- 2+0 2200W 80 PLUS Platinum power supply

AMD EPYC™ 7002 Series Processor (Rome)

The next generation of AMD EPYC has arrived, providing incredible compute, IO and bandwidth capability – designed to meet the huge demand for more compute in big data analytics, HPC and cloud computing.



- Built on **7nm** advanced process technology, allowing for denser compute capabilities with lower power consumption
- Up to **64 core** per CPU, built using Zen 2 high performance cores and AMD's innovative chiplet architecture
- Supporting **PCIe Gen 4.0** with a bandwidth of up to 64GB/s, twice of PCIe Gen 3.0
- **Embedded security protection** to help defend your CPU, applications, and data

AMD Radeon Instinct™ MI50 Support

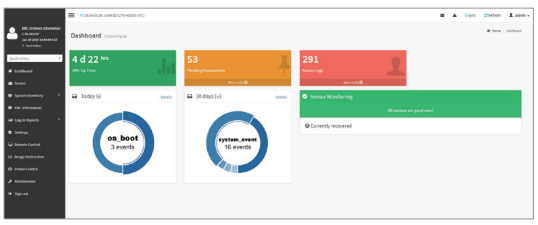
This GIGABYTE server features support for AMD's Radeon Instinct™ MI50 compute card, designed to deliver high levels of performance for deep learning, high performance computing (HPC), cloud computing, and rendering systems.

NVIDIA® Tesla® V100 Support

GIGABYTE's AMD EPYC server systems 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)

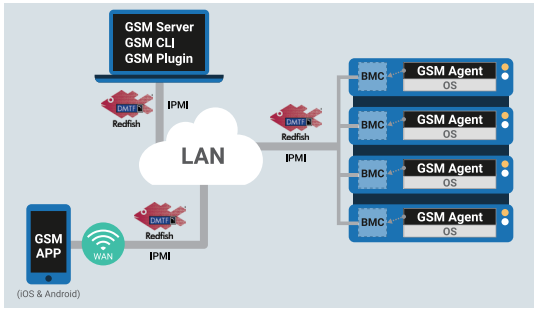
This GIGABYTE server product utilizes a AMI MegaRAC SP-X platform for BMC server management, with a feature rich and easy to use browser-based graphical user interface. Notable features include:



- **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)	2U 448 x 87.5 x 800 mm
Motherboard	MZ21-G20
CPU	AMD EPYC™ 7002 series processor family Single processors, 7nm Up to 64-core, 128 threads per processor TDP up to 225W, cTDP up to 240W Fully support 280W Compatible with AMD EPYC™ 7001 series processor family
Socket	Socet SP3
Chipset	System on Chip
Memory	8 x DIMM slots DDR4 memory supported only 8-Channel memory architecture RDIMM modules up to 64GB supported LRDIMM modules up to 128GB supported Memory speed: Up to 3200*/ 2933 MHz Note: *Follow BIOS setting and memory QVL list if running 3200 Mhz
LAN	2 x SFP+ 10Gb/s LAN ports (Mellanox® ConnectX-4 Lx) 1 x 10/100/1000 management LAN
Video	Integrated in Aspeed® AST2500 2D Video Graphic Adapter with PCIe bus interface 1920x1200@60Hz 32bpp, DDR4 SDRAM
Storage	8 x 2.5" SATA/SAS hot-swappable HDD/SSD bays SAS card is required for SAS devices support Recommended 12Gb/s SAS cards: CRA4448, CRA4548
SATA	Supported
SAS	Supported via add-on SAS Card
RAID	-
Expansion Slots	8 x PCIe x16 slots (Gen3 x16 bus) for GPUs 2 x PCIe x16 (Gen3 x16 bus) Half-length low-profile slots 1 x M.2 slot: - M-key - PCIe Gen3 x4 - Supports NGFF-2242/2260/2280/22110 cards 1 x M.2 slot: - M-key - PCIe Gen3 x2 - Supports NGFF-2242/2260/2280/22110 cards - Maximum limitation of GPU card: 285mm (L) x 111.5mm (W) x 39.5mm (H) - System is validated for population with a uniform GPU model - Support is not provided for mixed GPU populations - For the latest GPU cards QVL, please contact your GIGABYTE representative
Internal I/O	1 x TPM header, 1 x Sli-SAS connectors, 2 x M.2 slots, 1 x Serial header, 1 x Buzzer
Front I/O	1 x Power button with LED, 1 x ID button with LED, 2 x LAN activity LEDs, 1 x HDD activity LED, 1 x System status LED, 1 x Reset button
Rear I/O	2 x USB 3.0, 1 x VGA, 2 x SFP+, 1 x MLAN, 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
Backplane I/O	8 x SAS/SATA ports Bandwidth: SATAIII 6Gb/s or SAS 12Gb/s per port
TPM	1 x TPM header with LPC interface Optional TPM2.0 kit: CTM000

Power Supply	2+0 2200W 80 PLUS Platinum power supply AC Input: - 100-127V~/ 14A, 47-63Hz - 200-240V~/ 12.6A, 47-63Hz DC Output: - Max 1200W/ 100-127V~ +12.12V/ 95.6A +12Vsb/ 3.5A - Max 2200W/ 200-240V +12.12V/ 178.1A +12Vsb/ 3.5A NOTE: The system power supply requires C19 type power cord
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	Windows Server 2016 (X2APIC/256T not supported) 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 SP4 (x64) or later SUSE Linux Enterprise Server 15 SP1 (x64) or later Ubuntu 16.04.6 LTS (x64) or later Ubuntu 18.04.3 LTS (x64) or later VMware ESXi 6.5 EP15 or later VMware ESXi 6.7 Update3 or later Citrix Hypervisor 8.1.0
Weight	Net Weight: 29.5 kg Gross Weight: 34.7 kg
System Fans	8 x 80x80x38mm (15000rpm)
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)
Packaging Content	1 x G291-Z20, 1 x CPU heatsink, 1 x Rail kit
Part Numbers	Barebone with rail kit: 6NG291Z20MR-00-A* - Motherboard: 9MZ21G20NR-00-2* - Tool-less rail kit: 25HB2-A86102-K0R - CPU heatsink for 200W CPU: 25ST1-153104-A8R - CPU heatsink for 240W CPU: 25ST1-44320G-A0R (as an option) - Power supply: 25EP0-222001-D0S * C19 type power cord 125V/15A (US): 25CP1-018000-Q0R (as an option) * C19 type power cord 250V/16A (EU): 25CP3-01830H-Q0R (as an option) * C19 type power cord 250V/15A (US): 25CP1-018300-Q0R (as an option) - 2 x Internal SSD kit: 6NG291281SR-00 (as an option)