

GIGABYTE™

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GIGABYTE™

HPC PORTFOLIO



Core Platforms

Compute

GPU Compute

Storage



GIGABYTE Server Business Timeline

1990

Started from **Channel** Motherboard Design.
1st product delivered to Google USA for Open Data Center in Oregon State.



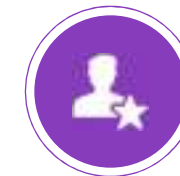
2000

In the cause of promote R&D Design Capability and Product Quality Validation Procedure, BU ghad transformed to **ODM** Rack Serverdevelopment strategy.



2012

Started product development of Open Rack Design with Russia Yandex **Data Center** for completely **Rack Cabinet** delivery / deployment.



2016

Got into **ODM + Brand** product strategy in the market for enhance flexibility supply for customers.



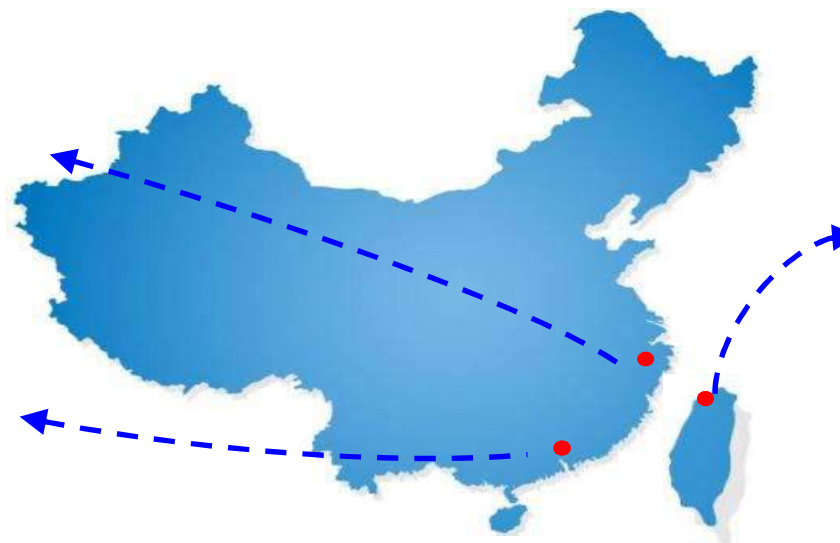
Manufacturing Site & Capacity



Ning-Bo, China



Dong-Guan, China



Nan-Ping, Taiwan

| Product | Ning-Bo | Dong-Guan | Nan-Ping | Total/M |
|----------------|-----------------------|-----------------------|-----------------------|---------|
| Motherboard | 650 K | 680 K | 300 K | 1,630 K |
| Graphics Card | 100 K | 320 K | 150 K | 570 K |
| Server | 30 K | 20 K | 5 K | 50 K |
| System Product | 100 K | 95 K | 5 K | 200 K |
| Laptop | 45 K | - | 20 K | 65 K |
| Mobile Phone | 30 K | - | 20 K | 50 K |
| Floor Space | 60,000 m ² | 38,000 m ² | 45,000 m ² | - |

GIGABYTE Server Product Portfolio



R-Series

Affordable and expandable rackmount servers, offering ease-of-use, low power consumption and quiet operation



H-Series

Compact and scalable systems providing higher density computing power in a smaller footprint for cloud and other scale-out computing applications



G-Series

Versatile and scalable high performance computing with leading efficiency and performance. Ideal for datacenters



S-Series

Storage optimized servers that offer a high data density design, configuration flexibility, and HA and reliability features for data integrity



W-Series

A range of tower servers suitable for an office environment, from entry level to high end computing and HPC



N-Series

A new range of networking servers, gateway devices and edge computing devices



RACKLUTION

A datacenter solution simple in design, but also highly efficient in power consumption, computing power and configuration

Gigabyte Server Products

2018 9



High Performance

Storage Server

S451 Series



D120 Series



High - Density

H231 Series



H261 Series



H281



GPGPU Server

G481 - 8GPU



G481 - 8 SXM2



OCP Solution



2U Rack Server

R271 Series



R281 Series



1U Rack Server

R151 Series



R121 Series



R161 Series



R181 Series



G221 - 2GPU



G211 - 4GPU



G291 - 8GPU



G291 - 16GPU
(Single Slot)



G150 - 1GPU



G180 - 2GPU



G191 - 4GPU



G190 - 4 SXM2



High Scalability

GIGABYTE

GIGABYTE™

Intel Xeon Scalable Purley – Cascade Lake Platform



2nd Generation Xeon® Scalable Family Ready

GIGABYTE's servers are fully ready to support the second generation of Intel® Xeon® Scalable Family processors, codenamed "Cascade Lake", which bring the following major enhancements:

- **Intel® Optane™ DC Persistent Memory:** Built-in support for this revolutionary new product based on Intel's 3D Xpoint technology
- **Overall Performance:** Higher CPU frequencies, improved turbo profiles vs. prior-gen Intel Xeon Scalable processors
- **Increased DDR4 Memory Speed & Capacity:** Up to 2933MHz (1 DIMM per channel on some SKUs), 16Gb based DIMM supported
- **Intel Deep Learning Boost:** Significantly accelerates inference performance for deep learning workloads optimized to use VNNI (Vector Neural Network Instructions)
- **Security:** Hardware mitigations for Meltdown / Spectre security vulnerabilities



GIGABYTE™

Motherboards



MD61-SC2

2nd Gen. Intel® Xeon® Scalable and
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
3 x SlimSAS (for 12 x SATA 6Gb/s) ports
2 x SATA DOM supported
2 x U.2 with PCIe Gen3 x4 interface
Up to 4 PCIe Gen3 expansion slots
1 x mezzanine type slot with PCIe Gen3 x16
interface
Aspeed® AST2500 remote management controller



MD71-HB0

2nd Gen. Intel® Xeon® Scalable and
Intel® Xeon® Scalable Processors
6-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
Supports Intel® Optane™ DC Persistent Memory
2 x 10Gb/s BASE-T and 2 x 1Gb/s LAN ports
1 x Dedicated management port
3 x SlimSAS (for 12 x SATA 6Gb/s) ports
2 x SATA DOM supported
Ultra-Fast M.2 and U.2 with PCIe Gen3 x4 interface
Up to 6 PCIe Gen3 expansion slots
Aspeed® AST2500 remote management controller

Rack Servers – 1U Dual Socket



R271-Z00

- 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- Dual 1Gb/s LAN ports (Intel® I350-AM2)
- 1 x Dedicated management port
- 4 x 3.5"/2.5" SATAIII hot-swappable HDD/SSD bays
- 1 x 2.5" internal fixed HDD/SSD bay, 2 x 2.5" HDD/SSD kits as an option
- 3 x PCIe Gen3 expansion slots
- 2 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant / hot-swap power supply



R181-2A0

- 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- Dual 1Gb/s LAN ports (Intel® I350-AM2)
- 1 x Dedicated management port
- 10 x 2.5" SATAIII hot-swappable HDD/SSD bays
- 3 x PCIe Gen3 expansion slot
- 2 x OCP Gen3 x16 mezzanine slot
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply



R181-N20

- 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- Dual 1Gb/s LAN ports (Intel® I350-AM2)
- 1 x Dedicated management port
- 2 x 2.5" U.2, 8 x SATA/SAS hot-swappable HDD/SSD bays
- 3 x PCIe Gen3 expansion slots
- 2 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply

Rack Servers – 2U Dual Socket



R281-3C0/1

2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
Supports Intel® Optane™ DC Persistent Memory
Dual 1Gb/s LAN ports (Intel® I350-AM2)
1 x Dedicated management port
12 x 3.5" and 2 x 2.5" SATAIII hot-swappable HDD/SSD bays; **12 x 3.5" and 2 x 2.5" SATAIII hot-swappable HDD/SSD bays**
8 x PCIe Gen3 expansion slots
2 x OCP Gen3 x16 mezzanine slots
Aspeed® AST2500 remote management controller
Dual 1200W 80 PLUS Platinum redundant power supply



R281-N40

2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
Supports Intel® Optane™ DC Persistent Memory
Dual 1Gb/s LAN ports (Intel® I350-AM2)
1 x Dedicated management port
4 x 2.5" U.2, 22 x SATA/SAS hot-swappable HDD/SSD bays
8 x PCIe Gen3 expansion slots
1 x OCP Gen3 x16 mezzanine slot
Aspeed® AST2500 remote management controller
Dual 1200W 80 PLUS Platinum redundant power supply



R281-NO0

2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
Supports Intel® Optane™ DC Persistent Memory
Dual 1Gb/s LAN ports (Intel® I350-AM2)
1 x Dedicated management port
24 x 2.5" U.2, 2 x SATA/SAS hot-swappable HDD/SSD bays
5 x PCIe Gen3 expansion slots
1 x OCP Gen3 x16 mezzanine slots
Aspeed® AST2500 remote management controller
Dual 1600W 80 PLUS Platinum redundant power supply

GPU Servers – 1U Dual Socket



G191-H44

- Up to 4 x NVIDIA Tesla® PCIe GPGPU cards
- 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- Dual 1Gb/s LAN ports (Intel® I350-AM2)
- 1 x dedicated management port
- 2 x 2.5" hot-swappable + 2 x 2.5" internal fixed HDD/SSD bays
- 2 x low profile PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 2 x 80 PLUS Platinum 2000W redundant PSU
- Optimized performance with Mellanox Infiniband EDR and Ethernet 100G products



G190-G30

- Up to 4 x NVIDIA Tesla® V100/ P100 5XM2 modules
- Up to 300GB/s GPU interconnection by NVIDIA® NVLINK™ technology
- Intel® Xeon® processor E5-2600 v4 / v3 product families
- 16 x RDIMM/LRDIMM ECC DDR4 DIMM slots
- 2 x GbE LAN ports (Intel® I350-AM2)
- 4 x 2.5" SATAIII hot-swappable HDD/SSD bays
- 2 x PCIe Gen3 expansion slots
- 80 PLUS Titanium 2000W redundant PSU

GPU Servers – 2U Dual Socket



G291-281

- Supports up to 8 x double slot GPU cards
- NVIDIA® validated GPU platform; Supports for 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- 2 x 10Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 8 x 2.5" hot-swappable HDD/SSD bays
- 8 x PCIe Gen3 expansion slots for GPUs
- 2 x PCIe x16 Half-length low-profile slots for add-on cards
- Aspeed® AST2500 remote management controller
- Dual 2000W 80 PLUS Titanium redundant/hot-swap power supply



G291-2G0

- Supports up to 16 x single slot GPU cards
- NVIDIA® validated GPU platform
- 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- 2 x 10Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 8 x 2.5" hot-swappable HDD/SSD bays
- 16 x PCIe Gen3 expansion slots for GPUs
- 2 x PCIe x16 Half-length low-profile slots for add-on cards
- Aspeed® AST2500 remote management controller
- Dual 2200W 80 PLUS Platinum redundant/hot-swap power supply

Rack Servers – 2U Dual Socket



G481-H80/1

- Up to 8 x NVIDIA Tesla® V100 PCIe GPGPU cards
- 2nd Gen. Intel® Xeon® Scalable and 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-swappable HDD/SSD bays
- **12 x 3.5" SATA/SAS hot-swappable HDD/SSD bays**
- 2 x low profile PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 3 x 80 PLUS Platinum 1600W redundant PSU



G481-HA0/1

- 2nd Gen. Intel® Xeon® Scalable and Intel® Xeon® Scalable Processors
- 6-Channel RDIMM/LRDIMM DDR4, 24 x DIMMs
- Supports Intel® Optane™ DC Persistent Memory
- Dual 1Gb/s LAN ports (Intel® I350-AM2)
- **Single Rott-Configuration**
- 1 x Dedicated management port
- 4 x 2.5" U.2, 22 x SATA/SAS hot-swappable HDD/SSD bays
- 8 x PCIe Gen3 expansion slots
- 1 x OCP Gen3 x16 mezzanine slot
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply



G481-S80

- Up to 8 x NVIDIA Tesla® V100 SXM2 modules
- Up to 300GB/s GPU interconnection by NVIDIA® NVLINK™ technology
- 2nd Gen. Intel® Xeon® Scalable and 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 GbE LAN ports (Intel® I350-AM2)
- 1 x dedicated management port
- 4 x 2.5" NVMe, 6 x 2.5" SATA/SAS hot-swappable HDD/SSD bays
- 5 x low profile PCIe Gen3 expansion slots
- 1 x OCP Gen3 x8 mezzanine slot
- Aspeed® AST2500 remote management controller
- 4 x 80 PLUS Platinum 2200W redundant PSU

GIGABYTE G-Series: Industry Leading GPU Density

Using our expertise in thermal and mechanical design, GIGABYTE leads the HPC industry by offering some of the highest GPU density server products on the market

- **10 x dual slot GPU cards** in a **4U** form factor (**G481-HA0**)
- **8 x SXM2 GPU Ports** in a **4U** form factor (**G481-S80**)
- **8 x dual slot GPU cards** in a **2U** form factor (**G291-280 / G291-281**)
- **4 x dual slot GPU cards** in a **1U** form factor (**G191-H44**)
- **16 x single slot GPGPU cards** in **2U** form factor (**G291-2G0**)



GIGABYTE™

An Evolution For The Data Center

GIGABYTE's AMD EPYC Server Product Portfolio



GIGABYTE™

Motherboards



MZ31-AR0

- E-ATX form factor
- Single AMD EPYC™ 7000 series processor
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 4 x SlimSAS (for 16 x SATA 6Gb/s) ports
- 1 x M.2 slot with PCIe Gen3 x4 interface
- Up to 4 x PCIe Gen3 x16 slots and 3 x PCIe Gen3 x8 slots
- Aspeed® AST2500 remote management controller



MZ01-CE0

- ATX form factor
- Single AMD EPYC™ 7000 series processor
- 8-Channel RDIMM/LRDIMM DDR4, 8 x DIMMs
- 2 x 10Gb/s BASE-T LAN ports
- 2 x 1Gb/s LAN ports
- 1 x Dedicated management port
- 4 x SlimSAS (for 16 x SATA 6Gb/s) ports
- 1 x M.2 slot with PCIe Gen3 x4 interface
- Up to 5 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller



MZ01-CE1

- ATX form factor
- Single AMD EPYC™ 7000 series processor
- 8-Channel RDIMM/LRDIMM DDR4, 8 x DIMMs
- 2 x 1Gb/s LAN ports
- 1 x Dedicated management port
- 4 x SlimSAS (for 16 x SATA 6Gb/s) ports
- 1 x M.2 slot with PCIe Gen3 x4 interface
- Up to 5 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller

Rack Servers – 1U & 2U Dual Socket



R151-Z30

- Single AMD EPYC™ 7000 series processor
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 4 x 3.5"/2.5" SATAIII hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 1 x PCIe Gen3 x16 expansion slots
- Aspeed® AST2500 remote management controller
- 650W 80 PLUS Platinum redundant PSU



R271-Z31

- Single AMD EPYC™ 7000 series processor
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 16 x 2.5" hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 7 x Low profile PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 800W 80 PLUS Platinum redundant PSU



R271-Z00

- Single AMD EPYC™ 7000 series processor
- 8-Channel RDIMM/LRDIMM DDR4, 8 x DIMMs
- 2 x 1Gb/s LAN ports
- 1 x Dedicated management port
- 12 x 3.5" and 2 x 2.5" SATAIII hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 5 x Low profile PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 550W 80 PLUS Platinum redundant PSU

Rack Servers – 1U Dual Socket



R181-Z90

- Dual AMD EPYC™ 7000 series processors
- 8-Channel RDIMM/LRDIMM DDR4, 32 x DIMMs
- 2 x 1Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 4 x 3.5" hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 3 x Low profile PCIe Gen3 expansion slots
- 2 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- 1200W 80 PLUS Platinum redundant PSU



R181-Z91

- Dual AMD EPYC™ 7000 series processors
- 8-Channel RDIMM/LRDIMM DDR4, 32 x DIMMs
- 2 x 1Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 2 x 2.5" U.2, 8 x 2.5" SATA/SAS hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 3 x Low profile PCIe Gen3 expansion slots
- 2 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- 1200W 80 PLUS Platinum redundant PSU



R181-Z92

- Dual AMD EPYC™ 7000 series processors
- 8-Channel RDIMM/LRDIMM DDR4, 32 x DIMMs
- 2 x 1Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 10 x 2.5" U.2 hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 2 x Low profile PCIe Gen3 expansion slots
- 2 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- 1200W 80 PLUS Platinum redundant PSU

GIGABYTE™

Rack Servers – 2U Dual Socket



R281-Z91

- Dual AMD EPYC™ 7000 series processors
- 8-Channel RDIMM/LRDIMM DDR4, 32 x DIMMs
- 2 x 1Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 6 x 2.5" U.2, 20 x 2.5" SATA/SAS hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 7 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 1200W 80 PLUS Platinum redundant PSU



R281-Z92

- Dual AMD EPYC™ 7000 series processors
- 8-Channel RDIMM/LRDIMM DDR4, 32 x DIMMs
- 2 x 1Gb/s BASE-T LAN ports
- 1 x Dedicated management port
- 24 x 2.5" U.2, 2 x SATA/SAS hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 5 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- 1600W 80 PLUS Platinum redundant PSU

GIGABYTE™

Density Optimized Servers (2U 4 Node)



H261-Z60

- Dual AMD EPYC™ 7000 series processors
- 8 x LGA 4094 sockets
- 8-Channel RDIMM/LRDIMM DDR4, 64 x DIMMs
- 8 x 1Gb/s LAN ports
- 4 x Dedicated management ports
- 1 x CMC global management port
- 24 x SATA/SAS hot-swappable HDD/SSD bays
- 8 x M.2 slots with PCIe Gen3 x4 interface
- 8 x Low profile PCIe Gen3 expansion slots
- 4 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- 2200W 80 PLUS Platinum redundant PSU



H261-Z61

- Dual AMD EPYC™ 7000 series processors
- 8 x LGA 4094 sockets
- 8-Channel RDIMM/LRDIMM DDR4, 64 x DIMMs
- 8 x 1Gb/s LAN ports
- 4 x Dedicated management ports
- 1 x CMC global management port
- 8 x 2.5" U.2, 16 x SATA/SAS hot-swappable HDD/SSD bays
- 8 x M.2 slots with PCIe Gen3 x4 interface
- 8 x Low profile PCIe Gen3 expansion slots
- 4 x OCP Gen3 x16 mezzanine slots
- Aspeed® AST2500 remote management controller
- 2200W 80 PLUS Platinum redundant PSU



Combines 4 individual hot pluggable sliding node trays into a 2U server box. The node trays slide in and out easily from the rear of the unit



GIGABYTE™

HPC Servers



G221-Z30

- Supports up to 2 x double slot GPU cards
- Single AMD EPYC™ 7000 series processor supported
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 16 x 2.5" hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 4 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply



G291-Z20

- Supports up to 8 x double slot GPU cards
- Single AMD EPYC™ 7000 series processor supported
- 8-Channel RDIMM/LRDIMM DDR4, 8 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 8 x 2.5" hot-swappable HDD/SSD bays
- 2 x M.2 slots with PCIe Gen3 x4/x2 interface
- 8 x PCIe Gen3 expansion slots for GPUs
- 2 x PCIe x16 half-length low-profile slots for add-on cards
- Aspeed® AST2500 remote management controller
- Dual 2200W 80 PLUS Platinum redundant/hot-swap power supply

GIGABYTE™

HPC Servers



G221-Z30

- Supports up to 2 x double slot GPU cards
- Single AMD EPYC™ 7000 series processor supported
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 16 x 2.5" hot-swappable HDD/SSD bays
- 1 x M.2 slot with PCIe Gen3 x4 interface
- 4 x PCIe Gen3 expansion slots
- Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply



G291-Z20

- Supports up to 8 x double slot GPU cards
- Single AMD EPYC™ 7000 series processor supported
- 8-Channel RDIMM/LRDIMM DDR4, 8 x DIMMs
- 2 x SFP+ 10Gb/s LAN ports
- 1 x Dedicated management port
- 8 x 2.5" hot-swappable HDD/SSD bays
- 2 x M.2 slots with PCIe Gen3 x4/x2 interface
- 8 x PCIe Gen3 expansion slots for GPUs
- 2 x PCIe x16 half-length low-profile slots for add-on cards
- Aspeed® AST2500 remote management controller
- Dual 2200W 80 PLUS Platinum redundant/hot-swap power supply

GIGABYTE™

HPC Server Features



Ultra Dense GPU Capacity

Utilizing GIGABYTE's expertise in thermal and mechanical design, the G291-Z20 is able to support up to 8 double slot GPGPU cards, enabling world-leading HPC within a 2U chassis. The G291-Z20 is ideal for machine learning and HPC applications such as real time analytics, programs in scientific simulation and modeling, engineering, visualization & rendering, data mining, and much more.

GIGABYTE™

4U Storage Server



S451-Z30

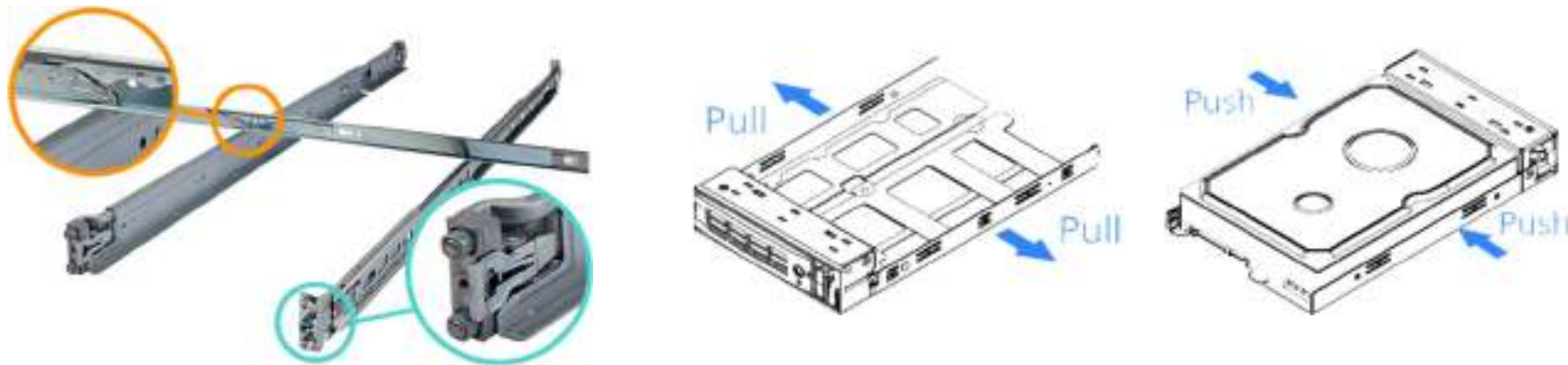
- Single AMD EPYC™ 7000 series processor supported
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
 - 2 x SFP+ 10Gb/s LAN ports
 - 1 x Dedicated management port
- 36 x 3.5" SATA/SAS hot-swap HDD/ SSD bays
- 2 x 2.5" SATA hot-swap HDD/SSD for booting device
 - SAS expander with 12Gb/s transfer speed
 - 1 x M.2 slot with PCIe Gen3 x4 interface
- Up to 4 x PCIe Gen3 x16 slots and 3 x PCIe Gen3 x8 slots
 - Aspeed® AST2500 remote management controller
- Dual 1200W 80 PLUS Platinum redundant power supply

Ease of Deployment and Management

GIGABYTE continues to be responsive to market needs and to create user-friendly solutions, including:

- Tool-less rail kit included as a default across all new server models
- In-house designed proprietary tool-less sleds for 3.5" HDDs to allow for easy swapping*

*A full toolkit is included with SKUs designed for 2.5" HDDs

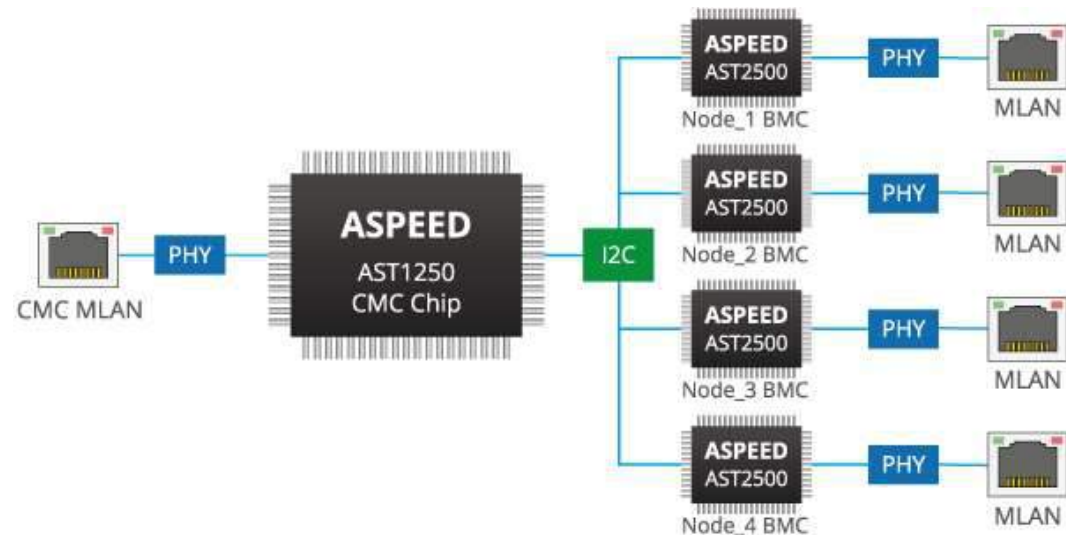
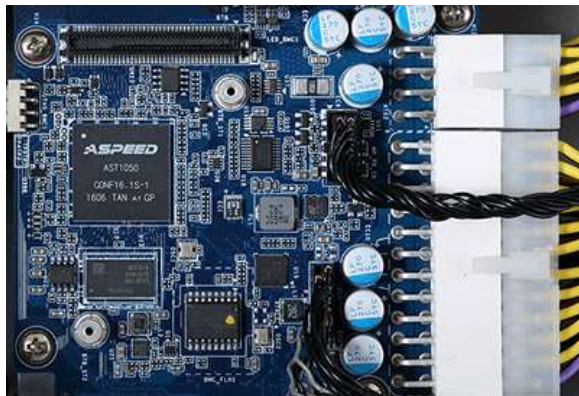


- Supplying multiple connector options and tools where appropriate

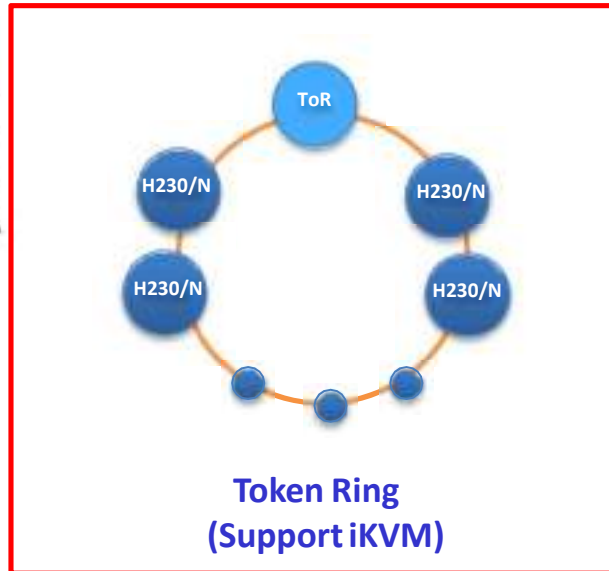
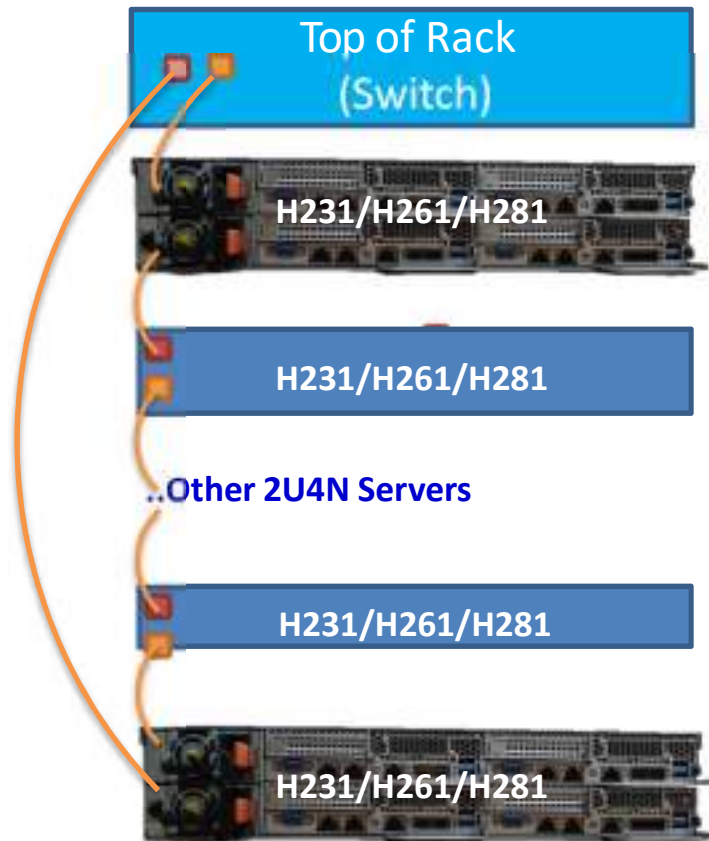
CMC for Chassis Management & Multi-Node Monitoring

GIGABYTE's H-Series Servers feature an Aspeed CMC (Central Management Controller) for chassis-level management and node-level monitoring (by connecting internally to Aspeed BMCs integrated on each node). This results only in one MLAN connection required to perform monitoring of all four nodes*, resulting in less ToR (Top of Rack) cabling and switch connections.

**IPMI only, without iKVM functionality*

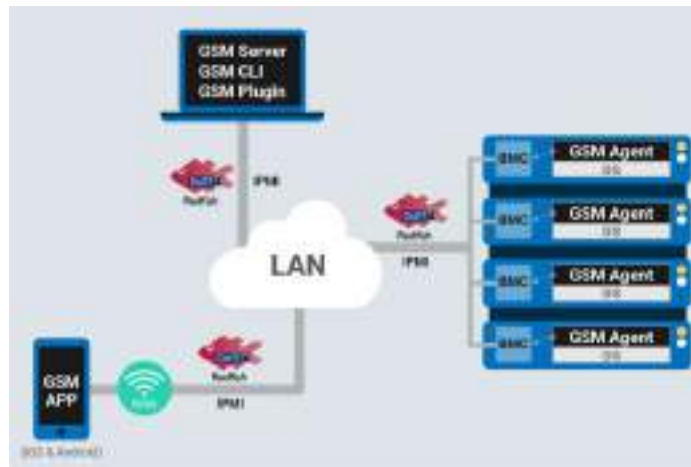


GIGABYTE Features: Less ToR Cabling



Reduces cabling to only 2 ports connection – allowing cost down of switch node (ToR). Daisy Chain will not be broken even if one 2U, 4 Node rack system shuts down.

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, a software program with an easy to use browser-based GUI to enable global remote monitoring and management of multiple GIGABYTE servers via each server node's BMC.

GSM CLI (GBT Utility), a command-line interface program to enable global remote monitoring and management of multiple GIGABYTE servers via each server node's BMC.

GSM Agent*, a software program installed locally on each GIGABYTE server node that retrieves additional node information (CPU/Mem/HDD/PCI/...) from the OS and passes it to the BMC. This information can then be utilized by GSM Server or GSM CLI.

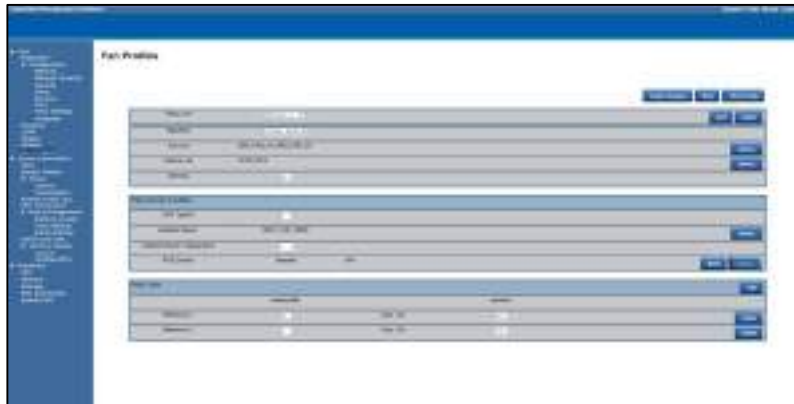
*GSM Agent is currently compatible with Avocent MergePoint IPMI 2.0 BMC firmware, but not yet compatible with Megarac SP-X BMC firmware.

GSM Mobile, a remote server management mobile APP, available for both Android and iOS.

Dynamic Fan Speed Control

GIGABYTE servers are enabled with dynamic fan speed adjustment. Individual fan speed will be automatically adjusted according to the system's current temperature (according to CPU, DIMM, M.2, HDD, GPU temperature sensors), to achieve the best cooling and power efficiency. When the BMC detects a temperature change, fan speed will be automatically adjusted accordingly. Fan speed profiles may also be manually created and edited* when necessary according to the user's custom requirements.

*Enabled on selected models & performed through BMC console management GUI

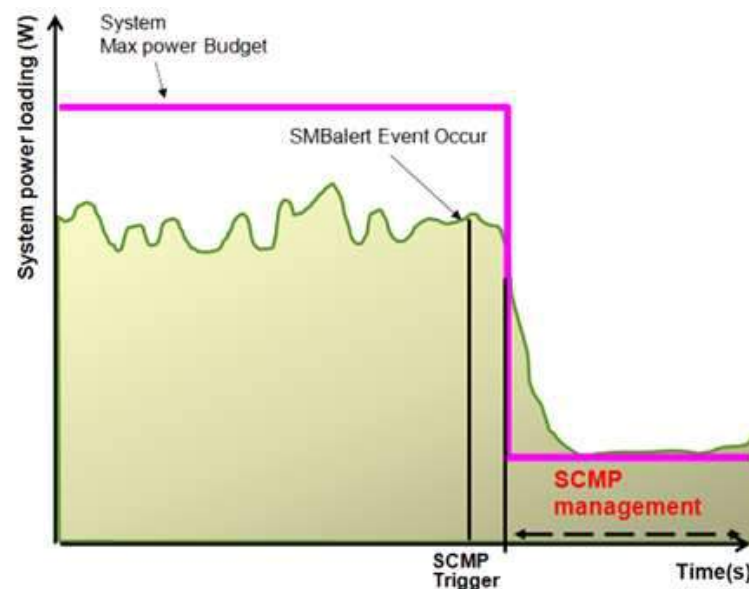


Intelligent Power Management Features*

for G291-280, G291-281, G291-2G0

SCMP (Smart Crises Management / Protection)

SCMP is a **GIGABYTE patented feature** that will automatically force the system's CPU to enter ULFM (ultra-low frequency mode for minimum power consumption) when the BMC is alerted to a PSU fault or error (such as power loss, power surge, overheating or a fan problem). This feature will prevent shutdown in systems with less than 1 + 1 PSU redundancy when one PSU is lost.. When the fault is resolved or the PSU is replaced, the system will automatically return to normal power mode.



Global After Sales Service & Support

GIGABYTE's global after sales service and support division includes 68 physical repair & support centers located in 18 countries as well as authorized partners in an additional 12 countries.



GIGABYTE can provide the following expert services to give our customers total peace of mind:



Multi-level, multilingual
telephone & online technical
support



Globally located RMA & repair
centers, onsite technical
support services



Reverse logistics, product
warehousing and component
storage solutions

Please enquire with your sales representative about GIGABYTE's world-class technical support & repair services available in your local country or region

GIGABYTE™








GIGABYTE's AMD EPYC Server Product Portfolio
Coming Soon



AMD ROME MotherBoard – MZ32



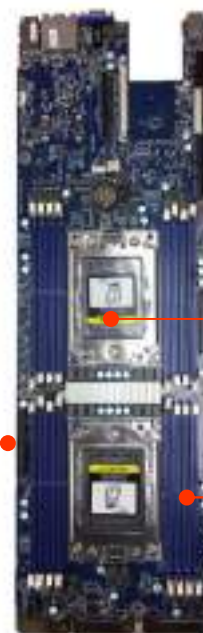
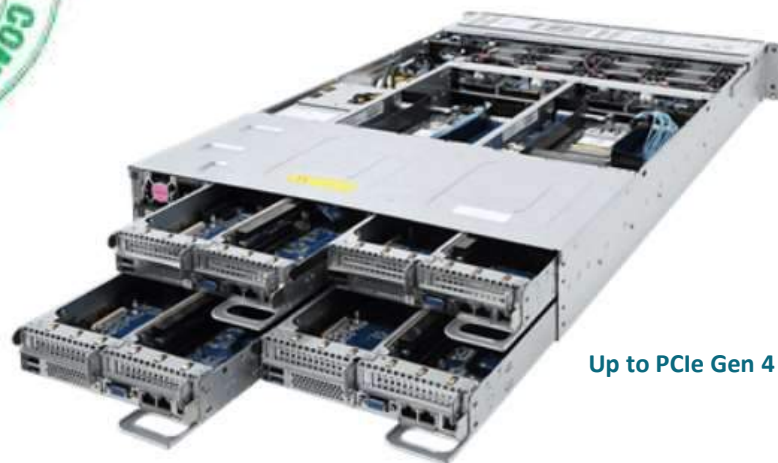
Supports :

-  **AMD EPYC ROME** Zen2 Core Single Processor
-  **16 x** DIMM DDR4 , Speed up to 2993 MHz / 3200 MHz
-  **Dual x GbE ports** Intel i350
-  **7 x** PCIe Expansion Slots
-  **2 x** Slim-SAS 4i for 8 x SATAIII
-  **4 x** Slim-SAS 4i for NVMe or Slink (with PCIe Slot 7)
-  **2 x** M.2 @ Gen3 x 4



GIGABYTE

AMD ROME 2U 4Node DP – H262



Up to PCIe Gen 4

Dual AMD ROME

Up to DDR 3200

Supports :



AMD Naples/Rome Dual SoC Processor



64 x DIMM DDR4 , Speed up to 2993 MHz / 3200 MHz



24 x 2.5" Hot-Swappable HDD/SSD



Dual GbE LAN port (i350)



2 x 2200W (or 2600W) 80 Plus Platinum Redundant PSU

GIGABYTE

AMD ROME 4U GPU – G482



Supports :



AMD Naples/Rome Dual SoC Processor



32 x DIMM DDR4 , Speed up to 2993 MHz / 3200 MHz



Support up to **10 x GPU** (w/ PLX 8796 x 2)



Support up to **8 x GPU** (w/o PLX 8796)

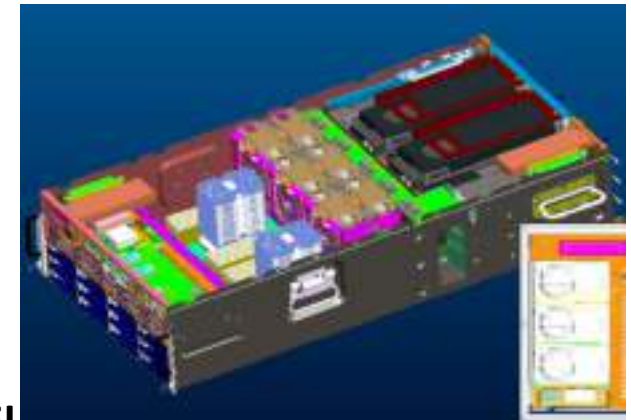


10 x 2.5" + 12 x 3.5" Hot-Swappable HDD/SSD



Dual GbE LAN port (i350)

3 x 2200W (or 2600W) 80 Plus Platinum Redundant PSU

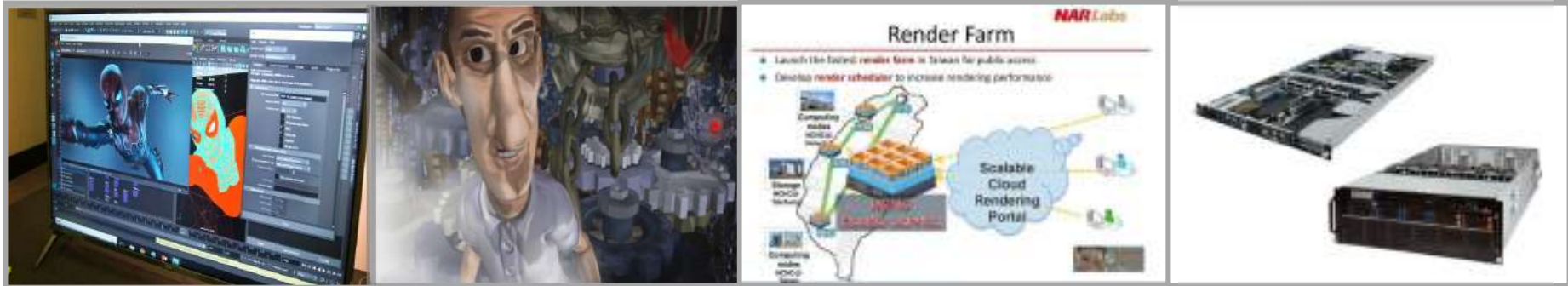




GIGABYTE

Server **Success** Stories

Taiwan: GPU Render Farm



Taiwan's National Applied Research Laboratories used GIGABYTE's [G481-S80](#) and [G191-H44](#) GPU servers with NVIDIA Tesla V100 GPUs to build Taiwan's first "Render Farm" cloud for public access.

The Render Farm integrates a massive amount of storage space, high-speed transmission bandwidth, high-performance scientific simulation technology via the graphics processing unit cluster, and a render queuing system.

Content creators can upload massive rendering jobs to the Render Farm via broadband internet connection, and monitor the computing status through a graphical user interface. The abundant computational capability of the render farm then helps to generate unparalleled image quality of different human expressions and highly realistic scenes of ocean waves, explosions and other special film visual effects.

The Render Farm has significantly improved the technical threshold of cultural creativity constrained by a dauntingly time-consuming computation process due to limited computation capacity and storage size. Recently, the Render Farm has facilitated the production of several Taiwanese animated films released worldwide.

Germany: Liquid Cooled Data Center for Aerospace Research



The German National Aerospace Center (DLR) chose GIGABYTE's AMD EPYC servers to build their new liquid-cooled data center, to explore new energy sources and develop technologies to protect the environment, and to conduct research and development into aviation, aerospace and transportation.

DLR adopted GIGABYTE's [H261-Z60](#), a 2U 4 node system with dual AMD EPYC 7601 processors per each node combined together with a CoolIT liquid cooling system to allow extreme compute density with the most powerful processors in each system while reducing power consumption and heat generation for economic operation.

DLR also adopted GIGABYTE's **R281-Z94**, a 2U server that can support 3 x GPU cards, combining AMD EPYC together with NVIDIA's Quadro GPU cards to support powerful virtualization and collaborative computing capabilities to a wide number of research units.

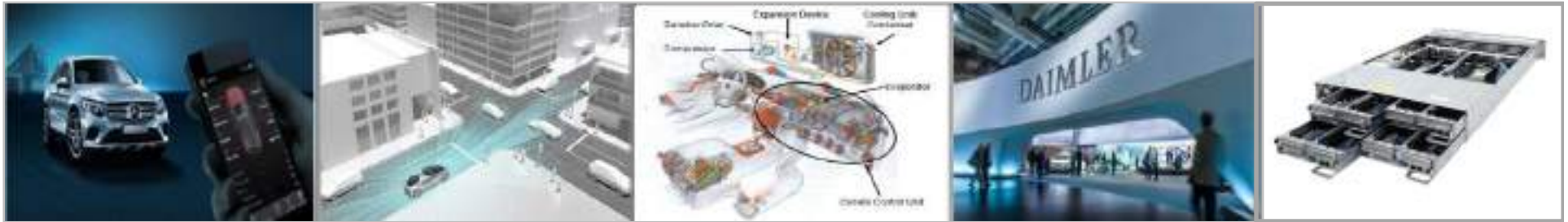
Germany: Atomic Energy Analysis



Germany's National Atomic Energy Research Council adopted GIGABYTE's AMD EPYC [H261-Z60](#) 2U 4 node system, together with GIGABYTE's **R281-Z94** 2U 3 x GPU system with AMD's FirePro S9150 server GPU to form a complete data center rack, providing a computing platform to CERN for atomic energy research and analysis.

CERN's main large-scale hadron colliders and other physical applications rely on huge computing networks, and the global network of scientists using these applications also require a powerful computing platform, which can be achieved with the compute density and performance of GIGABYTE's AMD EPYC servers.

Germany: Automotive Design Simulation



Mercedes Benz Daimler adopted GIGABYTE's AMD EPYC servers to build their new platform for automotive design simulation & testing. GIGABYTE's [H261-Z60](#) 2U 4 node server together with the AMD EPYC 7451 CPU (with 24 cores per processor) was used provide extremely dense computing performance for the following simulation capabilities, supporting the development of the company's next generation of automobiles:

Aerodynamic simulation: to improve aerodynamics in wheel rotation or vehicle overtaking.

Noise reduction simulation: reduction of noise caused by aerodynamic forces.

Fluid simulation: for analysis of water / fluid flow & management, such as in a rain chamber, the refueling process or the sloshing of water tanks.

Temperature field simulation: to perform vehicle interior heating simulation, air conditioning simulation and ventilation simulation.

Japan: Cloud Gaming System



Cloud gaming allows users to play high-end PC and console video games rendered on remote servers via internet streaming, and instantly play games and applications from a webpage or internet-connected device.

Ubitus has set up one of the world's first commercial cloud gaming platforms, using GIGABYTE's [G250-G50](#) with 6 x NVIDIA Quadro P4000 Series GPUs to build their online gaming cloud service located in data centers in Tokyo and Osaka.

The platform was used for "Assassin's Creed Odyssey" on Nintendo Switch, which was first time in the world to stream a completely new game title to gaming consoles over cloud gaming. Users can play this game through video streaming by simply downloading a small-size (40MB) app from Nintendo eShop. As it is not necessary to download large-sized game data, users can begin playing the game immediately and also enjoy the game without worrying about device storage space, and enjoy high-quality performance and interaction of the game rendered by GIGABYTE's GPU servers.

Ubitus can also offer their hardware infrastructure as a "GaaS" (GPU as a Service) cloud platform for machine learning and other application tasks during offpeak times (weekdays, morning) when the gaming cloud has less traffic and users.

Russia: Self-Driving Vehicle System



Yandex is the 5th largest search engine in the world also the largest cloud service provider in Pan-Russian market. GIGABYTE is the main supplier to Yandex for their data center server infrastructure. Recently Yandex have also developed self-driving vehicle technology, which was demonstrated most recently at CES 2019 in Las Vegas (<https://youtu.be/uRyTEW2OuWw>)

The Yandex self-driving car used at CES was a Toyota Prius retrofitted with an array of radars, lidars, and cameras that interpret the world around the car. Radars are located in the front and rear bumpers, the lidars are on the roof, and five cameras mounted around the car capture 360-degree video. The combined sensors can identify objects within a 200-meter radius of the car. This incoming information is processed by the custom-built computer that sits in the trunk of the car.

The AI-enabled proprietary software used to power the self-driving car was developed and trained on GIGABYTE's [G250 Series](#) GPU servers due to this product's high GPU density (8 x GPU cards per 2U system) and its flexibility to be used with a range of different GPU cards.

Taiwan: Private Cloud Platform for AI Train



UMC (United Microelectronics Corporation), one of the world's top 3 semiconductor foundries, implemented a private cloud platform to virtualize and share CPU and GPU resources to R&D personnel to be used for AI education and training, as well as to implement an automatic supply management system.

The private AI cloud was implemented using InfinitiesSoft CloudFusion cloud management platform with GIGABYTE's [G291-280](#) and NVIDIA's GTX1080ti GPU cards for the underlying hardware infrastructure.

The platform is enabled with a user friendly GUI to manage and allocate CPU and GPU resources to multiple users to run machine learning workloads, so that users can focus on developing and training machine learning algorithms and not on system maintenance, adjustment and deployment scheduling. The cloud platform reduces the complexity and learning curve for users to adopt and master Tensorflow, Caffe, and other deep learning tools, allowing UMC to establish an AI development environment by providing an excellent tool to cultivate and train their R&D personnel in the development of machine learning models.

For more information on building a private cloud infrastructure with GIGABYTE & InfinitiesSoft: <https://www.gigabyte.com/Press/WhitePaper/526>

GIGABYTE™

Thank you!

For more information, please visit: www.gigabyte.com