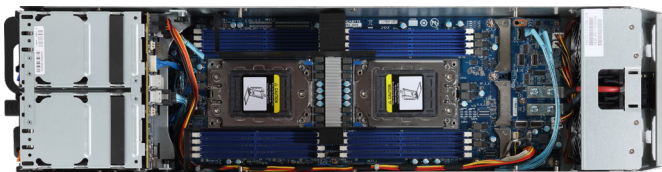# GIGABYTE™

TO22-Z61

RACKLUTION-OP: Compute Nodes

Features

- Dual AMD EPYC™ 7001 series processor family
- 8-Channel RDIMM/LRDIMM DDR4, 16 x DIMMs
- 2 x 1Gb/s LAN ports (Intel® I350-AM2)
- 1 x Dedicated management port
- 2 x 2.5" hybrid NVMe/SATA/SAS and 2 x 2.5" SATA/SAS hot-swap bays
- 2 x PCIe Gen3 expansion slots
- 1 x OCP Gen3 x16 mezzanine slot
- Aspeed® AST2500 remote management controller

RACKLUTION-OP is GIGABYTE's server product line based on OCP Open Rack Standards. The products are designed for a 21" OCP rack and feature a separate PSU system, with power supplied to each server node by a bus-bar system running along the rear of the rack.

What is the Open Compute Project?

The **Open Compute Project** (OCP) is an open source initiative launched in 2011 by Facebook with the purpose to design and share innovative specifications for better datacenters. Part of this initiative has been a set of standards released by the members of the OCP, called the **Open Rack Standards**, that contain design guidelines and specifications in order to create more efficient, flexible, and scalable datacenter hardware.
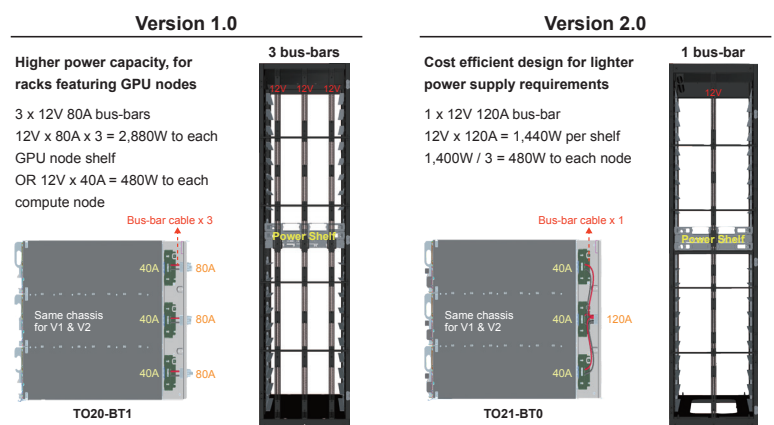
RACKLUTION-OP Advantages

- **Efficient Rack Density**
  - Optimal design (2OU 3nodes) - balanced consideration between density and power consumption.
- **Thermal Optimization**
  - Best thermal consideration to develop Rack and Nodes based on Cold Aisle/Hot Aisle concept.
  - Reduce power consumption of cooling.
- **Greater Power Efficiency**
  - Low PUE helps reduce data center operating expense.
  - Central power shelf design to enhance power efficiency and optimize power consumption .
- **Easy Maintenance**
  - Easier maintenance in front cold aisle instead of hot aisle.
  - Tool-less design for easy replacement and repair.
  - Less PSU quantities in whole rack to minimize maintenance efforts.
- **Higher MTBF (Mean Time Between Failures)**
  - Centralizing power supplies and removing unnecessary components to enhance MTBF.
  - Avoids system downtime caused by component failure and minimizes maintenance efforts.
- **Converged Server Applications**
  - Suitable for software-defined applications, Intel RSD compatible.

## RACKLUTION-OP Version 1.0 VS Version 2.0

GIGABYTE currently has released two versions of RACKLUTION-OP products – Version 1.0 and Version 2.0. The difference is the design of the power distribution system: a triple bus-bar power distribution system (Version 1.0) or a single bus-bar power distribution system (Version 2.0). Both systems can co-exist with each other, and customers can choose the design version based on their preference and requirements.

Version 1.0

Higher power capacity, for racks featuring GPU nodes

3 x 12V 80A bus-bars
12V x 80A x 3 = 2,880W to each GPU node shelf
OR 12V x 40A = 480W to each compute node

3 bus-bars

12V 12V 12V

Power Shelf

Bus-bar cable x 3

Same chassis for V1 & V2

40A — 80A
40A — 80A
40A — 80A

TO20-BT1

Version 2.0

Cost efficient design for lighter power supply requirements

1 x 12V 120A bus-bar
12V x 120A = 1,440W per shelf
1,400W / 3 = 480W to each node

1 bus-bar

12V

Power Shelf

Bus-bar cable x 1

Same chassis for V1 & V2

40A
40A — 120A
40A

TO21-BT0

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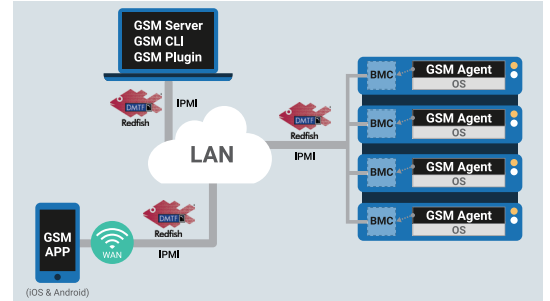
- **RESTful API support** (including the latest DMTF standards of Redfish) allows the administrator to integrate with 3rd party applications for server management
- **HTML5-based iKVM** remote management client included as a standard feature, no additional add-on license required to purchase
- **Detailed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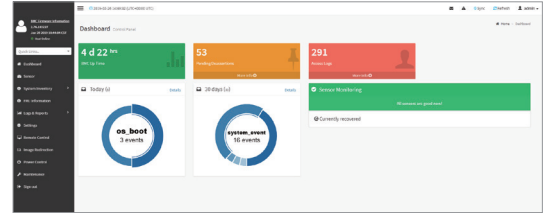
GIGABYTE Server Management (GSM)

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)	3 Nodes/ 2OU 180 x 90 x 690	**Front I/O**	2 x USB 3.0, 1 x VGA, 2 x RJ45, 1 x MLAN, 1 x Power button with LED, 1 x ID button with LED, 8 x HDD LED, 1 x System status LED
Motherboard	MZ61-HD2	**Rear I/O**	-
CPU	AMD EPYC™ 7001 series processor families	**Backplane I/O**	6Gb/s, 12Gb/s, NVMe
Socket	2 x LGA 4094	**TPM**	1 x TPM header
Chipset	SoC	**System Management**	Aspeed® AST2500 management controller GIGABYTE Management Console (AMI MegaRAC SP-X) GIGABYTE Server Management (GSM)
Memory	16 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: 2666(1DPC)/2400/2133 MHz	**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
LAN	2 x 1GbE LAN ports (1 x Intel® I350-AM2) 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	Front side: 2 x 2.5" hybrid NVMe/SATA/SAS + 2 x 2.5" SATA/SAS hot-swap bays	**Weight**	Net Weight: 6.24 kg Gross Weight: 11.1 kg
SATA Drives	4	**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)
SAS Drives	Add-on card available		
NVMe Drives	2		
RAID	Optional	**Fan Module**	2 x 80x80x38mm (14900rpm) fan modules per nodes
Expansion Slots	2 x PCIe x16 (Gen3 x16) slots, Low profile, half length 1 x OCP mezzanine slot (Gen3 x16)	**Part Numbers**	6NTO22Z61MR-00