



Intel® Carrier Grade Server TIGW1U

Product Overview

The Intel® Carrier Grade Server TIGW1U is a NEBS-3 and ETSI-compliant carrier-grade rack server, providing industry-leading CPU performance and power efficiency in a compact package. It features the 64-bit Dual-Core Intel® Xeon® processor LV 5148^A, providing improved performance-per-watt over previous-generation rack-mount servers.

This high-performing server is an excellent choice for the demanding environment and limited space of the central office and highly available data centers. It is also ideal for Services over IP (SolP) for next-generation telecom solutions and communications networks. Offered as a standard building block, the Intel Carrier Grade Server TIGW1U enables OEMs and TEMs to create their own value-added solutions for a variety of telecom applications including unified messaging, SolP, call control, media and signaling gateways, and operational system support. In addition, the TIGW1U raises the performance bar for telecom solutions with support for Intel® I/O Acceleration Technology (Intel® I/OAT)⁺, Intel® 64 Technology^S (Intel® 64) and dual-channel Fully Buffered DIMM (FB-DIMM) technology at either 533 or 667 MHz for maximized bandwidth.

Innovative Server for Rugged Environments

Carrier-Grade Features: NEBS-3 and ETSI-compliant, it is fire-resistant and can withstand extreme heat, humidity, altitude and zone 4 earthquake shock.

Advanced Server Management: Intel® Server Management and Telco Alarm Management features provide visual, audible (optional) and SNMP event indications of faults, consistent with the rigid requirements of the telecom central office environment.

Managed Life Cycle: Provides a three-year warranty and spares support for excellent customer investment protection. May be extended an additional two years with optional Extended Life Cycle.



Configuration

A 20-inch rugged chassis, available with hot-swap redundant AC or DC power, includes driver carriers for three Serial Attached SCSI (SAS) hard disk drives behind a customizable front bezel. The 1U chassis comes with all required chassis boards and cabling. The platform base includes:

- One super slot for support of one slot of either PCI-e x4 or PCI-X
- Drive bays for three hot-swap 2.5-inch SAS hard disk drives
- Six DIMM slots supporting FB-DIMM memory
- Optional dual-redundant 450W AC or DC hot-swap power supply
- Toolless, lockable chassis
- Configurable CD-ROM bay

Dual-Core Intel® Xeon® Processor LV 5148

Intel's new advanced 64-bit dual-core processor – the Dual-Core Intel Xeon processor LV 5148 on 65nm technology – enables higher levels of performance, power efficiency and reliability. It incorporates Intel® Core™ microarchitecture for energy-efficient performance, reducing costs and improving server density. The energy-efficient performance of these processors enables the TIGW1U to optimally balance processing capabilities within power and space constraints, providing operational cost savings for customers.

This dual-core processor features 4 MB of shared L2 cache and a thermal design power (TDP) of 40W at 2.33 GHz. The larger 4 MB L2 cache, shared by both cores, provides dynamic allocation between the cores based on application load. This significantly reduces actual latency when accessing the most commonly used data.

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|-------------------------------|---|--------------------------|--------------------------|
| A Front serial B port (RJ-45) | F Minor alarm LED (amber) | K System ID LED (white) | P Drive bay 1 and handle |
| B Power switch | G Power LED (amber) | L ID switch | Q Drive bay 2 and handle |
| C Reset switch | H Disk activity/fault LED (green/amber) | M NMI switch | R USB port 2 |
| D Critical alarm LED (amber) | I Main power LED (green) | N Optical drive bay | |
| E Major alarm LED (amber) | J NIC activity LED (green) | O Drive bay 0 and handle | |

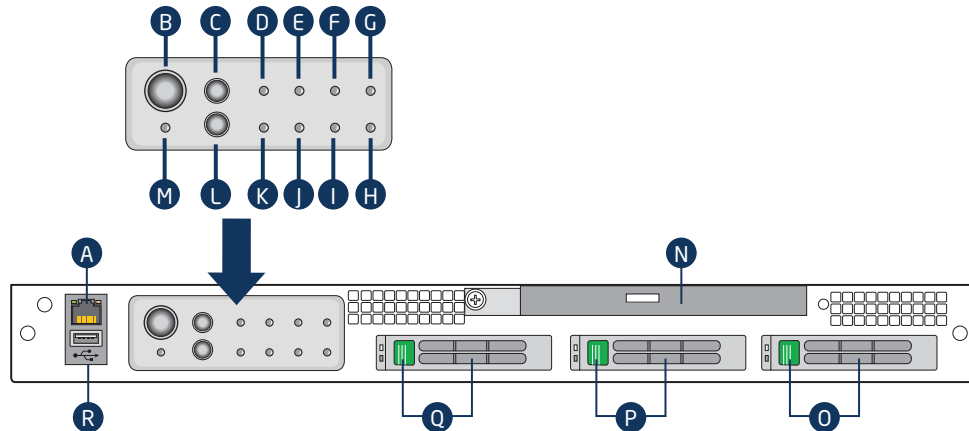


Figure 2. Intel® Carrier Grade Server TIGW1U front panel

- | | | | |
|----------------------------------|--|-------------------------------------|---|
| A PS/2 mouse | F Ground studs (for system with DC input power supply) | J AC power supply 1 input connector | O USB port 0 (bottom), USB port 1 (top) |
| B RJ-45 COM2 (Serial B) port | G AC power supply 2 | K External 4x SAS connector | P DB15 alarms connector |
| C RJ-45 NIC 3 connector | H AC power supply 2 input connector | L GCM 3 port | Q Video connector |
| D RJ-45 NIC 2 connector | I AC power supply 1 | M NIC port 1 | R PS/2 keyboard connector |
| E PCI card bracket (full-height) | | N NIC port 4 | |

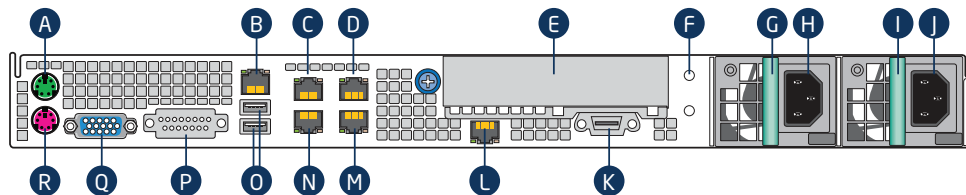


Figure 3. Intel® Carrier Grade Server TIGW1U back panel

Specifications

Processor

Type	Two Dual-Core Intel® Xeon® processors LV 5148 [^] with 4 MB cache
Core	Dual
Front-side bus	1066 and 1333 MHz
Expansion bus	One full-height/full-length super slot: PCI-X or PCI-e x4

Chipset

Memory controller hub	Intel® 5000P Memory Controller Hub (MCH)
I/O controller hub	Intel® 6321 ESB I/O Controller Hub (ICH)

Memory

Cache memory	4 MB shared L2 cache
Maximum memory capacity	24 GB with 4 GB memory per DIMM
Number of DIMM slots	Six
Memory type	FB-DIMM technology at 533 and 677 MHz

Physical

Height	1.70 inches (43.25 mm)
Width	16.93 inches (430 mm)
Depth	20 inches (508 mm)

Specifications (continued)

Environmental

Temperature, operating	+5° C to +40° C (41° F to 104° F)
Temperature, short-term operating (<96 hrs)	-5° C to 50° C
Temperature, non-operating	-40° C to 70° C (-104° F to 158° F)
Altitude	0 to 4,000 m (0 to 13,123 ft) @ 40° C
Humidity, operating	5% to 85%
Humidity, short-term operating	5% to 90%
Humidity, non-operating	95%, non-condensing at temperatures of 23° C (73° F) to 40° C (104° F)
Vibration, operating	Swept sine survey at an acceleration amplitude of 0.1 g from 5 to 100 Hz and back to 5 Hz at a rate of 0.1 octave/minute; 90 minutes per axis on all three axes as per Bellcore GR-63-CORE standards
Vibration, non-operating	Swept sine survey at an acceleration amplitude of 0.5 g from 5 to 50 Hz at a rate of 0.1 octaves/minute, and an acceleration amplitude of 3.0 g from 50 to 500 Hz at a rate of 0.25 octaves/minute, on all three axes as per Bellcore GR-63-CORE standard. 2.2 Grms, 10 minutes per axis on all three axes
Shock, operating	Half-sine 2 G, 11 ms pulse, 100 pulses in each direction, on each of the three axes*
Shock, non-operating	Trapezoidal, 25 G, 170 inches/sec delta V, three drops in each direction, on each of the three axes*
Acoustic	Sound pressure: < 55 dBA at ambient temperatures < 24° C measured at bystander positions in operating mode
RoHS	Complies with RoHS directive 2002/95/EC

Connections

PCI adapter slot support	PCI-e x4 or PCI-X (choose one)
PS/2	Keyboard and mouse connections
USB 2.0 ports	Three: one front/two rear
COM ports	Two: one front/one rear

Regulatory Compliance

Safety	UL 60950-1, 1st Edition/CSA 22.2 60950-1, Low Voltage Directive, 73/23/EEC TUV/GS to EN60950-1, 1st Edition CB Certificate and Report to IEC60950-1, 1st Edition and all international deviations
Electromagnetic Compatibility:	
USA	FCC 47 CFR Parts 2 and 15, Verified Class A Limit
Canada	IC ICES-003 Class A Limit
Europe	EMC Directive, 89/336/EEC EN55022, Class A Limit, Radiated and Conducted Emissions EN55024 Immunity Characteristics for ITE EN61000-4-2 ESD Immunity EN61000-4-3 Radiated Immunity EN61000-4-4 Electrical Fast Transient EN61000-4-5 Surge EN61000-4-6 Conducted RF EN61000-4-8 Power Frequency Magnetic Fields EN61000-4-11 Voltage Fluctuations and Short Interrupts EN61000-3-2 Harmonic Currents EN61000-3-3 Voltage Flicker
Australia/New Zealand	C-tick, Class A
Japan	VCCI Class A
Taiwan	BSMI Approval, CNS 13438, Class A and CNS13436 Safety
Korea	RRL Approval, Class A
China	CCC Approval, Class A (EMC and Safety)
Russia	Gost Approval
International	CISPR 22, Class A Limit, CISPR 24 Immunity

Embedded Intel® Architecture: intel.com/design/intarch/

*Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. See http://www.intel.com/products/processor_number for details.

*Intel® I/O Acceleration Technology requires an operating system that supports Intel I/OAT.

†64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Consult with your system vendor for more information.

*As per the Intel® Environmental Standards Handbook

†SPECfp_2000-Rate (DP Mode) tests compared the performance of two Dual-Core Intel® Xeon® processors LV 5148* (four cores per system) with two single-core Intel Xeon processors (2.8 GHz) in a dual-processing configuration (two cores per system):

- Two 2.33 GHz Dual-Core Intel® Xeon® processors LV 5148* with Intel® 5000P chipset, 1333 MHz FSB, and 4x1 GB dual-rank 667 MHz FB-DIMM DDR2 (Dual-Core Intel® Xeon® processors LV 5138* with Intel® 5000P chipset development kit). Software: Microsoft Windows Server 2003* Enterprise x64 Edition + SP1 (64-bit), Intel® C++ Compiler 9.1 for IA32 (20060323Z), Microsoft Visual Studio .NET 2003* (7.1.3088), MicroQuill SmartHeap* Library 8.0.
- Two 64-bit Intel® Xeon® processors 2.8 GHz with 800 MHz system bus with Intel® E7520 chipset, 800 MHz FSB, and 1 GB DDR2 400 MHz. (Intel® Xeon® processor with 800 MHz System Bus, Intel® E7520 chipset, and Intel® 6300ESB I/O Controller Hub Development Kit) Software: Linux* RedHat 9.0, Kernel 2.6.9-22.EL, 32-bit OS, Intel Compiler 9.0.

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