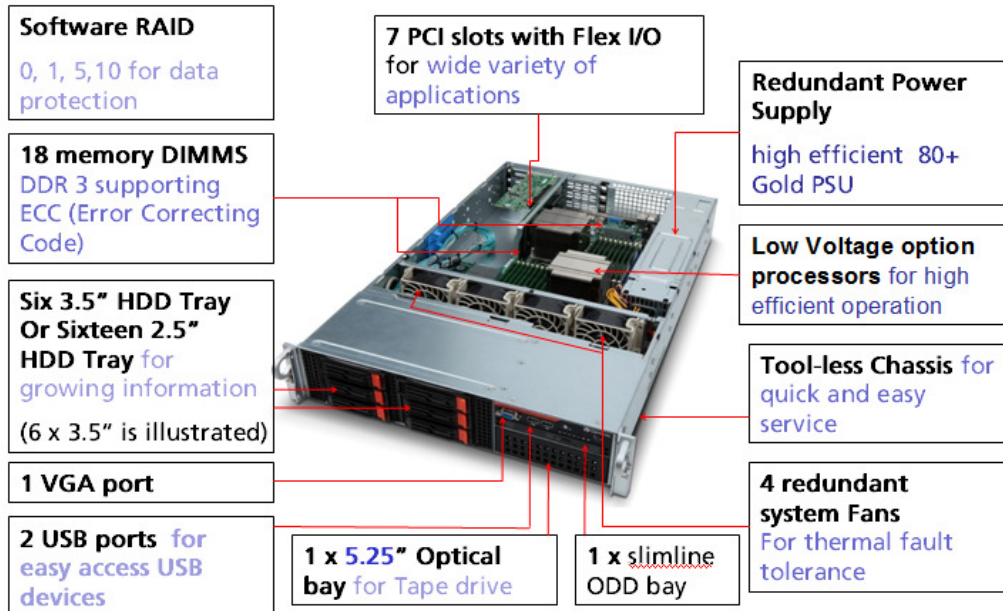


GR380 F1 specifications

Product overview

The Gateway GR380 F1 is a dual socket 2U server for space-conscious users who demand highest performance and utmost expansion capability. Offering high performance, latest technology, cost-effective growth, and comprehensive management features, Gateway GR380 F1 delivers optimized performance per cost solution in enterprise environment deployments.

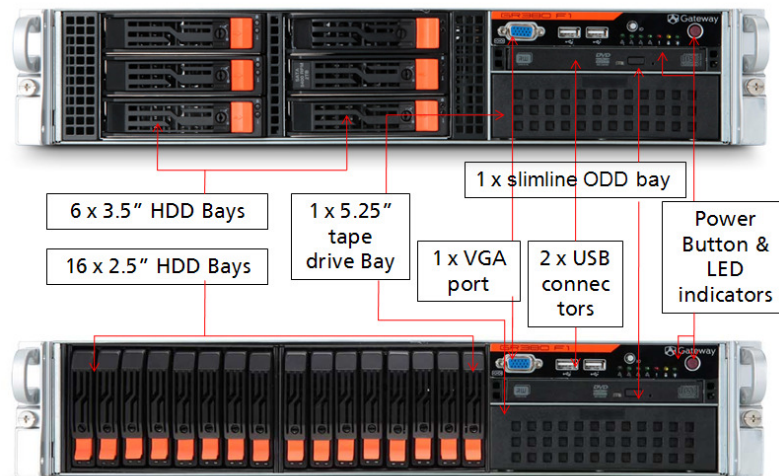
Internal view



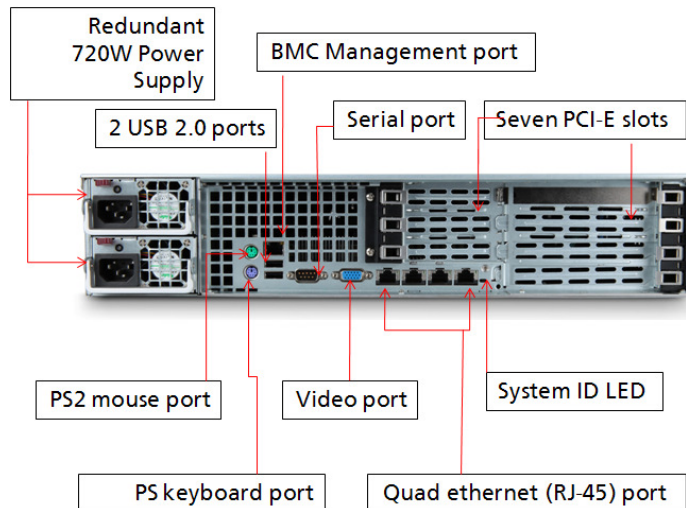
- 1 2 x 720 W 80 PLUS[®] gold-level efficient easy-swap power supplies (1+1 redundant, hot-pluggable)
 - 2 2 x Intel[®] Xeon[®] X5600 series processors
 - 3 18 x DDR3 ECC registered / unbuffered DIMMs
 - 4 3+1 redundant cooling fans
 - 5 7 x PCIe expansion slots
 - 6 1 x 5.25" media expansion bay
 - 7 1 x slimline ODD bay
 - 8 16 x 2.5" hot-swappable hard drive bays or 6 x 3.5" hot-swappable hard drive bays
- Note:** Availability may vary by region

GR380 F1 specifications

Front View



Rear View



Front I/O

- 1 2 x USB ports
- 2 Video port
Note: Only one video port may be used at any given time
- 3 ID LED button
- 4 Network, hard drive and power status indicators

Rear I/O

- 1 PS2 mouse and keyboard ports
- 2 2 x USB ports
- 3 4 x Gigabit LAN port (RJ-45)
- 4 Video port
Note: Only one video port may be used at any given time
- 5 Serial port
- 6 System ID LED
- 7 Management port (RJ-45)

GR380 F1 specifications

What's New

- New Intel® Xeon® 5600 Series processors
Intel Xeon X5675, X5672, E5649, E5645, E5607, E5606, E5603
- Hot-pluggable/redundant power supply with 80 PLUS® gold-level efficiency
- Smart Server Manager v1.1 with improved management functionality

Product Specifications

Processors and Chipset

- Up to two Intel® Xeon® 5500/5600 series processors
- Chipset: Intel® 5520

Memory

- Memory capacity:
 - Registered DIMM: 1, 2, 4, 8, 16 GB
 - Unbuffered DIMM: 1, 2, 4 GB
- Maximum capacity: up to 192 GB registered DIMMs when fully populated with 2 DIMMs per channel in 12 slots
- Maximum capacity: up to 48 GB unbuffered DIMMs when fully populated with 2 DIMMs per channel in 12 slots

Network Controllers

- Integrated dual-port Intel® 82576EB Gigabit Ethernet Controller (4 ports total)

Storage

- Hard disk form factor: 2.5" or 3.5"
- Type: SAS / SATA / SSD with hot-plug capability
- 3.5" Maximum capacity:
 - Up to 12 TB SATA HDD (2 TB 3.5" x 6 HDDs)
 - Up to 3.6 TB SAS (600 GB 3.5" x 6 HDDs)
- 2.5" Maximum capacity:
 - Up to 16 TB SATA HDD (1 TB 2.5" x 16 HDDs)
 - Up to 9.6 TB SAS (600 GB 2.5" x 16 HDDs)

Storage Controllers

- Integrated Intel® ICH10R Serial ATA host controller (six 3 Gb/s SATA ports) with software RAID 0, 1, 5, 10 support
- Optional PCIe 4-/8-/16-port SAS RAID card

Expansion slots

- One Gateway Flex I/O (PCIe® 2.0 x8) slot (left)
- Two full height PCIe® 2.0 x8 slots (with x4 link; left)
- One full height PCIe® 2.0 x16 slot (with x8 link left)
- Three low profile PCIe® 2.0 x8 slots (with x4 link; right)

Management

- Gateway Smart Server Manager
- System ID LED buttons, System Health LED
- Gateway Smart Console for server management and KVM over IP remote management

Deployment/Serviceability

GR380 F1 specifications

- Gateway Smart Setup
- BIOS Update Tool
- IPMI Firmware Update Tool

Operating Systems

- Windows Server® 2008
- Windows Server 2008 R2
- Windows Server 2003
- Red Hat Enterprise Linux 5.4
- SuSE Linux Enterprise Server 11
- VMware ESXi™ 4
- VMware ESX™ 4

Input/output interface

Front

- Two USB ports
- One VGA port
- One Power/off button
- LED indicators: Power, HDD activity, LAN port 1 through 4, ID, and System status

Rear

- PS2 keyboard port
- PS2 mouse port
- Two USB 2.0 ports
- BMC Management port
- Serial port
- Video port
- 4 x Gigabit port
- ID LED

Optical drive

- Slim-line SATA DVD Super multi
- 5.25" tape drive

Chassis/Form Factor

- 2U rack optimized

Power Supply

- 2 x 720 W 80 PLUS® gold-level efficient, easy-swap power supply (1+1 redundant, hot-pluggable)

Regulatory Compliant Standards

EMC

- FCC (Class A)
- CE (Class A)
- BSMI (Class A)

Safety

- UL/cUL
- CB

Nemko/GS

GR380 F1 specifications

Environmental Specifications

Dimensions	438.4 mm (W) x 705 mm (D) x 88.1 mm (H) (17.3 x 27.8 x 3.5 inches)	
Weight	Maximum	39 kg (88.1 lbs)
	Minimum (includes a single HDD, CPU and RAM, and PSU)	28.5 kg (62.8 lbs)
System inlet temperature	Operating	10° - 35° C (50° - 95° F)
	Non-operating	-40° - 70° C (-40° - 158° F)
Relative humidity	Operating	8 - 90 %
	Non-operating	5 - 95 %
Acoustics	Idle	
	LWAd	6.4 BA
	LpAm	45.8 dBA
	Operating	
	LWAd	7.2 BA
	LpAm	53.6 dBA
Power	Rated Steady –state power	720 W
	Maximum Peak Power	728 W
	BTU rating	2456.64 BTU/hr at 100 - 240 VAC

GR380 F1 specifications

Technical specifications

PCIe® specifications

The primary I/O bus for the main board is PCIe Gen2. The following table lists the characteristics of the PCI-E bus segments. Details about each bus segment follow the table.

NOTE: The signaling bit rate of PCI Express is 2.5Gbit/s one direction per lane for Gen 1 and 5.0Gbit/s one direction per lane for Gen 2.

Expansion slot	Number	Type	Bus width ¹	Voltage	Connector	Location	Length
PCIe x16	1	PCIe Gen2	x8	3.3V	x16	Riser, left	Full height
PCIe x8	2	PCIe Gen2	x4	3.3V	x8	Riser, left	Full height
PCIe x8	3	PCIe Gen2	x4	3.3V	x8	Riser, right	low-profile
Flex I/O	1	PCIe Gen2	x8	3.3V	x8	Riser, left	Full height

NOTE:

1. Indicates the number of physical electrical lanes running to a PCIe® connector.
2. Default bus assignment (in decimal). Inserting cards with PCI™ bridges may alter the actual bus assignment number.
3. Slots are enumerated differently based on the operating system. Microsoft® operating systems enumerate Device ID by bus starting from the lowest bus to the highest.

Onboard storage specifications

Item	Description
Controller	Intel® 82801JR (ICH10R) I/O Controller Hub
Simultaneous drive transfer channels	6 onboard SATA ports
Max throughput per channel	3 Gb/s
Data transfer method	<ul style="list-style-type: none"> • Non-RAID mode • RAID mode
Drive type supported	Serial ATA
RAID levels support	<ul style="list-style-type: none"> • RAID 0, 1, 10, 5 (Intel software RAID) • RAID 0, 1, 10 (Adaptec software RAID)
RAID function support	<p>NOTE: Intel software RAID only supports Windows OS</p> <ul style="list-style-type: none"> • Supports multiple logical volumes • Setup through ROM based Array Configuration Utility Installation scripting support
RAID OS support	<p>NOTE: This controller does not support LED functions</p> <ul style="list-style-type: none"> • Windows Server 2008

GR380 F1 specifications

Additional features

- Windows Server 2008 R2
- Windows Server 2003
- Red Hat Enterprise Linux 5.4
- SuSE Linux Enterprise Server 11
- NCQ (Native Command Queuing)
- AHCI (Advanced Host Controller Interface)

Onboard LAN specifications

Item	Description
Controller	2 x Intel® 82576EB Gigabit Ethernet Controller (4 ports total)
Network interface	10Base-T / 100Base-TX / 1000Base-T
Compatibility standards	<ul style="list-style-type: none"> • IEEE 802.3 Ethernet interface for 10BASE-T • IEEE 802.3ab Ethernet interface for 1000BASE-T, • IEEE 802.3u Ethernet interface for 100BASE-TX
Manageability	<ul style="list-style-type: none"> • NC-SI, SMBus • PXE, iSCSI boot
Virtualization acceleration	<ul style="list-style-type: none"> • Intel® I/O Acceleration Technology • Virtual Machine Device Queues (VMDq) • PCI-SIG SR-IOV implementation
Connector	RJ-45
Supported cable type	CAT 5e wire

Memory specifications and population

Item	Description
Supported memory types	<ul style="list-style-type: none"> • Registered DDR3 1066 / 1333 MHz • Unbuffered DDR3 1066 / 1333 MHz <p>NOTE: Gateway does not qualify mixed memory configurations of memory type, capacity or make.</p>
Population	<p>Gateway's validated memory populations are listed below.</p> <p>NOTE: Support for 8 / 16 GB DIMMs may vary by regional availability.</p>

Single processor configuration guide

NOTE: Quad Rank DIMMs and Unbuffered DIMMs can only use a maximum of 6 slots

DIMM #	DIMM1C	DIMM 1B	DIMM 1A	DIMM 2C	DIMM 2B	DIMM2A	DIMM3C	DIMM3B	DIMM3A
1			X						
2			X			X			

GR380 F1 specifications

3					X						X								X
4				X	X					X	X								
6				X	X					X	X						X		X
9		X		X	X		X		X	X		X		X		X		X	X

Dual processor configuration guide

NOTE: Quad Rank DIMMs and Unbuffered DIMMs can only use a maximum of 6 slots per CPU (12 slots total)

DIMM #	CPU 1									CPU 2									
	1C	1B	1A	2C	2B	2A	3C	3B	3A	1C	1B	1A	2C	2B	2A	3C	3B	3A	
2			X									X							
3			X			X			X										
4			X			X						X			X				
6			X			X			X			X			X				X
8		X	X		X	X					X	X		X	X				
9		X	X		X	X		X	X			X			X				X
12		X	X		X	X		X	X		X	X		X	X		X	X	
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

3 DIMM per channel configuration is only available for single/dual rank RDIMM. UDIMM and Quad rank RDIMM can only support 2 DIMM per channel.

* support depends on 8GB/16GB DIMM available

Mirroring mode:

- For mirroring mode, the memory contains a primary image and a copy of the primary image. Therefore, the effective size of memory is reduced by at least one-half.
- Channel 3 is no function and can't be populated in this mode.
- Follow the population rules described in independent mode.
- Mirroring mode needs the channel 1 & channel 2 with identical DIMM. DIMM slot populations within a channel do not have to be identical but the same DIMM slot location across channel 1 and channel 2 must be the same. DIMM1A and DIMM2A should be the same type, size and manufacturer. DIMM1B and DIMM2B memory should be the same type, size and manufacturer. DIMM1C and DIMM2C memory should be the same type, size and manufacturer.
- Same rule is applied to the CPU2.
- 3 DIMM per channel configuration is only available for single/dual rank RDIMM.
- Please refer to the User Guide for complete population for both single and dual processor configurations.

Lockstep mode:

- In Lockstep Channel Mode, each memory access is a 128-bit data access that spans Channel 1 and Channel 2. This is done to support SDDC for DRAM devices with 8-bit wide data ports. The same

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address is used on both channels such that an address error on any channel is detectable by bad ECC. Lockstep Channel mode is the only RAS mode that supports x8 SDDC.

- Channel 3 is no function and can't be populated in this mode.
- Follow the population rules described in independent mode.
- Lockstep mode needs the channel 1 & channel 2 with identical DIMM. DIMM slot populations within a channel do not have to be identical but the same DIMM slot location across channel 1 and channel 2 must be the same. DIMM1A and DIMM2A should be the same type, size and manufacturer. DIMM1B and DIMM2B memory should be the same type, size and manufacturer. DIMM1C and DIMM2C memory should be the same type, size and manufacturer.
- Same rule is applied to the CPU2.
- 3 DIMM per channel configuration is only available for single/dual rank RDIMM.
- Please refer to the User Guide for complete population for both single and dual processor configurations.

Sparing mode:

- In this mode, if system detects degrading memory and system still not crash, the data in failed channel will be copied to spare channel. Failed channel is then isolated and spare channel becomes active. But if any uncorrectable error happens before the isolation, it will still cause the system stop normal operation.
- Channel 3 is the spare channel. Therefore, the effective size will be reduced by one-third.
- Follow the population rules described in independent mode.
- Sparing mode need all three channels with identical DIMMs. 1A, 2A and 3A should be the same type, size and manufacturer. 1B, 2B and 3B memory should be the same type, size and manufacturer. 1C, 2C and 3C memory should be the same type, size and manufacturer. Same rule is applied to CPU2.
- Memory sparing mode is only supported by Intel Xeon 5600 series processor. Intel Xeon 5500 series processor **does NOT support the memory sparing mode**.
- 3 DIMM per channel configuration is only available for single/dual rank RDIMM.
- Please refer to the User Guide for complete population for both single and dual processor configurations.

Memory Identification

Generally, there are some memory information printed on the label of DIMM, but different vendor may have different format. For example:

4GB 2Rx4 PC3-10600R xx xx xxx

1. Density

- 1GB, 2GB, 4GB, 8GB, 16GB

2. Rank

- 1R = Single Rank
- 2R = Dual Rank
- 4R = Quad Rank
- Note: if any quad rank DIMM is used, maximum only 2 DIMM per channel can be supported

GR380 F1 specifications

3. Bit Organization

- This platform supports x4 and x8
- Note: It's not recommend to mix DIMM with different bit organization in one system

4. Speed

- PC3 – 6400 => DDR3- 800
- PC3 – 8500 => DDR3- 1066
- PC3 – 10600 => DDR3- 1333

GR380 F1 specifications

Power specifications

720W Power Supply

Operational Input Voltage Range (Vrms) 100 to 240

Frequency Range (Nominal) (Hz) 60/50

	100	120	208	200	220	230	240
Nominal Input Voltage (Vrms)							
Max. Rated Output Wattage	720	720	720	720	720	720	720
Nominal Input Current (A rms)	8.46	6.97	3.80	3.87	3.74	3.5	3.29
Max. Rated Input Wattage Rating (Watts)	846.0	836.4	790.4	774.0	822.8	805.0	789.6
Max. Rated VA (Volt-Amp)	837.54	828.03	774.59	758.52	806.34	788.9	773.81
Efficiency (%) at Max. Rated Output Wattage	88.12	89.49	90.95	90.74	91.51	91.92	92.27
Power Factor	0.99	0.99	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.17	0.19	0.29	0.31	0.35	0.37	0.41
Max. Inrush Current (A peak)	17.24	19.41	18.52	16.88	16.48	20.47	22.54
Max. Inrush Current Duration (mS)	4.62	4.58	4.61	4.62	4.64	4.63	4.64
Max. British Thermal Unit Rating (BTU/hr)	2456.64	2456.64	2456.64	2456.64	2456.64	2456.64	2456.64

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Gateway server software utilities

- Smart Setup 2.0 Easy deployment via the latest version of Gateway's Smart Setup. Smart Setup is available both in box as a driver packed installation DVD or a downloadable file to be put into a USB 2.0 device, and eases the deployment of Gateway servers for any certified OS. Through its unique interface, users may select to have all the correct drivers be pre-deployed for the OS of their choosing, as well as setup hardware RAID devices, BMC settings (where available), and even clone the pre-settings to a bootable USB device to ease mass server deployments.
- Smart Console Web-based management utility to simplify system management with embedded iBMC, system monitoring and alerting, event handling, remote power control and KVM-over-IP. Smart Console is OS independent and offers virtual media through floppy, ODD, and removable disk.
- Smart Server Manager v1.1 Offering 24-7 monitoring for system health and performance.
- Delivers proactive event management features including system event logging, event handling from e-mail and SNMP Trap (PET) alerting.
 - Monitors onboard hardware, operating systems and virtual machines
 - Allows remote control from KVM and Power control
 - Satisfies management in web-based UI, role-based administration, and automated management scripts.

GR380 F1 specifications

Available options

Processors (up to 2)

Intel® Xeon® processor (Six Core)

X5675 (12 MB L3 cache, 3.06 GHz, DDR3-1333 MHz, 95W)

X5670 (12 MB L3 cache, 2.93 GHz, DDR3-1333 MHz, 95 W)

X5660 (12 MB L3 cache, 2.80 GHz, DDR3-1333 MHz, 95 W)

X5650 (12 MB L3 cache, 2.66 GHz, DDR3-1333 MHz, 95 W)

L5640 (12 MB L3 cache, 2.26 GHz, DDR3-1333 MHz, 60 W)

E5649 (12 MB L3 cache, 2.53 GHz, DDR3-1333 MHz, 80 W)

E5645 (12 MB L3 cache, 2.40 GHz, DDR3-1333 MHz, 80W)

Intel® Xeon® processor (Quad Core)

X5672 (12 MB L3 cache, 3.20 GHz, DDR3-1333 MHz, 95W)

X5667 (12 MB L3 cache, 3.06 GHz, DDR3-1333 MHz, 95 W)

X5570 (8 MB L3 cache, 2.93 GHz, DDR3-1333 MHz, 95 W)

X5560 (8 MB L3 cache, 2.80 GHz, DDR3-1333 MHz, 95 W)

X5550 (8 MB L3 cache, 2.66 GHz, DDR3-1333 MHz, 95 W)

E5640 (12 MB L3 cache, 2.66 GHz, DDR3-1066 MHz, 80 W)

E5630 (12 MB L3 cache, 2.53 GHz, DDR3-1066 MHz, 80 W)

E5620 (12 MB L3 cache, 2.40 GHz, DDR3-1066 MHz, 80 W)

L5630 (12 MB L3 cache, 2.13 GHz, DDR3-1066 MHz, 40 W)

L5609 (12 MB L3 cache, 1.86 GHz, DDR3-1066 MHz, 40 W)

E5607 (8 MB L3 cache, 2.26 GHz, DDR3-1066 MHz, 80 W)

E5606 (8 MB L3 cache, 2.13 GHz, DDR3-1066 MHz, 80 W)

E5603 (4 MB L3 cache, 1.60 GHz, DDR3-1066 MHz, 80 W)

E5540 (8 MB L3 cache, 2.53 GHz, DDR3-1066 MHz, 80 W)

E5530 (8 MB L3 cache, 2.40 GHz, DDR3-1066 MHz, 80 W)

E5520 (8 MB L3 cache, 2.26 GHz, DDR3-1066 MHz, 80 W)

E5506 (4 MB L3 cache, 2.13 GHz, DDR3-800 MHz, 80 W)

E5504 (4 MB L3 cache, 2 GHz, DDR3-800 MHz, 80 W)

L5520 (8 MB L3 cache, 2.26 GHz, DDR3-1066 MHz, 60 W)

L5506 (4 MB L3 cache, 2.13 GHz, DDR3-800 MHz, 60 W)

Intel® Xeon® processor (Dual Core)

E5502 (4 MB L3 cache, 1.86 GHz, DDR3-800 MHz, 80 W)

GR380 F1 specifications

Memory

Memory type	Registered / Unbuffered DDR3 ECC memory
Capacities	1 / 2 / 4 / 8 / 16 GB DIMMs
DIMM number	18
Max memory	192 GB (48 GB unbuffered)

Hard drives

Type	Interface, bandwidth	Capacities (RPM)
Enterprise SATA, 2.5"	3 Gb/s	150 GB (10K)
		160 GB (7.2K)
		300 GB (10K)
		500 GB (7.2K)
		1 TB (7.2K)
Enterprise SATA, 2.5"	6 Gb/s	250 GB (7.2K)
		500 GB (7.2K)
		1 TB (7.2K)
Enterprise SATA, 3.5"	3 Gb/s	250 GB (7.2K)
		500 GB (7.2K)
		750 GB (7.2K)
		1 TB (7.2K)
		2 TB (7.2K)
Enterprise SAS, 2.5"	6 Gb/s	73 GB (15K)
		146 GB (15K)
		300 GB (10K)
		450 GB (10K)
		600 GB (10K)
Enterprise SAS, 3.5"	6 Gb/s	146 GB (15K)
		300 GB (15K)
		450 GB (15K)
		600 GB (15K)

NOTE: SAS drives require an add-on RAID card

NOTE: SAS drives require an add-on RAID card

Optical drives

DVD-ROM
SuperMulti (DVD ± RW)

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RAID cards

Model	Port number	RAID support
LSI® MegaRAID SAS 9240-4i	4 internal ports	0, 1, 5, 10
LSI® MegaRAID SAS 9260-8i*	8 internal ports	0, 1, 5, 6, 10, 50, 60
Flex I/O, LSI® SAS 2108*	8 internal ports	0, 1, 5, 6, 10, 50, 60
LSI® MegaRAID SAS 9260-16i*	16 internal ports	0, 1, 5, 6, 10, 50, 60

*Battery Backup Unit BBU07 available

RAID HBA for Tape Drive

Note: LTO tape drives require an add on card for external or internal connectivity

Model	Port number	RAID support
LSI® SAS3442E-R	4 internal / 4 external ports	0, 1, 10

Ethernet network cards

Model	Port number	Bandwidth
Intel® Gigabit CT2 desktop adapter	1	10/100/1000 Mbps
Supermicro AOC-SG-i2 server adapter	4	10/100/1000 Mbps
Supermicro AOC-SG-i4 server adapter	4	10/100/1000 Mbps
Supermicro AOC-STGN-i2S server adapter (DA2)*	2	10 Gbps
Intel® X520-SR1 server adapter*	1	10 Gbps
Intel® X520-SR2 server adapter*	2	10 Gbps
Intel® X520-LR1 server adapter*	1	10 Gbps

***Note:** Intel's 10GbE cards vary in terms of their connector type. The X520-DA2 is a copper connector for lengths up to 7M, while the X520-SR1/2 is an optical connection for cables up to 550M. The X520-LR1 is for even longer cable lengths up to 10km.

Fibre Channel HBAs

Model	Port number	Bandwidth
Qlogic® QLE2460	1	4 Gb/s
Qlogic® QLE2462	2	4 Gb/s
Qlogic® QLE2560	1	8 Gb/s
Qlogic® QLE2562	2	8 Gb/s

Tape Backup Unit (TBU)

GR380 F1 specifications

Model	Tape capacity	Form factor
LTO Ultrium-3, 3Gb/s SAS	400/800 GB	External 1U rack
LTO-4, 3Gb/s SAS	400/800 GB	External 1U rack
DAT72 SATA/USB TBU	36 GB 72 GB	Internal 5.25" half-height
DAT160 USB TBU	160 GB	Internal 5.25" half-height

TPM module

TPM module with STMicro chip

GR380 F1 specifications

Service and support

Gateway Servers offer a comprehensive service suite to take care of daily IT needs. Users can select the 3-year standard warranty or choose extended warranties and services.

In a continuing effort to improve the quality of our products, information in this document is subject to change without notice. Images shown are only representations of some of the configurations available for this model. Availability may vary depending on region.

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NOTE: Extension warranty services may vary by country. Please contact Gateway authorized resellers for more information.

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