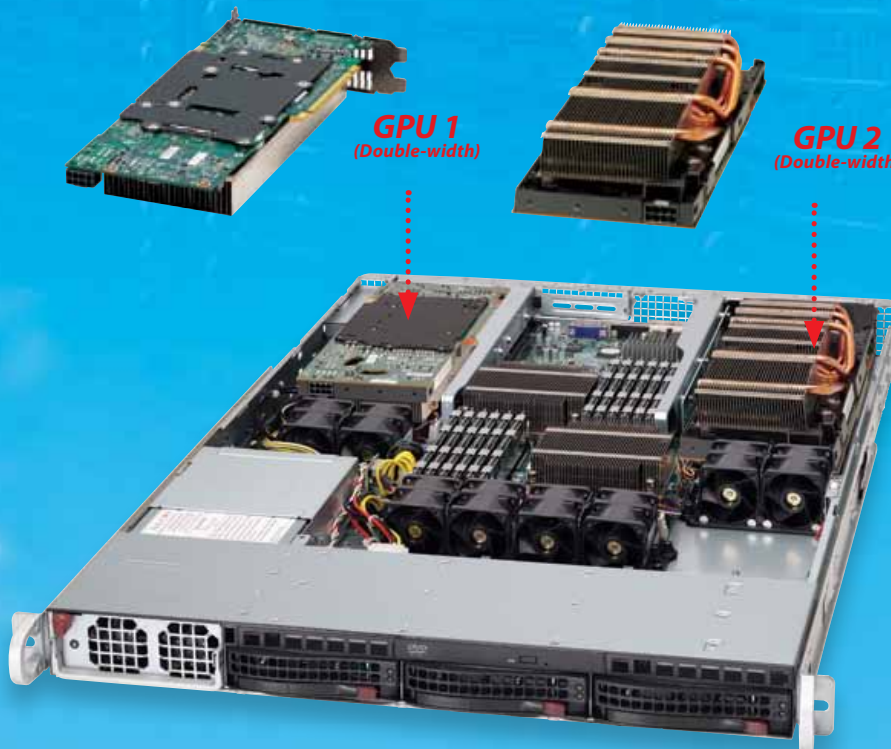


SUPERMICR[®]

GPU

Supercomputing Server Solutions

1 TFLOPS of Double Precision Performance
2 GPU Cards Included



Medical Imaging



Oil & Gas Exploration



3D Rendering & Gaming



Astrophysics



Quantum Chemistry



Financial Simulation

- **PERFORMANCE:** Two non-blocking PCI-E x16 Gen 2 connections to maximize I/O bandwidth
- **RELIABILITY:** Direct motherboard connections to GPUs to improve availability over alternative wired solutions
- **MANAGEABILITY:** Server management & GPU status monitoring through IPMI
- **FLEXIBILITY:** Support for various GPU cards
- **EFFICIENCY:** Breakthrough system architecture to optimize TCO, with Gold Level power supplies, advanced cooling, and high-end motherboard components

www.supermicro.com

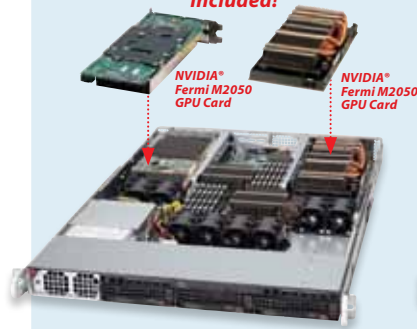


Gold Level
80 PLUS[®] Certified
Power Supplies

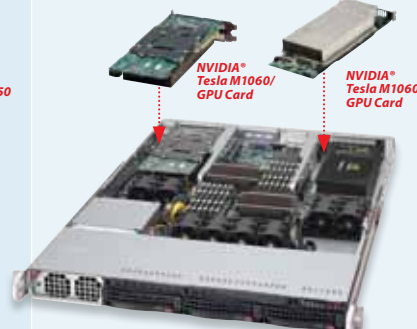


93% Power Efficiency
For TCO improvement and
earth-friendly computing

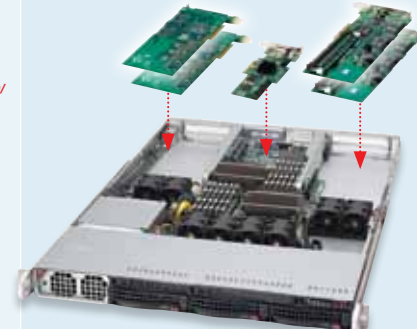
**Enterprise Level
1 TeraFLOPS Double Precision
2x GPUs with intelligent cooling control
included!**



**2 TeraFLOPS Single Precision
2x GPUs with intelligent/active
cooling control included!**



**Maximum connectivity -
supports 5 x PCI-E 2.0 add-on cards
in 1U**



MODEL	SuperServer 6016GT-TF-FM205 SuperServer 6016GT-TF-FM105	SuperServer 6016GT-TF-TM2 SuperServer 6016GT-TF-TM1	SuperServer 6016GT-TF SuperServer 6016XT-TF
Salient Features	<ul style="list-style-type: none"> Fastest 1U in the industry Up to 1 TeraFLOPS DP (Double Precision) of performance per system GPU health monitoring with fan speed control Gold Level 93% efficiency 1400W power supply Enterprise level intelligent server IPMI management tool with GPU cooling control and status information 	<ul style="list-style-type: none"> 2 TeraFLOPS in 1U (240 cores per GPU) The world's first and only GPU optimized 1U server Gold Level 93% efficiency 1400W power supply Flexible system configurations Enterprise level intelligent server IPMI management tool with GPU cooling control and status information 	<ul style="list-style-type: none"> The Fastest 1U in the industry Up to 4 full length expansion cards & 1 low-profile Gen 2.0 x4, 5 total (6016XT-TF) Gold Level 93% efficiency 1400W power supply Flexible system configurations Enterprise level intelligent server IPMI management tool with GPU cooling control and status information
Processor Support	Intel [®] Xeon [®] Processor 5600/5500 Series	Intel [®] Xeon [®] Processor 5600/5500 Series	Intel [®] Xeon [®] Processor 5600/5500 Series
Chipset	Intel [®] 5520 chipset with QPI up to 6.4GT/s	Intel [®] 5520 chipset with QPI up to 6.4GT/s	Intel [®] 5520 chipset with QPI up to 6.4GT/s
GPUs/Add-on Cards	6016GT-TF-FM205: 2 NVIDIA [®] Fermi M2050 GPU Cards are 3GB memory ECC are included 6016GT-TF-FM105: 1 NVIDIA [®] Fermi M2050 GPU Card are 3GB memory ECC are included	6016GT-TF-TM2: 2 NVIDIA [®] Tesla M1060 GPU Cards are included 6016GT-TF-TM1: 1 NVIDIA [®] Tesla M1060 GPU Card are included	6016GT-TF: Supports up to 2x GPU from any vendor 6016XT-TF: Supports up to 5 PCI-E cards
Optimized Motherboard	SUPER [®] X8DTG-DF Intel [®] 5520 chipset with QPI up to 6.4GT/s	SUPER [®] X8DTG-DF Intel [®] 5520 chipset with QPI up to 6.4GT/s	SUPER [®] X8DTG-DF Intel [®] 5520 chipset with QPI up to 6.4GT/s
System Memory (max.)	Up to 192 GB of DDR3 Reg. ECC; 48 GB Unb. ECC/Non-ECC 1333/1066/800 MHz SDRAM in 12 DIMMs	Up to 192 GB of DDR3 Reg. ECC; 48 GB Unb. ECC/Non-ECC 1333/1066/800 MHz SDRAM in 12 DIMMs	Up to 192 GB of DDR3 Reg. ECC; 48 GB Unb. ECC/Non-ECC 1333/1066/800 MHz SDRAM in 12 DIMMs
Expansion Slots	Right/Left slot: 6016GT-TF-FM205: 2 NVIDIA [®] M2050 GPU Cards with passive heatsink and 3GB memory ECC are included 6016GT-TF-FM105: 1 NVIDIA [®] M2050 GPU Cards with passive heatsink and 3GB memory ECC are included Center slot via riser card (low-profile): - PCI-E 2.0 x4 (in x16 slot)	Right/Left slot: 6016GT-TF-TM2: 2 NVIDIA [®] Tesla M1060 GPU Card with passive heatsink 6016GT-TF-TM1: 1 NVIDIA [®] Tesla M1060 GPU Card with passive heatsink Center slot via riser card (low-profile): - PCI-E 2.0 x4 (in x16 slot)	Right/Left slot: 6016XT-TF: 4x PCI-E 2.0 x8 (in x16 slot) 6016GT-TF: 2x PCI-E 2.0 x16 support double width cards Center slot via riser card (low-profile): - PCI-E 2.0 x4 (in x16 slot)
Onboard SATA RAID	Intel [®] ICH10R for 6 SATA (3 Gbps): RAID 0, 1, 5, 10 (Windows) RAID 0,1,10 (Linux)	Intel [®] ICH10R for 6 SATA (3 Gbps): RAID 0, 1, 5, 10 (Windows) RAID 0,1,10 (Linux)	Intel [®] ICH10R for 6 SATA (3 Gbps): RAID 0, 1, 5, 10 (Windows) RAID 0,1,10 (Linux)
Onboard LAN/VGA/I/O	Dual LAN with Intel [®] 82576 Gigabit Ethernet Up to 4 USB 2.0 ports Matrox G200eW Graphics	Dual LAN with Intel [®] 82576 Gigabit Ethernet Up to 4 USB 2.0 ports Matrox G200eW Graphics	Dual LAN with Intel [®] 82576 Gigabit Ethernet Up to 4 USB 2.0 ports Matrox G200eW Graphics
Manageability	IPMI 2.0 + KVM with dedicated LAN Watch Dog, SuperDoctor [®] III	IPMI 2.0 + KVM with dedicated LAN Watch Dog, SuperDoctor [®] III	IPMI 2.0 + KVM with dedicated LAN Watch Dog, SuperDoctor [®] III
Drive Bays	3x 3.5" hot-swap drive trays 1x Slim DVD drive (optional)	3x 3.5" hot-swap drive trays 1x Slim DVD drive (optional)	3x 3.5" hot-swap drive trays 1x Slim DVD drive (optional)
Power Supply	1400W Gold Level high-efficiency power supply with iC & PMBus	1400W Gold Level high-efficiency power supply with iC & PMBus	1400W Gold Level high-efficiency power supply with iC & PMBus
Cooling System	8x 4cm heavy duty counter-rotating fan with optimal GPU & CPU fan speed control	8x 4cm heavy duty counter-rotating fan with optimal GPU and CPU fan speed control	8x 4cm heavy duty counter-rotating fan with optimal CPU fan speed control
Form Factor	1U rackmount: 17.2"W (437mm) x 1.7"H (43mm) x 28.2"D (716mm)	1U rackmount: 17.2"W (437mm) x 1.7"H (43mm) x 28.2"D (716mm)	1U rackmount: 17.2"W (437mm) x 1.7"H (43mm) x 28.2"D (716mm)

Powering HPC and Cloud Computing Environments

**2 TeraFLOPS Double Precision
4x GPU Cards Included**

**4 TeraFLOPS Single Precision
4x GPU Cards Included**

**Integrated QDR IB with
2x GPU support**

GPU Optimized



SuperServer 7046GT-TRF-FC405

SuperServer 7046GT-TRF-TC4 SuperServer 7046GT-TRF

A+ Server1022GG-TF

A+ Server 4021GA-62R+F

- GPU optimized 4U/tower solution
- Up to 11 PCI-E expansion slots
- Up to 2 TeraFLOPS DP (double precision) of performance per system
- 4 GPUs installed per system
- Gold Level 93% efficiency 1400W redundant power supply
- Enterprise level intelligent server IPMI management tool with GPU cooling control and status information

- GPU optimized 4U/tower solution
- Up to 11 PCI-E expansion slots
- Up to 4 TeraFLOPS of performance per system
- 4 GPUs installed per system
- Gold Level 93% efficiency 1400W redundant power supply
- Enterprise level intelligent server IPMI management tool with GPU cooling control and status information

- Supports up to 2 GPU cards
- 256 GB DDR3 1333/1066/800 SDRAM
- Enterprise level intelligent server IPMI management tool with GPU cooling control and status information
- Gold Level 93% efficiency 1400W power supply

- GPU optimized 4U/tower solution
- Up to 4 TeraFLOPS of performance per system
- Up to 4 GPUs installed per system
- Support up to 7 expansion cards
- Support PCI-Express 2.0
- Enterprise level intelligent server IPMI management tool with GPU cooling control and status information
- Gold Level 93% efficiency 1400W power supply

Intel® Xeon® Processor 5600/5500 Series

Intel® Xeon® Processor 5600/5500 Series

AMD® Opteron™ Processor 6100 Series

AMD® Opteron™ Processor 2000 Series

Dual Intel® 5520 chipset with QPI up to 6.4GT/s

Dual Intel® 5520 chipset with QPI up to 6.4GT/s

HyperTransport™ Technology Dual AMD SR5690/SP5100 chipset

HyperTransport™ Technology Dual AMD SR5690/SP5100 chipset

4 Enterprise Level NVIDIA® C2050 GPU cards with 3GB memory ECC are installed in 4 PCI-E 2.0 x16 slots

7046GT-TRF-TC4: 4 Enterprise Level NVIDIA® C1060 GPU cards with 6GB memory ECC are installed in 4 PCI-E 2.0 x16 slots

Supports 2x GPUs from any vendor

Supports 4x GPU from any vendor

SUPER● X8DTG-QF
Dual Intel® 5520 chipset with QPI up to 6.4GT/s

SUPER● X8DTG-QF
Dual Intel® 5520 chipset with QPI up to 6.4GT/s

SUPER● H8DGG-QF
HyperTransport™ technology
Dual AMD® SR5690/SP5100

SUPER● H8DA6++F
HyperTransport™ technology
Dual AMD® SR5690/SP5100

Up to **192 GB** of DDR3 Reg. ECC;
48 GB Unb. ECC/Non-ECC
1333/1066/800 MHz SDRAM in 12 DIMMs

Up to **192 GB** of DDR3 Reg. ECC;
48 GB Unb. ECC/Non-ECC
1333/1066/800 MHz SDRAM in 12 DIMMs

Up to **256 GB** of DDR3 Reg. ECC
1333/1066/800MHz SDRAM in 16 DIMMs

Up to **128 GB** of DDR2 800/667/533 Reg. ECC in 16 DIMMs

4 Enterprise Level NVIDIA® C2050 GPU cards with 3GB memory ECC are installed in 4 PCI-E 2.0 x16 slots
2 PCI-E 2.0 x4
1 PCI-E x4 (in x16 slot)
2 PCI

7046GT-TRF-TC4: 4 Enterprise Level NVIDIA® C1060 GPU cards are installed in 4 PCI-E 2.0 x16 slots
2 PCI-E 2.0 x4
1 PCI-E x4 (in x16 slot)
2 PCI 33

Right/Left slot: 2x PCI-E 2.0 x16, supports up to 2 x GPUs w/ active heatsinks
Center slot via riser card (low-profile):
- PCI-E 2.0 x8 (in x16 slot)

4 PCI-E 2.0 x16
2 PCI-E 2.0 x4 (using x8 slot)
1 PCI 33

Intel® ICH10R for 6 SATA (3 Gbps):
RAID 0, 1, 5, 10 (Windows)
RAID 0,1,10 (Linux)

Intel® ICH10R for 6 SATA (3 Gbps):
RAID 0, 1, 5, 10 (Windows)
RAID 0,1,10 (Linux)

6 SATA (3 Gbps):
RAID 0, 1

LSI® 2008 SAS2 controller; Optional AOC -SAS2-RAID 5-KEY support
AMD SP5100 for 6 SATA2 (3 Gbps):
RAID 0, 1, 5, 10 (Windows)
RAID 0,1,10 (Linux)

Dual LAN with 2 x Intel® 82574L Gigabit Ethernet
Matrox G200eW Graphics
7.1 Channel HD audio
Dual IEEE 1394a ports

Dual LAN with 2 x Intel® 82574L Gigabit Ethernet
Matrox G200eW Graphics
7.1 Channel HD audio
Dual IEEE 1394a ports

Dual LAN with Intel® 82576 Gigabit Ethernet
Up to 4 USB 2.0 ports
Matrox G200eW Graphics

Dual LAN with Intel® 82576 Gigabit Ethernet
Matrox G200eW Graphics

IPMI 2.0 + KVM with dedicated LAN
Watch Dog, SuperDoctor® III

IPMI 2.0 + KVM with dedicated LAN
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IPMI 2.0 + KVM with dedicated LAN
Watch Dog, SuperDoctor® III

IPMI 2.0 + KVM with dedicated LAN
Watch Dog, SuperDoctor® III

8x 3.5" hot-swap drive trays
90-degree rotatable module - 3 x 5.25" drive bays and 1 x 3.5" fixed drive bay

8x 3.5" hot-swap drive trays
90-degree rotatable module - 3 x 5.25" drive bays and 1 x 3.5" fixed drive bay

3x 3.5" hot-swap drive trays
1x Slim DVD drive (optional)

8x 3.5" hot-swap drive trays
90-degree rotatable module - 3 x 5.25" drive bays and 1 x 3.5" fixed drive bay

1400W Gold Level high-efficiency redundant power supply with I²C & PMBus

1400W Gold Level high-efficiency redundant power supply with I²C & PMBus

1400W Gold Level high-efficiency power supply with I²C & PMBus

1400W Gold Level high-efficiency redundant power supply I²C & PMBus
4 sets of 6-pin 12V for GPU or graphics cards

4x 9.2cm hot-swap cooling fans with optimal CPU fan speed control & **2x 8cm** hot-swap exhaust PWM fans

4x 9.2cm hot-swap cooling fans with optimal CPU fan speed control & **2x 8cm** hot-swap exhaust PWM fans

8x 4cm heavy duty counter-rotating fan with optimal CPU fan speed control

4x 9.2cm hot-swap cooling fans with optimal CPU fan speed control & **2x 8cm** hot-swap exhaust PWM fans

4U rackmount: 17.2"W (437mm) x 7"H (178mm) x 25.5"D (648mm)

4U rackmount: 17.2"W (437mm) x 7"H (178mm) x 25.5"D (648mm)

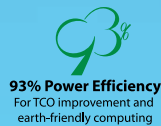
1U rackmount: 17.2"W (437mm) x 1.7"H (43mm) x 28.2"D (716mm)

4U rackmount: 17.8"W (452mm) x 7"H (178mm) x 29.4"D (746mm)

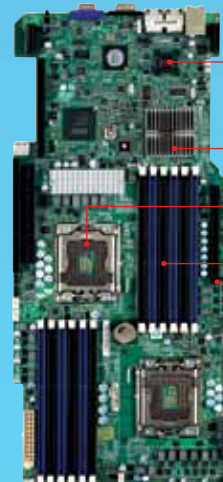
SUPERMICRO® GPU Supercomputing Server Solutions

The 1U and 4U GPU Supercomputing Servers establish Supermicro as the true global IT hardware leader in server architecture, performance, and Green computing. Generating massively parallel processing power and unrivaled networking flexibility with two double-width GPUs, up to 5 expansion slots or with InfiniBand networking options, the 1U form factor systems are performance and quality optimized for the most computationally-intensive applications. For the ultimate in GPU computing, the 4U systems accommodate 4 x double-width GPU cards for up to 2 TeraFLOPS of DP (double precision) or 4 TeraFLOPS of SP (single precision) performance. Supermicro's unique server designs with Gold Level power supplies, energy-saving motherboards and enterprise class server management optimize cooling for even the most demanding applications, providing the perfect technology platform for these impressive GPU Supercomputing Servers.

Optimized Chassis and Motherboard



Gold Level
80 PLUS® Certified
Power Supplies



- Intel® 82576 dual LAN
- Intel® 5520 chipset
- Intel® Xeon® processor 5600/5500 series
- Up to 192GB of DDR3 Reg. ECC; 48GB Unb. ECC/Non-ECC 1333/1066/800 MHz SDRAM
- 2 PCI 2.0 x16, 1 PCI-E 2.0 x4
- Onboard BMC (Baseboard Management Controller), supports IPMI 2.0, media/KVM over LAN with dedicated LAN for system management, video output.

X8DTG-DF

SC818G-1400B Chassis

- Optimized for 2x double-width high-end GPUs, designed for high-end heterogeneous computing applications
- 1400W Gold Level high-efficiency power supply
- 3x 3.5" Hot-swap drive bays
- Expansion Slots: 4x full-height, full-length + 1x low-profile (with riser card) or 2x double-width high-end graphics cards (optimized) + 1x low-profile slot
- 8x 4cm heavy duty counter-rotating fans with optimal fan speed control
- Motherboards supported: X8DTG-DF (optimized), X8DTT and H8DMT

Compatible Twin Motherboards



X8DTT-IBQF
(Tylersburg based)



X8DTT-IBXF
(Tylersburg based)



X8DTT-F
(Tylersburg based)



H8DMT
(MCP55V-Pro based)

What is GPU Computing?

GPU computing is the use of a GPU (graphics processing unit) to do general purpose scientific and engineering computing. The concept for GPU computing is to use a CPU and GPU together in a heterogeneous computing model - the sequential part of the application runs on the CPU and the computationally - intensive part runs on the GPU. From the user's perspective, the application just runs faster because it is using the high performance of the GPU to boost performance at 1/10th the cost and 1/20th the power consumption of the latest quad-core CPUs.