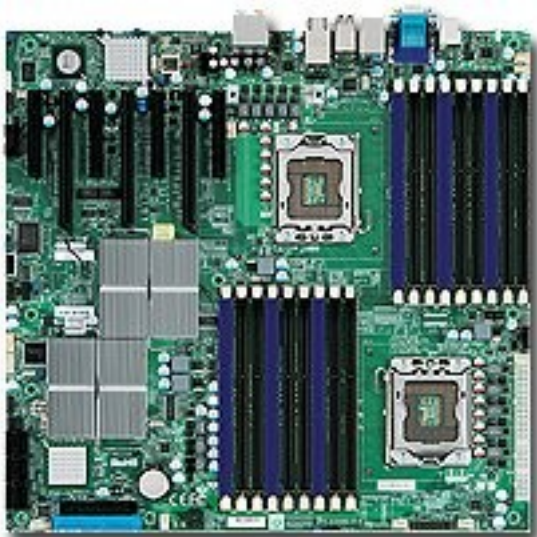


GRAPHSTREAM

P2X18A-R2A Graphics Server



P2X18A-R2A is a 2RU-rackmount server system that can support a wide range of technical and visual computing applications.

P2X18A-R2A is optimized for GPU-accelerated 3D graphics applications that require more resources than typical workstation-class systems can provide.

- 16way SMP, via two quad-core Intel Xeon 5500 series 64-bit CPUs supporting two threads per core, up to 3.2GHz
- Up to 64 GByte/sec peak aggregate main-memory bandwidth using DDR3-1333 modules
- Up to 192 GBytes main memory, using standard Commercial Off-The-Shelf (COTS) DIMMs
- Up to eight GPU cards and 16 dual-link DVI outputs via external GPU chassis
- Integrated I/O and storage:
 - Dual PCI Express x16-Gen2 8+8 GByte/sec expansion card slots support maximum GPU-card performance
 - Additional I/O expansion card slots:
 - Four PCI Express x8-Gen2 4+4 GByte/sec
 - One PCI Express x4 (x8 slot) 1+1 GByte/sec
 - Two integrated Gigabit Ethernet ports
 - Eight hot-swap SAS/SATA HDD bays
- Enterprise-grade high-availability server features supporting 24x7 operation at full load:
 - Disk drives with 1.2 million hour MTBF at high duty cycle, 100% power-on hours
 - 720-watt 1+1 modular redundant hot-swappable power supply, 80 Plus Gold efficiency certification
 - 3 redundant hot-swappable cooling fans
 - Standards-based remote monitoring and management: IPMI v2.0, providing remote power/reset control, serial console over LAN, and KVM over IP
- Full compatibility with Windows and Linux/GNU operating systems and applications assured via use of pure mainstream open-standard architecture, standard interfaces, and mainstream COTS components
- Built alongside "Tier-1" name-brand server products in ISO-certified manufacturing facilities, using premium-quality, cost-efficient COTS components made by leading high-volume server component manufacturers, including Supermicro (www.supermicro.com)
- Supported by GraphStream as a single fully integrated system

System

Weight	
Minimum config, 2pc HDD	58.0 lbs / 26.4 kg
Temperature	
Operating	+50 to +95 degF / +10 to +35 degC
Non-operating	-40 to +158 degF / -40 to +70 degC
Humidity (non-condensing)	
Operating	8% to 90%
Non-operating	5% to 95%

Chassis

Configuration	
2RU rackmount, compliant with EIA RS-310D standard	
Dimensions	
Height	3.5" / 89mm / 2RU
Width	17.2" / 437 mm
Depth	25.5" / 648mm
Tool-free access design	
Top cover with pushbutton latches	
Integrated roller-bearing full-extension sliding rail mounting system	
Clear service access to all internal components	
Make/model	
Supermicro CSE-825TQ-R720LPB	
www.supermicro.com/products/chassis/2U/825/SC825TQ-R720LP.cfm	
www.supermicro.com/manuals/chassis/2U/SC825.pdf	

Power supply

Configuration	
1+1 redundant hot-swappable modules	
80 Plus Gold efficiency certification	
Input	
100-240 VAC, 50-60 Hz, 9-4 A max	
Max total output power	
720W	
Max output current per rail	
+5Vsb	2.0A
+12V	59.0A single-rail
Agency certifications for safety/EMC	
USA: UL listed	
Canada: CUL listed	
Germany: TUV certified	
EN 60950 / IEC 60950-Compliant	
CB Rreport	
CCC Certification	
Make/model	
Supermicro PWS-721P-1R / PDB-PT825-8824	
www.supermicro.com/products/powersupply/80PLUS/80PLUS_PWS-721P-1R.pdf	

Cooling

3pc hot-swappable 80mm x 38mm mid-chassis cooling fan module	
4-wire PWM; max 6300 RPM; up to 90.3CFM per module	
Supermicro FAN-0094L4	
2pc passive copper CPU cooler	
Supermicro SNK-P0038P	
www.supermicro.com/support/resources/Thermal/index.cfm	

Mainboard

Make/model	
Supermicro MBD-X8DAH+-F-O	
www.supermicro.com/products/motherboard/QPI/5500/X8DAH+-F.cfm	

CPU options

Capacity	
2pc LGA1366 socket for Intel Xeon CPU	
Example CPU configuration	
2pc Intel Xeon W5580 3.2GHz quad-core CPU	
ark.intel.com/cpu.aspx?groupid=37113	

Memory options

Capacity	
18pc 240-pin DDR3 registered ECC DIMM	
Up to 144GB using 8GB modules	
Up to 288GB using next-gen 16GB modules	

I/O

Mainboard I/O controllers	
2pc Intel 5520 IOH-36D I/O Hub	
1pc Intel ICH10R I/O Hub	
1pc Intel 82576 2port Gigabit Ethernet	
1pc Realtek ALC883 7.1 audio	
1pc Matrox G200eW graphics	
1pc Winbond 83827HF BMC	

Internal ports	
7pc PCI Express low-profile full-length expansion card slot	
2pc PCI Express x16 slot, each with 16 lanes active	
1pc PCI Express x16 slot with 8 lanes active	
3pc PCI Express x8 slot with 8 lanes active	
1pc PCI Express x8 slot with 4 lanes active	
6pc SATA port, each supporting 3Gb/s, NCQ, RAID	
1pc ATA 133/100 EIDE port	
1pc FDD port	
External ports (front panel)	
2pc USB 2.0/1.1	
External ports (rear panel)	
2pc RJ45 Gigabit Ethernet	
1pc RJ45 BMC Ethernet	
6pc USB 2.0/1.1	
1pc DB9M serial fast UART 16550	
2pc PS/2 port for keyboard/mouse	
1pc HD15 VGA	
1pc Mini-stereo analog audio microphone-in	
1pc Mini-stereo analog audio line-in	
4pc Mini-stereo analog audio out (7.1 FL/FR/BL/BR/SL/SR/CEN/LFE)	
2pc USB 2.0/1.1 (optional slot bracket)	
1pc IEEE 1394a (optional slot bracket)	

Network options

Example optional expansion cards	
PCI Express x8-Gen2 to dual-port 10+10 Gbps Ethernet NIC	
Mellanox MNPH29B-XTC	
www.mellanox.com/related-docs/prod_adapter_cards/PB_ConnectXEN_Cards.pdf	
PCI Express x8-Gen2 to dual-port 32+32 Gbps InfiniBand-QDR HCA	
Mellanox MHQH29-XTC	
www.mellanox.com/related-docs/prod_adapter_cards/PB_ConnectX_VPI.pdf	

GPU options

Capacity	
Up to 8 GPU cards in external chassis (NVIDIA Quadro Plex)	
Example max configuration	
External 8-GPU: 4pc NVIDIA Quadro Plex 2200-D2	
www.nvidia.com/page/quadroplex.html	

Storage options

8pc hot-swappable SAS/SATA 3.5" HDD carrier	
1pc 3.5" 1.44MB FDD (optional)	
1pc slim ODD, DVD/CD read-only	
Example optional HDD controller with Battery Backup, RAID acceleration	
LSI SAS8888ELP / IBBU05	
www.lsi.com/storage_home/products_home/internal RAID/megaraid_sas/megaraid_sas_8888elp/index.html	
Example max HDD configuration	
8pc Seagate ST31000340NS 1000GB 7200 RPM SATA	
www.seagate.com/docs/pdf/datasheet/disc/ds_barracuda_es_2.pdf	

Platform monitoring and management

Mainboard-integrated IPMIv2.0 Baseboard Management Controller (BMC)	
Advanced Lights-Out Management feature set	
OS-independent implementation; supports Windows, Linux/GNU, other	
Dedicated management Ethernet interface for maximum reliability	
Reliable remote power on/off and hard-reset control	
Serial console over LAN (SOL)	
KVM over IP (mainboard graphics controller only)	
Remote monitoring of system health parameters	
Flexible event triggers; notification via email and/or SNMP	
Embedded Web server; full access without special client software	
Command Line Interface (CLI) can run on any remote Linux client	
Monitored parameters	
CPU and chassis temperatures	
System voltages	
Cooling fan speeds	
Power supply module failure	
Chassis intrusion (optional)	

Operating system compatibility

Standards-based platform	
P2X18A-R2A is a mainstream platform that is broadly compatible with operating system software that supports the industry-standard X86_64 64-bit/32-bit architecture.	
Example configurations	
Microsoft Windows Server 2003 x64 Editions	
www.microsoft.com/windowsserver2003/64bit/x64/editions.mspcx	
Red Hat Enterprise Linux v4, v5	
www.redhat.com	
