

Sun™ External I/O Expansion Unit

I/O Expandability for Sun SPARC® Enterprise Servers



Highlights

- Small 4U form factor in 19-in. standard rackmountable cabinets
- Each unit allows expansion to 6x or 12x industry-standard PCIe (up to x8 lane PCIe) and/or PCI-X adapter cards
- Allows various PCIe and PCI-X card form factors using adjustable card carriers
- Hot-pluggable at the I/O-boat, adapter-card, and power-supply level
- Redundant power and cooling within the chassis for high availability
- External I/O slots integrate seamlessly with the host and act as multifunction I/O cards internal to the host server



Designed for the rigors of the enterprise, the Sun External I/O Expansion Unit is an I/O expansion option for demanding applications requiring extensive scalability, mission-critical levels of availability, and seamless integration into the datacenter. Built from the ground up, the External I/O Expansion Unit takes maximum advantage of the high I/O bandwidth of the Sun SPARC® Enterprise™ server family.

Ideal for the most demanding I/O requirements

Perfectly suited for Sun's midrange and high-end Sun SPARC Enterprise servers, the External I/O Expansion Unit offers significant I/O adapter expandability. Each External I/O Expansion Unit allows for connectivity of up to 12 PCI-X or PCIe I/O slots, managed by a host server. The unit is a 4RU rackmountable chassis with optical fiber or copper connection links to the host server, and includes redundant and hot-swappable cooling and power.

Expansion capacity

The expansion chassis operates up to two I/O boats for a maximum of 12 expansion slots. These I/O boats are offered in either 6 PCIe (x8 lane) or PCI-X versions, and each includes six card carriers (plus one installed link carrier). Card carriers allow for all PCIe or PCI-X card form factors to be installed in the I/O boat.

The Link Card Kit — the communication/management link to the host system

Host server management and control is established via PCIe link cards mounted in the host server and in a special reserved slot (slot 0) in each I/O boat. One Link Card Kit is required for each I/O boat. Each kit contains two cards — one that mounts in slot 0 of the I/O boat, and one that installs into available PCIe slots in the host server (in copper or optical fiber versions). For Sun SPARC Enterprise M4000 and M5000 midrange servers, the Copper Link Card Kit includes a four-meter copper cable and corresponding link cards that allow the cable connection. For both Sun SPARC Enterprise midrange and high-end servers, the Optical Fiber Link Card Kit is available in 10-meter and 25-meter versions. With each version, two optical fiber cables are provided, along with a pair of optical fiber link cards.

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Flexible I/O expansion capacity

Chassis accepts and operates up to two I/O boats for a maximum of 12 expansion slots

I/O boats provide six expansion slots in either PCIe (x8 lane) or PCI-X versions

I/O boats include six card carriers (plus one link carrier) preinstalled

Card carriers allow for all PCIe or PCI-X card form factors

Link to host

Host server management and control is established via PCIe link cards mounted in both host server and special reserved slot (slot 0) in each I/O boat (both I/O boats must connect to the same server)

Link cards are either copper (M4000, M5000 only, 4-m cable length) or fiber optic (M4000, M5000 or M8000, M9000, 10-m or 25-m optical fiber length)

Link cards are hot-pluggable and utilize sideband communication in conjunction with expansion port I/O traffic

Link card connections can be established with server in minutes; expansion slots are available as though internal to the host server

Maximum servers supported

Sun SPARC Enterprise M4000 server (four processors)
2x External I/O Expansion Units (4x I/O boats)
18 additional external slots

Sun SPARC Enterprise M5000 server (eight processors)
4x External I/O Expansion Units (8x I/O boats)
36 additional external slots

Sun SPARC Enterprise M8000 server (16 processors)
8x External I/O Expansion Units (16x I/O boats)
96 additional external slots

Sun SPARC Enterprise M9000 server (32 processors)
16x External I/O Expansion Units (32x I/O boats)
192 additional external slots

Sun SPARC Enterprise M9000 server (64 processors)
16x External I/O Expansion Units (32x I/O boats)
192 additional external slots

External I/O Expansion Unit does not support the Sun Fire™ T1000 or T2000 servers

Storage

External I/O Expansion Unit does not support internal boot/storage devices

Ambient environmental requirements

Operating temperature 2°C to 35°C (36°F to 95°F), 7% to 93% relative humidity, 35C, 16 hour dwell

Altitude Up to 3200 m (10,498 ft)

Nonoperating temperature 0°C to 68°C (32°F to 154°F), 93% relative humidity, 40C, 5 days dwell

Altitude Up to 13,000 m (42,650.92 ft)

Receptacle type IEC 60320 C20

Single-phase power supplies system

Voltage 100 to 240 VAC (50/60 Hz (+/-3%) and voltage within ±10%) (AC)

Power consumption 600 (W)

Power factor 0.95 (A0-p)

Rush current 30 (A)

Leak current 1.5 (mA)

Fuse capacity 15 (A) (for each power supply)

Redundant power supply/fan unit 2x 120-mm fan/PSU combined unit, redundant and hot-pluggable

Cooling specifications

Heat dissipation 2100 (kJ/h)

Exhaust airflow 2.55 (m3/min.)

Noise level <85 dBA

Cooling method Forced air, front to back

Vibration feature specifications (operating) 0.15g (vertical); 0.10g (horizontal), 5 Hz to 500 Hz, swept-sine

Seismic wave [gal] 3.0mm pk-pk 0.5g (vertical); 0.25 (horizontal), 5 Hz to 500 Hz, swept-sine

Regulations (meets or exceeds the following requirements)

Safety CSA/UL-60950
EN60950
IEC950 CB Scheme with all national deviations

RFI/EMC EN55022/CISPR22 Class A, FCC CFR47 Part 15 Class A, EN61000-3-2, EN61000-3-3

Immunity EN55024
EN61000-4-2, -4-3, -4-5, -4-6, -4-8 and -4/11

Regulatory markings CE, FCC, ICES, C-tick, VCCI, GOST-R, BSMI, MIC, CSA/UL

Other marks WEEE and Chinese RoHS

Learn More

For more information, please visit sun.com or talk to a local Sun sales representative.

Dimensions and weight

External I/O Expansion Unit 4RU Chassis:

H: 44.5 cm, (17.5 in.)

W: 71.1 cm, (28.0 in.)

D: 17.0 cm, (6.7 in.)

Weight: 33.36 kg (73.40 lb)

Services

Sun provides an end-to-end portfolio of services designed to accelerate the alignment of IT infrastructure with business needs, optimize usage of IT assets, and contain costs. Sun's expertise helps you address key datacenter challenges, including consolidation, availability, clustering, optimization, and disaster recovery. Leverage Sun's more than 25 years of relentless innovation and depth of expertise to help you architect and deploy a reliable, high-performance Sun SPARC Enterprise server solution that gives you a competitive edge.

Sun™ System Performance Packs combine top-rated SunSpectrum™ support with your Sun SPARC Enterprise servers to provide optimized services that save you money compared to purchasing them separately. Sun System Performance Packs include integrated hardware and OS coverage, including Sun technical support, expedited hardware service, SunVIP™ support, and premium online resources such as on-demand health checks and OS update services.