



Mac 911
80, de Brésoules
Vieux-Montréal, Québec
Canada H2W 1V5
T 514.282.6699
F 514.282.8787
E ventes@mac911.com
W www.mac911.com

Xserve

Xserve is a complete server solution, designed from the ground up to deliver incredible performance with industry-leading ease of use. This 1U rack-optimized server offers breakthrough processing power, enormous storage capacity, and best-of-class remote management capabilities that make it easy to deploy and maintain. Xserve includes an unlimited-client license for Mac OS X Server, Apple's UNIX-based operating system with powerful services for Internet and web serving, file and printer sharing, networking, and workgroup management.





Xserve



Features

Powerful server-optimized hardware

- Single and dual 1GHz PowerPC G4 processors
- Velocity Engine vector processing unit and powerful floating-point unit supporting single-cycle, double-precision calculations
- 2MB dedicated L3 cache memory per processor with throughput of up to 4GB/s
- Advanced system controller with DDR memory
- Two full-length 64-bit, 66MHz PCI slots for up to 533MB/s throughput and one half-length combination PCI/AGP slot
- Dual Gigabit Ethernet interfaces

Flexible, scalable storage

- Four independent drive bays for up to 480GB of hot-plug internal storage¹
- SMART data from hard drives for prefailure notification
- Optional PCI card for connecting SCSI storage and backup devices

High-density rackmount 1U design

- 1U enclosure, allowing up to 84 processors in a standard 42U rack
- 19-inch width to fit industry-standard four-post racks and telco racks
- Sliding system enclosure on rails for easy access and servicing without tools

Mac OS X Server Unlimited-Client Edition

- UNIX-based operating system with powerful cross-platform services
- Easy-to-use remote setup and management tools
- Remote access from the UNIX command line using Secure Shell (SSH2)
- Industry-leading Server Monitor application for remote monitoring of multiple Xserve systems and automatic notifications via email or pager
- SNMP support for third-party monitoring tools

Comprehensive service and support options

- AppleCare Premium Service and Support Plan offering expert support and four-hour response for onsite hardware repair service (terms apply)²
- AppleCare Service Parts Kits

The new Xserve offers phenomenal value, packing robust server features and exceptional storage scalability into a high-density 1U enclosure. With dual 1GHz PowerPC G4 processors³ and Double Data Rate (DDR) memory, it's equipped for the most demanding computing environments. Xserve also delivers up to 533MB/s throughput for high-performance networking and storage systems thanks to a 64-bit, 66MHz PCI bus. And dual Gigabit Ethernet ensures tremendous networking bandwidth and deployment flexibility. While the competition is still using Pentium III processors in 1U enclosures, Xserve crunches data at up to 15 billion floating-point operations per second.

When it comes to storage expansion, Xserve breaks new ground. Four drive bays offer up to 480GB of internal disk capacity using hot-plug Apple Drive Modules.¹ This makes it easy—and affordable—to expand your storage configuration as your data needs grow. Four independent ATA/100 drive channels reduce bottlenecks to ensure fast data access. In addition, high-performance PCI slots let you connect external SCSI storage and backup systems.

Xserve ships with an unlimited-client license for Mac OS X Server, offering a comprehensive suite of standards-based network services. Intuitive tools make it easy to configure, manage, and monitor services from any Mac OS X desktop system anywhere on the network. The built-in Server Monitor application automatically monitors Xserve hardware subsystems and displays detailed fault and performance data. If problems are detected, it can notify you via email or email-capable pager, giving you the opportunity to resolve difficulties before they affect your services.

Critical server deployments demand quick problem resolution and maximum user availability. That's why Apple is offering a world-class lineup of support products for Xserve, including the AppleCare Premium Service and Support Plan for up to three years of 24/7 telephone and email support and onsite repairs with four-hour response (terms apply).² Also available are AppleCare Service Parts Kits to address the most common hardware failures quickly.

Xserve is tuned for server performance, featuring hot-plug drives, incredible storage flexibility, and industry-leading remote management. With an advanced system architecture, an industrial-strength operating system, and Apple's legendary ease of use, it's a complete, integrated hardware and software server solution. This uniquely Apple integration dramatically reduces the complexity of system administration and the total cost of ownership—enabling businesses and institutions to get up and running quickly, while minimizing licensing, deployment, and maintenance costs.

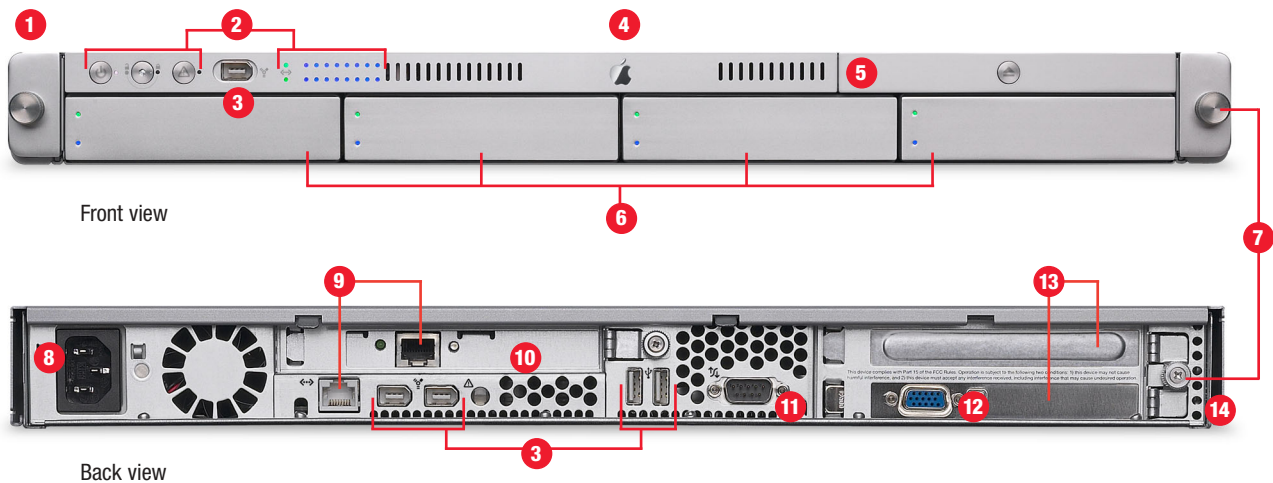


Specification Sheet

Xserve

Rack-optimized hardware tuned for server performance

Xserve offers dual 1GHz RISC processors,³ flexible storage, and powerful scalability options—all in an ultradense 1U enclosure. Rackmounting is easy, and you'll find the necessary hardware in the box, right down to the last thumbscrew. That includes rack rails with sliders, mounting support for industry-standard four-post racks and telco center-post racks, and complete setup instructions. Each server unit slides out of the rack like a drawer, and the cable management arm allows the cables to travel with the system. Xserve is designed for instant access to drives, PCI cards, and blowers, and all key components can be replaced without special tools. Take a closer look.

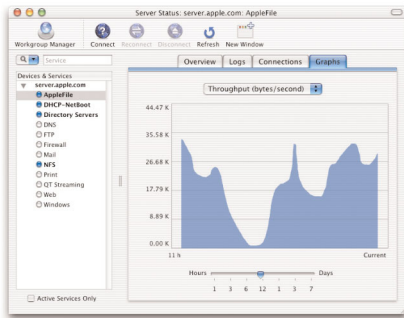


- 1 Xserve features a 19-inch rack-optimized 1U enclosure. Up to 600 gigaflops of processing power and over 20 terabytes of internal disk space¹ fit in a standard 42U rack.
- 2 Indicator lights display status at a glance for power, enclosure lock, drives, Ethernet links, and processor activity. The system identifier indicates the health of each server, allowing you to identify a specific server in a rack and diagnose problems remotely using Server Monitor.
- 3 Xserve connects to industry-standard peripherals—FireWire hard drives and tape backup units; audio and video devices such as speakers, microphones, and DV cameras—with three FireWire ports (one on the front, two on the back) and two USB ports on the back.
- 4 Each server is equipped with one or two 1GHz PowerPC G4 processors, with 2MB of dedicated L3 cache per processor. Xserve supports up to 2GB of high-performance DDR SDRAM for running demanding applications and caching huge files.
- 5 The tray-loading 24x-speed CD-ROM drive is convenient for software installation and recovery.
- 6 Four drive bays support up to 480GB of hot-plug Ultra ATA/100 internal storage on four independent channels.¹ Hot plugging allows you to add storage without bringing down the server: Pop in a new Apple Drive Module at any time and it's instantly available to the system. Apple Drive Modules have LEDs indicating drive activity and status.
- 7 Thumbscrews make it easy to swap hardware without hunting for tools. You'll find rackmounting thumbscrews on the front and thumbscrews on the back for securing PCI cards.
- 8 The power cord connection has a cable-locking clip to avoid accidental unplugging, and the cable management arm keeps the cables with the system when you slide it out of a four-post rack.
- 9 Xserve comes with Gigabit Ethernet on the main logic board and a Gigabit Ethernet card in the half-length PCI/AGP slot. Dual Gigabit Ethernet allows multihoming, so you can serve more users, provide redundant links, or set up an isolated management network independent of a client services network.
- 10 A half-length 32-bit, 66MHz combination PCI/AGP slot comes with a Gigabit Ethernet card preinstalled in standard configurations. Or choose to add a high-performance AGP 4X video card for graphics and video applications.
- 11 The DB-9 serial port allows for system access through a serial console session, even when the network is down.
- 12 A server-class VGA graphics card comes standard in the lower 64-bit, 66MHz PCI slot—making it easy to connect to cross-platform VGA KVM switches, as well as industry-standard VGA displays. Xserve also supports headless booting and allows hot plugging of display devices.
- 13 Two full-length 64-bit, 66MHz PCI slots offer throughput of up to 533MB/s for I/O-hungry applications and high-performance networking and storage systems. The top slot is open for user configuration.
- 14 Rackmounting brackets support two-post telco racks and four-post racks 29 to 36 inches deep.



Specification Sheet

Xserve



Manage and monitor services remotely

Mac OS X Server makes it easy to set up, manage, and monitor services from any networked Mac OS X system. You can use Server Settings to configure multiple servers for hosting network services and Workgroup Manager⁴ to manage preferences and policies throughout your organization. The new Server Status utility (shown above) displays the current status of all services running on your servers. You can read access logs, view traffic patterns, and even graph the performance of individual network services. All of these tools use an encrypted, authenticated connection to the server to help guard your systems from unauthorized access.

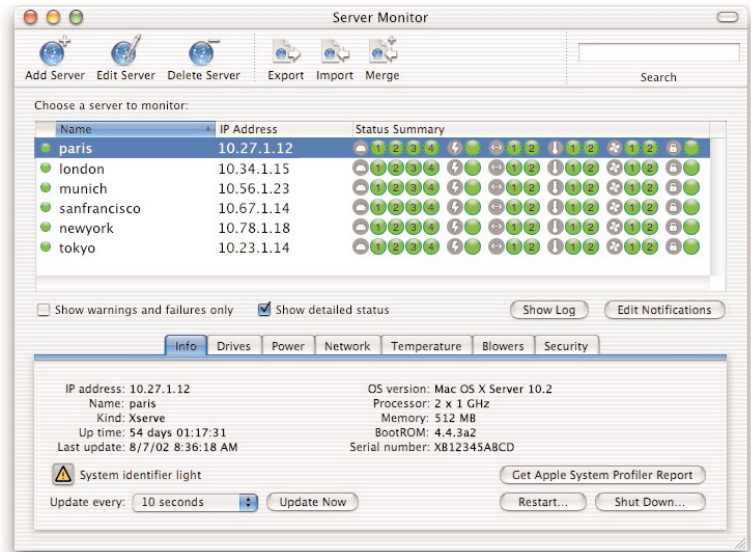


Reliability and availability

To ensure maximum uptime for your Xserve systems, Mac OS X Server features built-in tools that continuously monitor activity and recover services in the event of an application, system, or power failure. When Mac OS X Server is used with a second server, a new IP failover service further increases availability: If one server fails, the second server can take over the IP address and deliver services for the failed server.

Industrial-strength server operating system with remote management

Xserve ships with an unlimited-client license for Mac OS X Server, Apple's UNIX-based server operating system. The latest version delivers superior performance and all-new management and monitoring tools. Mac OS X Server combines high-performance network services with industry-leading setup and administration capabilities that make Xserve easy to deploy, manage, and use.



Server Monitor is an advanced software tool that provides hardware status and displays information on all subsystems. Red, yellow, and green lights indicate the health of each server, which is identified by name and IP address. Next to each server name is at-a-glance summary information; the tabs below provide detailed status and performance information.

Status Summary. Reports the status of each subsystem. Each server has up to four hard drives, a power supply, two Ethernet links, two temperature sensors, two blowers, and system security. A click on any of the status icons opens the corresponding tab for instant retrieval of subsystem details.

Show Log. Opens a log of activities and messages for each monitored server.

Edit Notifications. Sends a customized email to alert the administrator when the server needs attention. Short text messages can be sent to email-capable pagers or cell phones; full-text details can be sent to email clients or full-function PDAs.

Info. Lists key attributes of the server: name, IP address, device kind, operating system version, processor type, amount of memory, uptime, last update, and hardware serial number.

Get Apple System Profiler Report. Opens the Apple System Profiler report for the selected server or servers. This file can be saved for asset tracking or support logging.

Drives. Shows the status of the server's hard drives, as well as any Self Monitoring, Analysis, Reporting Technology (SMART) data. Administrators can set a low-space level and receive an automatic warning if disk space drops below that level.

Power. Shows the status of the power supply, including a historical line graph for each supply rail and UPS information and status.

Network. Shows the status of the two Ethernet links, including a historical line graph for each link.

Temperature. Shows the values (in Celsius or Fahrenheit) of the two thermal sensors, one for the processor card and one for the enclosure itself, as well as a historical line graph for each sensor.

Blowers. Shows the revolutions per minute and status of the two blowers, including a historical line graph for each blower.

Security. Shows the status of the enclosure locks and port security.



Specification Sheet

Xserve

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Hardware Specifications

Processor

- Single or dual 1GHz PowerPC G4 processors
- Velocity Engine vector processing unit
- Full 128-bit internal memory data paths
- Powerful floating-point unit supporting single-cycle, double-precision calculations
- Data stream prefetching operations supporting four simultaneous 32-bit data streams
- 256K on-chip L2 cache running at processor speed
- 2MB DDR SRAM L3 cache per processor with up to 4GB/s throughput
- 133MHz system bus supporting over 1GB/s data throughput

Memory

- 256MB or 512MB of 266MHz PC2100 DDR SDRAM with up to 2.1GB/s throughput
- Four DIMM slots supporting up to 2GB of DDR SDRAM using the following:
 - 128MB or 256MB DIMMs (64-bit-wide, 128Mb technology)
 - 512MB DIMMs (64-bit-wide, 256Mb technology)

I/O connections

- Two full-length 64-bit, 66MHz PCI slots (lower slot filled with PCI graphics card in standard configurations); support for 32-bit or 64-bit 3.3V PCI cards running at 33MHz or 66MHz, respectively
- One half-length 32-bit, 66MHz combination PCI/AGP slot with one of the following:
 - Gigabit Ethernet card (standard configurations)
 - AGP 4X graphics card (build-to-order option)
- Two 10/100/1000BASE-T (Gigabit) RJ-45 Ethernet connectors, one on logic board and one on PCI card
- Three 400Mb/s FireWire ports (two on back panel, one on front panel; 15W total power)⁵
- Two USB ports (12Mb/s each)
- One DB-9 serial port

Graphics support

- ATI PCI graphics card with 32MB of DDR SDRAM graphics and VGA connector; support for 33MHz or 66MHz operation
- Optional ATI Radeon 8500 AGP 4X graphics card with 64MB of DDR SDRAM and DVI, VGA, and S-video connectors; dual display support; support for digital and analog resolutions up to 2048 by 1536 pixels

Storage

- Four internal bays with independent 100MB/s buses for up to 480GB of internal storage¹ using hot-plug Apple Drive Modules, available in the following capacities:
 - 60GB 7200-rpm Ultra ATA/100 with 2MB disk cache
 - 120GB 7200-rpm Ultra ATA/100 with 2MB disk cache
- One bay filled with 60GB 7200-rpm Apple Drive Module (standard configurations); empty drive bays contain blank modules
- Support for reading SMART data from Apple Drive Modules for prefailure notification
- Tray-loading 24x-speed CD-ROM drive with front-panel eject button
- Optional Ultra160 SCSI PCI card for connecting to external storage and backup devices

Rack support

- Fits EIA-310-D-compliant industry-standard 19-inch-wide racks, including:
 - Four-post racks from 29 to 36 inches deep
 - Two-post telco racks (center-mount brackets included)
- Mounting screws with M5 and 10/32-inch threads included
- Cable management arm for four-post racks included
- Front-to-back cooling for rack enclosures

Electrical requirements

- Line voltage: Universal input (90V to 264V AC), power factor corrected
- Frequency: 47Hz to 63Hz, single phase
- Maximum input current: 3.6A
- Power usage
 - Typical continuous power: 125W (single-processor system); 175W (dual processor system)
 - Maximum continuous power: 400W
- Agency-approved 12-foot power cable included

Environmental requirements and approvals

- Operating temperature: 50° to 95° F (10° to 35° C)
- Storage temperature: -40° to 116° F (-40° to 47° C)
- Relative humidity: 5% to 95% noncondensing
- Maximum altitude: 10,000 feet
- FCC Class A approved

Size and weight

- Height: 1.73 inches (4.4 cm)
- Width: 17.6 inches (44.7 cm) for mounting in standard 19-inch rack
- Depth: 28 inches (71.1 cm)
- Weight: 26 pounds (11.8 kg); 31 pounds (14.1 kg) with four Apple Drive Modules⁶

Software Specifications

Mac OS X Server

Unlimited-Client Edition

Included services

- *File sharing:* Macintosh (AFP over TCP/IP), Windows (SMB/CIFS), Internet (FTP), UNIX and Linux (NFS)
- *Printer sharing:* Macintosh and UNIX (LPR/LPD), Windows (SMB/CIFS), AppleTalk PAP, Rendezvous
- *Directory services:* Open Directory (LDAPv3, NetInfo), Password Server, BSD configuration files (/etc), Kerberos v5 (AFP, FTP, mail)
- *Internet:* Apache web server, SSL, WebDAV, mail server (SMTP, POP, IMAP), Webmail, Java virtual machine (J2SE), JavaServer Pages, Java Servlets, WebObjects 5.1 Deployment, PHP, Ruby, MySQL, SOAP, XML-RPC, QuickTime Streaming Server, QuickTime Broadcaster (MPEG-4)
- *Workgroup management:* Workgroup Manager, NetBoot, Network Install
- *Networking and security:* BSD networking, SSH2, IP firewall, DHCP server, DNS server

Remote monitoring and management tools

- Server Monitor for remote monitoring of key hardware subsystems: enclosure temperature, processor temperature, blower speed, hard drives (SMART data), Ethernet links, power supply and UPS systems, enclosure security
- Server Settings for secure remote setup and management of network and Internet services
- Server Status for real-time logs and charts of service activity
- Simple Network Management Protocol (SNMPv3)
- InterMapper from Dartware for maps of network servers and detailed network statistics
- Secure Shell (SSH2) for secure remote login
- Command-line tools for remote configuration and management, including installing software, running Software Update, and setting system and network preferences



Specification Sheet

Xserve

Service and Support Options

In addition to the one-year limited warranty, Apple offers world-class support options for your Xserve system.²

- **AppleCare Premium Service and Support Plan.** Provides up to three years of expert 24/7 telephone and email support with 30-minute response and onsite hardware repair with four-hour response during business hours (terms apply).
- **AppleCare Professional SupportLine and Tools.** Provides one year of telephone support on Apple hardware and software products with priority access to Apple's senior technical support staff.
- **Apple Professional Services.** Offers expert long-term system support and consulting.
- **AppleCare Service Parts Kits.** Include crucial parts for rapid onsite replacement.

For more information on service and support options, visit www.apple.com/support/products or call 800-275-2273 in the United States or Canada.

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For More Information

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Apple
 1 Infinite Loop
 Cupertino, CA 95014
 408-996-1010
www.apple.com

Configurations

Order no.	M8627LL/A	M8628LL/A
Processor	1GHz PowerPC G4	Dual 1GHz PowerPC G4
On-chip L2 cache	256K at 1GHz	256K at 1GHz per processor
L3 cache (DDR SRAM)	2MB with 4GB/s throughput	2MB per processor with 4GB/s throughput
Memory (PC2100 DDR SDRAM)	256MB	512MB
Hard disk drive ¹	60GB (7200 rpm)	60GB (7200 rpm)
Optical drive	CD-ROM	CD-ROM
PCI slots	Two full-length 64-bit, 66MHz slots (one slot open) and one half-length 32-bit, 66MHz combination PCI/AGP slot	
Ethernet	One 10/100/1000BASE-T port onboard and one 10/100/1000BASE-T card in PCI/AGP slot	
Ports	Three FireWire, two USB, one DB-9, one VGA	

All models include rackmounting hardware; Mac OS X Server v10.2 with unlimited-client license (Mac OS X Server Install CD, Admin Tools CD, WebObjects Deployment CD, Macintosh Manager CD, NetBoot CD, Developer Tools CD); Apple Hardware Test CD; complete setup, learning, and reference documentation; and one-year limited warranty.

Product contains electronic documentation.

Build-to-Order Options

Order a custom-configured system from an Apple Store or authorized Apple reseller. Build-to-order options can include the following; however, availability can vary. For up-to-date information on these options and other products to enhance your Xserve system, visit www.apple.com/store or call 800-MY-APPLE.

- **Memory:** 512MB, 1GB, 1.5GB, 2GB
- **Internal storage:** 60GB Ultra ATA/100 Apple Drive Module (7200 rpm), 120GB Ultra ATA/100 Apple Drive Module (7200 rpm)¹
- **Graphics:** ATI Radeon 8500 AGP 4X graphics card (includes AGP riser)
- **Other:** Ultra160 SCSI PCI card

¹ For hard drive capacity measurements, 1GB = 1 billion bytes and 1TB = 1 trillion bytes; actual formatted capacity less. Maximum capacity of 480GB achieved through use of four 120GB Apple Drive Modules.

² A separate AppleCare Premium Service and Support Plan must be purchased for each Xserve system to be covered. To qualify, your Xserve system must be within its one-year hardware warranty. Coverage ends three years after date of Xserve purchase. Actual onsite response time and availability of onsite service depend on location; see www.apple.com/support/products/premium for details. Local telephone fees may apply; telephone numbers may vary and are subject to change.

³ Selected models.

⁴ Requires Mac OS X v10.2 licensed clients.

⁵ Actual rates will vary.

⁶ Weight varies by configuration and manufacturing process.