



# Xserve



With breakthrough performance, massive storage, and a UNIX-based operating system, this 1U rack-optimized server is the easiest way to deliver powerful services throughout your organization and across the Internet.

## Key Features

**High-density processing.** Xserve packs single or dual 1.33GHz PowerPC G4 processors, 2MB of dedicated L3 cache memory per processor, and up to 2GB of 333MHz DDR memory in a 1U enclosure.

**Server-optimized I/O.** Two full-length 64-bit, 66MHz PCI slots with up to 533MB/s throughput and one half-length PCI/AGP slot allow easy expansion. Gigabit Ethernet and FireWire 800 interfaces offer high-performance connectivity.

**Flexible, scalable storage.** Four drive bays hold up to 720GB<sup>1</sup> of internal storage on quad independent ATA/133 channels for fast data access.<sup>2</sup> Optional cards connect to external storage and backup devices, including Apple's new Xserve RAID.

**UNIX-based operating system.** An unlimited-client license for Mac OS X Server is included at no additional cost.<sup>2</sup> Built on open standards, Mac OS X Server integrates seamlessly into enterprise infrastructures.

**Built-in management tools.** Easy-to-use software enables you to monitor multiple Xserve systems and manage services over a secure, remote connection.

**Server-class support products.** Problem resolution is fast with the AppleCare Premium Service and Support Plan and AppleCare Service Parts Kits.

**New cluster configuration.** This Xserve model combines dual 1.33GHz processing power with a streamlined feature set that's price/performance optimized for use in computational clusters and server farms.

Xserve is designed from the ground up for exceptional power, scalable storage, and industry-leading ease of use. This rackmount system is fully equipped for demanding server deployments in businesses, schools, creative departments, and research centers. It comes complete with an unlimited-client license for Mac OS X Server software,<sup>2</sup> a host of powerful network services, and integrated management and monitoring tools that make Xserve easy to set up and maintain.

The new Xserve packs enormous processing power and storage capacity into a high-density 1U enclosure. Featuring single or dual 1.33GHz PowerPC G4 processors and up to 720GB of hot-plug storage,<sup>1</sup> it delivers incredible performance while fitting easily into your data center. Superfast PCI slots allow you to connect external SCSI and Fibre Channel storage devices, including Apple's new Xserve RAID with dual independent 2Gb Fibre Channel interface. Numerous build-to-order options—and a new cluster-optimized configuration—give Xserve the versatility and scalability to suit your deployment needs and your budget.

Xserve ships with Mac OS X Server, Apple's UNIX-based operating system, and all the software you need to deliver cross-platform services throughout your organization. With powerful applications for file and printer sharing, managing computers in workgroups or classrooms, and serving web and rich media content, your Xserve can be up and running right out of the box. And since an unlimited-client license is included, you can serve everyone on your network with no per-seat licensing fees. For added convenience and cost savings, the optional three-year Mac OS X Server Maintenance Program makes it easy to stay current with new software versions.

Intuitive tools enable you to configure, manage, and monitor services from any Mac OS X desktop system, anywhere on the network. The built-in Server Monitor application continuously monitors Xserve hardware subsystems. If problems are detected, it can notify you by email or pager, so you can resolve difficulties before they affect your services. For expert problem solving, choose the world-class AppleCare Premium Service and Support Plan for up to three years of up-and-running support and onsite repairs (terms apply).<sup>3</sup> And, since Xserve is designed for easy access to parts, AppleCare Service Parts Kits allow you to address the most common hardware failures on your own.

Xserve combines the power and flexibility of UNIX with server-optimized hardware and Apple's legendary ease of use. Since the software and hardware come from the same company, you'll experience one-stop support and a level of integration that's unmatched in the industry. All this translates into a lower total cost of ownership, enabling you to deliver comprehensive services while minimizing licensing, deployment, and maintenance costs.

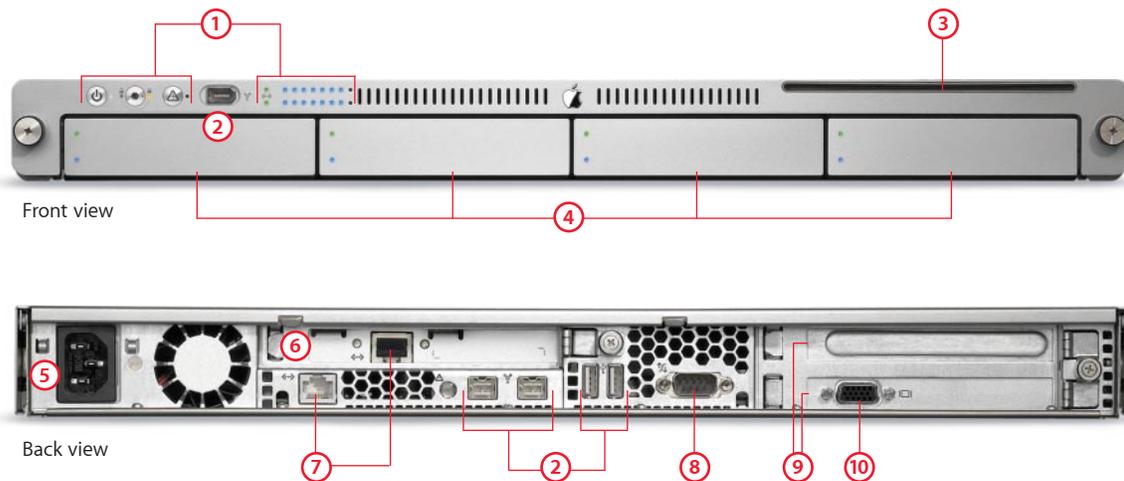
## Specification Sheet

Xserve

### Rack-optimized hardware tuned for server performance

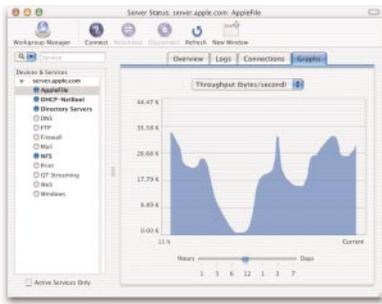
Xserve offers processing power, flexibility, and serviceability in an ultradense 1U enclosure. Rackmounting is easy, and you'll find the necessary hardware in the box—including rack rails with sliders, mounting brackets for industry-standard four-post racks and telco center-mount racks, and complete setup instructions. Each server unit slides out of the rack like a drawer, and the cable management arm allows 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 tools.

#### A Closer Look



- ① **Indicator lights.** Xserve gives you instant feedback on power, enclosure lock, drives, Ethernet links, and processor activity. The system identifier allows you to identify a specific server in a rack and diagnose problems remotely using Server Monitor.
- ② **FireWire and USB ports.** Xserve has two FireWire 800 ports on the back and one FireWire 400 port on the front for high-speed connectivity to storage, backup devices, and other servers. Two USB ports on the back connect to industry-standard peripherals.
- ③ **Optical drive.** The slot-loading 24x-speed CD-ROM drive is convenient for software installation and recovery.\* Or choose the optional Combo drive for reading DVD data and backing up files on CDs.
- ④ **Drive bays.** Four bays support up to 720GB of hot-plug ATA internal storage on four independent channels.\* Hot-plug support allows you to add storage without bringing down the server. Apple Drive Modules have LEDs indicating drive status and health using Self-Monitoring, Analysis, and Reporting Technology (SMART) data.
- ⑤ **Cable management.** The power cord connection has a cable-locking clip to avoid accidental unplugging, and a cable management arm keeps cables with the system when you slide it out of a four-post rack.
- ⑥ **PCI/AGP slot.** A half-length 32-bit, 66MHz combination PCI/AGP slot comes with a Gigabit Ethernet card preinstalled.\* Or replace it with a high-performance AGP 4X video card with a DVI connector for graphics and video applications.
- ⑦ **Gigabit Ethernet interfaces.** Xserve comes with Gigabit Ethernet on the main logic board and a Gigabit Ethernet card in the half-length PCI/AGP slot.\*
- ⑧ **Serial port.** The DB-9 port allows for system access through a serial console session, even when the network is down.
- ⑨ **PCI slots.** 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.
- ⑩ **Graphics card.** A server-class VGA graphics card in the lower 64-bit, 66MHz PCI slot makes it easy to connect to cross-platform VGA KVM switches or industry-standard VGA displays.\* Xserve also supports headless booting and hot plugging of display devices.

\* The cluster-optimized Xserve configuration features a single drive bay, one Gigabit Ethernet interface, and no optical drive, PCI/AGP slot, or graphics card. See Hardware Configurations for details.



**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 the Server Status utility (shown above) allows you to monitor their status and view access logs, traffic patterns, and performance graphs. These tools use an encrypted, authenticated connection to the server to help guard your systems from unauthorized access.



**Reliability and availability**

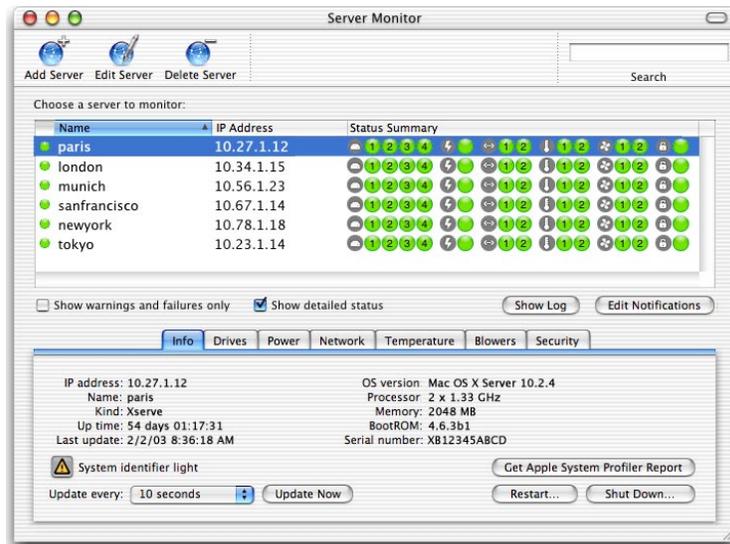
To ensure maximum uptime for your Xserve systems, Mac OS X Server has built-in tools that continuously monitor activity and recover services in the event of an application, system, or power failure. A robust journaling feature enhances availability and fault resilience by protecting file system integrity during an unplanned shutdown. It also helps to maximize server and storage uptime by expediting repairs to the volumes when the system restarts. When Xserve is used with a second server, an 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.

**UNIX-based server operating system with built-in remote management**

Xserve ships with Mac OS X Server, Apple’s industrial-strength operating system. Its open source foundation with industry-standard BSD networking provides all you expect of a UNIX operating system, including preemptive multitasking, symmetric multiprocessing, and support for IPv6 and IPsec. This kind of power has never been easier to put to work—or easier to integrate into your existing infrastructure. Mac OS X Server comes with a comprehensive lineup of solutions for sharing files and printers, managing users and computers, serving email, hosting dynamic websites, streaming real-time digital media, and deploying scalable web applications. And the unlimited-client license<sup>2</sup> means there are no additional per-seat fees for connecting more users.

Also included are innovative management and monitoring tools, so you can securely administer Xserve services and hardware from any Mac OS X system on the network. Server Settings enables secure, remote configuration of services, while Server Status lets you keep an eye on traffic and usage. For UNIX-savvy administrators, support for SSH2 provides secure remote access from the command line.

Xserve also includes Server Monitor, Apple’s integrated solution for remote monitoring of key hardware subsystems. When the server needs attention, it can send short text messages to email-capable pagers or cell phones, and detailed messages to email clients or full-function PDAs. In addition to Server Monitor, Xserve comes with a suite of network management and security tools from Neon Software and supports Simple Network Management Protocol (SNMPv3) for working with third-party monitoring tools.



Server Monitor is an advanced software tool that provides feedback on hardware status. 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 for each subsystem. A click on any of the status icons opens the corresponding tab for instant retrieval of status and performance details.

## Hardware Configurations

Order number	Single-processor server M8888LL/A	Dual processor server M8889LL/A	Cluster node M9090LL/A
Processor	1.33GHz PowerPC G4	Dual 1.33GHz PowerPC G4	Dual 1.33GHz PowerPC G4
On-chip L2 cache	256K at 1.33GHz	256K at 1.33GHz per processor	256K at 1.33GHz per processor
L3 cache (DDR SRAM)	2MB	2MB per processor	2MB per processor
System bus	167MHz	167MHz	167MHz
Memory (PC2700 DDR SDRAM at 333MHz)	256MB	512MB	256MB
Memory expansion	Four DIMM slots supporting up to 2GB using 128MB, 256MB, or 512MB DIMMs		
Hot-plug storage <sup>1</sup>	Four drive bays with independent 133MB/s buses supporting up to 720GB, using 60GB ATA/133 drives with 2MB disk cache and/or 180GB ATA/100 drives with 8MB disk cache; standard configurations come with one 60GB Apple Drive Module		One drive bay with 60GB ATA/133 Apple Drive Module
Optical drive	Slot-loading CD-ROM or optional Combo drive (DVD-ROM/CD-RW)		None
Gigabit Ethernet interfaces (10/100/1000BASE-T RJ-45)	One on logic board and one on card installed in PCI/AGP slot		One on logic board
PCI slots	Two 64-bit, 66MHz PCI slots and one half-length 32-bit, 66MHz combination PCI/AGP slot		Two 64-bit, 66MHz PCI slots
Ports	Back panel—two FireWire 800, two USB 1.1, one DB-9 (RS-232); front panel—one FireWire 400		
Graphics	One ATI card (32MB of DDR SDRAM and VGA connector) installed in lower PCI slot; optional AGP 4X card (64MB of DDR SDRAM; DVI, VGA, and S-video connectors; dual display support) installed in PCI/AGP slot		None
Service and support	90 days of free telephone support and one-year limited warranty; optional extended service and support products		
Also included	Mounting screws with M5 and 10/32-inch threads; caged nuts; cable management arm for four-post racks; agency-approved 12-foot power cable		

## Software

Mac OS X Server	Unlimited-Client Edition	Unlimited-Client Edition	10-Client Edition
Included services	<ul style="list-style-type: none"> <li>• File sharing: Macintosh (AFP over TCP/IP), Windows (SMB/CIFS), Internet (FTP), UNIX and Linux (NFS)</li> <li>• Printer sharing: Macintosh and UNIX (LPR/LPD), Windows (SMB/CIFS), AppleTalk PAP</li> <li>• Directory services: Open Directory (LDAPv3, NetInfo), Password Server (SASL), BSD configuration files (/etc), Kerberos v5 authentication (AFP, FTP, mail)</li> <li>• Internet: Apache web server, SSL, WebDAV, mail server (SMTP, POP, IMAP), Webmail, Java virtual machine (J2SE), JavaServer Pages, Java Servlets, WebObjects 5.2 Deployment,<sup>4</sup> PHP, Ruby, MySQL, SOAP, XML-RPC</li> <li>• Media streaming: QuickTime Streaming Server, QuickTime Broadcaster (MPEG-4)</li> <li>• Workgroup management: Workgroup Manager, NetBoot,<sup>4</sup> Network Install, Macintosh Manager<sup>4</sup></li> <li>• Networking and security: BSD networking, SSH2, IP firewall, DHCP server, DNS server</li> <li>• Remote management: Server Monitor, Server Settings, Server Status, SNMPv3, Neon Software bundle, command-line tools</li> </ul>		
Included developer tools	Project Builder, Interface Builder, AppleScript Studio, PackageMaker, additional SDKs, compilers, debugging and profiling tools, sample code, and documentation		

## Physical Specifications

Rack support	<ul style="list-style-type: none"> <li>• Fits EIA-310-D-compliant, industry-standard 19-inch-wide racks, including four-post racks (24 inches, 26 inches, and from 29 to 36 inches deep) and two-post telco racks (center-mount brackets included)</li> <li>• Front-to-back cooling for rack enclosure</li> </ul>
Electrical and environmental requirements	<ul style="list-style-type: none"> <li>• Line voltage: universal input (90V to 264V AC), power factor corrected</li> <li>• Maximum input current: 3.6A (90V to 132V) or 1.8A (180V to 264V)</li> <li>• Frequency: 47Hz to 63Hz, single phase</li> <li>• Output power: 345W</li> <li>• Operating temperature: 50° to 95° F (10° to 35° C)</li> <li>• Storage temperature: -40° to 116° F (-40° to 47° C)</li> <li>• Relative humidity: 5% to 95% noncondensing</li> <li>• Maximum altitude: 10,000 feet</li> <li>• FCC Class A approved</li> </ul>
Size and weight	<ul style="list-style-type: none"> <li>• 1.73 inches (4.4 cm) high by 17.6 inches (44.7 cm) wide by 28 inches (71.1 cm) deep</li> <li>• 26 pounds (11.8 kg); 31 pounds (14.1 kg) with four Apple Drive Modules<sup>5</sup></li> </ul>



### New Xserve cluster configuration

Designed for computational clusters and distributed applications, this Xserve configuration delivers high-density processing power—without the extra features you won't need in a cluster environment—for a price that's easy to multiply across your deployment.



### Xserve RAID

Connect your Xserve to Apple's new Xserve RAID storage solution for massive capacity and superior data protection. It holds up to 14 hot-swap Apple Drive Modules—a phenomenal 2.5TB of storage<sup>1</sup>—in a rack-optimized 3U enclosure. The innovative Apple-designed architecture combines affordable, high-capacity ATA drive technology with a dual independent 2Gb Fibre Channel interface for fast, reliable data access. With built-in tools for remote setup and management, this easy-to-use RAID system provides a powerful, cost-effective answer to the growing storage requirements of businesses and institutions.

### Apple Fibre Channel PCI Card

Xserve RAID connects to a host Xserve system using the dual-port 2Gb Apple Fibre Channel PCI Card (sold separately). This high-speed storage interface provides 400MB/s throughput with guaranteed bandwidth.

## For More Information

For more information about this product or to purchase Apple products, visit the Apple Store online ([www.apple.com](http://www.apple.com) or 800-MY-APPLE), an Apple Store near you, or an authorized Apple reseller.

For more information about specific Xserve technologies, including Xserve, Xserve RAID, and Mac OS X Server, visit [www.apple.com/server](http://www.apple.com/server).

## Ordering Information

Xserve is available in three configurations to meet the needs of server and cluster deployments in education and business. Or you can order a custom-configured Xserve from the Apple Store or an authorized Apple reseller. Build-to-order options include memory, storage, optical drives, graphics cards, SCSI cards, and more.

### Single-processor Xserve

Order number M8888LL/A

### Dual processor Xserve

Order number M8889LL/A

### Dual processor Xserve cluster node

Order number M9090LL/A

## Other Products

These products are available to enhance your Xserve system.

### 180GB Apple Drive Module

Order number M8939G/A

### Xserve RAID (720GB)

Order number M8668LL/A

### Xserve RAID (1.26TB)

Order number M8669LL/A

### Xserve RAID (2.52TB)

Order number M8670LL/A

### Apple Fibre Channel PCI Card

Order number M8940G/A

### AppleCare Premium Service and Support Plan

Order number M8830LL/B

### AppleCare Service Parts Kit (60GB drive)

Order number M9113G/A

### AppleCare Service Parts Kit (180GB drive)

Order number M9114G/A

### Mac OS X Server Maintenance Program

Call 800-747-7483 to order.

## Service and Support Products

Extend your one-year limited warranty with these world-class support options. See [www.apple.com/support/products](http://www.apple.com/support/products) or call 800-275-2273 in the United States or Canada.

### AppleCare Premium Service and Support Plan.

Covers hardware repairs with four-hour onsite response during business hours and next-day onsite response after business hours (terms apply). The plan also includes up-and-running support and basic troubleshooting by phone or email, 24 hours a day.<sup>3</sup>

**AppleCare Service Parts Kit.** Includes crucial parts for rapid onsite replacement and resolution of the most common hardware failures.

**Mac OS X Server Maintenance Program.** Offers a three-year subscription for major Mac OS X Server upgrades. Call 800-747-7483.

**Mac OS X Server Software Support.** Provides consultative phone and email support for advanced Mac OS X Server integration and migration issues.

**Apple Professional Services.** Offers comprehensive consulting for enterprise-oriented deployments. Services include installation and integration, planning and migration, application development, and project consulting. See [www.apple.com/services](http://www.apple.com/services) or call 800-848-6398.

**Mac OS X Server Training and Certification.** Offers leader-led instruction and certification programs on Mac OS X Server applications and technologies. See [www.apple.com/training](http://www.apple.com/training) or call 800-747-7483.

Product contains electronic documentation. Backup copy of software is included. Xserve cluster configuration may require external optical drive or host system for software reinstallation. <sup>1</sup>For hard drive capacity measurements, 1GB = 1 billion bytes and 1TB = 1 trillion bytes; actual formatted capacity less. Maximum capacity of 720GB achieved through use of four 180GB Apple Drive Modules. Empty drive bays contain blank modules. <sup>2</sup>Specifications differ for Xserve cluster configuration. <sup>3</sup>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](http://www.apple.com/support/products/premium) for details. Local telephone fees may apply; telephone numbers may vary and are subject to change. <sup>4</sup>WebObjects Deployment, NetBoot for Mac OS 9 clients, and Macintosh Manager software not included with Xserve cluster configuration. <sup>5</sup>Weight varies by configuration and manufacturing process.

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