

## IBM @server pSeries 620 Model 6F1



IBM @server pSeries 620 Model 6F1 deskside server

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### Highlights

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- **Superior technology, performance and price/performance in a deskside server**
- **World-class reliability, availability and serviceability features for business-critical e-business applications**
- **Extensive range of processor and I/O expansion options to meet explosive growth needs**

### Power and performance at the right price

The IBM @server pSeries 620 Model 6F1 is a high-performance deskside UNIX® server with the availability, scalability and range of performance demanded by today's growing e-business applications. Outstanding price/performance makes the pSeries 620 Model 6F1 ideal for small- and medium-size

companies—particularly in the distribution, financial and healthcare industries—to run their businesses.

For a business that is considering implementing e-commerce, the Model 6F1 server provides a great platform for integrating high-end system capabilities and scaling up to eight times within a deskside package. It is also well suited to be a distributed application server for larger companies seeking to effectively integrate suppliers, business partners and customers, using various e-business applications. These applications can range from Web hosting to more advanced Enterprise Resource Planning (ERP), Supply Chain Management (SCM) and Customer Relationship Management (CRM).

The Model 6F1 is compatible with the entire pSeries product line and gives enterprises—such as retail stores, distributors, banks, hotels, and other organizations with remote locations—the ability to seamlessly integrate their IT infrastructures into the corporate network.

The Model 6F1 offers a choice of up to six advanced 64-bit RS64 IV microprocessors, running at up to 668 MHz, to provide new levels of performance and price/performance. For applications with less demanding performance requirements, the Model 6F1 also offers one-, two- and four-way 64-bit RS64 III microprocessors running at 450 MHz. The processors utilize state-of-the-art copper and silicon-on-insulator (SOI) technology.<sup>1</sup> The result is high performance with less power consumption and lower heat generation for higher levels of reliability and system availability.

The entry-level, one-way system has either a 450 MHz or 600 MHz microprocessor with 2MB of Level 2 (L2) cache—a special memory subsystem in which frequently used data values are duplicated for quick access. Larger configurations with two-, four- or six-way processors at up to 668 MHz and up to 8MB of L2 cache are available for even greater performance. The base 256MB of main memory can be expanded to 32GB for higher performance with large data sets and exploitation of 64-bit addressing used in large database and enterprise applications.

### **A new generation of e-business servers**

The pSeries product line is part of the IBM **@server** brand—a new generation of servers featuring unmatched availability and scalability, broad support of open standards for the development of portable new applications, and IBM **@server** Advantage™ offerings for managing the unprecedented demands of e-business.

### **Flexibility for e-business applications**

The Model 6F1 can be used as a standalone system or as a multiuser application or database server. It has the connectivity to participate in virtually all currently installed UNIX and PC networks, helping to leverage existing infrastructure, applications and skills. Designed to operate in a typical office environment with standard AC power, the Model 6F1 has an optional power supply available to allow continued operation in the unlikely event of a power supply failure.

To accommodate changing e-business workloads, the Model 6F1 includes a modular hot-swappable disk subsystem that simplifies the addition and replacement of disk drives while the system continues to operate, and 10 hot-plug PCI slots for enhanced I/O availability. These capabilities allow flexibility and uninterrupted growth in disk storage capacity and connection of internal and external devices.

The Model 6F1 is designed to meet the critical requirements of e-business in small- and medium-size enterprises or as a distributed system in larger organizations. For example, it is an excellent application server for ERP applications with its powerful processors, memory and data storage capacity. It can also serve as a fast, highly reliable business-to-business Web server that can connect with other systems for sharing business data or hosting the data storage itself. The Model 6F1 is also well suited for rapid development and testing of applications.

<b>Feature</b>	<b>Benefits</b>
<b>Copper-based SMP processors</b>	<ul style="list-style-type: none"> <li>• Provide significant performance increases over non-copper technologies</li> <li>• Offer improved reliability over processors without copper</li> </ul>
<b>Use of SOI technology (600 MHz/668 MHz only)</b>	<ul style="list-style-type: none"> <li>• Results in less power dissipated for cost savings and improved reliability</li> </ul>
<b>High system memory capacity (32GB)</b>	<ul style="list-style-type: none"> <li>• Enables complex e-business applications to execute quickly and efficiently</li> </ul>
<b>Chipkill Memory</b>	<ul style="list-style-type: none"> <li>• Significantly lowers number of memory failures that cause system outages, thus increasing system availability</li> <li>• Minimizes the potential for loss of business data</li> </ul>
<b>Compact deskside form factor</b>	<ul style="list-style-type: none"> <li>• Accommodates several different configurations for flexibility</li> <li>• Allows for 12 hot-swappable disk drives, up to 32GB of memory, multiple performance options and one, two, four or six processors</li> </ul>
<b>10 hot-plug PCI slots</b>	<ul style="list-style-type: none"> <li>• Dramatically improve availability and provide uninterrupted growth in new adapters</li> <li>• Provide increased connectivity for e-business applications</li> </ul>
<b>Built-in service processor</b>	<ul style="list-style-type: none"> <li>• Automatically monitors system operations and takes preventive or corrective action</li> <li>• Allows diagnostics and maintenance to be performed remotely</li> </ul>
<b>High performance hot-swappable disks</b>	<ul style="list-style-type: none"> <li>• Provide reliable and high capacity disk storage</li> <li>• Provide data transfer rates of up to 160MB/sec (Ultra3 SCSI and SSA)</li> <li>• Provide for uninterrupted growth to meet unplanned demand for storage</li> </ul>
<b>Hot-plug redundant power supplies and cooling fans</b>	<ul style="list-style-type: none"> <li>• Allow uninterrupted operation if a power supply or fan becomes disabled</li> </ul>
<b>Dynamic Processor Deallocation</b>	<ul style="list-style-type: none"> <li>• Automatically reassigns workload when processor failure is detected so applications continue to run uninterrupted</li> </ul>
<b>AIX operating system</b>	<ul style="list-style-type: none"> <li>• Supports full interoperability and coexistence between 32- and 64-bit applications with processes that may run concurrently and cooperatively</li> <li>• UNIX 98-compliant and first to achieve UNIX 98 Server registration</li> <li>• Provides an AIX binary compatible environment that helps assure continuing application availability across AIX releases when binary compatibility rules are observed</li> </ul>

### **Built-in system availability**

To help ensure that strategic applications remain available 24x7, the Model 6F1 features an integrated service processor—a computer within a computer—that constantly monitors the system's vital signs. In the event of a malfunction, the service processor is capable of “calling home” by automatically dialing out to an IBM service center, often before any problem is apparent to users or system administrators. In this fashion, the service technician may be able to correct the problem and restore system function remotely.

To maximize system availability, the Model 6F1 server has built-in fault and error correction functions. For the main memory, Chipkill™ Memory technology—developed by IBM for the S/390® enterprise server—detects multiple bit errors and corrects most of them transparently. If the error rate exceeds the critical threshold, a maintenance action is initiated automatically by the system to be resolved at the customer's convenience. IBM studies indicate systems without Chipkill are 100 times more likely to experience an outage due to memory failure.<sup>2</sup>

In addition, the Model 6F1 uses ECC (error checking and correcting) memory technology to enhance reliability and error correction of L1 data cache and L2 cache memory as well as main memory. This approach has significant advantages over the industry-standard parity memory technology. ECC technology can detect single and double errors and correct all single bit errors. Parity memory can only detect but not correct single bit errors and may miss double bit errors altogether, which can lead to a complete system shutdown. The use of these advanced memory technologies, Chipkill and ECC, on the Model 6F1 protects the server from memory failures that can cause costly, unscheduled downtime.

Another IBM-unique availability feature of the Model 6F1 is Dynamic Processor Deallocation. In the unlikely event a processor indicates an impending failure, this feature works with the AIX® operating system and service processor to dynamically take that processor offline. Its workload is reassigned automatically to other processors, and replacement can be scheduled during normal service to minimize system and application downtime.

Additional reliability and availability features include redundant hot-plug cooling fans and power supplies, which may be replaced without affecting system operations. Also available is a temperature monitoring capability that increases the fan speed in response to above-normal temperatures. The hot-swappable disk drives and hot-plug PCI slots allow disk drives and adapter cards to be added, replaced or changed without rebooting the entire system.

For near continuous availability, dual Model 6F1 servers may be clustered with High Availability Cluster Multiprocessing (HACMP) software, the leading UNIX disaster recovery clustering solution.<sup>3</sup> This solution, when combined with applications that meet IBM ClusterProven™ standards, provides a superior base for high availability, an essential ingredient of e-commerce.

### **Advanced AIX operating system**

An unlimited user license of AIX—the high-performance UNIX operating system from IBM—is included in the base price of the Model 6F1. Providing real value in reliability, availability and security, AIX is tuned for e-business application performance and is widely recognized as state of the art in systems and network management.

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## pSeries 620 Model 6F1 at a glance

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### Minimum configuration

Microprocessor:	1-way 450 MHz RS64 III or 1-way 600 MHz RS64 IV
Level 1 (L1) cache:	128KB data (ECC)/128KB instruction
Level 2 (L2) cache:	2MB (ECC)
RAM (memory):	256MB (ECC)
Memory bandwidth:	2.4GB per second
System bus:	Two busses, each 128 bits wide
Storage options:	9.1GB disk installed in a boot bay or one of 12 disk bays
I/O expansion:	10 hot-plug PCI slots
I/O bus width:	10 64-bit
I/O bus speed:	6@66 MHz(3.3v)/4@33 MHz(5v)
I/O bandwidth:	1GB per second – aggregate peak

### Standard features

Integrated ports:	Keyboard, mouse, four serial, one parallel
Integrated bays:	Diskette drive, CD-ROM, one additional media bay
Integrated controllers:	SCSI-2 F/W (internal), Ultra2 SCSI (external), 10/100 Mbps Ethernet

### System expansion

Processor:	2- or 4-way (450 MHz) RS64 III SMP; 2- or 4-way (600 MHz), or 6-way (668 MHz) RS64 IV SMP
Level 2 (L2) Cache:	4MB/processor (2- or 4-way) or 8MB/processor (6-way)
RAM:	Up to 32GB (Chipkill)
Storage:	2 SCSI or SSA backplanes providing 12 1" hot-swappable disk bays; 2 optional non hot-swappable boot bays; 9.1GB, 18.2GB and 36.4GB Ultra3 SCSI and 9.1GB and 18.2GB SSA disk drives; maximum internal disk is 509.6GB

### RAS features

Chipkill RAM memory  
ECC of L1 data cache and L2 cache  
Hot-plug PCI slots, power supplies and cooling fans  
Hot-swappable disks  
Service processor  
Dynamic Processor Deallocation  
Redundant cooling fans (optional)  
Redundant power supplies (optional)

<b>Operating system</b>	AIX 4.3.3 (unlimited user license) or AIX 5.1 (unlimited user license)
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<b>Power requirements</b>	110-127v AC or 200-240v AC – 50/60 Hz
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<b>System dimensions</b>	Height: 610mm (24.0 in) Width: 483mm (19.0 in) Depth: 728mm (28.7 in)
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<b>Warranty</b>	Onsite 24x7 for one year (limited) at no additional cost
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AIX delivers Java™ technology, Web performance and scalability enhancements for managing advanced e-business installations. Web-based remote management tools control the system and monitor key resources such as network availability, file system status and processor workload. AIX also incorporates Workload Manager, which can help ensure that critical applications remain responsive even during periods of peak system demand.

The latest release of AIX, AIX 5L Version 5.1, adds new functionality to further improve security and system availability, enhance Workload Manager and improve Java scalability and performance. In addition, support is available so popular applications developed on LINUX® can be run on AIX with minimal change.

### Application availability

As a powerful yet affordable server solution, the Model 6F1 delivers industry-leading technology and performance, reliability, availability, flexible power options and ease of serviceability. Working in partnership with leading independent software vendors (ISVs), IBM offers an enriched portfolio of software solutions needed to effectively manage a company's e-business infrastructure. In fact, more than 13,000 AIX applications have been developed around the world. Additionally available are IBM @server Solution Offerings that tailor pSeries server and software solutions to suit individual customer

requirements. In providing a better way to implement e-business solutions, these offerings include pre-configured, pre-tested applications.

### Tools for e-business

The Model 6F1 is backed by the IBM @server Advantage, which includes a number of innovative tools for managing an end-to-end e-business infrastructure. Included are servers, storage, software and services, which provide customers with new ways to manage growth, risks and costs. Customers can also implement a greater choice of new applications with high-performance IBM technology, reliability and security.

In addition, IBM Global Services experts can help companies gain a competitive edge with business and IT consulting, business transformation and total systems management services, as well as customized e-business solutions. Backed by worldwide service and support, our commitment is to provide the highest possible customer satisfaction with every system.

### For more information

To learn more about the pSeries 620 Model 6F1, contact your IBM marketing representative, IBM Business Partner, or visit the following Web sites:

[ibm.com/eserver/pseries](http://ibm.com/eserver/pseries)

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<sup>1</sup> SOI not available on 450 MHz processors.

<sup>2</sup> For more information, visit: [ibm.com/pc/us/techlink/wtpapers/chipkill.html](http://ibm.com/pc/us/techlink/wtpapers/chipkill.html).

<sup>3</sup> Competitive Analysis of UNIX HA Functionality, D.H. Brown Associates, Inc., March 2000.