IBM @server pSeries 640 Model B80

IBM @server pSeries 640 Model B80 entry rack server

Highlights

- ***Powerful SMP e-business server with up to four advanced POWER3™-II processors optimized for high density environments***
- ***Rugged, NEBS Level 3 design; space-saving rack-mount built for availability, maintainability and ease-of-use; includes multiple redundant power options***
- ***Manage systems from anywhere via handheld devices such as a wireless Palm™***

All the server you'll ever need

The IBM @server pSeries™ 640 Model B80 is a cost-effective, high-performance UNIX® server in a compact rack-mountable drawer. This rugged system is ideal for environments where high density, rapid horizontal growth and leading-edge UNIX performance are critical, such as e-commerce, ISP/ASP, telco/wireless, and scientific computing, or as a departmental server for medium-size businesses.

The pSeries 640 Model B80 is one tough server, rugged enough to be placed in harsh environments like the plant floor. You may never need all of its features, but it's nice to know that they are there.

High density, rack optimized

The Model B80 symmetric multiprocessor (SMP) can have up to four state-of-the-art 64-bit, copper-based POWER3-II microprocessors. The base system consists of a 375 MHz processor with 4MB of ECC (error checking and correcting) Level 2 (L2) cache. A two- or four-way 375 or 450 MHz system is optionally available with 8MB of L2 cache per processor, offering still greater performance for many applications. The base 256MB of main memory can be expanded to 16GB for faster performance and exploitation of 64-bit addressing capability required by large database applications.

The Model B80 5 EIA units (5U) x 19-inch industry-standard rack drawer is 24 inches deep and contains five bays, one of which is used for a 5.25" SCSI CD-ROM, DVD-RAM or tape drive. The remaining four front-accessible, hot-swappable bays can accommodate up to 293.6GB of internal disk storage; an 18.2GB Ultra SCSI drive is included in the base configuration. Five PCI slots are provided, along with an integrated 10/100 Ethernet controller with two ports, internal and external Ultra2 SCSI controllers and a service processor.

Multiple Model B80 drawers may be installed in standard IBM racks, including the IBM 7014-T00 (36U). These racks may also house I/O disk storage such as the IBM 2104 Expandable Storage Plus (Ultra3 SCSI) and IBM 7133 Serial Disk System (SSA) to provide terabytes of highly reliable, high-performance hot-swappable disk storage.

The Model B80 is NEBS (Network Equipment Building System) Level 3 compliant and includes special features such as redundant -48 volts DC power for telecommunication central office operations and server farm environments.

Innovative monitoring and management

The Model B80 offers a number of important features designed to simplify the task of managing large "server farms." In these environments, high-density packaging is a critical business success factor. Multiple racks filled with servers make the monitoring and management of these systems more complex.

The Model B80 is designed from the ground up for ease of maintenance. The four hot-swappable disk drive bays are accessible from the front panel. All critical indicators are mounted on both front and back covers. In addition, a programmable alarm beacon light is available to make it easy to locate a system in a server farm.

The Model B80 takes advantage of the power of pervasive computing. A built-in, front-accessible serial interface for handheld devices such as the IBM WorkPad® or wireless Palm enables remote systems maintenance and performance monitoring through specialized IBM no-charge software. This software, WSM (Wireless System Management), allows a remote operator or administrator to access error logs, send broadcast messages and monitor the system and applications.

Online, all the time…by design

To help ensure that strategic applications remain available 24x7, the pSeries 640 Model B80 features an integrated service processor that is designed to constantly monitor 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. A service technician can use remote maintenance and diagnostics — including console mirroring from a remote site to correct the problem, reboot and restore system function as soon as possible after an outage. Should downtime occur, the Model B80 has fault and error correction functions — such as machine check handling, reboot recovery, PCI fault isolation and service processor error collection — to help speed system recovery.

Feature	Benefits
Copper-based POWER3-II microprocessors	• Greatly expand performance levels for SMP commercial applications • Improve processing speed and reliability while reducing the heat produced
Choice of 375 MHz or 450 MHz processors	• Provides flexibility to grow in performance as workloads increase with minimal disruption and incremental cost
64-bit system architecture	• Improves physical memory use for applications requiring faster access to large amounts of data
Space-saving rack-mount	• Allows use in high-density environments where horizontal scalability is an important factor • Minimizes floor space requirements due to shallow 24" depth
Up to four processors per system	• Provides flexible growth in computing power without adding additional drawers
Up to 8MB ECC L2 cache per processor	• Provides increased performance
Up to 16GB ECC SDRAM memory	• Allows faster performance and exploitation of 64-bit addressing for large database or scientific and technical modeling applications
Five PCI adapter slots	• Provide growth options for significantly increased capacity • Support many popular expansion adapters
Front-mounted serial port	• Allows convenient connection of handheld devices
Wireless systems management	• Allows remote operations personnel to perform system maintenance and monitor system performance • Allows server farms to be managed more easily
Programmable alarm beacon light	• Simplifies the task of locating a server requiring attention
Built-in service processor	• Continuously monitors system operations and takes preventive or corrective action for quick problem resolution and high system availability • Allows diagnostics and maintenance to be performed remotely
Dynamic Processor Deallocation	• Automatically deallocates resources when impending processor failures are detected so applications can continue to run uninterrupted
Hot-swappable disk drive bays	• Provide greater system availability and smooth growth by allowing swapping or adding of disk drives without disrupting service
Redundant hot-plug power and cooling subsystems	• Allow uninterrupted operation if cooling fan or power supply becomes disabled
Multiple power options	• Offer flexibility to choose between: – -48v DC, critical for telecommunications use – 110v or 220v AC
NEBS Level 3 compliance	• Offers rugged packaging required for telecommunications central office operations and other harsh computing environments
AIX® operating system	• Supports full interoperability and coexistence between 32- and 64-bit applications with processes that may run concurrently and cooperatively • UNIX 98 technology-compliant and first to achieve UNIX 98 Server registration • Provides an AIX binary compatible environment that helps assure continuing application availability across AIX releases when binary compatibility rules are observed
Linux® operating system	• Offers native support for 64-bit Linux applications • Enables access to thousands of Open Source applications • Provides a common operating environment across IBM @server platforms

The Model B80 uses ECC 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. Thus, double bit errors may be missed altogether, which can lead to a complete system shutdown. As a result, the server can be protected from memory failures that can cause costly, unscheduled downtime.

A unique availability feature of the Model B80 is Dynamic Processor Deallocation. In the unlikely event a processor indicates an impending failure, this feature—working in conjunction with the AIX operating system and service processor—is designed 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 system offers a flexible power supply with the ability to handle either 110 or 220 volts AC. For the telecommunications industry, where power, stability and reliability are critical, a redundant -48 volts DC power option is available.

For even higher levels of availability, the Model B80 server also supports High Availability Cluster Multiprocessing (HACMP), UNIX disaster recovery software from IBM. This clustering solution minimizes downtime of systems and applications for both planned and unplanned outages and provides a superior base for high availability, an essential ingredient for e-commerce.

Supported features and devices

The pSeries 640 Model B80 supports a wide range of optional features and devices, such as I/O adapters for 155 Mbps ATM, 622 Mbps ATM, Token-Ring, 10/100 Mbps Ethernet, 4-port 10/100 Mbps Ethernet, Gigabit Ethernet, Fibre Channel, FDDI, X.25, SDLC, BSC, SSA, Ultra3 SCSI and asynchronous environments.

Furthermore, the Model B80 fully supports accepted open industry standards, such as IEEE P1275-based Open Firmware, that are critical to the e-business economy.

pSeries 640 Model B80 at a glance

Standard configuration	
Microprocessor:	375 MHz POWER3-II with 4MB L2 cache
RAM (memory):	256MB
Memory bus width:	Quad 512-bit
Internal disk drive:	18.2GB Ultra SCSI
Internal disk bays:	Four; front accessible, hot swappable
Media bays:	One; optional front accessible tape / CD-ROM / DVD-RAM
Expansion slots:	Five PCI
PCI bus width:	32- and 64-bit
Standard features	I/O adapters: 10/100 Ethernet controller with two ports; one internal Ultra2 SCSI controller; one external Ultra2 SCSI controller Ports: One parallel, three serial, one keyboard and one mouse
System expansion	
Microprocessor:	2-, 3- or 4-way 375 MHz POWER3-II (4MB or 8MB L2 cache/processor) 2- or 4-way 450 MHz POWER3-II (8MB L2 cache/processor)
RAM:	Up to 16GB
Internal disk:	Up to 293.6GB (18.2GB, 36.4GB, and 73.4GB drives available)
External storage:	IBM 2104 Expandable Storage Plus (Ultra3 SCSI), IBM 7133 Serial Disk System (SSA)
Operating systems	AIX 5L™ Version 5.1 or Version 4.3.3 Linux 2.4 available from one or more IBM Linux Distribution Partners
System dimensions	8.6" H x 19" W x 24" D (217 mm x 482 mm x 617 mm)–standard 5U rack-mount Weight 37.5 kg (82.5 lb)*
Warranty	Onsite 24x7 for one year (limited) at no additional cost

*Weight will vary when disks, adapters and other peripherals are installed.

Better management

To help organizations deal effectively with increased complexity, IBM announced Project eLiza™—a blueprint for self-managing systems. Its goal is to create an intelligent IT infrastructure that responds to unexpected capacity demands or to system failures. By using technology to minimize human intervention, businesses can react faster to changing circumstances while at the same time controlling spiraling pressure on critical skills, software and service/support costs.

The Model B80 incorporates many leading self-managing system capabilities from across the IBM @server product line. Examples include the service processor and Dynamic Processor Deallocation.

The AIX advantage

The Model B80 system is matched with AIX, the advanced operating system from IBM. 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.[1]

AIX delivers Java™ technology, Web performance and scalability enhancements for managing large, complex 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 incorporates Workload Manager, which can help ensure that critical applications remain responsive even during periods of peak system demand. AIX runs across all pSeries and RS/6000® servers for greater compatibility and investment protection.

The latest release of AIX, AIX 5L Version 5.1, adds new functionality to further improve security and system availability to enhance Workload Manager and improve Java scalability and performance. In fact, the system management and Internet/Web-application services of AIX 5L rank as industry leaders.[1]

Native Linux

The Linux operating system is available for the Model B80 from one or more major Linux distrubutors. These distributors can provide a full complement of Open Source tools and applications. Linux runs natively on the Model B80 and does not require the use of AIX. Full service and support for Linux is available from IBM Global Services or a Linux distributor.

Greater application choice

The IBM @server product line is about uncompromising flexibility in selecting, building and deploying the applications a business needs. Toward that end, IBM offers one of the industry's broadest range of platforms and operating systems. IBM is committed to industry-standard, cross-platform technologies—such as Java, XML, HTML, SOAP and UDDI—that are at the heart of a flexible e-business infrastructure. Support for these standards in our key middleware—including DB2® Universal Database™, WebSphere® Application Server and MQSeries®—means that companies won't be locked into a single platform as their businesses grow. As a result, they always have the flexibility to deploy applications in a cost-effective way.

The Model B80 represents the IBM @server product line commitment to true application flexibility through open standards. In addition to including enhanced Java scalability and performance, AIX 5L provides integrated Linux system-compatible Application Programming Interfaces that allow popular Linux and Open Source applications to run on AIX with a simple recompilation. The AIX Toolbox for Linux Applications (distributed "AS IS" with AIX 5L) provides compilers, utilities, editors, debuggers and other application development tools to aid in this recompilation.

Tools for managing e-business

The Model B80 is supported by a comprehensive suite of offerings and resources that provide value at every stage of IT implementation. These tools can help customers test possible solutions, obtain financing, plan and implement applications and middleware, manage capacity and availability, improve performance, and obtain technical support across the entire infrastructure.

The result is an easier way to handle the complexities and rapid growth of e-business. In addition, IBM Global Services experts can help with business and IT consulting, business transformation and total systems management services, as well as customized e-business solutions.

Backed by IBM

The Model B80 is backed by worldwide service and support from IBM. Our commitment behind every system sold is to provide the highest possible customer satisfaction.

Availability support is enhanced with advanced maintenance and diagnostic capabilities built into the Model B80 offerings with a framework for delivery of system and performance information via the Web.

The bottom line…

The pSeries 640 Model B80 provides a leading-edge, affordable, powerful server solution for customers who need rugged, high-density packaging. It delivers industry-leading technology and performance, reliability, availability, flexible power options and ease of serviceability.

The Model B80 raises the bar by addressing the specific demands of high density server environments, where horizontal scalability, space-saving packaging and cost-effectiveness are paramount.

For more information

To learn more about the IBM @server pSeries 640 Model B80, contact your IBM representative or IBM Business Partner or visit the following Web sites:

ibm.com/eserver/pseries
ibm.com/servers/aix
ibm.com/servers/solutions
ibm.com/ibmlink
ibm.com/shop*

*IBM @server pSeries 640 Model B80 is available through **ibm.com**/shop in the United States, United Kingdom and Canada only.

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[1] *2001 UNIX Function Review*, D.H. Brown Associates, Inc., March 2001 and *IBM Flexes UNIX Muscle with AIX 5L*, D.H. Brown Associates, Inc., May 2001.

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