

HP 9000 Corporate Business Server 890 Family

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The HP 9000 Corporate Business Server 890 is the industry's most capable and expandable high-end UNIX® server for commercial applications. This system combines HP's industry-leading PA-RISC processor technology and symmetric multiprocessing software together with balanced high-end memory and I/O bus architectures to deliver a leading-edge server capability.

The powerful hardware architecture is complemented with robust commercial operating system functionality as well as a broad range of open business software solutions which meet a wide range of business needs. In particular, this high-end server provides an effective computing alternative to proprietary computing environments.

Figure 1. Corporate Business Server 890



Open for Business

Key Features

- Broad high-end performance range available through in-cabinet upgrades
- Single chip VLSI CPU utilizing HP's Precision Architecture RISC (PA-RISC)
- Large high-speed instruction and data caches (2 MB each)
- High-performance floating point co-processor standard
- Balanced high-end system organization with high-performance 1 GB/sec. memory bus; up to 8 high-speed HP Precision Bus I/O channels with 256 MB/sec. total bandwidth
- Main memory configurations from 128 MB to 2 GB
- Maximum disk storage of 600 GB
- Powerfail battery backup and auto-restart standard
- Air-cooled packaging designed for computer room environments
- Support for a broad range of storage, backup, and other peripheral devices
- Wide range of systems and network management tools
- Industry standard links for PC integration and main-frame connectivity
- Support for over 3,500 applications

Mainframe class commercial processing performance

The Corporate Business Server 890 uses state-of-the-art CPU, multiprocessing software, and memory and I/O bus technology to deliver industry-leading performance for diverse and demanding applications.

PA-RISC: designed for commercial applications

The first major vendor to deliver a RISC-based system to the marketplace, HP is the leading manufacturer of RISC-based computers today. Unlike other vendors who designed their RISC systems only for technical applications, HP designed PA-RISC for both commercial and technical applications.

In order to deliver superior system performance, the PA-RISC design approach uses a combination of high-speed CPU chips combined with large, high-speed cache memory. Cache memory enhances performance by reducing CPU requests for instructions or data stored in main memory or disk.

Leading-edge technologies for high-end systems

PA-RISC was deliberately designed to be independent of semiconductor and implementation technologies. This design approach allows the Corporate Business Server 890 family to take advantage of leading-edge technologies as they develop. For example, the use of CMOS VLSI technology enables the entire CPU—including the floating-point co-processor, instruction and data caches, and translation lookaside

buffer (TLB)—to be integrated into a single circuit board. This approach of reducing complexity reduces system costs while increasing performance and reliability.

Designed for growth

The PA-RISC architecture was designed from inception to allow for future scalability and expandability. For example, the Corporate Business Server 890 has a 64-bit virtual address capability with an addressing range of 256 terabytes. This allows for substantial expandability to meet growing software requirements in the future. In addition, the architecture is designed to allow for capitalization of emerging technologies such as processor redundancy and fault tolerance.

Symmetric multiprocessing

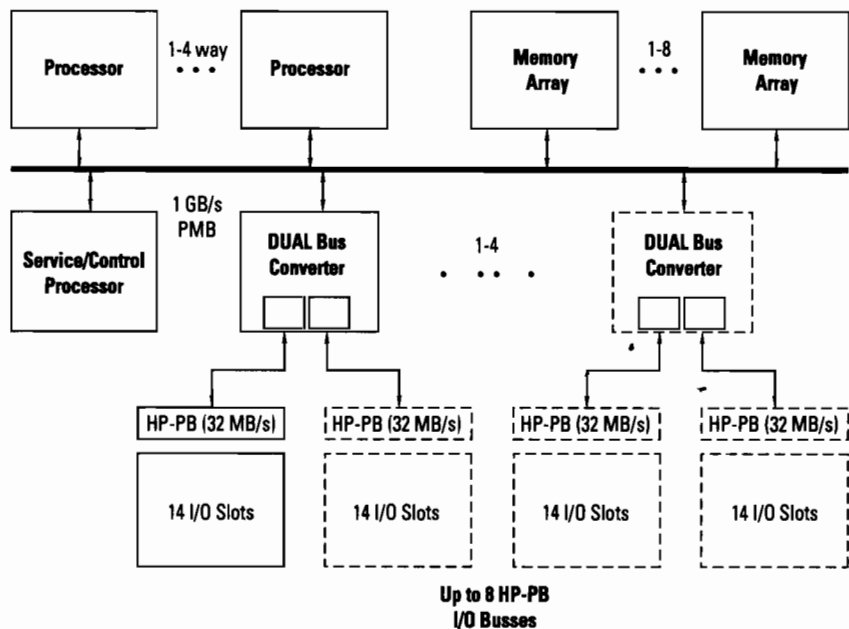
The Corporate Business Server 890 currently supports tightly coupled, symmetrical multiprocessing of up to four processors. This multiprocessing

approach allows for the economical, modular growth of processing power as system performance requirements increase. Performance capabilities will be enhanced in the future through the introduction of higher degrees of multiprocessing. In the HP-UX environment, multiprocessing is transparent to the application—existing applications can benefit from increased system performance without any modifications.

System organization

The Corporate Business Server 890 has a mainframe-class bus structure that is designed to handle the heaviest processing and I/O demands. The bus structure is two-tiered to provide an optimal balance between processor and I/O requirements, ensuring the high system throughput is obtained for large user loads.

Figure 2. System Organization



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High-speed Processor Memory Bus

The central processing units access main memory over a high-speed (1 GB/sec) Processor Memory Bus (PMB). In addition, the PMB was designed to minimize bus contention for high-performance multiprocessing applications by having special hardware to ensure processor cache coherency. The bus speed and cache coherency hardware allow for efficient performance scaling for multiprocessing applications such as on-line transaction processing.

HP Precision Bus (HP-PB) I/O channels

The PMB can support 8 HP-PB I/O channels through dual bus converters. Each HP-PB provides a 32-bit wide I/O data path with a peak transfer rate of 32 MB/sec (20 MB/sec sustained). In the maximum configuration, aggregate I/O throughput is 256 MB/sec. Each HP-PB supports up to 14 half-height slots for I/O interfaces to peripheral devices and data communication links.

High reliability computing

The Corporate Business Server 890 has been designed to be highly reliable through the use of the PA-RISC architecture combined with state-of-the-art manufacturing and packaging technologies. In addition, the system incorporates enhanced reliability features such as full error correction on the PMB and HP-PB I/O Buses, and mirrored disk I/O channels.

Modular and flexible expandability

The Corporate Business Server 890 has been designed to provide modular and flexible expandability in order to meet a broad range of budgetary and processing capacity needs.

Easy processor and memory upgrades protect your hardware investment

With the Corporate Business Server 890, system performance can be economically grown through the use of symmetric multiprocessing. Single board processors facilitate modular, simple growth up to a four-way symmetric multiprocessing configuration. To support this added processing capacity, system memory can be expanded in increments of 64, 128, or 256 Mbytes up to a maximum of 2 Gbytes.

Modular I/O expandability

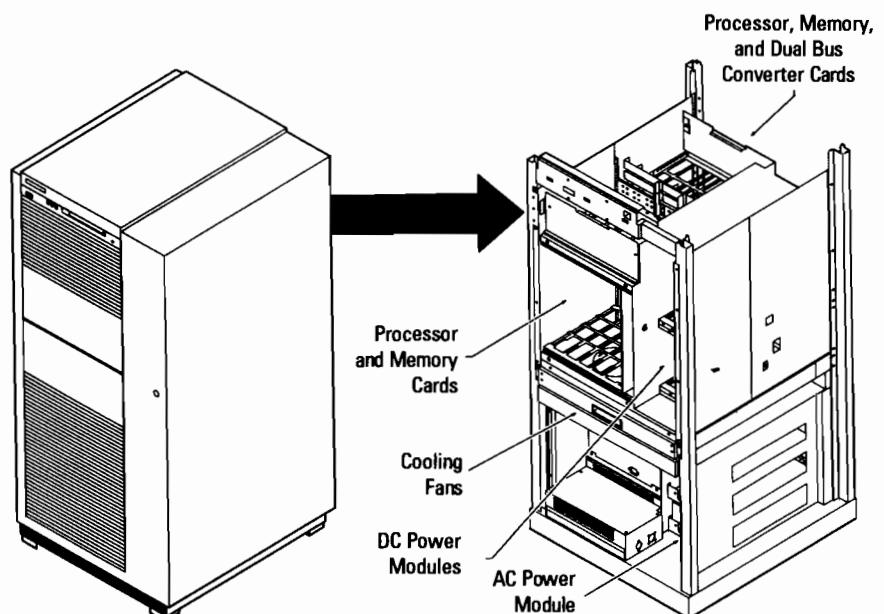
The Corporate Business Server 890 comes standard with a single

dual-bus converter and a single internal HP-PB I/O bus. These I/O capabilities can be expanded with an additional 7 HP-PB I/O buses which are housed in external expansion rack units. Up to 3 additional dual-bus converters can be added in the processor cabinet to allow for connection to these I/O buses.

Peripheral connectivity

A wide variety of peripheral devices—disk and tape drives, printers, plotters, terminals, and data communication devices—are connected to the Corporate Business Server 890 through SCSI-2, HP-IB or HP-FL interfaces. Disk arrays provide cost-effective storage with RAID level 3 data protection. A software interface provides connectivity to 3480 compatible tape subsystems for high-capacity data backup requirements. High-volume data center print output is provided with a high-speed production-capacity page printer.

Figure 3. Corporate Business Server 890 Internal Layout



Robust commercial computing environment

HP has enhanced the standards-based HP-UX computing environment to provide a comprehensive set of system and network management tools. These enhancements are designed for environments where increased user support and performance are critical. Functionality in these enhancements is designed to maximize system availability, data integrity, and security and to provide a robust systems management environment.

Standards-based operating system software

The Corporate Business Server 890 conforms to all key industry standards including: IEEE's POSIX 1003.1 and 1003.2, the Federal Processing Specification (FIPS) 151-1, and the X/Open* Portability Guide Issue 3 (XPG3). Compliance with these standards facilitates portability of applications developed on other standards-based operating systems.

System availability, integrity, and security

The Corporate Business Server 890 meets the high availability requirements of mission critical applications with a variety of hardware and software features. This server features error correction for the system bus and main memory and a powerfail battery backup capability.

Software facilities provide capabilities for transparent disk mirroring through DataPair/800. In addition, SwitchOver/UX provides for automatic system recovery in the event of a processor failure. System security for the HP-UX operating system is enhanced with a protected password database, discretionary access control lists, and auditing. These features meet requirements for the U.S. DOD C2 security rating.

Robust network and system management

The Corporate Business Server 890 offers a full range of enhanced network and administration capabilities that make it easier to manage enterprise-wide networks. HP network management solutions help improve day-to-day network operations by controlling network faults, configurations, performance, and security. These solutions are based on OpenView, the industry-leading network management solution. HP's OpenView is the foundation for the OSF Distributed Management Environment (DME).

A comprehensive suite of system administration tools is also available to control system installation, operations, configuration, and usage. For storage management HP OmniBack/Turbo provides a high-speed (up to 24 GB/hr), unattended backup capability needed in high-end system environments. HP OpenSpool/UX provides

a networked, standards-based commercial spooling capability. HP GlancePlus/UX, RX Forecast, Laser RX/UX, and PerfView are performance management and capacity planning tools and services that can optimize system and network performance as well as user productivity.

Network connectivity

The Corporate Business Server 890 provides a wide range of industry-standard networking to connect to heterogeneous multivendor environments. Connectivity to IBM mainframe environments is achieved through the family of SNA Plus products. OSI and ARPA services allow for connection to other vendors' UNIX-based systems. Desktop integration facilities are provided through the ARPA services, Novell NetWare, NFS, Lan Mgr/X, and Pacer software products.

CASE tools, databases, and applications

The Corporate Business Server 890 is designed for high transaction volume applications, where it is designed to work with industry-leading third-party relational databases. HP also provides best-in-class CASE tools that support the development of distributed OLTP applications in either monolithic or client-server environments.

For additional information on the Corporate Business Server 890 please contact your HP sales representative.

*X/Open is a trademark of X/Open Company Limited in the UK and other countries.

Table 1. Corporate Business Server 890 Technical Specifications

SPU Performance				
Number of CPUs	1	2	3	4
CPU Technology	CMOS	CMOS	CMOS	CMOS
Clock Speed	60 MHz	60 MHz	60 MHz	60 MHz
MIPS Ohrystone	65	2 × 65	3 × 65	4 × 65
Relative Transaction Performance	1.0	1.7	2.5	3.1
Memory/Cache				
Standard Memory	128 MB			
Maximum Memory	2 GB			
Instruction Cache	2 MB			
Data Cache	2 MB			
Disk Storage				
Maximum Disk				
—with HP-FL Disk Array	600 GB			
—with HP-FL Independent Mode Drives	150 GB			
—with SCSI-2	100 GB			
Connectivity				
Minimum I/O Slots*	7/14			
Maximum I/O Slots*	56/112			
Standard RS-232 Ports	16			
Maximum Users				
MUX	1024			
DTC	4500			
Total	4500			
Physical Characteristics				
Height	1620 mm			
Width	750 mm			
Depth	905 mm			
Weight	375 kg			
Acoustics	7.5 bels (A) sound power below 30C			
ESD, power transients, vibration	Designed for data center environments			
Electrical Specifications				
AC Power Input	200–220 VAC 50/60 Hz; 200–240 VAC (L–N)/346–415 VAC (L–L) 50 Hz			
Maximum Current	7.5 amps @ 400 VAC			
	13.0 amps @ 208 VAC			
Maximum Heat Dissipation	4260 Watts			
Environmental Characteristics				
Temperature				
Operating	+5 to +40C			
Recommended	+20 to +25C			
Non-operating	–40 to +70C			
Humidity				
Operating (non-condensing)	15% to 80% @ 40C			
Recommended	40% to 60%			
Maximum Altitude				
Operating	3045 m (10,000 ft)			
Non-operating	4572 m (15,000 ft)			
Cooling	Air cooled; top to bottom air flow			
Regulatory Compliance				
Electromagnetic Interference	Complies with FCC Part 15, Subpart B as a Class A computing device. Complies with CISPR 22 Class A and EN55022 Class A. Registered to VCCI Class 1.			
Immunity	Complies with EN55024-2 (ESD) Complies with EN55024-3 (Radiated Immunity)			
Safety	UL listed to UL1950 CSA certified to CSA C22.2 No. 950 Complies with IEC 950, EN60950			

*Single-high/double-high HP-PB I/O slots. One double-high slot equals 2 single-high slots.

Think again.



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