

## IBM IntelliStation POWER 285 Express workstation



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### Highlights

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- ***Exceptional performance for high-end design and analysis applications***
- ***Quiet operation allows users to focus on their work in comfort***
- ***Designed for 64-bit CATIA V5 to solve complex engineering problems***
- ***Variety of memory and storage options for demanding engineering environments***

The IBM IntelliStation® POWER™ 285 Express workstation combines excellent performance and capacity features in a flexible, affordable desktide package. It is an outstanding choice for high-end Mechanical Computer Aided Design (MCAD), Computer Aided Engineering (CAE), graphic processing and other floating-point-intensive business and technical applications. Or using 2D graphics accelerators, it can be used for less demanding applications such as software development.

With leading-edge IBM POWER5+™ processor technology, the affordable 64-bit symmetric multiprocessing (SMP)

POWER 285 Express workstation offers significant price/performance benefits. It is the first UNIX® engineering design workstation supporting 64-bit CATIA V5 for large engineering assemblies. For CATIA MCAD workloads, the POWER 285 Express provides much higher performance than its predecessor<sup>1</sup>, the IBM IntelliStation POWER 275, while generating even less noise. By extending performance of high-end design and analysis, the POWER 285 Express raises the bar for single-seat MCAD design and analysis solutions.

### **Graphics accelerators boost speed**

The POWER 285 Express supports the latest evolution of IBM 3D graphics technology: the POWER GXT4500P and GXT6500P Graphics Accelerators. These high-performance graphics accelerators operate even faster on the POWER 285 Express because of the low latency PCI Double Data Rate (DDR) slot included as standard on this workstation.

Both the GXT4500P and GXT6500P feature analog and digital output, a 128MB Unified Frame Buffer, 24-bit double buffering with resolutions up to 2048 x1536 at 60 Hz and application programming interface (API) support for OpenGL 1.2.1, graPHIGS and X11. Advanced 3D features include a 24-bit Z-buffer, 4/8-bit overlay, 8-bit double buffered Alpha, 8-bit stencil, Texture Mapping with up to 110MB texture memory, dual texture and 3D texture. The GXT6500P incorporates an additional geometry and lighting processor that helps to further increase performance.

The POWER 285 Express workstation supports a full range of graphics input/output devices including the new USB SpaceBall® Plus 3D and USB SpaceMouse® Plus 3D input devices, the L200p 20.1-inch TFT flat panel monitor, and other keyboard, monitor and mouse devices.

### **Advanced POWER technology**

The IntelliStation POWER 285 Express harnesses the advantages of POWER5+ microprocessors and AIX 5L™, the high-performance UNIX operating system from IBM. It features one or two highly reliable 64-bit 1.9 GHz processors with 36MB of L3 cache. The POWER 285 Express microprocessors showcase the latest innovations from IBM like simultaneous multithreading<sup>2</sup> for higher processor utilization for multithreading or multitasking workloads. This chip is among the fastest 64-bit processors in the world.<sup>1</sup> In addition, 64-bit addressing contributes to top performance by supporting large amounts of memory—allowing applications to keep more information accessible in high-speed memory, and enabling them to run faster by reducing the need to retrieve data from online storage.

Memory can be expanded from 1GB to 32GB. A dual ported Ethernet 10/100/1000 Mbps controller provides exceptional network connectivity and flexibility. A dual channel Ultra320 SCSI controller also can offer high performance and direct access to internal storage and tape drives. The integrated IDE controller supports up to two media drives such as DVD-ROM and DVD-RAM. The integrated controllers can eliminate the need for additional adapters saving space and cost.

The system provides a high level of internal expandability. The quiet desk-side package features seven bays: four front-accessible, hot-swappable disk bays that can contain up to 1.2TB of disk storage, two slimline media bays for DVD-ROM and DVD-RAM drives, and one half-high bay that can contain a variety of tape drives. A total of six PCI-X slots are available: one low-latency 64-bit DDR 266 MHz slot, three 64-bit 133 MHz slots, and two 32-bit 66 MHz slots to provide backward compatibility for older 32-bit cards. A USB attached diskette drive is also available.

Its outstanding performance, along with IBM leadership and experience, make the POWER 285 Express an excellent choice for running the entire Dassault Systemes CATIA suite, as well as other MCAD design and analysis applications from ISVs such as UGS, PTC and Deneb. The POWER 285 Express, with its outstanding floating-point computational speed, brings new levels of performance to CAE applications such as MSC, ABAQUS, Patran, ANSYS, FLUENT and EnSight.

#### **Autonomic features for high availability**

Several innovations stemming from the IBM autonomic computing initiative—a blueprint for self-managing systems—contribute to uncompromising POWER 285 Express reliability, manageability and serviceability features.

To boost availability, an integrated service processor—a computer within a computer—monitors system health. This feature can detect error conditions within the hardware and automatically

place a service call to IBM, often before the problem becomes apparent to users. Then, if repairs are necessary, the service processor can initiate dynamic reconfiguration, helping to minimize costly outages and reduce administrative overhead and support costs.

IBM Chipkill™ memory technology allows detection and correction of most multi-bit memory errors. This protection from memory failures helps prevent costly system memory crashes and improves workstation reliability. In fact, IBM studies show that systems with Chipkill memory are up to 100 times less likely to have outages caused by memory failure<sup>3</sup>. In addition, the POWER 285 Express includes redundant spare main memory bits. Through a technique known as bit-steering, these spares can be dynamically activated and replace failing memory if memory bit errors exceed a threshold.

To boost availability and manageability, all POWER 285 Express workstations incorporate technology placing LEDs near critical components in order to provide lighted guidance so that problems can be quickly diagnosed and resolved. This also helps prevent downtime by identifying key components that are in danger of failing.

Reliability and availability features also include redundant hot-plug cooling fans, which can be easily replaced without affecting system operations.

#### **The AIX 5L advantage**

The POWER 285 Express is matched with AIX 5L operating system to provide real value in reliability, security and usability. AIX 5L, IBM's industrial-strength UNIX operating system, provides excellent systems and network management. It also includes a choice of graphics application programming interfaces (APIs)—OpenGL and graPHIGS—allowing applications to be tuned for graphics performance.

**Easy to acquire**

The POWER 285 Express workstation is available as part of the IBM Express Portfolio™ of offerings and is designed with features and functionality needed in many engineering design environments. Specially priced “editions” are easy to order as pre-configured options and offer financial incentives on the hardware as well as a discounted operating system. The IntelliStation POWER 285 Express, AIX 5L Edition includes a workstation and an AIX 5L operating system license. Additional memory, disk drives or adapters—or monitors or external storage—can be easily added to the workstation without impacting the original savings.

**Backed by IBM**

IntelliStation POWER 285 Express workstations are backed by worldwide service and support from IBM. The end-to-end, one-year warranty includes hardware fixes, manned phone hardware support and call tracking.

The hardware warranty provides 8 A.M. to 5 P.M., next-business-day service. Many components are customer replaceable units (CRU) enabling rapid recovery in the unlikely occurrence of a hardware failure. Service upgrades, including 24x7x365 coverage, are available. The service warranty terms and conditions may be different in some countries. Please consult your local IBM marketing representative or IBM Business Partner for country-specific terms and conditions.

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**New standard for workstations**

Performance at the right price, quiet operation, autonomic functions designed to help provide a highly reliable and available system, and IBM support make the IntelliStation POWER 285 Express workstation an ideal choice for high-performance graphics and engineering design environments.

## IBM IntelliStation POWER 285 Express at a glance

### Standard configurations

Microprocessors	One or two 1.9 GHz POWER5+ processors
Level 2 (L2) cache	1.9MB ECC (Error Checking and Correcting)
Level 3 (L3) cache	36MB ECC
RAM (memory)	1GB to 32GB of 533 MHz DDR2 SDRAM; ECC Chipkill
Internal disk storage	Up to 1.2TB
Internal SCSI disk bays	Four hot-swappable (10K or 15K rpm disks)
Media bays	Two slimline and one half-high
Expansion slots	Six PCI-X: one low-latency 64-bit 266 MHz DDR slot, three 64-bit 133 MHz slots, and two 32-bit 66 MHz slots

### Standard features

I/O ports	Dual ported Ethernet 10/100/1000 Mbps controller Dual channel Ultra320 SCSI controller Two USB, two HMC, two system
Graphics accelerator	One of the graphics accelerators listed below

### Optional features

Graphics accelerators	2D graphics: GXT135P (16MB frame buffer) 3D graphics: GXT4500P (128MB unified frame buffer, texture mapping) GXT6500P (128MB unified frame buffer, texture mapping, lighting and geometry processor)
Displays	L200p 20.1" TFT flat panel monitor L191p 19" TFT flat panel monitor L171p 17" TFT flat panel monitor
Graphics input devices	SpaceBall Plus 3D SpaceMouse Plus 3D
Media devices	Diskette (external attached via USB) DVD-ROM, DVD-RAM Tape drive

<b>Operating systems</b>	AIX 5L Version 5.2 or later
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<b>Power requirements</b>	100 v to 127 v or 200 v to 240 v AC (auto-ranging)
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<b>System dimensions</b>	21.1"H x 9.5"W x 27.4"D; bottom tip-foot width 12.9"; weight: 78.1 lb*
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<b>Warranty</b>	8 A.M to 5 P.M. next-business-day for one year (limited) at no additional cost; on-site for selected components, CRU for all others; warranty service and maintenance upgrades are available
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## For more information

To learn more about the IBM IntelliStation POWER 285 Express workstation, contact your IBM marketing representative or IBM Business Partner or visit the following Web sites:

- [ibm.com/eserver/pseries/hardware/workstations](http://ibm.com/eserver/pseries/hardware/workstations)
- [ibm.com/servers/aix](http://ibm.com/servers/aix)
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October 2005  
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When referring to storage capacity, 1TB equals total GB divided by 1000; accessible capacity may be less.

<sup>1</sup> Based on SPECcpu2000 benchmark tests as of October 4, 2005 submitted to Standard Performance Evaluation Corporation and to be available at [www.spec.org](http://www.spec.org).

<sup>2</sup> Not supported on AIX 5L V5.2

<sup>3</sup> IBM Study by Timothy J. Dell, "A White Paper on the Benefits of Chipkill-Correct ECC for PC Server Main Memory," (November 19, 1997) available at:  
[ibm.com/servers/eserver/pseries/campaigns/chipkill.pdf](http://ibm.com/servers/eserver/pseries/campaigns/chipkill.pdf).

<sup>4</sup> Weight will vary when disks, adapters and peripherals are installed