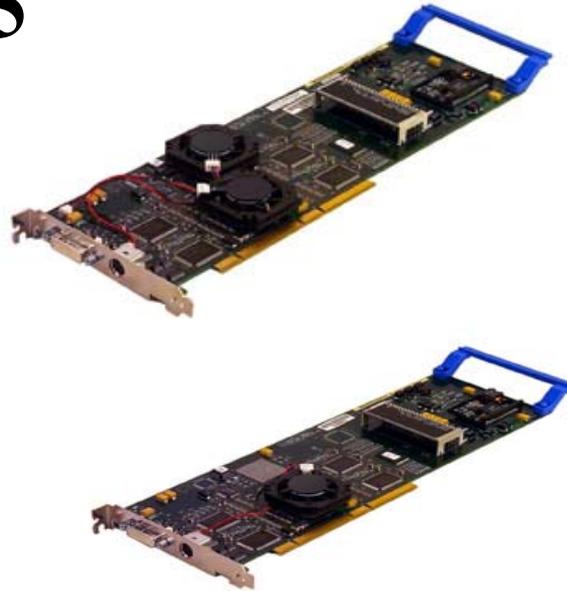


IBM IntelliStation POWER

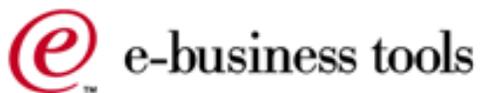
POWER 265



February 2002

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www.ibm.com/intelliStation



Notes to Presenter

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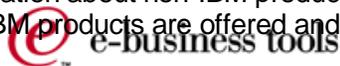
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TPC	http://www.tpc.org	LINPACK	http://www.netlib.no/netlib/benchmark/performance.ps	Pro/E	http://www.proe.com
SPEC	http://www.spec.org	GPC	http://www.spec.org/gpc	NotesBench Mail	http://www.notesbench.org
VolanoMark	http://www.volano.com				

Unless otherwise indicated for a system, the performance benchmarks were conducted using AIX V4.2.1 or 4.3, IBM C Set++ for AIX/6000 V4.1.0.1, and AIX XL FORTRAN V5.1.0.0 with optimization where the compilers were used in the benchmark tests. The preprocessors used in the benchmark tests include KAP 3.2 for FORTRAN and KAP/C 1.4.2 from Kuck & Associates and VAST-2 v4.01X8 from Pacific-Sierra Research. The preprocessors were purchased separately from these vendors.

The following SPEC and LINPACK benchmarks reflect microprocessor, memory architecture, and compiler performance of the tested system (XX is either 95 or 2000):

- SPECintXX - SPEC component-level benchmark that measures integer performance. Result is the geometric mean of eight tests comprising the CINTXX benchmark suite. All of these are written in the C language. SPECint_baseXX is the result of the same tests as CINTXX with a maximum of four compiler flags that must be used in all eight tests.
- SPECint_rateXX - Geometric average of the eight SPEC rates from the SPEC integer tests (CINTXX). SPECint_base_rateXX is the result of the same tests as CINTXX with a maximum of four compiler flags that must be used in all eight tests.
- SPECfpXX - SPEC component-level benchmark that measures floating-point performance. Result is the geometric mean of ten tests, all written in FORTRAN, included in the CFPXX benchmark suite. SPECfp_baseXX is the result of the same tests as CFPXX with a maximum of four compiler flags that must be used in all ten tests.
- SPECfp_rateXX - Geometric average of the ten SPEC rates from SPEC floating-point tests (CFPXX). SPECfp_base_rateXX is the result of the same tests as CFPXX with a maximum of four compiler flags that must be used in all ten tests.
- SPECweb96 - Maximum number of Hypertext Transfer Protocol (HTTP) operations per second achieved on the SPECweb96 benchmark without significant degradation of response time. The Web server software is ZEUS v.1.1 from Zeus Technology Ltd.
- SPECweb99 - Number of conforming, simultaneous connections the Web server can support using a predefined workload. The SPECweb99 test harness emulates clients sending the HTTP requests in the workload over slow Internet connections to the Web server. The Web server software is Zeus from Zeus Technology Ltd.

Notes on Benchmarks and Values (Cont.)

- LINPACK DP (Double Precision) - $n=100$ is the array size. The results are measured in megaflops (MFLOPS).
- LINPACK SP (Single Precision) - $n=100$ is the array size. The results are measured in MFLOPS.
- LINPACK TPP (Toward Peak Performance) - $n=1,000$ is the array size. The results are measured in MFLOPS.
- LINPACK HPC (Highly Parallel Computing) - solve largest system of linear equations possible. The results are measured in GFLOPS.

VolanoMark is a 100% Pure Java server benchmark characterized by long-lasting network connections and high thread counts. In this context, long-lasting means the connections last several minutes or longer, rather than just a few seconds. The VolanoMark benchmark creates client connections in groups of 20 and measures how long it takes for the clients to take turns broadcasting their messages to the group. At the end of the test, it reports a score as the average number of messages transferred by the server per second.

VolanoMark 2.1.2 local performance test measures throughput in messages per second. The final score is the average of the best two out of three results.

The following Transaction Processing Performance Council (TPC) benchmarks reflect the performance of the microprocessor, memory subsystem, disk subsystem, and some portions of the network:

- tpmC - TPC Benchmark C throughput measured as the average number of transactions processed per minute during a valid TPC-C configuration run of at least twenty minutes.
- \$/tpmC - TPC Benchmark C price/performance ratio reflects the estimated five year total cost of ownership for system hardware, software, and maintenance and is determined by dividing such estimated total cost by the tpmC for the system.
- QppH is the power metric of TPC-H and is based on a geometric mean of the 17 TPC-H queries, the insert test, and the delete test. It measures the ability of the system to give a single user the best possible response time by harnessing all available resources. QppH is scaled based on database size from 30GB to 1TB.
- QthH is the throughput metric of TPC-H and is a classical throughput measurement characterizing the ability of the system to support a multiuser workload in a balanced way. A number of query users is chosen, each of which must execute the full set of 17 queries in a different order. In the background, there is an update stream running a series of insert/delete operations. QthH is scaled based on the database size from 30GB to 1TB.
- \$/QphH is the price/performance metric for the TPC-H benchmark where QphH is the geometric mean of QppH and QthH. The price is the five-year cost of ownership for the tested configuration and includes maintenance and software support.

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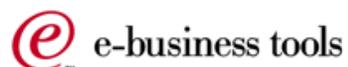
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Notes on Benchmarks and Values (Cont.)

The following graphics benchmarks reflect the performance of the microprocessor, memory subsystem, and graphics adapter:

- SPECxpc results - Xmark93 is the weighted geometric mean of 447 tests executed in the x11perf suite and is an indicator of 2D graphics performance in an X environment. Larger values indicate better performance.
- SPECplb results (graPHIGS) - PLBwire93 and PLBsurf93 are geometric means of literal and optimized Picture Level Benchmark (PLB) tests for 3D wireframe and 3D surface tests, respectively. The benchmark and tests were developed by the Graphics Performance Characterization (GPC) Committee. The results shown used the graPHIGS API. Larger values indicate better performance.
- SPECopc results - CDRS-04, DX-05, DX-06, DRV-05, DRV-06, Light-03, Light-04, AWadv3-03, AWadv3-04, ProCDRS-02, and ProCDRS-03 are weighted geometric means of individual viewset metrics. The viewsets were developed by ISVs (independent software vendors) with the assistance of OPC (OpenGL Performance Characterization) member companies. Larger values indicate better performance.

The following graphics benchmarks reflect the performance of the microprocessor, memory subsystem, graphics adapter, and disk subsystem:

Bench95 and Bench97 Pro/E results - Bench95 and Bench97 Pro/E benchmarks have been developed by Texas Instruments to measure UNIX and NT workstations in a comparable real-world environment. Results shown are in minutes. Lower numbers indicate better performance.

The NotesBench Mail workload simulates users reading and sending mail. A simulated user will execute a prescribed set of functions 4 times per hour and will generate mail traffic about every 90 minutes. Performance metrics are:

- NotesMark - transactions/minute (TPM).
- NotesBench users - number of client (user) sessions being simulated by the NotesBench workload.
- \$/NotesMark - ratio of total system cost divided by the NotesMark (TPM) achieved on the Mail workload.
- \$/User - ratio of total system cost divided by the number of client sessions successfully simulated for the NotesBench Mail workload measured. Total system cost is the price of the server under test to the customer, including hardware, operating system, and Domino Server licenses.

Notes on Performance Estimates

rPerf

rPerf (Relative Performance) is an estimate of commercial processing performance relative to other pSeries systems. It is derived from an IBM analytical model which uses characteristics from internal workloads, TPC and SPEC benchmarks. rPerf is not intended to represent any specific public benchmark and should not reasonably be used in that way. The model simulates some of the system's operations such as CPU, cache, and memory. However, it does not simulate disk or network I/O operations. Although the model uses general database and operating system parameters, it does not reflect specific databases or AIX version or releases. Unless otherwise indicated for a system, the model assumes the use of 32-bit applications.

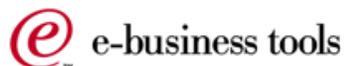
Unless otherwise indicated, rPerf is estimated only at the time the system is introduced. An IBM @server pSeries 640 model B80 is the baseline reference system and has a value of 1.0. Although rPerf may be used to compare estimated IBM UNIX commercial processing performance, actual system performance may vary and is dependent upon many factors including system hardware configuration and software design, operating system release and configuration. All performance estimates are provided "AS IS" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of a system they are considering buying. For additional information about rPerf, system performance, and benchmarks, contact your local IBM office or IBM authorized reseller or access the following Web sites:

SPEC	http://www.spec.org	Pro/E	http://www.proe.com
TPC	http://www.tpc.org	GPC	http://www.spec.org/gpc
Linpack	http://www.netlib.no/netlib/benchmark/performance.ps	NotesBench Mail	http://www.notesbench.org
VolanoMark	http://www.volano.com		

RQP

Relative Query Performance (RQP) is based on internal measurements and modeling of IBM UNIX systems and may be used to augment other performance and marketing information available in assisting the sizing and selection of systems for data marts, data warehouses, OLAP, and data mining. This helps IBM define its current position in business intelligence and decision support relative to previously announced IBM UNIX systems. RQP is an easy-to-use metric for evaluating a system's ability to process complex queries and data sets commonly found in data marts and entry to midrange data warehouses.

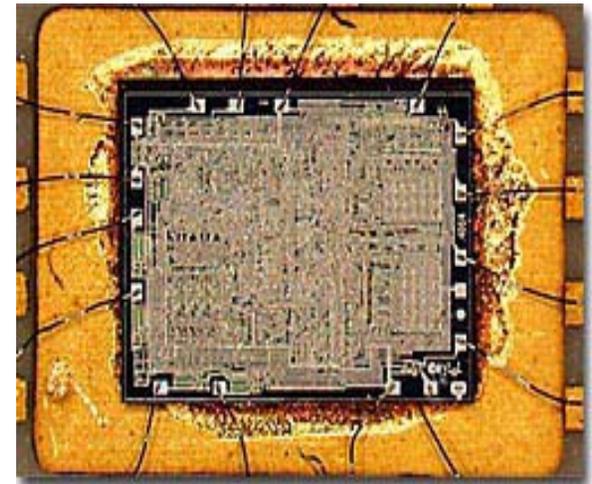
RQP is an estimate of performance in business intelligence applications where complex queries are used for decision support. RQP is intended to position IBM UNIX SMP systems relative to the performance of an IBM RS/6000 Model F50 166 MHz system. As the baseline system, the Model F50 has a RQP value of 1. RQP estimates do not reflect specific databases nor AIX versions or releases. Although RQP may be used to compare estimated system performance in business intelligence applications, actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration. All performance estimates are provided "AS IS" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of a system they are considering buying.



Family Compare and Contrast

- **UNIX[®] POWER family**

- IBM RISC processors and chipsets
- IBM graphics solutions
- IBM and non-IBM peripherals
- IBM operating system - AIX[®]
- IBM and 3rd party applications



- **Pro Family**

- Intel[®] processors and chipsets
- 3rd party graphics solutions
- IBM and non-IBM peripherals
- Microsoft and Linux[®] (Red Hat, SuSE, TurboLinux)
- 3rd party applications

AIX UNIX Workstation Family



- Designed to deliver application performance
- Broad range of graphics and options
- AIX 4.3 and 5L™

IntelliStation®



RS/6000

44P Model 270

- 1-4 way, 64-bit POWER3-II processors
- Copper Technology
- 375 MHz with 4MB ECC L2 and 450 MHz with 8MB ECC L2
- Up to 16GB memory



POWER 265

- 1-2 way 64-bit POWER3-II processors
- Copper technology
- 450 MHz with 4MB ECC L2
- Up to 8GB memory



RS/6000®

44P Model 170

- 64-bit POWER3™-II processor
- Copper technology
- 333 MHz, 400 MHz and 450 MHz
- Up to 2GB memory



Steps to a Good Workstation Fit

It's as easy as 1 - 2 - 3...

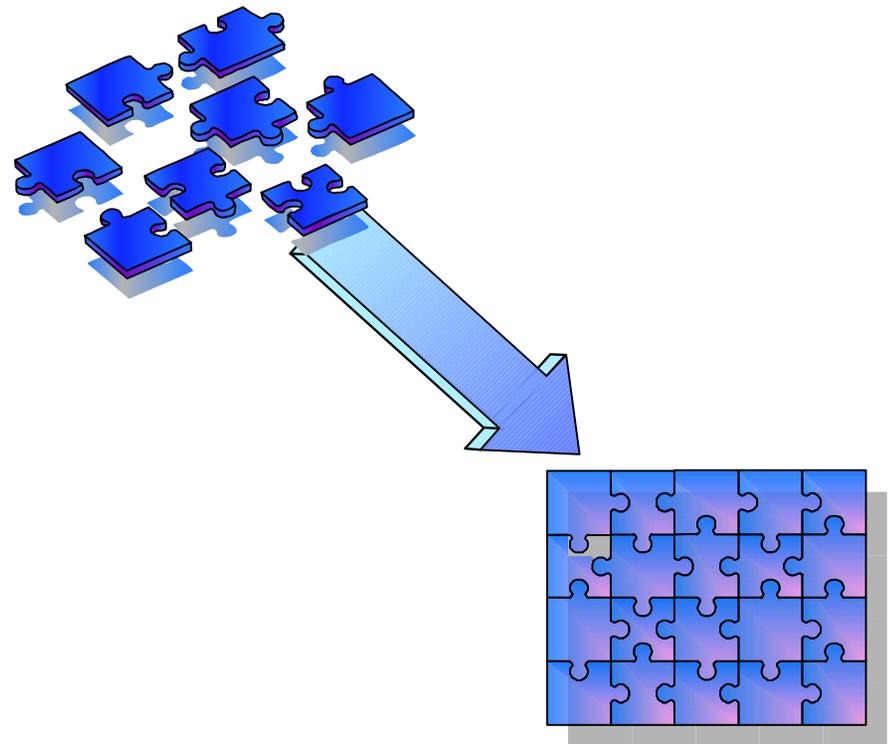
- Identify the key application(s) 
- Determine application requirements
 - Certified hardware and operating systems
 - Performance requirements (systems vs graphics, vs I/O throughput)
 - Weigh price/performance tradeoffs
 - Evaluate solution integration/validation done by vendor
(Did you know that IBM validates same AIX level with top MCAD applications?)
- Choose the appropriate workstation and graphics 
 - Processor
 - Graphics
 - Memory
 - Disk



Why IBM?

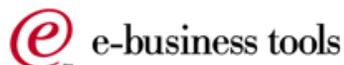
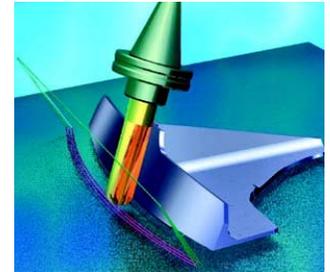
It's not about the hardware, it's about the solution...

- Experience, vision and technology leadership
- Stability and sustained growth
- Global distribution and support
- Diverse, flexible solution offerings
- Passion for performance
- Application and industry focus
- Real-world application testing
- Dedication to quality
- Added value elements
- Acquisition choices



IntelliStation Target Segments

- **MCAD -- Mechanical Computer-Aided Design**
 - 3D design and digital mockup
 - Including manufacturing simulation
- **Engineering Analysis**
 - Finite-element analysis (FEA)
 - Computational Fluid Dynamics or CFD
- **A/E/C -- Architecture/Engineering/Construction**
 - Design and life-cycle management of facilities, industrial plants, transportation infrastructure
- **GIS -- Geographic Information Systems**
 - Creation, analysis and integration of spatial data
- **EDA -- Electronic Design Automation**
 - Electrical and mechanical design of integrated circuits and printed circuit boards
- **Life Sciences**
 - Research, analysis, simulation of genes, drugs, etc.
- **Finance**
 - Market/Stock Trend analysis, Traders desktops, etc.



Competition - POWER Series

● IBM Advantages

- **CATIA leadership and experience**
 - IBM Dassault Systemes International Competency Center (IDSICC) to integrated CATIA/ENOVIA solution staff, benchmarks, etc.
 - Integration Centers for Enterprise solutions
 - Leadership price/performance
- **AIX is the industry leading UNIX OS**
- **Leadership graphics performance**
- **ISV relationships and certifications**
- **Clear product and technology roadmap**
- **Solid, market presence & delivery**
- **Systems management experience**
- **Enterprise level solutions**

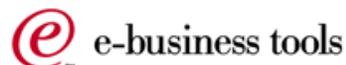


- **POWER 265 (2-way) / GTX6500P is up to 37% faster* than HP 3700 750 MHz fx¹⁰ pro on the TAGITT CATIA 4D Navigator benchmark...**

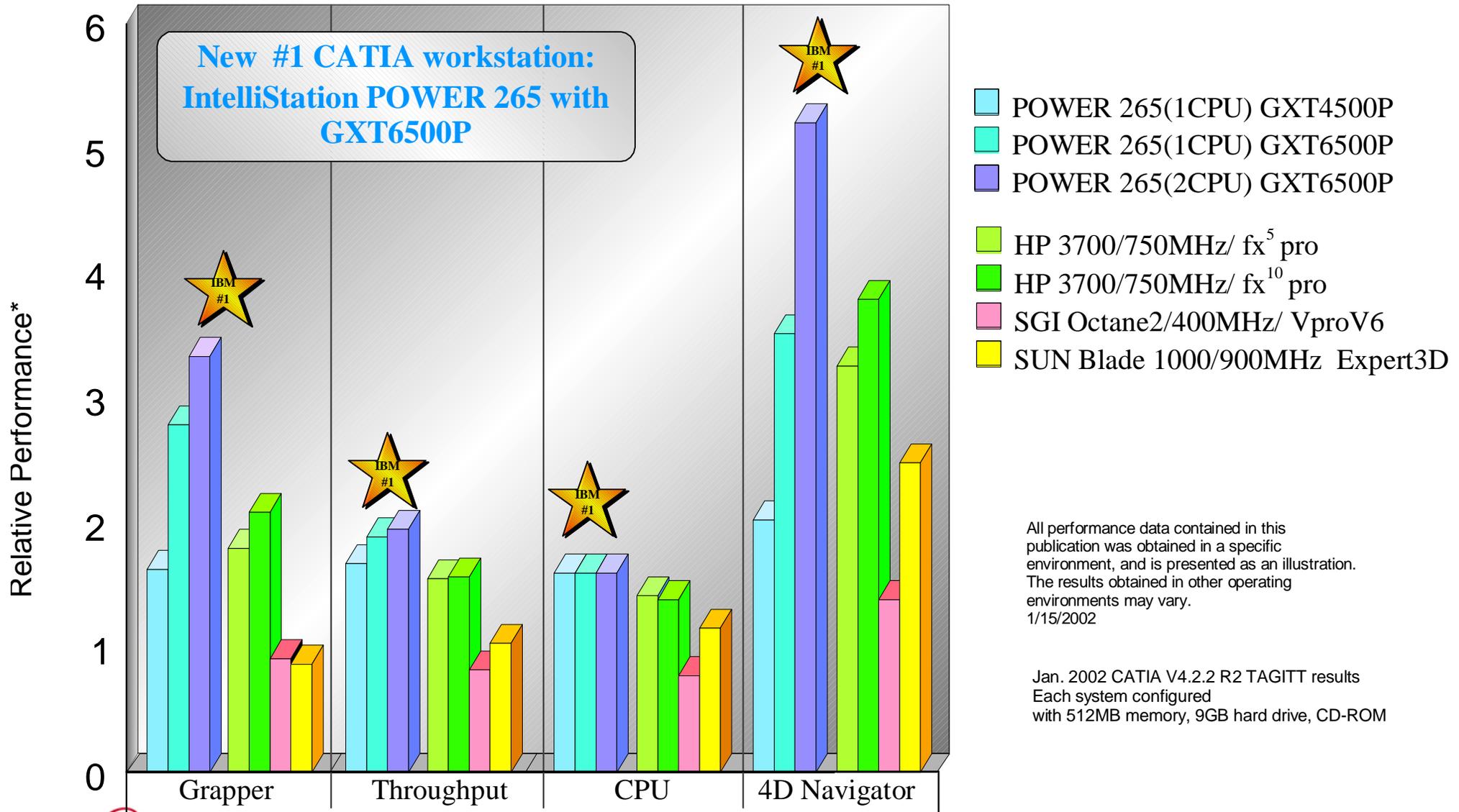
and is up to 281% faster* than the SUN Blade 1000 (900 MHz) Expert3D on the TAGITT CATIA Grapper benchmark

*See TAGITT results on Web site:

www-1.ibm.com/servers/eserver/pseries/solutions/plm/plm_resources.html

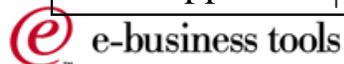


LEADERSHIP CATIA V4 PERFORMANCE



All performance data contained in this publication was obtained in a specific environment, and is presented as an illustration. The results obtained in other operating environments may vary.
1/15/2002

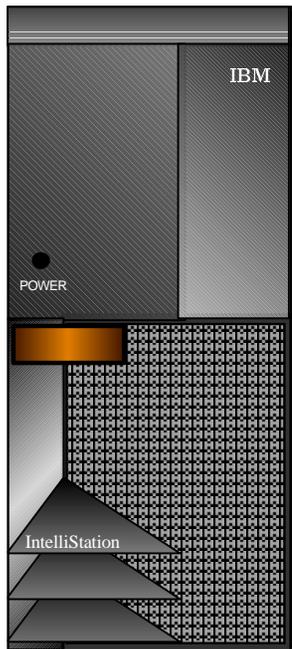
Jan. 2002 CATIA V4.2.2 R2 TAGITT results
Each system configured with 512MB memory, 9GB hard drive, CD-ROM



See TAGITT results on Web site:
www-1.ibm.com/servers/eserver/pseries/solutions/plm/plm_resources.html

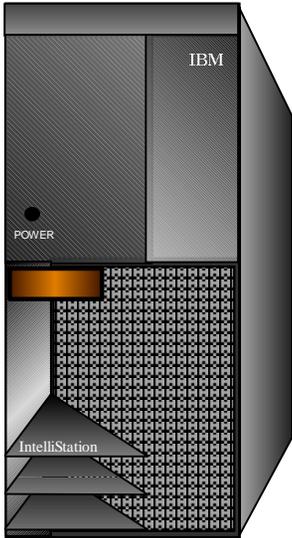
*Relative performance to a 44P-170 (333 MHz)/GXT2000P

POWER 265 Overview



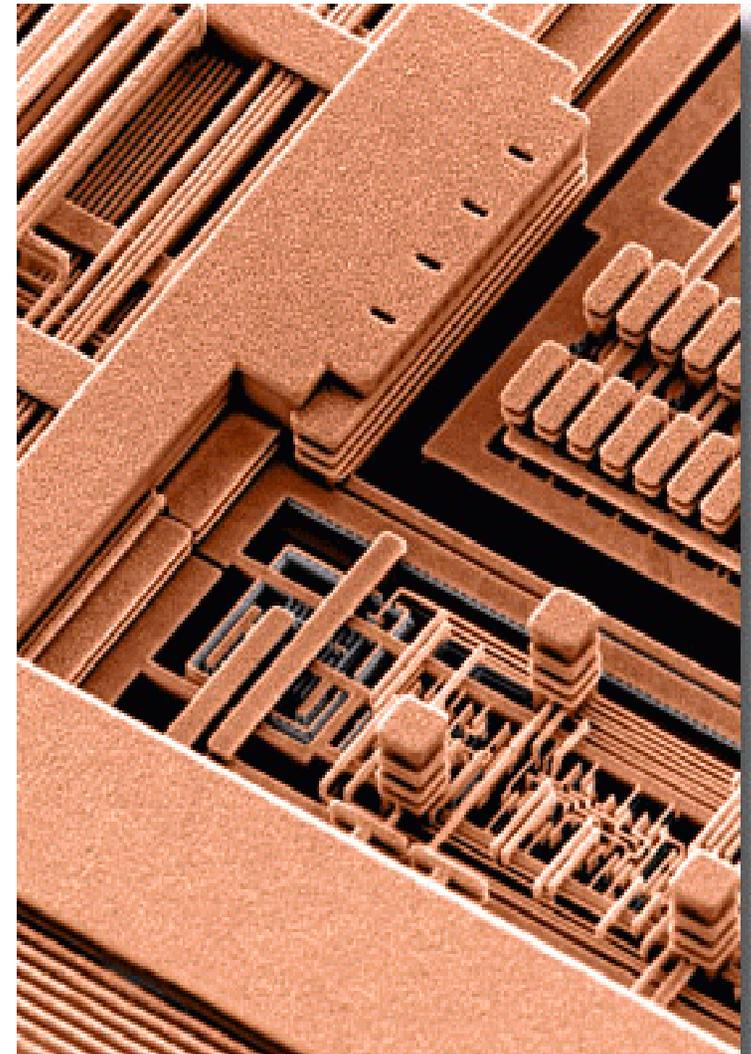
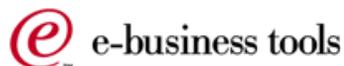
- 1 and 2-way SMP POWER3-II 64-bit 450 MHz processors with 4MB L2 ECC cache
- 512MB to 8GB ECC memory
- 18.2GB to 291.2GB storage inside workstation
- Five PCI slots
- Integrated dual 10/100 Ethernet ports
- Three serial ports and one parallel port
- Two AC power supplies plus one additional supply for redundancy
- Meets quiet office acoustics spec

Advanced Chip Technology



- **Copper Circuitry** for Silicon Wafers

- *Reduces system power consumption*
- *New semiconductor manufacturing process*
- *Copper is a superior electrical conductor*
- *IBM pioneered this technology*
- *More performance per design*
- *Greater reliability per processor*

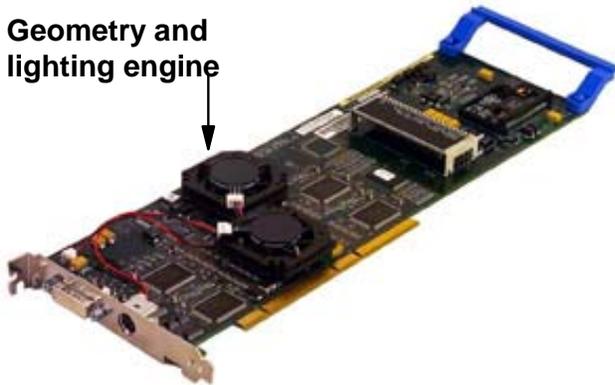


Enhanced 3D Graphics Accelerators

GXT6500P

Class III

Geometry and lighting engine



Monitor Support:

- Resolutions supported 8/16/24-bit (Up to 2048 X 1536 @ 60 Hz)
- ISO 9241 compliant
- Analog and **digital interfaces**

Software

- AIX 4.3 and 5.1

Graphics API's

- X11, graPHIGS, and OpenGL 1.2.1

GXT4500P

Class II



PCI Bus Interface

- 64-bit 66 MHz
- Bus master support

Base Function:

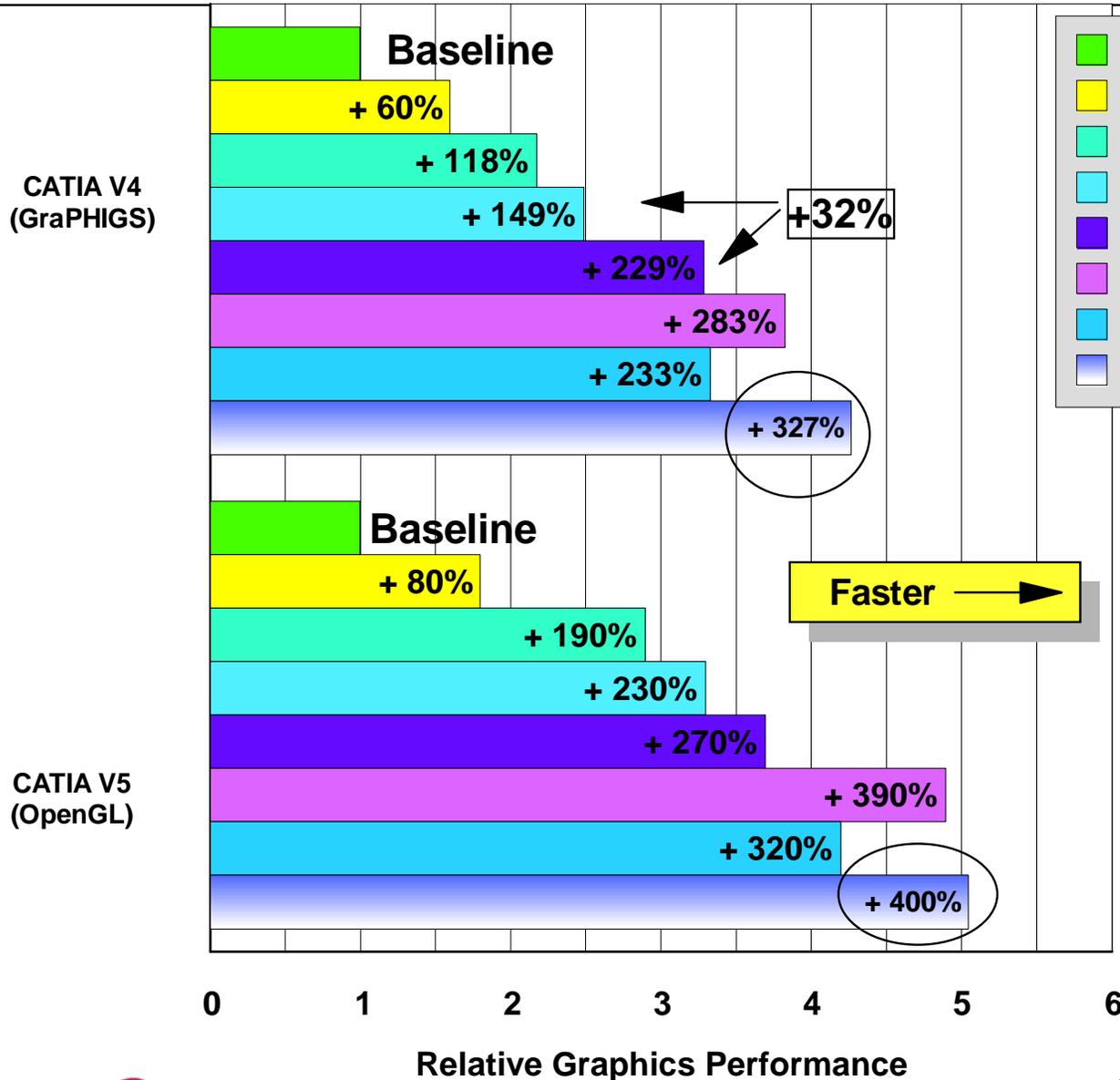
- 128MB Unified Frame Buffer
 - 24-bit double-buffered up to 2048 x 1536
 - 24-bit double-buffered stereo up to 1280 x 1024
 - 24-bit Z-buffer
 - 4/8-bit overlay (SB) and 8-bit double-buffered

Enhanced 3D Graphics Accelerators

- The new GXT4500P and GXT6500P are replacement products of the popular GXT4000P and GXT6000P, providing up to 32% better performance with much lower prices.
- Class II and III Graphics Accelerator Solutions
 - Hardware geometry acceleration and lighting available in the Class III GXT6500P adapter
 - Double frame buffer, dual and 3D textures, HW occlusion culling in both adapters
- Performance boost over previous generation
 - IBM Copper Chip Technology
 - 350 MHz RAMDAC
 - 160 MHz graphics engine and frame buffer
- Digital TFT support
- 2048 x 1536 resolution - analog or digital
 - P260, P275 or T210 in analog mode
 - T210 in razor-sharp digital mode



IBM CATIA Workstation Performance

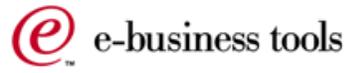


- 43P-150 (375) / GXT2000P
- 44P-170 (333) / GXT4500P
- POWER 265 (1-way) / GXT4500P
- 44P-170 (400) / GXT6000P
- 44P-170 (400) / GXT6500P
- 44P-270 (2-way 450) / GXT6500P
- POWER 265 (1-way) / GXT6500P
- POWER 265 (2-way) / GXT6500P

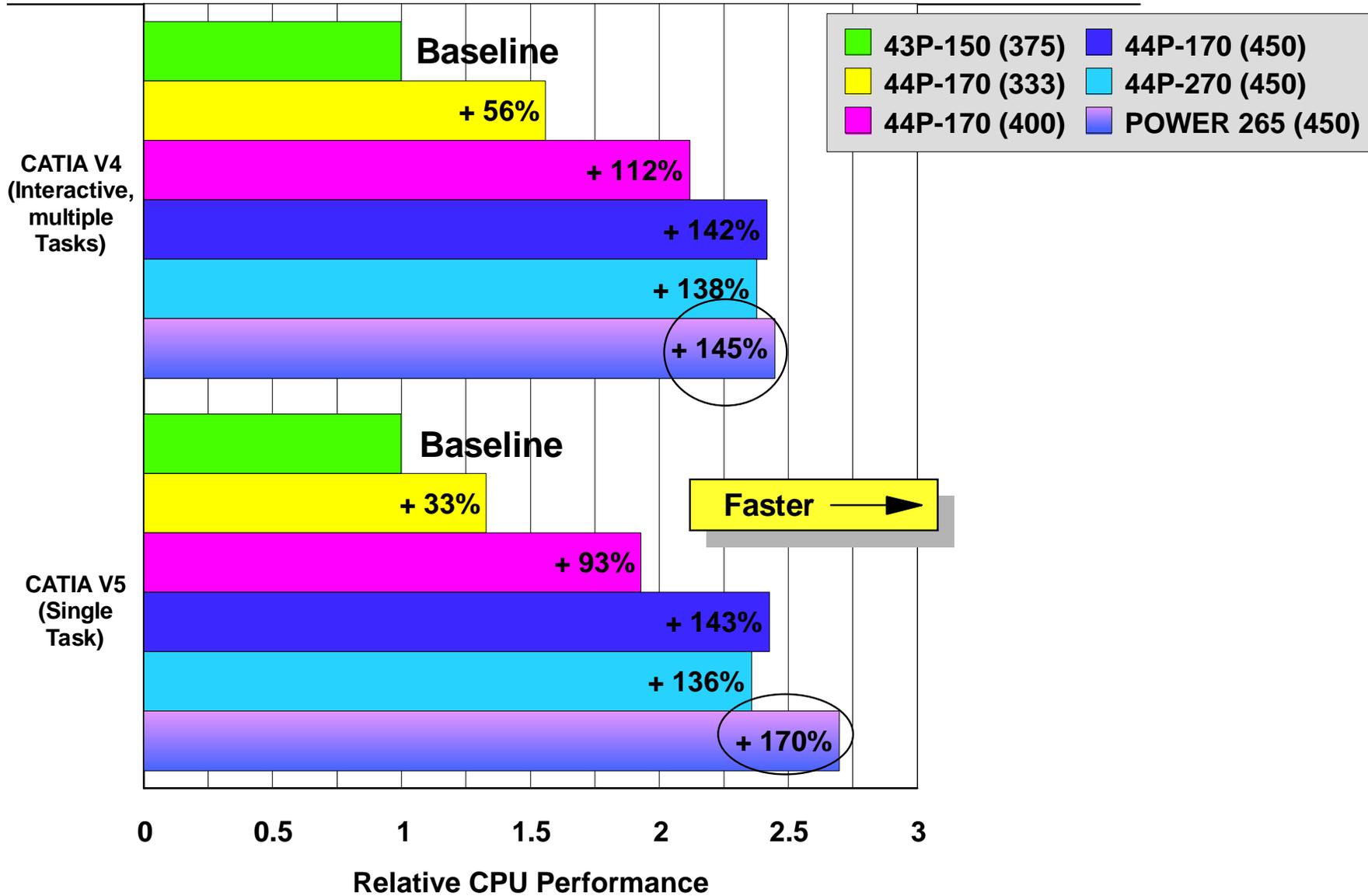
	GXT4000P vs GXT4500P	GXT6000P vs GXT6500P
HRD Mode (1-way)	+7.3%	+15.5%
HRD Mode (2-way)	+11.0%	+23.9%
SHD Mode (1-way)	+7.0%	+9.4%
SHD Mode (2-way)	+7.4%	+8.4%

Systems: (1-way) 44P-170 450 MHz; (2-way) 44P-270 450 MHz

Source: IBM internal graphics performance measurements (January 21, 2002)



CATIA CPU Benchmarks



IBM T210 High Resolution Display



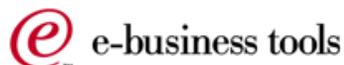
Size/Viewing Area	20.8"/20.8"
Maximum Resolution	2048 x 1536
Contrast Ratio	300:1
Brightness	235 cd/m2
Viewing Angles U/D/L/R	85/85/85/85
Portrait/Landscape Viewing	No
Interface	Hybrid
Additional Function	Picture in Picture Dual Input

Supports GXT6500P & GXT4500P digital interface

AIX Software Delivers



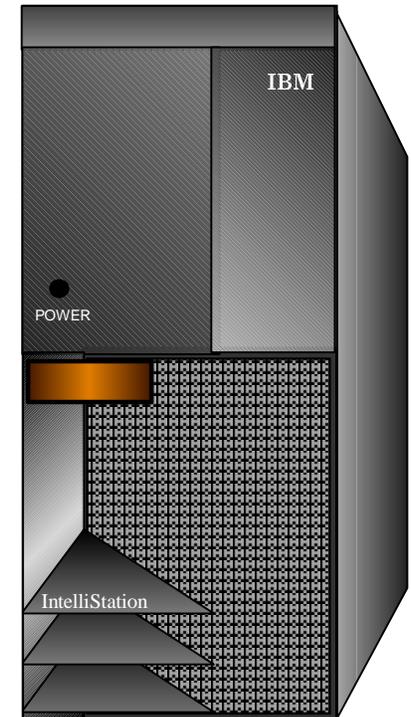
- ▶ A robust, scalable UNIX platform for critical applications
 - ▶ Strong affinity with Linux for flexible solutions that fit your business
 - ▶ The connections needed for e-business and network computing
 - ▶ Security you can count on
 - ▶ Systems and network management that puts you in control
 - ▶ An open and industry standards based platform that offers freedom of choice
 - ▶ Service and support to help keep your business running



The Total Solution

Running **business** and **technical applications** on the IBM IntelliStation workstation can help improve the **productivity** of both the user *and* the IT support team.

- Superior application-focused performance
- Outstanding price/performance ratio
- Extensive portfolio of supported application
- Advanced technologies
- Standards-based manageability tools



Additional product information

IBM IntelliStation POWER 265

Processor

- 1-, 2-way SMP
- POWER3-II 450 MHz processor with 4MB L2 Cache per processor

Memory Subsystem

- 512MB - 8GB ECC Memory
- 16 200-pin ECC DIMM slots
- 512MB(2x256MB), 1024MB(2x512MB) (installed in pairs)

Slots - 5 PCI

- Two 64-bit, 50 MHz, 3.3v
- One 64-bit, 33 MHz, 5.0v
- Two 32-bit, 33 MHz, 5.0v

Integrated Features

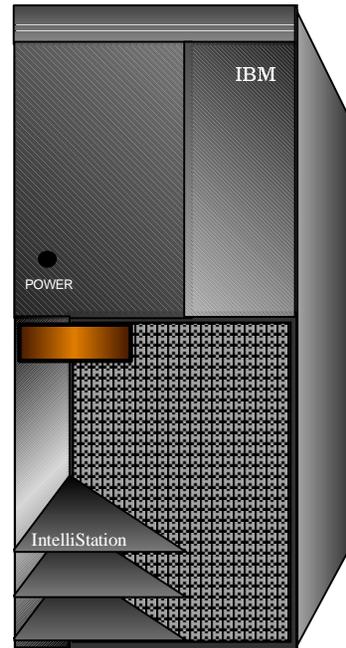
- Dual 10/100 Ethernet
- Dual Ultra3 SCSI (Internal, External)
- 3 Serial, 1 Parallel
- Keyboard, Mouse

Bays

- 6 - Hot-swappable disk, front access (Optional) 18.1, or 36.2GB
- 1 - Internal 1" disk (non hot-swappable)
- 1 - Media Bay: CD-ROM or DVD-RAM
- 1 - Media Bay: CD-ROM, DVD-RAM, tape, disk (non hot-swappable)
- 1 - Diskette standard

Power

- 2 - AC power supplies
- Third optional for redundancy



POWER 265

Desktop Model

16.8" height x 8.5" width x 32" depth

Prices

1-way w/GXT4500P \$12,995

2-way w/GXT4500P \$18,995

(IBM US list price as of 2/5/02-prices are subject to change without notice and dealer prices may vary)

Graphics Adapters

- 3D PCI graphics accelerators GXT4500P and GXT6500P

Options

- AIX V4.3.3 and V5.1.C
- Memory DIMMS
- Keyboard, mouse
- DASD
- PCI adapters
- External SCSI storage

Setup / Maintenance

- Customer set-up
- Customer installable features
- Auto reboot
- Lightpath Diagnostics
- 24x7 On-site warranty

RAS

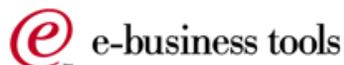
- Service Processor
- Hot-swappable disks (optional)
- RAID 1 and RAID 5
- First Failure Data Capture
- ECC memory and L2 cache
- Hot-plug power and fans

Control Panel and Indicators

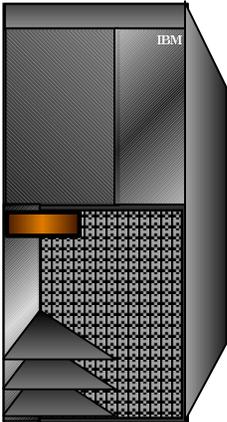
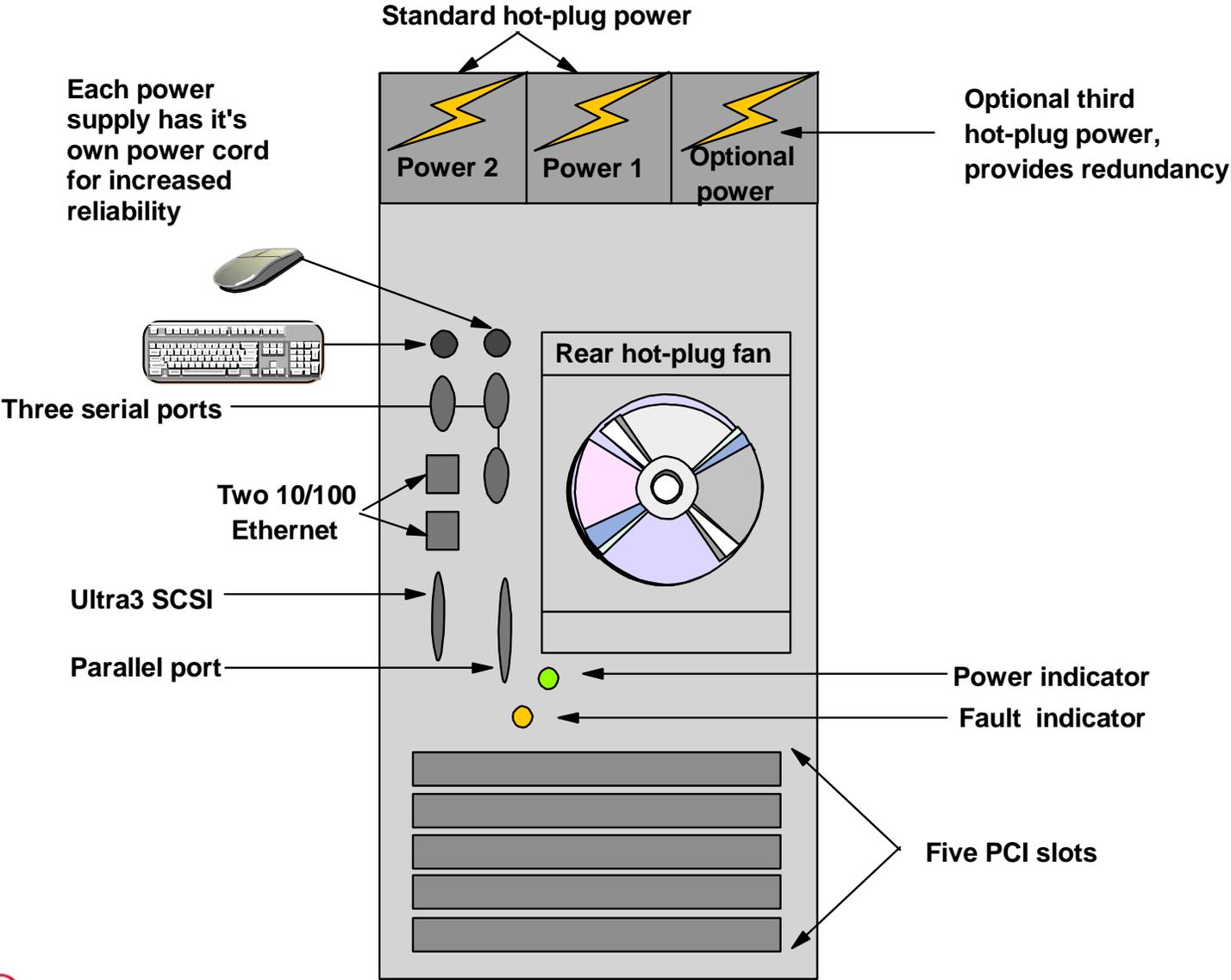
- Full op panel (2x16 backlid LCD) with power-on and attention LED

Certifications

- FCC Class "B"
- Environmental class "C"
- Acoustics quiet office

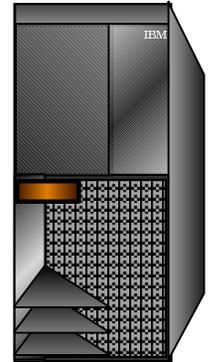


Rear View

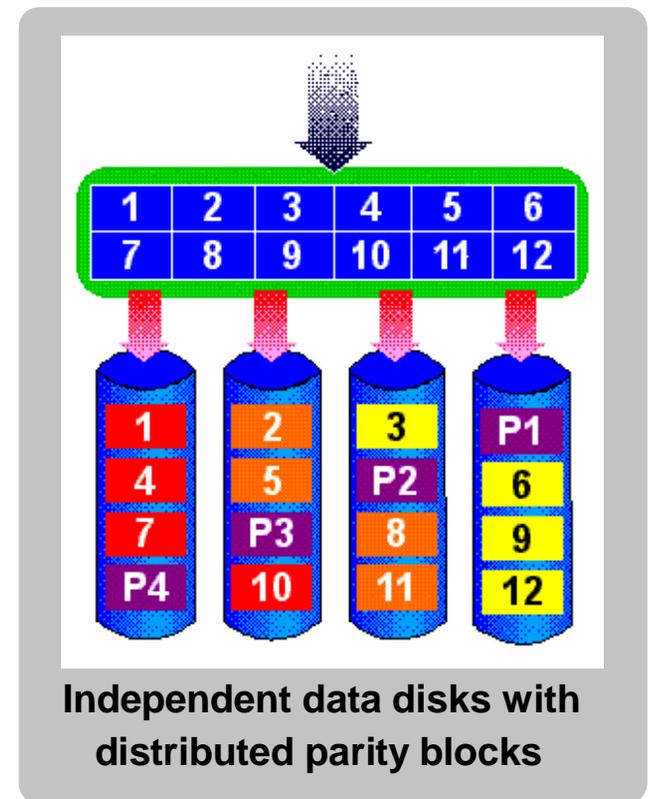


Internal RAID Capabilities

The POWER 265 is capable of RAID 5 within the cover set using hot-swappable HDD technology for even higher system availability



With RAID 5, data is spread across multiple drives. An additional drive contains "parity" information -- data which is created via an algorithm which uses the contents of the other drives as input. If the data on any individual drive is lost, the data on the remaining drives can be used to create the lost data by using the inverse of the original algorithm.

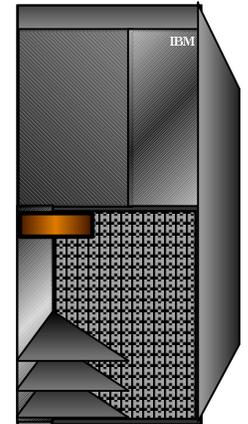


Light Path Diagnostics

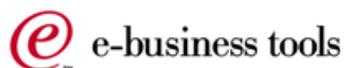
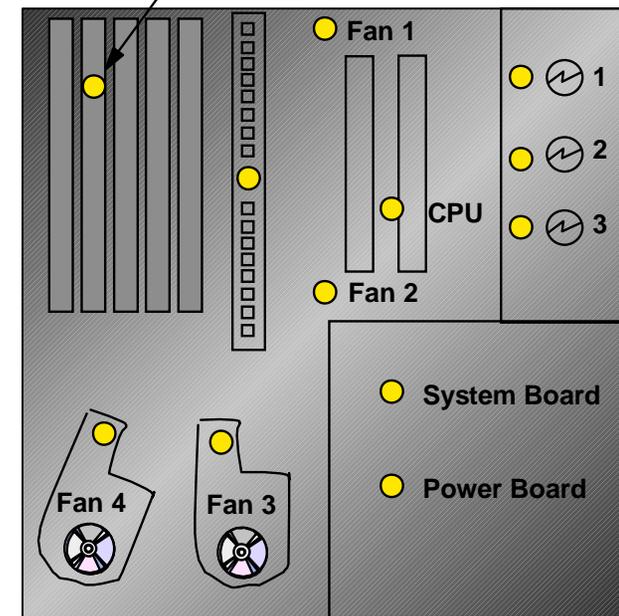


The POWER 265 incorporates Light Path Diagnostics, enabling easy troubleshooting of hardware problems should a fault occur

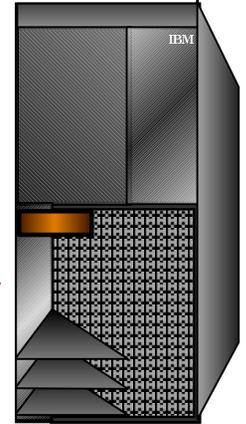
- Quickly identifies failed system components similar to how paper jams in copiers are identified
- Speeds diagnosis of CPU, memory DIMMs, PCI adapters, power supplies and fans
- Enables quick replacement of defective components for higher system availability
- Minimizes system downtime



Amber light indicates fault



Project eLiza™



"Project eLiza's goal is to give businesses the ability to manage systems and technology infrastructures that are hundreds of times more complex than those in existence today. Self-managing servers are the ultimate in new tools for our customers: They're self-optimizing, self-configuring, self-healing and self-protecting. "

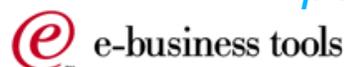
- **First Failure Data Capture** provides error information in real-time and makes it possible to determine the part/s (FRU/s) necessary for IBM Service to fix the real problem at the customer's convenience
- **Virtually eliminates the need for re-creation of intermittent errors**, which at a later time can be extremely time consuming, ineffective, and sometimes impossible

Project eLiza

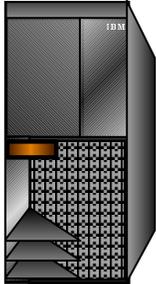


Project eLiza homepage at :

<http://www-1.ibm.com/servers/eserver/introducing/eliza/index.html>



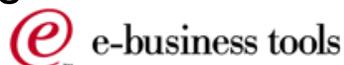
Availability Benefits of Mirroring



- The IntelliStation POWER 265 may be attached to a RAID adapter (#2498) which allows internal RAID 5 capability within the confines of the workstation. This is unheard-of in a workstation of this size and price class.
- By attaching the 6-pack of hot-swappable disks to a SCSI adapter #6203, significant availability benefits occur due to eliminating two single points of failure for booting the server.

AIX LVM mirroring can now allow the bolt-in boot disk (internal SCSI) to be mirrored with a hot-swappable disk attached to a totally separate SCSI adapter, eliminating failure if one of the SCSI controller paths is not available.

AIX, as well as data may be mirrored between the bolt-in drives and the six-packs. Both boot drives may be accessed via different controller paths providing significant availability benefits

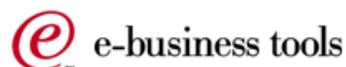


RAS Capabilities



Hardware Features Designed to Increase Reliability and Availability

- **Optional hot-swappable disks** - Allows replacement of HDDs without system reboot, increasing the system availability
- **Optional hot-plug redundant power** - Third power supply can provide backup power should one of the two main power supplies fail or be disconnected increasing the system availability
- **Hot-plug cooling fans** - Fans are designed to speed up if any one fan fails, to maintain system operation until the failed fan can be replaced for increased system availability
- **ECC memory and ECC L2 Cache** - ECC technology provides superior error correction technology over parity error correction to increase system reliability

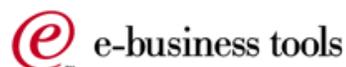


RAS Capabilities



Hardware Features Designed to Increase Serviceability

- **Service Processor** - Separate processor independent of the main SMPs that is always on and allows local access or remote dial in (via external modem) to allow unattended start, shutdown and basic system administration features even when server power is off. The service processor provides a path to report a fault condition from a remote location. When serious problems are detected the service processor enables remote power control, reset and boot as well as remote maintenance and diagnostic activities. The service processor allows full remote system administration which allows the IT "expert" to be at a physically different location than the server or one IT "expert" to administer system maintenance and upgrades to multiple systems over a disperse geographic area.



Network and Connectivity

Meeting Network Attachment Needs

Asynchronous

- 8-port EIA 232/422
- 128-port RS232

Local Area Networks (LAN)

- 10/100 Mbps Ethernet
- Gigabit Ethernet adapter (fibre or UTP)
 - Token-Ring
- Asynchronous Transfer Mode (ATM)
 - 155 Mbps - fiber, UTP
 - 622 Mbps - fiber

Wide Area Networks

- X.25, SDLC

SSA Multi-initiator Adapter

- 8-way non-RAID clustering
- 2-way RAID capability

SAN-ready Adapter/Switches

- Gigabit Fiber Channel adapters
- 8-, 16-, 32- and 64-port switches

Ultra3 RAID adapter

Ultra3 and Ultra non-RAID adapters

