



UNIX Workstations Facts and Features

February 05, 2002



GXT4500P



GXT6500P



**IntelliStation
POWER 265**



T210



Product Line	IBM RS/6000®	IBM RS/6000	IBM RS/6000
Machine type	7043-150	7044-170	7044-270
System packaging	desktop	desktop	desktop
Microprocessor type		64-bit POWER3™-II	64-bit POWER3-II
# of processors/system	132-bit 604e	1	1, 2, 3 or 4
Clock rates available	250 MHz / 375 MHz	333 MHz / 400 MHz / 450 MHz	375 MHz / 450 MHz
System memory (standard/maximum)	128MB / 1GB	256MB / 2GB	256MB / 16GB ^a
Data/instruction (L1) cache)	32KB / 32KB	64KB / 32KB	64KB / 32KB ^b
Level 2 (L2) cache	1MB	1MB / 4MB / 8MB	4MB / 8MB ^b
Reliability, availability, serviceability			
Chipkill™ memory	-	-	-
Service processor	-	X	X
Hot-swappable disks (internal and external)	-	-	-
Dynamic Processor Deallocation	-	-	X
Hot-plug slots	-	-	-
Redundant hot-plug power	-	-	-
Redundant hot-plug cooling	-	-	-
Capacity			
PCI slots available	5 (32-bit)	6 (4 32-bit, 2 64-bit)	5 (3 32-bit, 2 64-bit)
PCI bus speed (MHz)	33	33 / 50	33 / 50
Disk/media bays	2 / 3	3 / 3	2 / 3
Minimum/maximum internal disk storage	9.1GB / 54.6GB	9.1GB / 145.6GB	9.1GB / 109.2GB
Storage interfaces			
Ultra SCSI SE and Ultra SCSI Differential	X	X	X
PCI 2-channel Ultra3 SCSI	X	X	X
PCI 4-channel Ultra3 SCSI RAID	X	X	X
SSA Advanced SerialRAID Plus	X	X	X
Gigabit Fibre Channel	-	X	X
Communications and connectivity			
EIA RS232D	X	X	X
Token-Ring 4/16 Mbps	X	X	X
4-port 10/100 Mbps Ethernet	X	X	X
10/100 Mbps Ethernet PCI II	X	X	X
Gigabit Ethernet (Fibre / UTP)	-	X / X	X / X
FDDI 100 Mbps (Fibre)	X	X	X
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X	X / X
ATM 622 Mbps (Fibre)	-	X	X
SP System Attachment	-	-	-
ESCON® Control Unit (host attach) ^k	-	-	-
ESCON Emulation (tape attach) ^k	-	-	-
HiPPI ^k	-	-	-
Digital Trunk Quad / Resource Adapter ^k	X / X	X / X	X / X
X.25 ^k	X	X	X
SDLC	X	X	X
BSC	X	X	X
eBusiness Cryptographic Accelerator	X	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X	X	X
Graphics accelerators	GXT130P, 4500P	GXT130P, 4500P, 6500P	GXT130P, 4500P, 6500P
Benchmarks	(250 / 375 MHz)	(333 / 400 / 450 MHz)	(1, 2, 3, 4-way)
SPECint_base2000	99.4 / -	177 / 239 / 286	313 ^c
SPECfp_base2000	90.8 / -	225 / 295 / 356	426 ^c
SPECint_base_rate2000	-	-	-, 7.20, -, 14.2 ^c
SPECfp_base_rate2000	-	-	-, 8.91, -, 14.0 ^c

X = Available

^a - Shared memory

^b - Per processor

^c - Using 450 MHz processors with 8MB of L2 cache

^k - Requires additional software; check on availability

Product Line	IntelliStation® POWER 265
Machine type	9112-265
System packaging	tower
Microprocessor type	64-bit POWER3-II
# of processors/system	1 or 2
Clock rates available	450 MHz
System memory (standard/maximum)	512MB / 8GB ^a
Data/instruction (L1) cache	64KB / 32KB ^b
Level 2 (L2) cache	4MB ^b
Reliability, availability, serviceability	
Chipkill memory	-
Service processor	X
Hot-swappable disks (internal and external)	X
Dynamic Processor Deallocation	-
Hot-plug slots	-
Redundant hot-plug power	X
Redundant hot-plug cooling	X
Capacity	
PCI slots available	5 (2 32-bit, 3 64-bit)
PCI bus speed (MHz)	33 / 50
Disk/media bays	7 ^c / 3
Minimum/maximum internal disk storage	18.2GB / 291.2GB
Storage interfaces	
Ultra SCSI SE and Ultra SCSI Differential	X
PCI 2-channel Ultra3 SCSI	X
PCI 4-channel Ultra3 SCSI RAID	X
SSA Advanced SerialRAID Plus	X
Gigabit Fibre Channel	X
Communications and connectivity	
EIA RS232D	X
Token-Ring 4/16 Mbps	X
4-port 10/100 Mbps Ethernet	X
10/100 Mbps Ethernet PCI II	X
Gigabit Ethernet (Fibre / UTP)	X / X
FDDI 100 Mbps (Fibre)	-
64-bit ATM 155 Mbps (Fibre / UTP)	X / X
ATM 622 Mbps (Fibre)	X
SP System Attachment	-
ESCON Control Unit (host attach) ^k	-
ESCON Emulation (tape attach) ^k	-
HiPPI ^k	-
Digital Trunk Quad / Resource Adapter ^k	- / -
X.25 ^k	X
SDLC	-
BSC	-
eBusiness Cryptographic Accelerator	X
PCI Cryptographic Coprocessor (FIPS-4)	X
Graphics accelerators	GXT135P, 4500P, 6500P
Benchmarks	(1, 2-way)
SPECint_base2000	298
SPECfp_base2000	396
SPECint_base_rate2000	-, 6.84
SPECfp_base_rate2000	-, 8.10

X = Available

^a - Shared memory

^b - Per processor

^c - Requires optional feature

^k - Requires additional software; check on availability

I/O device options	RS/6000 150	RS/6000 170	RS/6000 270	IntelliStation POWER 265
Disk drives and subsystems				
7203-001 Portable Disk Drive	X	X	X	X
7204-409/419 External Disk Drive	X	X	X	X
7133-D40/T40 Serial Disk System	X	X	X	X
7140-160 TotalStorage SAN Controller 160	-	X	X	-
2104-DU3/TU3 Expandable Storage Plus	X	X	X	X
2105-F10/F20 TotalStorage™ Enterprise Storage Server™	-	X	X	X
Fibre Channel directors, switches and hubs				
2031-016 McDATA ES-3016 Fabric Switch	-	X	X	X
2031-032 McDATA ES-3032 Fabric Switch	-	X	X	X
2032-064 McDATA ED-6064 Ent. Fibre Chan. Director	-	X	X	X
2042-001 INRANGE FC/9000-64 Port Director	-	X	X	X
2042-128 INRANGE FC/9000-128 Port Director	-	X	X	X
2103-H07 Fibre Channel Storage Hub	-	X	X	-
2109-S08/S16 SAN Fibre Channel Switch	-	X	X	X
Optical drives and libraries				
3995-Cxx Optical Library	X	X	X	X
7210-020 CD-ROM Drive	X	X	X	X
4.7GB DVD-RAM Drive (internal)	X	X	X	X
2112-102 TotalStorage Device Enclosure	X	X	X	X
Tape drives and libraries				
7205-311 DLT Tape Drive	X	X	X	X
7206-005 4 mm Tape Drive	X	X	X	X
7206-110 4 mm Tape Drive	X	X	X	X
7207-122 4GB 1/4-inch Tape Drive	X	X	X	X
7208-341/345 8 mm Tape Drive	X	X	X	X
3490-Fxx 1/2-inch Tape Subsystem (18/36-track)	X	X	X	X
3494-L12/L10/D12/D10 Magstar® Tape Library	X	X	X	X
3494-B18 Magstar Virtual Tape Server	-	-	-	-
3570-Cxx Magstar MP Tape Subsystem	X	X	X	X
3575 Magstar MP Tape Library Dataserver	X	X	X	X
3580-H11/L11 Ultrium Tape Drive	X	X	X	X
3581-H17/L17 Ultrium Tape Autoloader	X	X	X	X
3583-L18/L36/L72 Ultrium Scalable Tape Library	X	X	X	X
3584-D32/L32 UltraScalable Tape Library	X	X	X	X
3590-E11/B11/C12 Magstar Tape Drive	X	X	X	X
7331-305 8 mm Tape Library	X	X	X	X
7332-110 4 mm DDS-3 Tape Autoloader	X	X	X	X
7337-305/306 DLT Tape Library	X	X	X	X
7337-360 DLT Tape Library	X	X	X	X
20GB/40GB 4 mm Tape Drive (internal)	-	X	X	X
20GB/40GB 8 mm Tape Drive (internal)	X	X	X	X

X = Available

Note: For the devices listed, not all models are supported on all systems. For more information, contact your IBM marketing representative or IBM Business Partner.

Workstation performance (with AIX 4.3.3)	43P-150 (375 MHz)	44P-170 (333 MHz)		44P-170 (400 MHz)		44P-170 (450 MHz)	
Graphics accelerators	GXT4500P	GXT4500P	GXT6500P	GXT4500P	GXT6500P	GXT4500P	GXT6500P
Xmark93	57.08	76.91	72.72	85.7	87.04	92.52	93.16
PLBwire93	248.8	577.6	964.7	720.1	1181	811.6	1263
PLBsurf93	502.2	921.3	1406	1138	1671	1270	1837
AWadv-04	14.98	23.93	60.97	29.27	72.21	32.95	78.08
DRV-07	2.027	3.002	13.430	3.746	14.990	4.149	15.510
DX-06	3.700	6.809	14.570	8.424	16.960	9.402	18.150
Light-04	1.154	1.739	3.193	2.116	3.782	2.382	4.043
MedMCAD-01	4.319	6.534	22.370	8.096	26.440	9.174	28.090
ProCDRS-03	6.394	14.71	33.1	17.69	35.74	19.97	36.79

Workstation performance (with AIX 4.3.3)	44P-270 (450 MHz; 2-way; 8MB L2)		IntelliStation POWER 265 1-way		IntelliStation POWER 265 2-way	
Graphics accelerators	GXT4500P	GXT6500P	GXT4500P	GXT6500P	GXT4500P	GXT6500P
Xmark93	91.36	91.06	91.57	91.17	.*	.*
PLBwire93	1358	1399	799.6	1254	1316	1389
PLBsurf93	1787	2173	1259	1790	1736	2140
AWadv-04	32.96	77.55	32.60	76.10	.*	.*
DRV-07	4.190	15.700	3.951	15.380	.*	.*
DX-06	9.403	18.07	9.305	17.9	.*	.*
Light-04	2.390	4.054	2.369	4.041	.*	.*
MedMCAD-01	9.146	27.870	9.126	27.100	.*	.*
ProCDRS-03	20.14	36.78	19.17	35.94	.*	.*

* - Dual processor results should be similar to single processor results

System software	RS/6000 43P-150	RS/6000 44P-170	RS/6000 44P-270	IntelliStation POWER 265
Operating system support				
AIX® 4.3 (5765-C34) ¹	4.3.2+	4.3.3	4.3.3	4.3.3
AIX 5.1 (5765-E61) ¹	X	X	X	X
Linux® 32-bit distribution	X	X	X	.. ²
Linux 64-bit distribution	-	-	.. ²	-

X = Available or standard feature

¹ AIX – unlimited user license

² Planned



IBM services

IBM services provide the capabilities and solutions needed to manage virtually every aspect of an open systems environment and at any level chosen. They complement the support already included with IBM eServer pSeries and IBM RS/6000 systems. IBM world-class services and support allow you to better manage resources and focus on what matters most – your business.

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Project support services

- Operating system porting/conversion
- Operating system migration assistance
- Systems integration
- IBM and non-IBM software customization
- IBM application development
- Site planning services

Continuing support services

- Customer Support Center services
 - Electronic/voice
 - IBM and non-IBM hardware and software
- On-site software maintenance support
- Capacity planning
- Maintenance services, including multivendor environment
- Technical/application specialists
- Network custom services
- Education

Benchmark notes:

Values shown in the performance benchmarks section were derived using particular, well-configured, development-level computer systems, and used 32-bit applications and external cache if external cache is supported on the system. All performance benchmark values and 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. Actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration. IBM recommends application-oriented testing for performance predictions. Additional information about the performance benchmarks, values, and systems tested is available from your IBM marketing representative or IBM Authorized Reseller or access the following on the Web:

SPEC <http://www.spec.org>
TPC <http://www.tpc.org>

Unless otherwise indicated, new or updated system benchmarks were conducted using AIX Version 4.3. All TPC-C benchmark results are Version 5.

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 divided 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 measure 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 that runs a series of insert/delete operations. QthH is scaled based on the database size from 30GB to 1TB.

QphH is the geometric mean of the power tests (QppH) and the throughput tests (QthH).

\$/QphH: Price-performance metric for the TPC-H benchmark where QphH is the geometric mean of QppH and QthH. The price reflects the estimated five year cost of ownership for the tested hardware configuration, software and maintenance.

rPerf (Relative Performance) is an estimate of commercial processing performance. 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 results 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, the model 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, the model assumes the use of 32-bit applications.

Unless otherwise indicated, rPerf is estimated only at the time a system is introduced. The IBM eServer pSeries 640 Model B80 (375 MHz - 4MB L2 cache) 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.

More information

- Contact your IBM marketing representative or IBM Business Partner.
- Access ibm.com/eserver/pseries on the Internet to get to the IBM Web Servers Products and Services page¹ on IBM's World Wide Web server, and then select the appropriate hardware or software option.
- Product announcement letters containing more details on hardware and software offerings are available at ibm.com/ibmlink.
- More detailed benchmark and performance information is available at:
ibm.com/eserver/pseries/hardware/system_perf.html
ibm.com/rs6000/hardware/graphics_perf.html.

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Server Group
Route 100
Somers, New York 10589

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