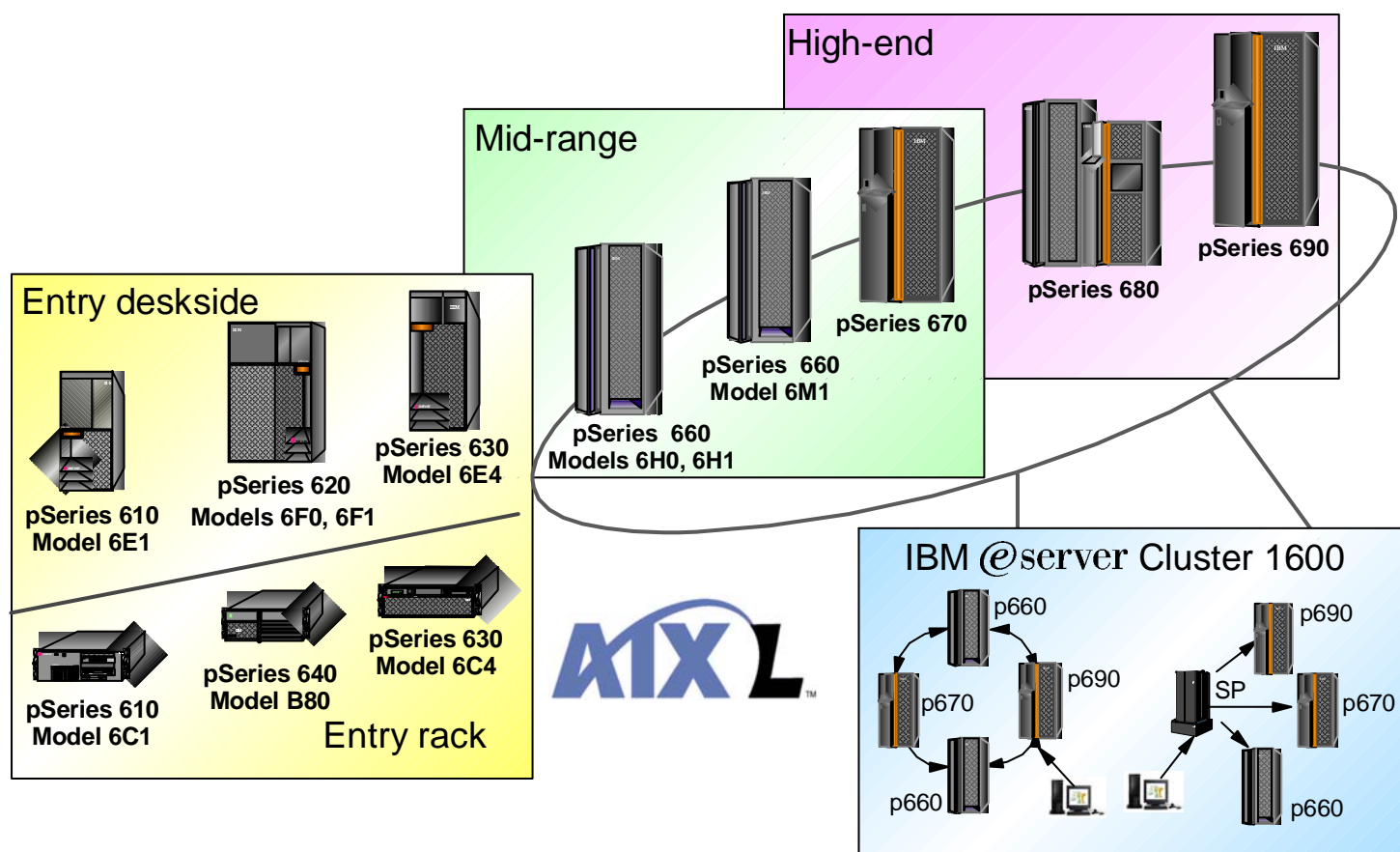




IBM @server pSeries™ and IBM RS/6000®

Facts and Features

August 28, 2002



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	32-bit 604e	64-bit POWER3™-II	64-bit POWER3-II
# of processors/system	1	1	1, 2, 3 or 4
Clock rates available	250 MHz / 375 MHz	333 MHz / 400 MHz / 450	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
Level 3 (L3) cache	-	-	-
Reliability, availability, serviceability			
Chipkill™ memory	-	-	-
Service processor	-	X	X
Hot-swappable disks (internal and external)	-	-	-
Dynamic Processor Deallocation	-	-	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	-	-
Hot-plug slots	-	-	-
Redundant hot-plug power	-	-	-
Redundant hot-plug cooling	-	-	-
NEBS3	-	-	-
Capacity			
Maximum partitions	-	-	-
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	18.2GB / 54.6GB	18.2GB / 293.6GB	18.2GB / 220.2GB
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 ^k	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
Display adapter	GXT130P, GXT135P	GXT130P, GXT135P	GXT130P, GXT135P
Benchmarks	(250 / 375 MHz)	(333 / 400 / 450 MHz)	(1, 2, 3, 4-way)
SPECweb99	-	- / 460 / 1,025	3,497 (4-way) ^P
SPECint_base2000	99.4 / -	196 / 271 / 333	313 ^P
SPECfp_base2000	90.8 / -	274 / 355 / 426	426 ^P
SPECint_rate_base2000	-	-	-, 7.2, -, 14.2 ^P
SPECfp_rate_base2000	-	-	-, 8.91, -, 14.0 ^P
SPECjbb2000	-	-	25,147 (4-way) ^P
TPC-C: tpmC; \$/tpmC	-	-	-
TPC-H: QphH (@ 300GB)	-	-	-
TPC-H: \$/QphH (@ 300GB)	-	-	-
rPerf	0.18, 0.26	0.58, 0.73, 0.79	1.00, 1.92, 2.55, 3.47 ^o -, 2.27, -, 4.01 ^P

Product line	IBM RS/6000	IBM @server pSeries 610
Machine type	7046-B50	7028-6C1 / rack drawer (5U)
System packaging	rack drawer (2U)	7028-6E1 / deskside
Microprocessor type	32-bit 604e	64-bit POWER3-II
# of processors/system	1	1 or 2
Clock rates available	375 MHz	333 MHz / 375 MHz / 450 MHz
System memory (standard/maximum)	128MB / 1GB	512MB / 8GB ^a
Data/instruction (L1) cache	32KB / 32KB	64KB / 32KB ^b
Level 2 (L2) cache	1MB	4MB / 8MB ^b
Level 3 (L3) cache	-	-
Reliability, availability, serviceability		
Chipkill memory	-	-
Service processor	-	X
Hot-swappable disks (internal and external)	-	X ^s
Dynamic Processor Deallocation	-	-
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	-
Hot-plug slots	-	-
Redundant hot-plug power	-	O
Redundant hot-plug cooling	-	X
NEBS3	-	-
Capacity		
Maximum partitions	-	-
PCI slots available	2 (32-bit)	5 (2 32-bit, 3 64-bit)
PCI bus speed (MHz)	33	33 / 50
Disk/media bays	2 ^h / 2	7 ^s / 3
Minimum/maximum internal disk storage	18.2GB / 146.8GB	18.2GB / 587.2GB
Storage interfaces		
Ultra SCSI SE and Ultra SCSI Differential	X	X
PCI 2-channel Ultra3 SCSI	X	X
PCI 4-channel Ultra3 SCSI RAID	X	X
SSA Advanced SerialRAID Plus	X	X
Gigabit Fibre Channel	-	X
Communications and connectivity		
EIA RS232D	X	X
Token-Ring 4/16 Mbps	X	X
4-port 10/100 Mbps Ethernet	X	X
10/100 Mbps Ethernet PCI II	-	X
Gigabit Ethernet (Fibre / UTP)	-	X / X
FDDI 100 Mbps (Fibre)	X	-
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X
ATM 622 Mbps (Fibre)	X	X
SP System Attachment	-	-
ESCON Control Unit (host attach) ^k	-	X ^c
ESCON Emulation (tape attach) ^k	-	X ^c
HiPPI ^k	-	X ^c
Digital Trunk Quad ^k	-	X
X.25 ^k	X	X
SDLC	X	-
BSC	X	-
eBusiness Cryptographic Accelerator	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X	X
Display adapter	GXT130P	GXT130P, GXT135P
Benchmarks		(1, 2-way - 450 MHz)
SPECweb99	-	-
SPECint_base2000	-	313
SPECfp_base2000	-	426
SPECint_rate_base2000	-	-, 7.2
SPECfp_rate_base2000	-	-, 8.91
SPECjbb2000	-	13,124 (2-way)
TPC-C: tpmC; \$/tpmC	-	-
TPC-H: QphH (@ 300GB)	-	-
TPC-H: \$/QphH (@ 300GB)	-	-
rPerf	0.26	1.19, 2.27

Product line	IBM @server pSeries 640	IBM @server pSeries 630
Machine type	7026-B80	7028-6C4 / rack drawer (4U)
System packaging	rack drawer (5U)	7028-6E4 / deskside
Microprocessor type	64-bit POWER3-II	64-bit POWER4
# of processors/system	1, 2, 3 or 4	1, 2 or 4
Clock rates available	375 MHz / 450 MHz	1.0 GHz
System memory (standard/maximum)	256MB / 16GB ^a	1GB / 32GB ^{a,j}
Data/instruction (L1) cache	64KB / 32KB ^b	32KB / 64KB ^b
Level 2 (L2) cache	4MB / 8MB ^b	1.44MB ^g
Level 3 (L3) cache	-	32MB ^g
Reliability, availability, serviceability		
Chipkill memory	-	X
Service processor	X	X
Hot-swappable disks (internal and external)	X	X
Dynamic Processor Deallocation	X	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	X
Hot-plug slots	-	X
Redundant hot-plug power	O	O
Redundant hot-plug cooling	X	O
NEBS3	X	SOD ^r
Capacity		
Maximum partitions	-	SOD
PCI slots available	5 (1 32-bit, 4 64-bit)	4 (64-bit)
PCI bus speed (MHz)	33 / 50	133
Disk/media bays	5	4 / 2
Minimum/maximum internal disk storage	18.2GB / 293.6GB	18.2GB / 293.6GB
Storage interfaces		
Ultra SCSI SE and Ultra SCSI Differential	X	X
PCI 2-channel Ultra3 SCSI	X	X
PCI 4-channel Ultra3 SCSI RAID	X	X
SSA Advanced SerialRAID Plus	X	X
Gigabit Fibre Channel	X	X
Communications and connectivity		
EIA RS232D	X	X
Token-Ring 4/16 Mbps	X	X
4-port 10/100 Mbps Ethernet	X	X
10/100 Mbps Ethernet PCI II	X	X
Gigabit Ethernet (Fibre / UTP)	X / X	X / X
FDDI 100 Mbps (Fibre)	X	X
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X
ATM 622 Mbps (Fibre)	X	X
SP System Attachment	-	SOD
ESCON Control Unit (host attach) ^k	-	-
ESCON Emulation (tape attach) ^k	-	-
HiPPI ^k	-	-
Digital Trunk Quad ^k	X	X
X.25 ^k	X	X
SDLC	X	X
BSC	X	X
eBusiness Cryptographic Accelerator	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X	X
Display adapter	GXT130P	GXT135P
Benchmarks	(1, 2, 3, 4-way)	(1, 2, 4-way)
SPECweb99	3,569 (4-way) ^p	-
SPECint_base2000	313 ^p	624
SPECfp_base2000	426 ^p	843
SPECint_rate_base2000	-, 7.2, -, 14.2 ^p	-
SPECfp_rate_base2000	-, 8.91, -, 14.0 ^p	-
SPECjbb2000	25,145 (4-way) ^p	-
TPC-C: tpmC; \$/tpmC	-	-
TPC-H: QphH (@ 300GB)	-	-
TPC-H: \$/QphH (@ 300GB)	-	-
rPerf	1.00, 1.92, 2.55, 3.47 ^o -, 2.27, -, 4.01 ^p	1.69, 3.29, 5.89

Product line	IBM eServer pSeries 620	IBM eServer pSeries 620
Machine type	7025-6F0	7025-6F1
System packaging	desktop	desktop
Microprocessor type	64-bit RS64 IV	64-bit RS64 IV
# of processors/system	1, 2 or 4	1, 2, 4 or 6
Clock rates available	600 MHz / 750 MHz	600 MHz (1, 2, 4-way) / 750 MHz (1, 2, 4, 6-way)
System memory (standard/maximum)	512MB / 32GB ^{a,n}	512MB / 32GB ^{a,n}
Data/instruction (L1) cache	128KB / 128KB ^b	128KB / 128KB ^b
Level 2 (L2) cache	2MB (1-way) ^b 600 MHz 4MB (2, 4-way) ^b 600 MHz 8MB (1, 2, 4-way) ^b 750 MHz	2MB (1-way) ^b 600 MHz 4MB (2, 4-way) ^b 600 MHz 8MB (1, 2, 4, 6-way) ^b 750 MHz
Level 3 (L3) cache	-	-
Reliability, availability, serviceability		
Chinkill memory	X	X
Service processor	X	X
Hot-swappable disks (internal and external)	X	X
Dynamic Processor Deallocation	X	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	-
Hot-plug slots	X	X
Redundant hot-plug power	O	O
Redundant hot-plug cooling	O	O
NEBS3	-	-
Capacity		
Maximum partitions	-	-
PCI slots available	10 (64-bit)	10 (64-bit)
PCI bus speed (MHz)	33 / 66	33 / 66
Disk/media bays	14 / 3	14 / 3
Minimum/maximum internal disk storage	18.2GB / 1,027.6GB	18.2GB / 1,027.6GB
Storage interfaces		
Ultra SCSI SE and Ultra SCSI Differential	X	X
PCI 2-channel Ultra3 SCSI	X	X
PCI 4-channel Ultra3 SCSI RAID	X	X
SSA Advanced SerialRAID Plus	X	X
Gigabit Fibre Channel	X	X
Communications and connectivity		
EIA RS232D	X	X
Token-Ring 4/16 Mbps	X	X
4-port 10/100 Mbps Ethernet	X	X
10/100 Mbps Ethernet PCI II	X	X
Gigabit Ethernet (Fibre / UTP)	X / X	X / X
FDDI 100 Mbps (Fibre)	X	X
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X
ATM 622 Mbps (Fibre)	X	X
SP System Attachment	-	-
ESCON Control Unit (host attach) ^k	X	X
ESCON Emulation (tape attach) ^k	X	X
HiPPI ^k	-	-
Digital Trunk Quad ^k	X	X
X.25 ^k	X	X
SDLC	X	X
BSC	X	X
eBusiness Cryptographic Accelerator	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X	X
Display adapter	GXT130P	GXT130P
Benchmarks	(1, 2, 4-way - 750 MHz)	(1, 2, 4, 6-way - 750 MHz)
SPECweb99	5,440 (4-way)	5,440 (4-way)
SPECint_base2000	431	431
SPECfp_base2000	396	396
SPECint_rate_base2000	19.3 (4-way)	19.3 (4-way)
SPECfp_rate_base2000	15.2 (4-way)	15.2 (4-way)
SPECjbb2000	47,698 (4-way)	47,698 (4-way)
TPC-C: tpmC; \$/tpmC	-	-
TPC-H: QphH (@ 300GB)	-	-
TPC-H: \$/QphH (@ 300GB)	-	-
rPerf	1.91, 3.49, 5.85	1.91, 3.49, 5.85, 8.23

Product line	IBM eServer pSeries 660	IBM eServer pSeries 660
Machine type	7026-6H0	7026-6H1
System packaging	rack drawer (5U - processor / 5U - I/O)	rack drawer (5U - processor / 5U - I/O)
Microprocessor type	64-bit RS64 IV	64-bit RS64 IV
# of processors/system	1, 2 or 4	1, 2, 4 or 6
Clock rates available	600 MHz / 750 MHz	600 MHz (1, 2, 4-way) / 750 MHz (1, 2, 4, 6-way)
System memory (standard/maximum)	512MB / 32GB ^{a, n}	512MB / 32GB ^{a, n}
Data/instruction (L1) cache	128KB / 128KB ^b	128KB / 128KB ^b
Level 2 (L2) cache	2MB (1-way) ^b 600 MHz 4MB (2, 4-way) ^b 600 MHz 8MB (1, 2, 4-way) ^b 750 MHz	2MB (1-way) ^b 600 MHz 4MB (2, 4-way) ^b 600 MHz 8MB (1, 2, 4, 6-way) ^b 750 MHz
Level 3 (L3) cache	-	-
Reliability, availability, serviceability		
Chipkill memory	X	X
Service processor	X	X
Hot-swappable disks (internal and external)	External only	External only
Dynamic Processor Deallocation	X	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	-
Hot-plug slots	X	X
Redundant hot-plug power	O	O
Redundant hot-plug cooling	X	X
NEBS3	X	X
Capacity		
Maximum partitions	-	-
PCI slots available	28 (8 32-bit, 20 64-bit)	28 (8 32-bit, 20 64-bit)
PCI bus speed (MHz)	33 / 66	33 / 66
Disk/media bays	2 / 4	2 / 4
Minimum/maximum internal disk storage	0 / 72.8GB	0 / 72.8GB
Storage interfaces		
Ultra SCSI SE and Ultra SCSI Differential	X	X
PCI 2-channel Ultra3 SCSI	X	X
PCI 4-channel Ultra3 SCSI RAID	X	X
SSA Advanced SerialRAID Plus	X	X
Gigabit Fibre Channel	X	X
Communications and connectivity		
EIA RS232D	X	X
Token-Ring 4/16 Mbps	X	X
4-port 10/100 Mbps Ethernet	X	X
10/100 Mbps Ethernet PCI II	X	X
Gigabit Ethernet (Fibre / UTP)	X / X	X / X
FDDI 100 Mbps (Fibre)	X	X
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X
ATM 622 Mbps (Fibre)	X	X
SP System Attachment	X	X
ESCON Control Unit (host attach) ^k	X	X
ESCON Emulation (tape attach) ^k	X	X
HiPPI ^k	-	-
Digital Trunk Quad ^k	X	X
X.25 ^k	X	X
SDLC	X	X
BSC	X	X
eBusiness Cryptographic Accelerator	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X	X
Display adapter	GXT130P	GXT130P
Benchmarks	(1, 2, 4-way - 750 MHz)	(1, 2, 4, 6-way - 750 MHz)
SPECweb99	5,480 (4-way)	5,480 (4-way)
SPECint_base2000	431	431
SPECfp_base2000	396	396
SPECint_rate_base2000	19.3 (4-way)	19.3 (4-way)
SPECfp_rate_base2000	15.2 (4-way)	15.2 (4-way)
SPECjbb2000	47,604 (4-way)	47,604 (4-way)
TPC-C: tpmC; \$/tpmC	-	-
TPC-H: QphH (@ 300GB)	-	-
TPC-H: \$/QphH (@ 300GB)	-	-
rPerf	1.91, 3.49, 5.85	1.91, 3.49, 5.85, 8.23

Product line	IBM <i>e</i> server pSeries 660	IBM <i>e</i> server pSeries 670
Machine type	7026-6M1	7040-671
System packaging	rack drawer (8U - processor / 5U - I/O)	system rack
Microprocessor type	64-bit RS64 III / RS64 IV	64-bit POWER4™
# of processors/system	2, 4, 6, or 8	4, 8 or 16
Clock rates available	500 MHz (2, 4-way) / 750 MHz (2, 4, 6, 8-way)	1.1 GHz
System memory (standard/maximum)	2GB / 64GB ^a	4GB / 128GB ^{a,m}
Data/instruction (L1) cache	128KB / 128KB ^b	32KB / 64KB ^b
Level 2 (L2) cache	4MB / 8MB ^b	5.7MB ^w
Level 3 (L3) cache	-	128MB ^w (366 MHz)
Reliability, availability, serviceability		
Chipkill memory	X	X
Service processor	X	X
Hot-swappable disks (internal and external)	External only	X
Dynamic Processor Deallocation	X	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	X
Hot-plug slots	X	X
Redundant hot-plug power	X	X
Redundant hot-plug cooling	X	X
NEBS3	X	-
Capacity		
Maximum partitions	-	16
PCI slots available	56 (16 32-bit, 40 64-bit)	60 (64-bit) ¹
PCI bus speed (MHz)	33 / 66	33 / 66
Disk/media bays	2 / 8	48 / 5
Minimum/maximum internal disk storage	0 / 72.8GB	36.4GB / 3.5TB
Storage interfaces		
Ultra SCSI SE and Ultra SCSI Differential	X	X
PCI 2-channel Ultra3 SCSI	X	X
PCI 4-channel Ultra3 SCSI RAID	X	-
SSA Advanced SerialRAID Plus	X	X
Gigabit Fibre Channel	X	X
Communications and connectivity		
EIA RS232D	X	X
Token-Ring 4/16 Mbps	X	X
4-port 10/100 Mbps Ethernet	X	X
10/100 Mbps Ethernet PCI II	X	X
Gigabit Ethernet (Fibre / UTP)	X / X	X / X
FDDI 100 Mbps (Fibre)	X	X
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X
ATM 622 Mbps (Fibre)	X	X
SP System Attachment	X	X
ESCON Control Unit (host attach) ^k	X	X
ESCON Emulation (tape attach) ^k	X	X
HiPPI ^k	-	X
Digital Trunk Quad ^k	X	-
X.25 ^k	X	X
SDLC	X	X
BSC	X	X
eBusiness Cryptographic Accelerator	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X	X
Display adapter	GXT135P	GXT135P
Benchmarks	(2, 4, 6, 8-way - 750 MHz)	(4, 8, 16-way)
SPECweb99	10,000 (8-way)	-
SPECint_base2000	409	680
SPECfp_base2000	359	1,017
SPECint_rate_base2000	-, 18.7, -, 36.9	-
SPECfp_rate_base2000	-, 15.7, -, 28.8	-
SPECjbb2000	93,272 (8-way)	161,904 (16-way)
TPC-C: tpmC; \$/tpmC	105,025.02, 23.45 (8-way)	-
TPC-H: QphH (@ 300GB)	-	-
TPC-H: \$/QphH (@ 300GB)	-	-
rPerf	3.71, 6.68, 10.14, 13.28	6.93 12.72, 24.46

Product line	IBM @server pSeries 680	IBM @server pSeries 690
Machine type	7017-S85	7040-681
System packaging	system rack (+ I/O rack)	system rack (+ I/O rack)
Microprocessor type	64-bit RS64 III / RS64 IV	64-bit POWER4
# of processors/system	4, 6, 12, 18 or 24 ^u	8, 16, 24 or 32
Clock rates available	450 MHz / 600 MHz	1.1 GHz / 1.3 GHz
System memory (standard/maximum)	2GB / 96GB ^a	8GB / 256GB ^a
Data/instruction (L1) cache	128KB / 128KB ^b	32KB / 64KB ^b
Level 2 (L2) cache	8MB / 16MB ^b	5.7MB ^w
Level 3 (L3) cache	-	128MB ^w (400 MHz)
Reliability, availability, serviceability		
Chipkill memory	X	X
Service processor	X	X
Hot-swappable disks (internal and external)	X	X
Dynamic Processor Deallocation	X	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	X
Hot-plug slots	-	X
Redundant hot-plug power	X	X
Redundant hot-plug cooling	X	X
NEBS3	-	-
Capacity		
Maximum partitions	-	16
PCI slots available	53 (33 32-bit, 20 64-bit)	160 (64-bit)
PCI bus speed (MHz)	33	33 / 66
Disk/media bays	48 / 8	128 / 5
Minimum/maximum internal disk storage	18.2GB / 873.6GB	36.4GB / 9.3TB
Storage interfaces		
Ultra SCSI SE and Ultra SCSI Differential	X	X
PCI 2-channel Ultra3 SCSI	X	X
PCI 4-channel Ultra3 SCSI RAID	-	-
SSA Advanced SerialRAID Plus	X	X
Gigabit Fibre Channel	X	X
Communications and connectivity		
EIA RS232D	X	X
Token-Ring 4/16 Mbps	X	X
4-port 10/100 Mbps Ethernet	X	X
10/100 Mbps Ethernet PCI II	X	X
Gigabit Ethernet (Fibre / UTP)	X / X	X / X
FDDI 100 Mbps (Fibre)	X	X
64-bit ATM 155 Mbps (Fibre / UTP)	X / X	X / X
ATM 622 Mbps (Fibre)	X	X
SP System Attachment	X	X
ESCON Control Unit (host attach) ^k	X	X
ESCON Emulation (tape attach) ^k	X	X
HiPPI ^k	-	X
Digital Trunk Quad ^k	-	-
X.25 ^k	X	X
SDLC	X	X
BSC	X	X
eBusiness Cryptographic Accelerator	X	X
PCI Cryptographic Coprocessor (FIPS-4)	X ^v	X
Display adapter	GXT130P	GXT135P
Benchmarks	(4, 6, 12, 18, 24-way - 600 MHz)	(8, 16, 24, 32-way)
SPECweb99	9,106 (12-way)	21,000 (16-way) ^x
SPECint_base2000	-	804 ^z
SPECfp_base2000	-	1,202 ^z
SPECint_rate_base2000	-	-, -, 125, 232 ^z
SPECfp_rate_base2000	-	-, -, 140, 251 ^z
SPECjbb2000	231,346 (24-way)	339,484 (32-way) ^z
TPC-C: tpmC; \$/tpmC	220,807.27, 29.30 (24-way)	403,255.46, 17.80 (32-way) ^z
TPC-H: QphH (@ 300GB)	-	-
TPC-H: \$/QphH (@ 300GB)	-	-
rPerf	5.60, 8.23, 15.63, 21.91, 27.65	12.72, 24.46, 33.94, 42.80 ^y / 15.00, 28.96, 39.95, 50.56 ^z

Product line	IBM RS/6000 SP™	IBM RS/6000 SP	IBM RS/6000 SP
Machine type	9076	9076	9076
Node type	375 / 450 MHz POWER3 SMP Thin ^e	375 / 450 MHz POWER3 SMP Wide ^e	375 MHz POWER3 SMP High ^e
System packaging	frame	frame	frame
Microprocessor type	64-bit POWER3-II	64-bit POWER3-II	64-bit POWER3-II
Minimum/maximum of each node type / system	1/128 ^f	1/128 ^f	1/128 ^f
# of processors/system	2 or 4	2 or 4	4, 8, 12 or 16
Clock rates available	375 MHz / 450 MHz	375 MHz / 450 MHz	375 MHz
System memory (standard/maximum)	256MB / 16GB ^a	256MB / 16GB ^a	1GB / 64GB ^a
Data/instruction (L1) cache	64KB / 32KB ^b	64KB / 32KB ^b	64KB / 32KB ^b
Level 2 (L2) cache	8MB ^b	8MB ^b	8MB ^b
Level 3 (L3) cache	-	-	-
Reliability, availability, serviceability			
Chipkill memory	-	-	-
Service processor	X ^d	X ^d	X ^d
Hot-swappable disks (internal and external)	External only	External only	X ⁱ
Dynamic Processor Deallocation	X	X	X
Dynamic deallocation: L2/L3 cache, PCI bus slots	-	-	-
Hot-plug slots	-	-	X ⁱ
Redundant hot-plug power	-	-	-
Redundant hot-plug cooling	-	-	-
NEBS3	-	-	-
Capacity			
Maximum partitions	-	-	-
PCI slots available	2 (32-bit)	10 (2 32-bit, 8 64-bit)	53 (1 32-bit, 52 64-bit)
PCI bus speed (MHz)	33	33	33
Disk/media bays	2	4	2 (26 ^l)
Minimum/maximum internal disk storage	0 / 73.4GB	0 / 220.2GB	0 / 1.9TB ⁱ
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	-	-	-
SSA Advanced SerialRAID Plus	X	X	X
Gigabit Fibre Channel	X	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	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	X
SP System Attachment	N/A	N/A	N/A
ESCON Control Unit (host attach) ^k	X	X	X
ESCON Emulation (tape attach) ^k	X	X	X
HiPPI ^k	X	X	X
Digital Trunk Quad ^k	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
Display adapter	-	-	-
Benchmarks	(2, 4-way - 450 MHz)	(2, 4-way - 450 MHz)	(4, 8, 12, 16-way)
SPECweb99	-	-	-
SPECint_base2000	313	313	229
SPECfp_base2000	426	426	322
SPECint_rate_base2000	7.2, 14.2	7.2, 14.2	10.6, 21.0, 31.4, 41.7
SPECfp_rate_base2000	8.91, 14.0	8.91, 14.0	14.1, 27.0, 39.0, 49.7
SPECjbb2000	-	-	-
TPC-C: tpmC; \$/tpmC	-	-	-
TPC-H: QphH (@ 1TB)	-	12,866.8 (32 nodes) ^q	-
TPC-H: \$/QphH (@ 1TB)	-	649.00 (32 nodes) ^q	-
rPerf	1.99, 2.64 ^q / 2.27, 2.95 ^p	1.99, 3.59 ^q / 2.27, 4.01 ^p	3.07, 6.03, 9.11, 12.01

Footnotes

X = Supported

O = Optionally Available

N/A = Not Applicable

SOD = Statement of General Direction announced

a Shared memory

b Per processor

c Available only as a MES

d Via control workstation and PSSP software

e Node types can be intermixed on system

f Up to 512 available via special order

g Per processor card

h Third disk bay available via RPQ

i With SP Expansion I/O units

j 16GB maximum on 1- and 2-way systems

k Requires additional software; check on availability

m 2GB/64GB for 4-way and 8-way systems

n 256MB/16GB on 1-way system

o Using 375 MHz processors and 4MB of L2 cache

p Using 450 MHz processors and 8MB of L2 cache

q Using 375 MHz processors

r NEBS Level 3 supported on rack model only

s Requires an optional feature on 333 MHz systems

t Reduced by 1/3 on 4-way and 8-way systems

u 4-way option available with 600 MHz processors

v Supported via RPQ

w Per multichip module

x Using 1.3 GHz HPC processors

y Using 1.1 GHz processors

z Using 1.3 GHz Turbo processors

I/O device options	RS/6000 150	RS/6000 170/270	pSeries 610	pSeries 630	pSeries 640	pSeries 620	pSeries 660	pSeries 670/ 680/690	RS/6000 SP
Disk drives and subsystems									
7204-518/536 External Disk Drive	X	X	X	X	X	X	X ¹	X ¹	-
7133-D40/T40 Serial Disk System	X	X	X	X	X	X	X	X	X
7140-160 SAN Controller	-	X	-	-	X	-	X ^{1,3}	X ^{1,2}	-
2104-DU3/TU3 Expandable Storage Plus	X	X	X	X	X	X	X	X	X
2105-F10/F20 Enterprise Storage Server™	-	X	X	X	X	X	X	X	X
5194-201/226 NAS 200	X	X	X	X	X	X	X	X	X
5195-326 NAS 300	X	X	X	X	X	X	X	X	X
5196-G01/G26 NAS Gateway 300	X	X	X	-	X	X	X	X	X
4125-110/210 IP Storage 200i ⁵	X	X	X	-	X	X	X	X	X
FAST200/500/700 Storage Server	X	X	X	X	X	X	X	X	X
Fibre channel directors, switches and hubs									
2031-016/032/L00 McDATA Fibre Channel Switch	-	X	X	X	X	X	X	X	X
2032-064 McDATA Fibre Channel Director	-	X	X	X	X	X	X	X	X
2042-001/128 INRANGE FC/9000 Fibre Channel Director	-	X	X	X	X	X	X	X	X
3534-F08 SAN Switch	-	X	X	X	X	X	X	X	X
2109-F16 SAN Switch	-	X	X	X	X	X	X	X	X
2109-S08/S16 SAN Fibre Channel Switch	-	X	X	X	X	X	X	X	X
3534-1RU SAN Fibre Channel Managed Hub	-	X	X	X	X	X	X	X	X
7112-102 Storage Device Enclosure	X	X	X	-	X	X	X	X ²	-
Optical drives and libraries									
3995-Cxx Optical Library	X	X	X	X	X	X	X	X	X
7210-025 DVD-RAM Drive	X	X	X	X	X	X	X	X ²	X
4.7GB DVD-RAM Drive (internal)	X	X	X ⁴	X	X	X	X	X	-
Tape drives and libraries									
7205-440 DLT Linear Tape Drive	X	X	X	X	X	X	X ¹	X ¹	-
7206-110/220 4 mm Tape Drive	X	X	X	X	X	X	X	X	X
7207-122 4GB 1/4-inch Tape Drive	X	X	X	X	X	X	X	X	X
7208-341/342/345 8 mm Tape Drive	X	X	X	X	X	X	X ¹	X ¹	-
3494-L12/D12 Magstar® Tape Library	X	X	X	X	X	X	X	X	X
3494-B18 Magstar Virtual Tape Server	-	-	X	X	-	X	X	X	X
3570-Cxx Magstar MP Tape Subsystem	X	X	X	X	X	X	X	X	X
3575 Magstar MP Tape Library Dataserver	X	X	X	X	X	X	X	X	X
3580-H11/L11/H13/L13 Ultrium Tape Drive	X	X	X	X	X	X	X	X	X
3581-H17/L17/H13/L13 Ultrium Tape Autoloader	X	X	X	X	X	X	X	X	X
3583-L18/L36/L72 Ultrium Scalable Tape Library	X	X	X	X	X	X	X	X	X
3584-D32/L32 UltraScalable Tape Library	X	X	X	X	X	X	X	X	X
3590-E11/B11/C12/E1A Magstar Tape Drive	X	X	X	X	X	X	X	X	X
7332-110/220 4 mm DDS-3 Tape Autoloader	X	X	X	X	X	X	X ¹	X ¹	-
20GB/40GB 4 mm Tape Drive (internal)	-	X	X	X	X	X	X	X	X
20GB/40GB 8 mm Tape Drive (internal)	X	X	X ⁴	X	X	X	X	X ²	X

X = Available

¹ Not supported when a pSeries 660-6H0, pSeries 660-6H1, pSeries 660-6M1, pSeries 670, pSeries 680, pSeries 690 or RS/6000 M80 is attached to the RS/6000 SP

² Supported on pSeries 680 only

³ Not supported on the pSeries 660-6H0, 6H1

⁴ Not supported on p610-6C1 / 6E1 with 333 MHz processor without the optional hot-swap backplane (FC6567) installed

⁵ At this time, Linux® support only

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.

System software	150	270	B50	pSeries 610	pSeries 620
<u>Operating system support</u>					
AIX® 4.3 (5765-C34)	4.3.2+	4.3.3	4.3.3	4.3.3	4.3.3
AIX 5L™ 5.1 (5765-E61)	X	X	X	X	X
Linux64-bit distribution	-	X	X	X	X
HACMP 4.5.0 (5765-E54)	X	X	-	X	X
PSSP 3.4 (5765-D51)	-	-	-	-	-
	pSeries 630	pSeries 640	pSeries 660	pSeries 670	pSeries 680
<u>Operating system support</u>					
AIX 4.3	-	4.3.3	4.3.3	-	4.3.3
AIX 5L 5.1	X	X	X	X	X
Linux 64-bit distribution	X	X	X	X	-
HACMP 4.5.0	X	X	X	X	X
PSSP 3.4	SOD	-	X	X	X
	pSeries 690	SP 375 / 450 MHz POWER3 SMP Thin		SP 375 / 450 MHz POWER3 SMP Wide	
<u>Operating system support</u>					
AIX 4.3	-	4.3.3		4.3.3	
AIX 5L 5.1	X	X		X	
Linux 64-bit distribution	X	-		-	
HACMP 4.5.0	X	X		X	
PSSP 3.4	X	X		X	

X = Available or standard feature

SOD = Statement of General Direction announced



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.

IBM customer financing provides an additional incentive. An array of attractive and flexible financing programs eases the acquisition of new technology and helps protect from the risk of obsolescence. Financing may be available to credit-qualified customers. Rates are based on credit rating, financing terms, and other options. Other restrictions may apply.

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

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 - 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 upgraded systems were tested with AIX Version 4.3 or AIX 5L Version 5.1. All TPC-C benchmark results are TPC-C 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:
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ibm.com/rs6000/hardware/graphics_perf.html

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¹ The IBM home page on the Internet can be found at www.ibm.com

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