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## IBM Appendix

### Cost of Ownership Comparisons

HP 3000 v/s AS/400 cost of ownership comparisons are available on the CSY Hotline under the subject COMPARE. Please refer to that analysis.

#### S800 versus RS/6000

Note that RS/6000 systems come with a one year warranty so that there are no support charges for the first 12 months.

#### 16-user system (configured with 16MB memory and 700MB disk):

S800 system (30.4 host-based TPC-A)			IBM system (59 c/s		
TPC-A)	MMC		IBM 350		
F10		\$11,250	\$17,900		
	\$213				
	16 MB memory	incl		32 MB memory	
	incl				
	566 MB disk	incl		160 MB disk	incl
	tape backup	incl		tape backup	incl
	LAN	incl		LAN	incl
700 MB disk swap	2,400	560 MB storage	3,680		55
16-user license	3,150	16-user license	4,400		-
Total	\$16,800	Total	\$25,980		\$268
3 year support	8,030	3 year support	6,432		
3 year COO	\$24,830	3 year COO	\$32,412		

#### 128 user system (configured with 96MB memory and 2GB disk):

S800 system (88 c/s TPC-A)			IBM system (72 c/s		
TPC-A)	MMC		IBM 560		
G30		\$20,000	\$52,500		
	\$425				
	32 MB memory	incl		64 MB memory	
	incl				
	566 MB disk	incl		800 MB disk	incl
	tape backup	incl		tape backup	incl
	LAN	incl		LAN	incl
64 MB memory	6,400	32 MB memory	5,900		-
2 GB disk	4,700	1 GB disk	4,800		60
128-user license	17,875	128-user license	17,850		-
Total	\$48,975	Total	\$81,050		\$485
3 year support	17,047	3 year support	11,640		
3 year COO	\$66,022	3 year COO	\$92,690		

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256 user system (configured with 256MB memory and 5GB disk):

S800 system (184.5 c/s TPC-A)			IBM system (160 c/s	
TPC-A)	MMC		IBM 980	\$114,500
H50		\$72,000		
	\$833		64 MB memory	
	64 MB memory	incl	2.7 GB disk	incl
	incl		tape backup	incl
	1 GB disk	incl	LAN	incl
	tape backup	incl		
	LAN	incl	192 MB memory	35,000
192 MB memory	19,200	192 MB memory	4 GB disk	12,330
4 GB disk	13,800	2.2 GB storage	256-user license	28,100
256-user license	22,075	256-user license		
Total	\$127,075	Total	\$189,930	\$977
3 year support	38,558	3 year support	23,448	
3 year COO	\$165,633	3 year COO	\$213,378	

Alternate configuration for 256 users (158 c/s TPC-A):

	\$425		IBM 580	\$62,500
	incl		64 MB memory	
			2 GB	incl
	35,000	-	192 MB memory	
	148		3GB storage	10,960
	27,450	-	256-user license	
			Total	\$135,910
	\$573		3 year support	13,752
			3 year COO	\$149,662

## S800 versus AS/400

Note 1: that AS/400 systems come with a one year warranty so that there are no support charges for the first 12 months.

Note 2: Tape backup and LAN are not included with the base system and must be purchased separately.

### 16-user system (configured with 16MB memory and 700MB disk):

S800 system (30 host-based TPC-A) (estimated 10 TPS) F10		MMC	IBM system	
		\$11,250	AS/400 model E06	
	\$16,500	\$135		
	16 MB memory	incl	8 MB memory incl	
	566 MB disk	incl	988 MB disk incl	
	tape backup	incl	tape backup	
	optional			
	LAN	incl	LAN optional	
700 MB disk swap	2,400	8 MB memory	2,036	-
16-user license	3,150	operating system	7,125	-
Total	\$16,800	Total	\$25,661	\$135
3 year support	8,030	3 year support	3,240	-
3 year COO	\$24,830	3 year COO	\$28,901	-

### 128 user system (configured with 96MB memory and 2GB disk):

S800 system (60 host-based TPC-A) (estimated 20 TPS) G30		MMC	IBM system	
		\$20,000	AS/400 model E25 \$	
71,070	\$288		16 MB memory	
	32 MB memory	incl		
	incl			
	566 MB disk	incl	988 MB disk incl	
	tape backup	incl	tape backup	
	optional			
	LAN	incl	LAN optional	
64 MB memory	6,400	80 MB memory	30,500	-
2 GB disk	4,700	988 MB disk	6,000	-
128-user license	17,875	operating system	18,480	-
Total	\$48,975	Total	\$126,050	\$288
3 year support	17,047	3 year support	6,912	-
3 year COO	\$66,022	3 year COO	\$132,962	-

256 user system (configured with 256MB memory and 5GB disk):

S800 system (153 host-based TPC-A) (estimated 45 TPS) H50		MMC	IBM system
		\$ 72,000	AS/400 model E60
	\$220,000	\$985	64 MB memory
	64 MB memory incl	incl	1.28 GB disk incl tape backup
	1 GB disk tape backup optional	incl incl	LAN optional
	LAN	incl	LAN optional
192 MB memory	19,200	192 MB	166,800
4 GB disk	13,800	3.7 GB storage	18,000
256-user license	22,075	operating system	75,600
	<hr/>		<hr/>
Total	\$127,075	Total	\$480,400 \$985
3 year support	38,558	3 year support	23,640
3 year COO	\$165,633	3 year COO	

Alternate high-end:

(estimated 165 TPS)	MMC	IBM system
\$973,000	\$3,500	AS/400 model E95
incl		64 MB memory
optional		1.28 GB disk incl tape backup
		LAN optional
166,800		192 MB memory
168,000		3.7 GB storage 18,000 operating system
<hr/>		<hr/>
\$3,500		Total \$1,325,800
\$1,409,800		3 year support 84,000 3 year COO

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RS/6000 POWERstation Configuration Summary

RS/6000 Model
220
340
350
Packaging
Desktop/Deskside
Desktop/Deskside
Desktop/Deskside
Clock Rate
33 MHz
33 MHz
42 MHz
Performance:
LINPACK DP
Mflops
6.5
14.8
18.6
SPECmark89
27.7
58.5
73.7
SPECfp89
37.4
93.4
118.0
SPECint89
17.7

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29.0
36.4 SPECfp92
26.1
58.7
74.2 SPECint92
16.6
27.9
35.4
Graphics Performance: Grayscale Adapter (K v/s)
N/A
72
72 Color Graphics Adapter (K v/s)
N/A
125
125 POWER Gt1 (K 2D v/s)
185
N/A
N/A POWER Gt3 (K 2D v/s)
650
650
650 POWER Gt4 (K)*

N/A
650/400/20
650/400/20 POWER Gt4x (K)*
N/A
800/800/80
800/800/80 POWER GTO (K)*
990/990/120
990/990/120
990/990/120
Expansion: Main Memory (min-max)
16-64 MB
16-256 MB
32-256 MB Memory Type
PS/2 SIMM ECC
16 Mbit ECC
16 Mbit ECC Memory Slots
8
2
2 Data/Instr. Cache (KB)
8
32/8
32/8 Bus Width



64-bit
64-bit
64-bit Avail. Expansion Slots
2
4
4
Integr. SCSI/ Ethernet
S/E
S/E
S/E Ports (Parallel/ Serial)
1/2
1/2
1/2 XIO slots (80 MB/sec)
N/A
N/A
N/A Internal Disk (min-max, MB)
0-1000
160/400-2000
160/400-2000 External Disk (max, GB)
8.5
33.8
33.8

Max Total Disk (GB)
9.5
35.8
35.8
Operating System
AIX 3.2
AIX 3.2
AIX 3.2
Entry Config.
16 MB, 200 MB,
16 MB, 400 MB,
32 MB, 400 MB,
Ethernet, Inte.
Ethernet, Inte.
Ethernet, Inte.
SCSI, KB, Mouse,
SCSI, Diskette,
SCSI, Diskette,
8507 Grayscale,
KB, Mouse, 8508
KB, Mouse, 8508
AIX, GUI
Grayscale, AIX,
Grayscale, AIX,
GUI
GUI
Price

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\$6,605
\$16,895
\$22,895

\* 2D v/s / 3D v/s / Gouraud shaded triangles/s

### RS/6000 POWERstation Configuration Summary

RS/6000 Model	520H 580	530H	560	
Packaging	Deskside Deskside	Deskside	Deskside	
Clock Rate	25 MHz 62.5 MHz	33 MHz	50 MHz	
Performance: LINPACK DP Mflops	11.5 38.1	20.2	30.5	
SPECmark89	45.1 126.2	62.2	92.3	
SPECfp89	72.9 204.3	102.7	151.6	
SPECint89	22.0 61.2	29.3	43.9	
SPECfp92	45.3 124.7	64.6	97.6	
SPECint92	21.5 59.1	28.5	43.2	
Graphics Performance: Grayscale Adapter (K v/s)	72	72	72	72
Color Graph. Adapter (K v/s)	125 125	125	125	
POWER Gt1 (K 2D v/s)	N/A	N/A	N/A	N/A
POWER Gt3 (K 2D v/s)	650 650	650	650	
POWER Gt4 (K)*	650/400/20 650/400/20	650/400/20	650/400/20	
POWER Gt4x (K)*	800/800/80	800/800/80	800/800/80	
POWER GTO (K)*	990/990/120	990/990/120	990/990/120	

Expansion:				
Main Memory (min-max)	16-512	32-512	64-1024	64-1024
Memory Type	4 Mbit EEC	4 Mbit EEC	16 Mbit EEC	16 Mbit EEC
Memory Slots	8	8	8	8
Data/Instr. Cache (KB)	32/8 64/32	64/8	64/8	
Bus Width	64-bit 128-bit	128-bit	128-bit	
Avail. Expansion Slots	7	7	7	8
Integr. SCSI/Ethernet Ports (Parallel/Serial)	N/A	N/A	N/A	5
XIO Slots (80 MB/sec)	1/2	1/2	1/2	1/2
Internal Disk (min-max, MB)	N/A	N/A	N/A	8
External Disk (max, MB)	400-7200 2000-7200	400-7200	800-7200	
Max Total Disk (GB)	42.8 42.8	42.8	42.8	
Operating Sys.	50	50	50	50
Entry Config.	AIX 3.2	AIX 3.2	AIX 3.2	AIX 3.2.3
	16 MB, 400 MB, Mb, 2 GB,	32 MB, 400 MB,	64 MB, 800 MB,	64
	Ethernet, SCSI, Ethernet, SCSI, Diskette, KB, Diskette, KB, Mouse, 8508, Mouse, 8508, Grayscale, AIX, Grayscale, AIX, GUI	Ethernet, SCSI, Diskette, KB, Mouse, 8508	Ethernet, SCSI, Diskette, KB, Mouse, 8508	GUI
Price	\$28,117 \$69,117	\$38,117	\$59,117	

\* 2D v/s / 3D v/s / Gouraud shaded triangles/s  
RS/6000 Graphics Comparison

	POWER POWER Gt1	POWER Gt3	POWER Gt4	POWER Gt4x
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GTO				
Graphics Specifications:				
Color Planes	8 8/24	8	8/24	8/24
Overlay Planes	N/A N/A	N/A	N/A	N/A
Double Buffer	N/A 24/24	N/A	24/24	24/24
Planes				
Z Buffer	N/A Y	N/A	Y	Y
Graphics Features:				
Gouraud Shading	N/A Y	N/A	Y	Y
Light Sources	N/A 8	N/A	8	8
Dithering	N/A N/A	N/A	N/A	N/A
Antialiasing	N/A Y	N/A	Y	Y
Depth Cueing	N/A Y	N/A	Y	Y
Texture Mapping	N/A N/A	N/A	N/A	N/A
Alpha Blending	N/A N/A	N/A	N/A	N/A
Graphics Application Interface:				
X11 R4	Y Y	Y	Y	Y
PHIGS	Y Y	Y	Y	Y
PEX				

HP Series 700 Graphics Capabilities:

	Integr. Color		CRX	CRX-24
	CRX-24Z	CRX-48Z		
Graphics Specifications:				
Color Planes	8 24	8	24	24
Overlay Planes	N/A 8	N/A	8	8
Double Buffer				
Planes	N/A 24/24	8/8	12/12	12/12

Z Buffer	N/A Y	N/A	N/A	Y
Graphics Features:				
Gouraud Shading	Y*	Y*	Y	Y
Light Sources	16 16	16	16	16
Dithering	Y Y	Y	Y	Y
Antialiasing	N/A Y	N/A	N/A	Y
Depth Cueing	Y Y	Y	Y	Y
Texture Mapping	N/A Y	N/A	N/A	Y
Alpha Blending	N/A Y	N/A	Y*	Y
Graphics Application Interface:				
X11 R5	Y Y	Y	Y	Y
PHIGS	Y Y	Y	Y	Y
PEX	Y Y	Y	Y	Y

\* with PowerShade

IBM RS/6000 versus HP 9000 Series 700 System Comparison  
 8 Plane Color Systems Under \$15 K

9000	RS/6000	RS/6000	HP
	220W Gt1	220 Gt3	
715/33 C			
Configuration:			
Monitor size	16" color	16" color	17"
color			
Resolution	1280x1024	1280x1024	
1024x768			
Opt Monitor size		19"	19"
15", 19"			
Graphics Specifications:			
Color planes	8	8	8
Overlay planes	N/A	N/A	N/A
Double buffer	N/A	N/A	N/A
Z buffer	N/A	N/A	N/A
Compute Performance:			
SPECmark89	27.7	27.7	
45.9			
SPECfp92	26.1	26.1	
45.0			
SPECint92	16.6	16.6	
24.2			
Graphics Performance:			
X11 Perf	NP	NP	
7,633			
2D vec/sec (K)	185	650	
610			
3D vec/sec (K) sust.		N/A	N/A
610			
3D Triangles/sec (K) sust.	N/A	N/A	12
3D Lighted Quads (K) sust.	N/A	N/A	10
GPC 3D Wireframe (sys_chassis)	N/A	N/A	
12.8			
GPC 3D Solids (cyl head)	N/A	N/A	9.3
GPC Animation (head)		N/A	N/A
13.6			
GPC Simulation (shuttle)	N/A	N/A	
10.5			
Typical Configuration		16 MB, 400 MB, 16	
MB, 400 MB, 16 MB, 525 MB,	Floppy, 2-user	Floppy, 2-user	

	Floppy, 2-user	AIX, 8-bit Gt1	AIX, 8-bit Gt3	HP-
UX, integr. Price	\$9,315	\$9,985	\$13,020	
Price/Performance (based on typical system):				
SPECmark89/\$1,000			2.8	2.1
4.9				
SPECfp92/\$1,000			2.6	2.0
4.8				
SPECint92/\$1,000			1.7	1.3
2.6				
K 3D vectors/\$1,000			N/A	N/A
65.5				
(higher is better!)				

N/A = not available  
NP = not published



IBM RS/6000 versus HP 9000 700 System Comparisons  
 24 Plane Color Systems \$15 K - 25 K

9000	RS/6000	HP 9000	HP
715/50 CRX-24	340 Gt4	715/50 CRX-24	
Configuration:			
Monitor size	19" color	19" color	19"
Resolution	1280x1024	1280x1024	
Opt Monitor size		16"	N/A
N/A			
Graphics Specifications:			
Color planes	(8)/24	24	24
Overlay planes	0	8	8
Double buffer	24/24	12/12	
Z buffer	N/A	N/A	N/A
12/12			
Compute Performance:			
SPECmark89	58.5	69.0	
SPECfp92	58.7	72.1	
SPECint92	27.9	36.5	
69.0			
72.1			
36.5			
Graphics Performance:			
X11 Perf	NP	10,650	
10,650			
2D vec/sec (K)	650	680	
680			
3D vec/sec (K) sust.	680	400	
680			
3D Triangles/sec (K) sust.	20	18	18
3D Lighted Quads (K) sust.	NP	12	12
GPC 3D Wireframe (sys_chassis)	NP	19.0	
19.0			
GPC 3D Solids (cyl_head)	NP	14.7	
14.7			
GPC Animation (head)		NP	
21.1			
GPC Simulation (shuttle)	21.1	16.1	
	NP		

	16.1		
Typical Configuration	16 MB, 525 MB, 32 MB, 1 GB, Floppy, 2-user	Floppy, 2-user	16 MB, 400 MB, 16 Floppy, 2-user
UX, CRX-24		AIX, 24-bit	HP-UX, CRX-24 HP-
Price	\$24,915	Gt4 \$25,650	\$18,415
Price/Performance (based on typical system):			
SPECmark89/\$1,000			2.3 3.8
2.8 SPECfp92/\$1,000			2.3 3.9
2.9 SPECint92/\$1,000			1.1 2.0
1.4 3D vectors/\$ 1,000			15.6
36.9 (higher is better!)		27.3	

N/A = not available  
NP = not published

IBM RS/6000 versus HP 9000 700 System Comparisons  
 24 Plane Color Systems \$30 K - 50 K

9000	RS/6000	HP 9000	HP
725/50 CRX-48Z	350 Gt4x	725/50 CRX-24Z	
Configuration: Monitor size color Resolution 1280x1024 Opt Monitor size N/A	19" color 1280x1024	19" color 1280x1024 16"	19" N/A
Graphics Specifications: Color planes Overlay planes Double buffer 24/24 Z buffer	(8)/24 0 24/24 Y	24 8 12/12 Y	24 8 Y
Compute Performance: SPECmark89 69.0 SPECfp92 72.1 SPECint92 36.5	73.7 74.2 35.4	69.0 72.1 36.5	
Graphics Performance: 11 Perf 9,890 2D vec/sec (K) 1,000 3D vec/sec (K) sust. 680 3D Triangles/sec (K) sust. 600 3D Lighted Quads (K) sust. 21.8 GPC 3D Wireframe (sys_chassis) 39.6 GPC 3D Solids (cyl_head) 40.3 GPC Animation (head) 26.3 GPC Simulation (shuttle)	NP 800 1,000 80 NP NP NP 66.7 NP	10,650 680 800 150 70 19.0 34.2 NP 26.3	80

Typical Configuration	32MB, 1 GB, Floppy, 2-user	32 MB, 1 GB, Floppy, 2-user	32 MB, 1 GB, Floppy, 2-user	
UX,		AIX, 24-bit	HP-UX,	HP-
	CRX-48Z	Gt4x	CRX-24Z	
Price	\$34,915	\$37,050	\$29,915	
Price/Performance (based on typical system):				
SPECmark89/\$1,000			2.0	2.3
2.0				
SPECfp92/\$1,000			2.0	2.4
2.1				
SPECint92/\$1,000			1.0	1.2
1.0				
3D vectors/\$1,000	22.7	28.6	21.6	
(higher is better!)				

N/A = not available  
NP = not published

IBM RS/6000 versus HP 9000 700 System Comparisons  
 24 Plane Color Systems \$60 K - 85 K

	HP 9000	RS/6000	RS/6000	HP 9000
	755	560 GTO	580 GTO	735 CRX-48Z
	CRX-48Z			
Configuration:				
Monitor size	19" color	19" color	19" color	19" color
Resolution	1280x1024	1280x1024	1280x1024	1280x1024
Opt Monitor size	N/A	N/A	16", 23"	16", 23"
Graphics Specifications:				
Color planes	24	(8)/24	(8)/24	24
Overlay planes	8	8	0	0
Double buffer	24/24	24/24	24/24	24/24
Z buffer	Y	Y	Y	Y
Compute Performance:				
SPECmark89	147.0	92.3	126.2	147.0
SPECfp92	150.0	97.6	124.7	150.0
SPECint92	80.0	43.2	59.1	80.0
Graphics Performance:				
X11 Perf	19,120	NP	NP	19,120
2D vec/sec (K)	1,900	1,900	990	990
3D vec/sec (K) sust.	1,900	990	990	1,900
3D Triangles/sec (K) sust.	600	120	120	600
3D Lighted Quads (K) sust.	150	NP	NP	150
GPC 3D Wireframe (sys_chassis)	40.3	40.3	NP	NP
GPC 3D Solids (cyl_head)	78.7	NP	NP	78.7

GPC Animation (head)	NP	NP	127.1
127.1 GPC Simulation (shuttle)	NP	NP	58.5
58.5 Typical Configuration	64 MB, 2 GB,	64 MB, 2 GB,	64 MB, 2 GB,
64 MB, 2 GB, user	Floppy, 2-user	Floppy, 2-user	Floppy, 2-
Floppy, 2-user	HP-UX,	AIX, 24-bit	AIX, 24-bit
HP-UX,	GTO	GTO	CRX-48Z
CRX-48X	\$80,200	\$85,400	\$61,315
Price	\$73,415		
Price/Performance (based on typical system):			
SPECmark89/\$ 1,000	1.2	1.5	2.4
2.0 SPECfp92/\$ 1,000	1.9	1.5	2.5
2.0 SPECint92/\$ 1,000	0.6	0.7	1.3
1.1 3D vectors/ \$ 1,000	12.3	11.6	31.0
25.9 (higher is better!)			

N/A = not available  
NP = not published

## POWERserver Specifications

### POWERserver Configuration Summary

RS/6000 Model	350	220	340
Packaging	Desktop/Deskside	Desktop/Deskside	Desktop/Deskside
Clock Rate MHz		33 MHz	33 MHz 42
LINPACK DP Mflops	15.0	18.8	6.6
SPECmark89	73.7	27.7	58.5
SPECfp89	118.0	37.4	93.4
SPECint89	36.4	17.7	29.0
SPECfp92	74.2	26.1	58.7
SPECint92	35.4	16.6	27.9
TPC-A (OLTP) local n/a \$/K/tps-A			n/a n/a
TPC-A (OLTP) c/s \$/K/tps-A		n/a	n/a n/a
TPC-B (server) \$/K/tps-B		n/a	n/a n/a
Memory (min-max) 256 MB	32-256 MB		16-64 MB 16-
Memory Type Mbit ECC		PS/2 SIMM ECC	16 Mbit ECC 16
Memory Slots		8	2 2
Data/Instr. Cache (KB) 32/8		8	32/8
Bus Width bit		64-bit	64-bit 64-
Avail. Expansion Slots		2	4 4
Integr. SCSI/Ethernet S/E			S/E S/E
XIO slots (80 MB/sec)		0	0 0
Internal Disk (MB) min	160/400	0	160/400

max		1000	2000
External Disk (GB)	2000		
	33.8	33.8	8.5
Max Total Disk (GB)	35.8	35.8	9.5
Entry Configuration			16 MB, 200 MB, 16
MB, 400 MB,	32 MB, 400 MB,	Int SCSI/Enet,	Int SCSI/Enet Int
SCSI/Enet		Diskette, 1/4"	Diskette, 1/4"
	Diskette, 1/4"	Tape, AIX	Tape, AIX
	Tape, AIX		
Price		\$9,240	\$15,270
	\$21,270		



## RS/6000 POWERserver Configuration Summary

RS/6000 Model	560	580	520H	530H
Packaging	Deskside	Deskside	Deskside	Deskside
Clock Rate	62.5 MHz	25 MHz	33 MHz	50 MHz
LINPACK DP Mflops	38.1	11.9	20.5	31.3
SPECmark89	126.2	45.1	62.2	92.3
SPECfp89	204.3	72.9	102.7	151.6
SPECint89	61.2	22.0	29.3	43.9
SPECfp92	124.7	45.3	64.6	97.6
SPECint92	59.1	21.5	28.5	43.2
TPC-A (OLTP) local	n/a	31	42	61
\$K/tps-A	--	13.9	14.8	14.2
TPC-A (OLTP) c/s	72	121/157	n/a	n/a
	(Oracle/Informix)			
\$K/tps-A	8/9.3			12.4
TPC-B (server)	80.1	n/a	44.7	52.6
\$K/tps-B	--	2.4	2.7	2.7
Memory (min-max)	64-1024	16-512	32-512	64-1024
Memory Type	16 Mbit EEC	4 Mbit EEC	4 Mbit EEC	16 Mbit EEC
Memory Slots	8	8	8	8
Data/Instr. Cache (KB)	64/32	32/8	64/8	64/8
Bus Width	128-bit	64-bit	128-bit	128-bit
Avail. Expansion Slots	7	7	7	7
Integr. SCSI/Ethernet		n/a	n/a	n/a

XIO Slots (80 MB/sec)	0	0	0
Internal Disk (MB)			
min	400	400	800
max	7200	7200	7200
External Disk (MB)	42.8	42.8	42.8
Max Total Disk (GB)	50	50	50
Entry Configuration	16 MB, 400 MB	64 Mb, 2 GB,	32 MB, 400
MB	64 MB, 800 MB	Enet, Diskette,	Enet,
Diskette,	Enet, Diskette,	Int. SCSI, Enet,	Enet,
tape,	SCSI, 1/4"	SCSI, 1/4" tape,	SCSI, 1/4"
	Diskette, 1/4"	AIX	525MB tape
	525MB tape, AIX	AIX	AIX
Price	\$67,587	\$26,242	\$36,242
			\$57,587

RS/6000 POWERserver Configuration Summary

Model	980	950	970	
Packaging	Rackmount	Rackmount	Rackmount	
Clock Rate	62.5	41.6	50	
LINPACK DP Mflops	31.0	38.1	25.9	
SPECmark89	126.3	79.4	103.4	
SPECfp89	204.3	131.9	169.6	
SPECint89	61.3	37.1	49.2	
SPECfp92	124.8	81.8	101.0	
SPECint92	59.2	36.3	47.8	
TPC-A (OLTP) local n/a \$K/tps-A			n/a	n/a
TPC-A (OLTP) c/s \$K/tps-A	160 11.2	n/a	100.9 10.8	
TPC-B (server) \$K/tps-B		n/a	110.3 2.8	n/a
Memory (min-max) - 512	64 - 1024		64 - 512	64
Memory Type Mbit EEC		4 Mbit EEC	4 Mbit EEC	16
Memory Slots Data/Instr. Cache (KB)		8 64/8	8 64/32	8
Bus Width	128-bit	128-bit	128-bit	
Avail. Expansion Slots add'l MCA		8	8 8 add'l MCA	8 8
Integr. SCSI/Ethernet S			slots opt. S	S
XIO Slots (80 MB/sec) (8 opt.)		0	8 (8 opt.)	8

Internal Disk (MB)				
min		1700	2740	
	2740			
max		27550	28920	
	28920			
External Disk (GB)			51.4	
	134.6	134.6		
Max Total Disk (GB)			79	
	163	163		
Entry Configuration			64 MB, 1.7GB	
	64MB, 2.7GB,	64MB, 2.7GB	Diskette, Enet,	
	Diskette, Enet,	Diskette, Int	Int SCSI, SCSI	Int
SCSI, SCSI		SCSI, SCSI		
	drawer, 2.3GB	drawer, 2.3GB	drawer, 2.3GB	
	8mm tape, CDROM	8mm tape,	8mm tape,	
		CDROM, AIX	CDROM, AIX	AIX
Price		\$82,822	\$97,822	
	\$117,822			

## AS/400 Specifications

Note that on all AS/400 systems the operating system is not included with the system and must be purchased separately.

### AS/400 Series 9402 Low-end Systems

Model	E06	E02	E04	
# processors		1	1	1
Performance*		1.5	1.9	2.6
TPC-A		n/a	n/a	n/a
\$K/tps-A				
Memory (MB)				
min		8	8	8
max		24	24	40
Storage (MB)				
min		988	988	
max	988	1976	3952	
7904				
Locally attached workstations				
Twinaxial		14	42	68
ASCII		12	48	66
I/O slots total:				
integrated		1	3	3
w/ expansion		n/a	n/a	7
Base price		\$10,200	\$12,500	
OS price	\$16,500	\$1,800	\$3,935	
	\$7,715			

### AS/400 Series 9404 Mid-range Systems

Model	E25	E10	E20	
# processors		1	1	1
Performance*		2.6	3.5	4.2
TPC-A		9.92	n/a	n/a
\$K/tps-A		\$9,949		
Memory (MB)				
min		8	8	16
max		40	72	80
Storage (MB)				
min		988	988	

	988			
max	15,808	11,856	11,856	
Locally attached workstations				
Twinaxial	240	160	160	
ASCII	162	162	162	
I/O slots total:				
integrated		9	9	9
w/ expansion		n/a	n/a	n/a
Base price		\$16,100	\$33,000	
OS price	\$69,000	\$7,715	\$13,650	
	\$18,480			

\* Relative performance to the AS/400 model B10. To calculate estimated TPS multiply relative performance by four.

AS/400 Series 9406 High-end Systems

Model E95	E35	E45	E50	E60	E70	E80	E90	
# processors	4	1	1	1	1	1	2	
Performance*	34.4	42.1	3.4	4.8	6.4	10.2	14.2	25.2
TPC-A	14.0	n/a	n/a	n/a	n/a	54.9	n/a	n/a
\$K/tps-A	\$13,690	--	--	--	--	\$17,993	--	
Memory (MB):								
min	8	16	32	64	64	64	64	
max	72	80	128	192	256	384	512	
Storage (GB):								
min	1.28	1.28	1.28	1.28	1.28	1.28	1.28	
max	27.4	27.4	47.9	75.4	75.4	123.4		
	123.4	123.4						
Locally attached workstations (max):								
Twinaxial	360	480	720	1000	1400	2400	2400	
ASCII	162	216	324	450	630	1080	1080	
I/O slots total:								
integrated	11	11	18	18	18	18	18	
w/ expansion	196	55	55	84	140	140	196	
Base price	\$33,000		\$69,000	\$110,000		\$220,000		
	\$335,000		\$640,000		\$900,000			
	\$973,000							
OS price	\$18,480		\$36,750	\$52,500	\$75,600	\$99,750		
	\$141,750		\$168,000		\$168,000			

\* Relative performance to the AS/400 model B10. To calculate estimated TPS multiply relative performance by 4.

## ES/9000 Specifications

### Series 9221 (Air-Cooled) Systems

Model	120	130	150	170
200				
IBM MIPS	2.0	3.5	5.0	6.5
n/a				
# processors	1	1	1	1
2				
Upgradable to:	130	150	170,200	200
n/a				
Memory capacity (MB):				
min	16	16	16	32
64				
max	256	256	256	256
256				
Storage capacity (MB):				
central	16-256	16-256	16-256	16-256
16-256				
expanded	0-240	0-240	0-240	0-240
0-240				
I/O channels (min-max):				
total	0-12	0-12	0-12	0-24
0-24				
parallel	0-12	0-12	0-12	0-24
0-24				
ESCON	0-12	0-12	0-12	0-24
0-24				
Integrated				
I/O buses	4	4	6	6
6				

### Series 9121 (Air-Cooled) Systems

Model	260	180	190	210
IBM MIPS		n/a	8.8	12.0



# processors	16.0	1	1	1
Upgradable to:	1			
	260, 320	320, 440, 480	190, 210	210, 260
Memory capacity (MB):				
min	64	64	64	64
max	1024	512	512	1024
Storage capacity (MB):				
central	16-256	16-128	16-128	16-256
expanded	0-1008	0-496	0-496	0-1008
I/O channels (min-max):				
total	12-48	8-32	8-32	8-48
parallel	0-48	0-24	0-24	0-48
ESCON	0-44	0-28	0-28	0-44
Integrated I/O buses	0	n/a	6	0

Series 9121 (Air-Cooled) Systems

Model	320	440	480	490	570
610					
IBM MIPS	20.0 55.0	30.0 70.0	38.0	38.0	
# processors	1	2	2	2	3
4					
Upgradable to:	440, 480,	480	570, 610	570	610
n/a	490, 570				
Memory capacity (MB):					
min	64	128	128	128	192
256					
max	1024 2048	1024 2048	1024	2048	
Storage capacity (MB):					
central	16-256	16-256	16-256	32-512	32-
512	32-512				
expanded	0-1008	0-1008	0-1008	0-2016	0-
2016	0-2016				
I/O channels (min-max):					
total	12-48	12-48	12-48	24-96	24-
96	24-96				
parallel	0-48	0-48	0-48	0-96	0-
96	0-96				
ESCON	0-44	0-44	0-44	0-88	0-
88	0-88				
Integrated I/O buses	0	0	0	0	0
0					

Series 9021 (Water-Cooled) Systems

Model	520	330	340	500
IBM MIPS	45.5	20.0	23.5	45.0
# processors	1	1	1	2

Upgradable to:	580, 620, 640 640, 660	500, 520	500, 520
Memory capacity (MB):			
min	32	32	64
max	128 2304	640 1152	2304
Storage capacity (MB):			
central	32-128	32-128	64-256
expanded	128-256 0-2048	0-512 0-1024	0-2048
I/O channels:			
total (min - max)	16-64	16-64	32-64
parallel (min - max)	16-32	16-32	32-64
ESCON (min - max)	0-32	0-32	0-32
Integrated I/O buses	0	0	0

Series 9021 (Water Cooled) systems:

Model	580 720	620	640	660
IBM MIPS	65.0 117.0	83.0	84.4	86.6
# processors	3 6	4	2	2
Upgradable to:	620, 720, 820, 860, 740 900	720, 820	740, 820	820
Memory capacity (MB):				
min	64 128	128	128	256
max	2304 4608	4608	4608	4608
Storage capacity (MB):				
central	64-256 128-512	128-512	128-512	256-512
expanded	0-2048 0-4096	0-4096	0-4096	0-4096
I/O channels (min-max):				
total	32-64 64-128	64-128	64-128	64-128
parallel	32-64 64-128	64-128	0-48	0-96
ESCON	0-32 0-64	0-64	16-128	0-128
Integrated I/O buses	0 0	0	0	0

Series 9021 (Water-Cooled) Systems

Model	900	740	820	860
IBM MIPS	225.0	121.0	159.0	193.0
# processors		3	4	5

	6			
Upgradable to:	900	n/a	820, 860,	860, 900
		900		
Memory capacity (MB):				
min	512	256	256	384
max	9216	4608	9216	9216
Storage capacity (MB):				
central	512-1024	256-512	256-1024	384-1024
expanded	0-8192	0-4096	0-8192	0-8192
I/O channels:				
total (min - max)	128-256	64-128	128-256	128-256
parallel (min - max)	0-96	0-48	0-96	0-96
ESCON (min - max)	32-256	16-128	32-256	32-256
Integrated I/O buses	0	0	0	0

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