

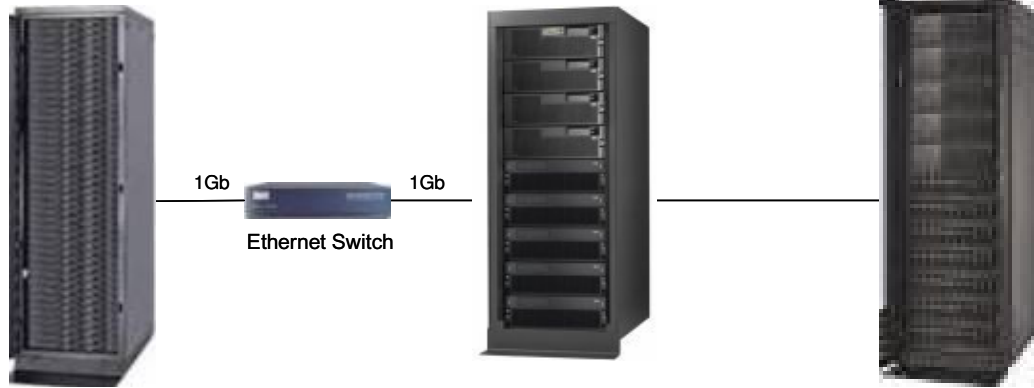
**IBM Power 550 Express
Model 8204-E8A**

TPC-C Rev. 5.9

Report Date: March 20, 2008

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
1,566,380 USD	629,159.19	\$2.49 USD	April 20, 2008
Database Server Processor Chip/Core/Thread	Database Manager	Operating System	Other Software
4/8/16 POWER6 4.2 GHz	DB2 9.5	AIX 5L V5.3	Microsoft Visual C++ Microsoft COM+

SUT

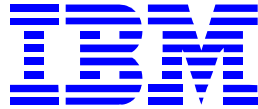


16 Clients
IBM System x3550
Dual-core 2.0GHz Intel® Xeon™
4MB L2 Cache
1GB Memory
73.4GB SAS Drive
Integrated dual-port 10/100/1000 Ethernet

IBM® Power 550 Express
4x 4.2GHz POWER6™
Dual-core Processor Chips
4x 32MB L3 Cache
256GB Memory
Internal SAS DASD Controller
3x 73.4GB Internal SAS Drives
10x IBM 4Gb dual-port FC Adapters
2x Integrated dual-port 10/100/1000 Ethernet

Storage
34 IBM System Storage DS3400
96 EXP3000 Storage Expansion
1550 73.4GB 15K RPM SAS Drives

System Components	Server		Each of the 16 Clients	
	Quantity	Description	Quantity	Description
Processors Chips /Cores/Threads	4/8/16	4.2GHz POWER6™	1/2/2	2.0GHz 4MB L2 Xeon Processor
Memory	16	16 GB	2	512 MB
Disk Controllers	1 10 34	Integrated SAS 4Gb Dual-port FC Adapters IBM System Storage DS3400	1	SAS Controller
Disk Drives	1553	73.4GB 15K RPM SAS	1	73.4GB 15K RPM SAS
Total Storage		103.60 TB		2,348.8 GB
Terminals	1	System Console	1	System Console

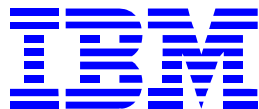


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Description	Part No.	Source	Unit Price	Qty	Ext Price	Maint Price
Server Hardware						
8204-E8A Model Base Box	p550	1	5,509	1	5,509	3,692
2-WAY 4.2 GHz	4966	1	16,092	4	64,368	7,392
ACTIVATION WITH PROCESSOR 2-WAY	4986	1	7,573	8	60,584	
16GB(2X8GB), DIMMS, 276PIN DDR2, 533MHZ SDRAM	4524	1	19,661	16	314,576	
73.4GB SAS DASD, 15K RPM	3646	1	498	4	1,992	
IDE DVDROM, UBE SLIMLINE	5756	1	208	1	208	
DUAL PORT 1GB ETHERNET, PLANAR DAU	5623	1	301	2	602	
DASD/MEDIA BP w/o ext SAS, 6x3.5" DASD,	8341	1	340	1	340	
OP PANEL CABLE, DESK-SIDE W/3.5 INC	1877	1	6	1	6	
PWR CBL, DRWR TO IBM PDU, 14', 250V/	6458	1	14	2	28	
IBM BEZEL + MISC HDWR, E8A RACK-MOUNT	7360	1	450	1	450	
IBM/OEM RACK-MOUNT DRAWER RAIL KIT	7146	1	300	1	300	
AUTO-DOCK AC POWER SUPPLY, 100-240V,	7707	1	699	1	699	
GX Dual Port - 12X Channel Attach	5616	1	1,100	1	1,100	
SPCN 3m Cable	6006	1	40	3	120	
Power Cord (9-foot), Drawer to IBM PDU, 250V/10A	6671	1	14	4	56	
Rack Model S25	7014-S25	1	1,999	1	1,999	768
PDU to Wall Powercord 14', 200-240V/24A	6654	1	240	1	240	
PDU Side Mount , Universal UTG0247 Connector	7188	1	1,000	1	1,000	
IO Drawer 7314-G30	7314-G30	1	2,850	2	5,700	
IO Drawer Mounting Enclosure	7314	1	525	2	1,050	
1.5 Meter 12X Cable	1830	1	400	3	1,200	
4 Gb Dual-Port Fibre Channel PCI-X	5759	1	2,499	10	24,990	
AC Power Supply, 300 Watt	6270	1	300	4	1,200	
12X Short Run 5796 Attach	6446	1	575	2	1,150	
Power Cord (14ft) 250V/14A, IEC320/C13, IEC320/C14	6458	1	14	2	28	
I/O Backplane- 6 PCI-X slots	6590	1	1,300	2	2,600	
Power Control Card (SPCN) - Dual Port	6631	1	250	2	500	
HMC 1:7310-C05 Desktop Hardw.Mgmt.Console	7042-C06	1	1,830	1	1,830	1,344
IBM T117 TFT 17-inch Color Monitor	3645	1	875	1	875	
Power Cord (6-foot), To Wall Plug Type #4	6470	1	18	2	36	
Ethernet Cable, 6M, HMC to System Unit	7801	1	15	1	15	
Keyboard - English, #103P	8800	1	104	1	104	
Mouse - Attachment Cable	8841	1	78	1	78	
			Subtotal		495,533	13,196
Storage						
IBM System Storage DS3400 Express	1726-42E	1	8,749	34	297,466	
IBM 1M SAS cable	39R6529	1	119	192	22,848	
IBM System Storage EXP3000	1727-01X	1	3,199	96	307,104	
IBM Hot-Swap 3.5 inch 73.4GB 15K SAS HDD	40K1043	1	309	1,550	478,950	
IBM TotalStorage SAN32B-3	2005-B5K	1	15,810	3	47,430	
8-port Activation	22R5505	1	8,100	6	48,600	
4 Gbps SW SFP Transceivers - 4 pack	2414	1	550	24	13,200	
IBM S2 42U Standard Rack	93074RX	1	1,489	7	10,423	
ServicePac for 3-Year 24x7x4 Support (DS3400)	44J8073	1	1,300	34		44,200
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	1	760	96		72,960
ServicePac for 3-Year 24x7x4 Support (SAN32B-2)	41E9167	1	3,300	3		9,900
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	300	7		2,100
			Subtotal		1,226,021	129,160



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Client Hardware

IBM System x3550 (Dual-core Xeon 2.0GHz 4MB L2 Cache)	7878AC1	1	1,927	16	30,832	
512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz	0546	1	115	32	3,680	
73GB 15K Hot-Swap SAS HDD	5161	1	309	16	4,944	
ServicePac for 3-Year 24x7x4 Support	96P2250	1	586	16		9,376
NetBAY S24 2U Standard Rack Cabinet	93074RX	1	1,489	1	1,489	
Optical 3-Button Mouse-USB	40K9201	1	19	1	19	
Preferred Pro FullSize PS/2 Keyboard	40K9584	1	29	1	29	
IBM C117 17" CRT Monitor	49387NU	1	149	1	149	
			Subtotal		41,142	9,376

Server Software

AIX 5.3 (media only)	5692-A5L	1	50	1	50	
AIX 5.3 Software per Processor E5	5765-G03	1	430	8	3,440	
Software Maintenance for AIX, 3 Year	5773-SM3	1				
F5 3 Yr SWMA for AIX per Processor	0462	1	1,212	8		9,696
F5 3 yr Services 24x7 Support per Processor	0464	1	424	8		3,392
Initial Software Support 3 Year	5773-RS3					
Per Processor Software Support 3 Year	0569	1	675	1		675
Per Processor 24x7 Software Support 3 Year	0570	1	236	1		236
PowerVM Express Edition per Processor	5765-PVX					
Per Processor Software Support 3 Year	0001	1	30	8		240
PowerVM Express Edition SW Maintenance 3 Year	5773-PVX	1				
Per Processor Software Support 3 Year	0993	1	27	8		216
Per Processor 24x7 Software Support 3 Year	0995	1	8	8		64
C for AIX user Lic+SW maint 12 MO	D5A1DLL	1	975	1		975
C for AIX user annual SW maint renewal	E1A1FLL	1	195	2		390
DB2 9.5 ESE Lic&Mtce (278.52 perVU,p6 VU rating-120, 8 procs)		1	279	960		267,379
DB2 9.5 ESE MtceRenewal (13.27 perVU,8 procs, 2 years)		1	13	1,920		25,478
			Subtotal		272,364	39,867

Third Party Hardware/Software

Visual Studio Standard 2005	127-00012	2	250	1		250
Microsoft Windows 2003 Server	P70-00275	2	399	16		6,384
Microsoft Problem Resolution Services		2	245	1		245
3Com Baseline Switch 2824 24-port unmanaged Gigabit (+ 2 spare)	512294	3	290	3		870
			Subtotal		7,749	
			Total		2,042,809	191,599
			Total IBM Discounts*			-668,028

Three-Year Cost of Ownership 1,566,380
TpmC 629,159
\$/TpmC 2.49

Notes:

Pricing Sources: 1) IBM 2) Microsoft 3) CDW

*Discounts are based on US list prices for similar quantities & configurations including pre-payment for maintenance. The discount of 30% applies to the totality of all items with price source of "1".

Audited by: Francois Raab, Info Sizing (www.infosizing.com)

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specifications. If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you

Numerical Quantities Summary for the IBM Power 550 Express Model 8204-E8A

MQTH, computed Maximum Qualified Throughput: 629,159.19 tpmC

<u>Response Times (in seconds)</u>	<u>90th %</u>	<u>Average</u>	<u>Maximum</u>
New Order	1.35	0.89	6.14
Payment	1.37	0.89	5.73
Order-Status	1.28	0.84	4.23
Delivery (interactive)	0.75	0.36	3.33
Delivery (deferred)	0.75	0.32	2.36
Stock-Level	1.55	1.03	4.73
Menu	0.82	0.40	5.87

Response time delay added for emulated components was 0.1 seconds

<u>Transaction Mix, in percent of total transactions</u>	<u>Percent</u>
New Order	44.95%
Payment	43.01%
Order-Status	4.00%
Delivery	4.00%
Stock-Level	4.00%

<u>Keying/Think Times (in seconds)</u>	<u>Min.</u>	<u>Average</u>	<u>Max.</u>
New Order	18.00/0.01	18.01/12.02	18.02/120.20
Payment	3.00/0.01	3.01/12.02	3.02/120.20
Order-Status	2.00/0.01	2.01/10.01	2.02/100.10
Delivery	2.00/0.01	2.01/5.02	2.02/50.20
Stock-Level	2.00/0.01	2.01/5.02	2.02/50.20

Test Duration

Ramp-up Time	49 minutes
Measurement interval	2 hours 20 minutes
Transactions during measurement interval (all types)	195,917,329
Ramp-down time	15 minutes

Checkpoints

Number of checkpoints	N/A
Checkpoint interval	N/A