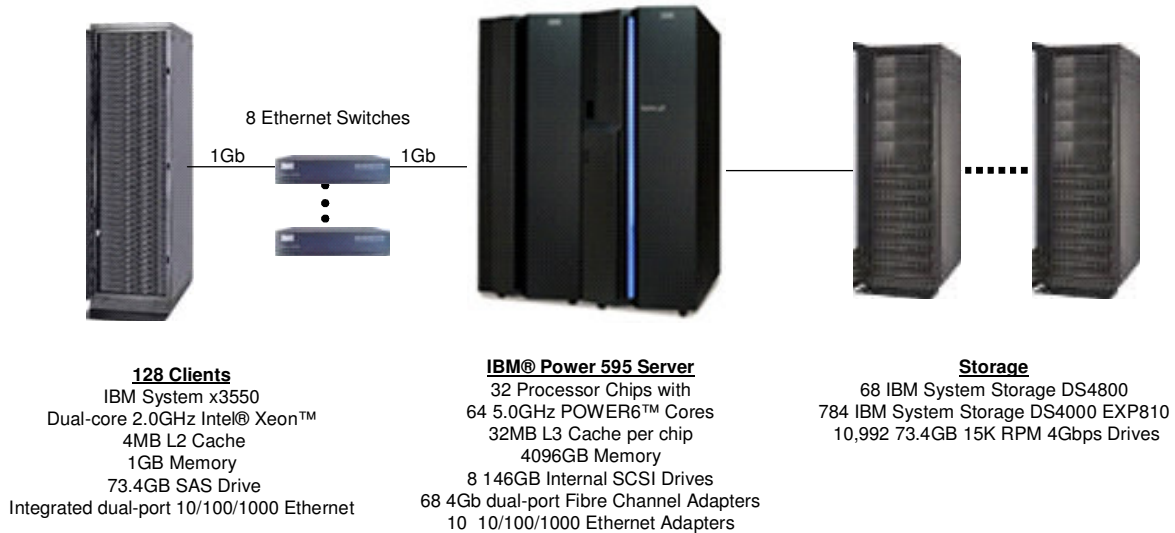


**IBM Power 595
Model 9119-FHA**

TPC-C Rev. 5.9

Report Date: June 10, 2008

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date	
\$17,111,788 USD	6,085,166	\$2.81 USD	December 10, 2008	
Database Server Processor Chip/Core/Thread	Database Manager	Operating System	Other Software	No. Users
32/64/128 POWER6 5.0GHz	DB2 9.5	AIX 5L V5.3	Microsoft Visual C++ Microsoft COM+	5,184,000



128 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 595 Server
32 Processor Chips with
64 5.0GHz POWER6™ Cores
32MB L3 Cache per chip
4096GB Memory
8 146GB Internal SCSI Drives
68 4Gb dual-port Fibre Channel Adapters
10 10/100/1000 Ethernet Adapters

Storage
68 IBM System Storage DS4800
784 IBM System Storage DS4000 EXP810
10,992 73.4GB 15K RPM 4Gbps Drives

System Components	Server		Each of the 128 Clients	
	Quantity	Description	Quantity	Description
Processors Chips /Cores/Threads	32/64/128	5.0GHz POWER6	1/2/2	2.0GHz 4MB L2 Xeon Processor
Memory	64	64GB	2	512 MB
Disk Controllers	1 68 68	SAS Controller 4Gb FC Adapters IBM System Storage DS4800	1	SAS Controller
Disk Drives	8 10,992	146.8GB 15K RPM SCSI 73.4GB 15K RPM 4Gb FC	1	73.4GB 15K RPM SAS
Total Storage		746,467GB		67.86GB
Terminals	1	System Console	1	System Console



IBM Power 595 Model 9119-FHA

TPC-C Rev. 5.9

Report Date: June 10, 2008

Description	Part No.	Source	Unit Price	Qty	Ext Price	Maint Price
Server Hardware						
Server 1:9119 Model 595	9119-FHA	1	91,000	1	91,000	63,000
GX Bus I/O Hub, 2-Port, IBT-copper, (Ranger-C) (InfiniBand)	1816	1	4,000	8	32,000	
0.6M Enhanced 12X Cable (for connecting both planars)	1829	1	463	8	3,704	
2.5M Enhanced 12X Cable (to connect to a gx card in node)	1831	1	650	6	3,900	
8.0M Enhanced 12X Cable	1834	1	960	10	9,600	
146.8 GB Ultra320 15K RPM	3278	1	1,299	8	10,392	
Universal Lift Tool and Service Ladder	3759	1	5,000	1	5,000	
0/8 - core POWER6 5.0GHz CoD, 0-core Active	4695	1	60,500	8	484,000	99,840
Single Processor Activation for FC 4695 (5.0 GHz)	4755	1	30,300	64	1,939,200	430,080
256GB Bundle DDR2 Activations	5681	1	387,840	16	6,205,440	
IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter	5701	1	699	1	699	
2-PORT BASETX ETHT.PCI-X A	5760	1	999	9	8,991	
4.7 GB IDE Slimline DVD-RAM Drive	5757	1	660	1	660	
4 Gigabit Dual-port Fibre Channel PCI-X Adapter	5759	1	3,308	68	224,944	
12x I/O Drawer PCI-X, with repeater	5797	1	32,000	5	160,000	20,400
12X I/O Drawer PCI-X, with no repeater	5798	1	32,000	3	96,000	12,240
PCI-X DDR Dual - x4 SAS Adapter	5912	1	1,092	1	1,092	
Bulk Power Regulator	6333	1	4,200	12	50,400	
Bulk Power Distribution Assembly	6334	1	2,500	6	15,000	
Slimline Doors (F&R), H CEC AND I/O Expansion Racks	6869	1	8,000	2	16,000	
UPIC Cable Group, BPD1 to I/O Drawer at A01	6941	1	500	2	1,000	
UPIC Cable Group, BPD1 to I/O Drawer A05	6942	1	500	2	1,000	
UPIC Cable Group, BPD1 to I/O Drawer A09	6943	1	500	2	1,000	
3rd & 4th AMDs + UPIC Y-Cable Group (BPC to Fans)	6952	1	5,000	1	5,000	
Expansion Rack, Powered	6954	1	60,000	1	60,000	3,960
UPIC Y-Cable Group BPD1 to 1st Processor Node	6961	1	650	1	650	
UPIC Y-Cable Group BPD1 to 2nd Processor Node	6962	1	650	1	650	
UPIC Y-Cable Group BPD1 to 3rd Processor Node	6963	1	650	1	650	
UPIC Y-Cable Group BPD1 to 4th Processor Node	6964	1	650	1	650	
UPIC Y-Cable Group BPD1 to 5th Processor Node	6965	1	650	1	650	
UPIC Y-Cable Group BPD1 to 6th Processor Node	6966	1	650	1	650	
UPIC Y-Cable Group BPD1 to 7th Processor Node	6967	1	650	1	650	
UPIC Y-Cable Group BPD1 to 8th Processor Node	6968	1	650	1	650	
UPIC Y-Cable Group BPD1 to I/O Drawer at A13	6969	1	900	1	900	
UPIC Y-Cable Group BPD1 to I/O Drawer at A17	6970	1	900	1	900	
Ethernet Cable, 15M, Hardware Management	7802	1	34	4	136	
2048GB DDR2 Memory (32 X 64GB Cards)	8205	1	1,301,299	2	2,602,598	
Line Cord, 6AWG/Type W, 14ft, IEC309 60A Plug	8696	1	2,500	4	10,000	
HMC 1:7042-C06 Desktop Hardw.Mgmt.Console	7042-C06	1	1,830	1	1,830	1,344
IBM T117 TFT 17 inch Color Display	3645	1	875	1	875	
Quiet Touch Keyboard - USB, Business Black,	5951	1	104	1	104	
Power Cord (6-foot), To Wall (125V, 15A), Plug Type #4	6470	1	18	2	36	
Ethernet Cable, 6M, Hardware Management	7801	1	15	1	15	
Mouse - Business Black with Keyboard Attachment	8841	1	78	1	78	
IBM 2-Port 10/100/1000 Base-TX Ethernet PCI-X Adapter	5706	1	944	1	944	
			Subtotal		12,049,638	630,864
Storage						
DS4800 Disk System Model 82 (4 GB Cache)	1815-82A	1	53,995	68	3,671,660	
DS4800 8-Storage Partitions	8870	1	10,000	68	680,000	
(22R4255) DS4800 AIX Host Kit	7711	1	7,000	68	476,000	
DS4000 EXP810 Enclosure	1812-81A	1	6,000	784	4,704,000	
Short Wave SFP	2410	1	998	504	502,992	
16-PAK 4 GBPS 73.4 GB/15K	5433	1 _s	14,816	687	10,178,592	
Fiber Cable 25m	5625	1	189	476	89,964	
Fiber Cable 1m	5601	1	79	1,292	102,068	
3 Year Warranty Service Upgrade 1812-81A 24x7x4		1	960	784		752,640
3 Year Warranty Service Upgrade 1815-82A 24x7x4		1	3,200	68		217,600
			Subtotal		20,405,276	970,240



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Server Software

AIX 5.3 (media only)	5692-A5L	1	50	1	50	
AIX Software per Processor	5765-G03	1	2,495	64	159,680	
AIX IBM Management Edition for AIX	5765-AME	1	490	64	31,360	
AIX Software Maintenance (3Y)	5773-SM3-474	1	2,836	64		181,504
AIX Software Maintenance 24x7 Upgrade (3Y)	5773-SM3-476	1	732	64		46,848
AIX IBM Mgmt Edition of AIX Software Maintenance (3Y)	5773-AME-989	1	196	64		12,544
HMC Software SUB (3Y)	5773-0570	1	236	1		236
HMC Software Support (3Y)	5773-0569	1	675	1		675
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, 64 processors)		1	279	7,680	2,139,034	
DB2 9.5 ESE MtceRenewal (13.27 perVU, VU rating-120, 64 processors, 2 years)		1	13	15,360		203,827
			Subtotal		2,331,099	446,024

Client Hardware and Software

IBM System x3550 (Dual-core Xeon 2.0GHz 4MB L2 Cache)	7978AC1	1	1,906	128	243,968	
512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM 667MHz	0546	1	65	256	16,640	
73GB 15K Hot-Swap SAS Disk	5161	1	309	128	39,552	
ServicePac for 3-Year 24x7x4 Support	96P2250	1	586	128		75,008
NetBAY S24 42U Standard Rack Cabinet	93074RX	1	1,489	77	114,653	
Optical 3-Button Mouse-USB	40K9201	1	19	1	19	
Preferred Pro FullSize PS/2 Keyboard	40K9584	1	29	1	29	
IBM T115 15" TFT Monitor	494215U	1	209	1	209	
			Subtotal		415,070	75,008

Third Party Hardware/Software

Visual Studio Standard 2005	127-00012	2	250	1	250	
Microsoft Windows 2003 Server	P70-00275	2	399	128	51,072	
Microsoft Problem Resolution Services		2	245	1		245
3Com Baseline Switch 2824 24-port unmanaged Gigabit (+ 2 spare)	512294	3	290	10	2,900	
APC Smart-UPS XL 3000VA 208V	SUA3000XLT	4	1,375	4	5,500	
APC Smart-UPS XL 48V Battery Pack	SUA48XLBP	4	589	4	2,356	
			Subtotal		62,078	245
			Total		35,263,161	2,122,381
			Total IBM Discounts*			-20,273,753

	Three-Year Cost of Ownership	17,111,788
	tpmC	6,085,166
	\$/tpmC	2.81

Notes:

For pricing details and contact information please see appendix E
Pricing Sources: 1) IBM 2) Microsoft 3) CDW 4) APC

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

One or more components of the measured configuration have been substituted in the Priced Configuration. See the FDR for details

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 595 Server Model 9119-FHA

MQTH, computed Maximum Qualified Throughput: 6,085,166 tpmC

<u>Response Times (in seconds)</u>	<u>90th %</u>	<u>Average</u>	<u>Maximum</u>
New Order	1.69	1.22	11.19
Payment	1.68	1.20	11.17
Order-Status	1.69	1.21	11.14
Delivery (interactive)	1.19	0.78	10.87
Delivery (deferred)	0.48	0.26	10.42
Stock-Level	1.68	1.20	11.14
Menu	1.20	0.78	10.88

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	4.01%
Delivery	4.01%
Stock-Level	4.01%

<u>Keving/Think Times (in seconds)</u>	<u>Min.</u>	<u>Average</u>	<u>Max.</u>
New Order	18.00/0.01	18.01/12.02	18.03/164.95
Payment	3.00/0.01	3.01/12.02	3.03/167.95
Order-Status	2.00/0.01	2.01/10.01	2.02/114.85
Delivery	2.00/0.01	2.01/5.02	2.03/50.21
Stock-Level	2.00/0.01	2.01/5.02	2.02/50.20

Test Duration

Ramp-up Time	1 hour 55 minutes 39 secs
Measurement interval	2 hours 10 minutes
Transactions during measurement interval (all types)	1,759,581,553
Ramp-down time	30 minutes

Checkpoints

Number of checkpoints	N/A
Checkpoint interval	N/A