

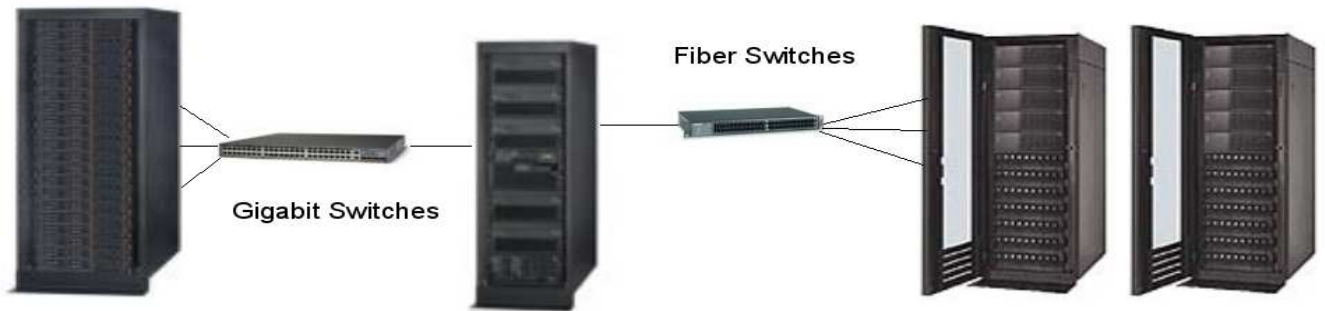
## IBM Power 550 Express

**TPC-C Rev. 5.10**

Report Date:  
June 16, 2008  
Revision Date:  
August 25, 2009

<b>Total System Cost</b>	<b>TPC-C Throughput</b>	<b>Price/Performance</b>	<b>Availability Date</b>
\$702,996 USD	<b>276,383</b>	\$2.55 USD	<b>December 16, 2008</b>
<b>Database Processors/Cores/Threads</b>	<b>Database Manager</b>	<b>Operating System</b>	<b>Other Software</b>
2/4/8 4.2 GHz POWER6	Sybase ASE 15.0.3	RHEL 5.1	Microsoft Visual C++ Microsoft COM+

### Priced



<p style="text-align: center;"><u>8 Clients</u></p> <p>IBM® System x3350 1x Intel X3360 QC 2.83GHz 1GB Memory 73 GB Internal SAS Drive 2 Gb Ethernet</p>	<p style="text-align: center;"><u>IBM® Power 550</u></p> <p>2 x POWER6 4.2GHz 128GB Memory 4 x IBM Dual Port 4GB FC 2 x Integrated Gb Ethernet 1 x 10/100/1000 dual port Ethernet</p>	<p style="text-align: center;"><u>Storage</u></p> <p>11 x IBM® DS3400 Storage Servers 30x IBM® EXP3000 DiskEnclosures 488 x 73 GB 15K RPM SAS Drives 2 x SAN16B Fiber Switch</p>
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System Components	Each of the 8 Clients		Server	
	Quantity	Description	Quantity	Description
<b>Processors/Cores/Threads</b>	1/4/4	2.83GHz 12MB L2 Xeon X3360 Quad Core	2/4/8	4.2 GHz POWER6
<b>Memory</b>	1	1 GB	16	8 GB
<b>Disk Controllers</b>	1	SAS	1 4 10 1	Integrated SAS 4Gb dual-port FC Adapters IBM DS3400 Controllers for Data IBM DS3400 Controller for Log
<b>Disk Drives</b>	1	73 GB	490	73 GB 15K RPM SAS
<b>Total Storage</b>		584 GB		35,624 GB
<b>Terminals</b>	1	System Console	1	System Console

IBM Corporation	IBM Power 550 Express		TPC-C Rev. 5.10			
	Sybase ASE 15.0.3		Report Date: June 16, 2008 Revision Date: August 25, 2009			
	Part Number	Price Source	Unit Price	Qty	Ext. Price	3 -Yr. Maint
<b>Server Hardware</b>						
IBM Power 550 Express	8204-E8A5	1	5,509	1	5,509	
Op Panel Cable for Rack-mount Drawer w/3.5 DASD	1877	1	6	1	6	
73.4GB 15K RPM SAS Disk Drive	3646	1	498	2	996	
16384MB (2x8192MB) RDIMMs, 400 MHz, 1Gb Stacked DRAM	4524	1	13,926	8	111,408	
2-core 4.2 GHz POWER6 Processor Card	4966	1	11,828	2	23,656	
One Processor Activation for Processor Feature #4966	4986	1	7,573	2	15,146	
Dual-Port 1Gb Integrated Virtual Ethernet Daughter Card	5623	1	301	1	301	
IDE Slimline DVD-ROM Drive	5756	1	208	1	208	
4 Gb Dual-Port Fibre Channel PCI-X 2.0 DDR	5759	1	2,499	2	4,998	
2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter	5767	1	528	1	528	
4 Gigabit PCI Express Dual Port Fibre Channel Adapter	5774	1	2,499	2	4,998	
Power Cable -- Drawer to IBM PDU, 14-foot	6458	1	14	1	14	
IBM/OEM Rack-Mount Drawer Rail Kit	7146	1	300	1	300	
IBM Rack-mount Drawer Bezel and Hardware	7360	1	450	1	450	
Power Supply, 1700 Watt AC, Hot-swap, Base	7707	1	699	1	699	
DASD/Media Backplane for 3.5 DASD/DVD/Tape	8341	1	340	1	340	
Deskside Hardware Management Console	7042-C06	1	1,830	1	1,830	
T117 Color Display	3645	1	875	1	875	
IBM Quiet Touch USB Keyboard	5951	1	104	1	104	
24x7x4 3 Year Maintenance		1				7540
				<b>Subtotal</b>	<b>172,366</b>	<b>7,540</b>
<b>Server Storage</b>						
IBM System Storage EXP3000	1727-HC1	1	3,199	30	95,970	
IBM 1M SAS cable	39R6529	1	119	60	7,140	
IBM DS3000 Environmental Services Module (ESM)	39R6515	1	999	30	29,970	
IBM System Storage DS3400 Express	1726-42X	1	9,295	11	102,245	
IBM Hot-Swap 3.5 inch 73.4GB 15K SAS HDD	43W7523	1	309	488	150,792	
IBM TotalStorage SAN16B-2 Express Model	200516B	1	4,120	2	8,240	
IBM 4 Gbps SW SFP Transceiver	22R4902	1	150	21	3,150	
IBM 5m LC-LC Fiber Cable	39M5697	1	129	21	2,709	
16B Four Port Activation	22R4901	1	1,670	4	6,680	
IBM S2 42U Standard Rack	93074RX	1	1,489	2	2,978	
DS3000 Linux on Power Host License	44W2101	1	1,000	11	11,000	
ServicePac for 3-Year 24x7x4 Support (DS3400)	44J8073	1	1,300	11		14,300
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	1	760	30		22,800
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	1	300	2		600
				<b>Subtotal</b>	<b>420,874</b>	<b>37,700</b>
<b>Server Software</b>						
Sybase ASE 15.0.3 Enterprise Edition for Linux on POWER (includes a 25% adjustment for multi-core)	14023	2	33,203	4	132,810	
Sybase SupportNow Standard Plan (includes a 25% adjustment for multi-core)	98480	2	29,217	3		87,651
Red Hat Enterprise Linux, Premium Subscription		3	1,299	3	3,897	
				<b>Subtotal</b>	<b>136,707</b>	<b>87,651</b>
<b>Client Hardware</b>						
IBM System x3350 (Quad-Core Intel Xeon x3360 2.83GHz, (2x1GB RAM)	419284U	1	1,869	8	14,952	
73.4GB 15K 2.5" SAS Hot-Swap Drive	43X0837	1	369	8	2,952	
ServicePac for 3-Year 24x7x4 Support (x3350)	51J9100	1	700	8		5,600
				<b>Subtotal</b>	<b>17,904</b>	<b>5,600</b>
<b>Third Party Hardware/Software</b>						
Microsoft Windows Server 2003 Web Edition with COM+	P70-00275	4	395	8	3,160	
Visual Studio Standard 2005	127-00012	5	250	1	250	
Microsoft Problem Resolution Services		5	245	1		245
D-LINK DGS-1024D 24-Port 10/100/1000 Switch (2 spares)	DGS1024D	6	174	3	522	
UPS - powercom KIN-1500AP 1500VA 900Watts Item # N82E16842106115 (2 spares)		7	150	3	450	
				<b>Subtotal</b>	<b>4,382</b>	<b>245</b>
				<b>Total</b>	<b>752,233</b>	<b>138,736</b>
					Total IBM Discount *	-\$154,904
					Sybase 15% Discount	-\$33,069
					<b>Three-Year Cost of Ownership USD:</b>	<b>\$702,996</b>
					<b>tpmC:</b>	<b>276,383</b>
					<b>\$ USD/tpmC:</b>	<b>\$2.55</b>
Pricing Sources: 1) IBM 2) Sybase 3) Redhat 4) cdw.com 5) Microsoft 6) compuplus.com 7) newegg.com						
* Discounts are based on US list prices for similar quantities & configurations including pre-payment for maintenance. The discount of 23.4% applies to the totality of all items with prices source "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 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

MQTH, computed Maximum Qualified Throughput: 276,383 tpmC

<u>Response Times (in seconds)</u>	<u>90<sup>th</sup> %</u>	<u>Average</u>	<u>Maximum</u>
New Order	0.700	0.346	6.000
Payment	0.680	0.330	5.078
Order-Status	0.740	0.394	6.094
Delivery (interactive)	0.120	0.118	4.172
Delivery (deferred)	1.93	0.84	4.53
Stock-Level	0.720	0.366	4.313
Menu	0.111	0.117	5.156

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	44.979%
Payment	43.000%
Order-Status	4.007%
Delivery	4.006%
Stock-Level	4.007%

<u>Keying/Think Times (in seconds)</u>	<u>Min.</u>	<u>Average</u>	<u>Max.</u>
New Order	18.00/0.00	18.00/12.035	18.016/120.313
Payment	3.00/0.00	3.00/12.035	3.016/120.313
Order-Status	2.00/0.00	2.00/10.035	2.016/100.313
Delivery	2.00/0.00	2.00/5.036	2.00/50.313
Stock-Level	2.00/0.00	2.00/5.036	2.00/50.313

### Test Duration

Ramp-up Time	1 hour 36 minutes
Measurement interval	2 hours 28 minutes
Transactions during measurement interval (all types)	90,940,891

### Checkpoints

Number of checkpoints	4
Checkpoint interval	29:50