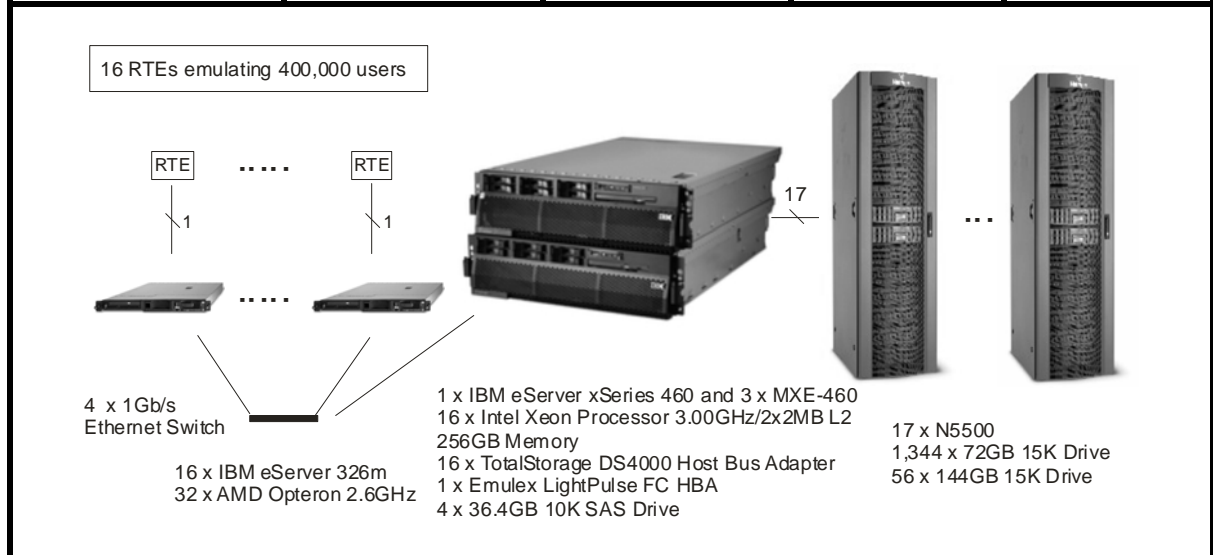


<b>IBM Corporation</b>	<b>IBM® eServer™ xSeries® 460</b>		<b>TPC-C Rev. 5.6</b>	
	<b>IBM System Storage™ N5000</b>		<b>Report Date 03/21/06</b>	
<b>Total System Cost</b>	<b>TPC-C Throughput</b>	<b>Price/Performance</b>		<b>Availability Date</b>
<b>\$3,011,533 USD</b>	<b>492,307 tpmC</b>	<b>\$6.12 USD /tpmC</b>		<b>May 20, 2006</b>
<b>Database Server Processors/Cores/Threads</b>	<b>Database Manager</b>	<b>Operating System</b>	<b>Other Software</b>	<b>Number Of Users</b>
<b>16/32/64 Intel® Xeon® Processor 7040 3.00GHz</b>	<b>Microsoft SQL Server 2005 Enterprise x64 Edition (SP1)</b>	<b>Microsoft Windows Server 2003 Datacenter x64 Edition</b>	<b>Microsoft Visual C++ Standard Edition Microsoft COM+</b>	<b>400,000</b>



<b>System Component</b>	<b>Qty</b>	<b>Server</b>	<b>Qty</b>	<b>Each of 16 Clients</b>
<b>Processors/Cores/Threads</b>	16/32/64	Intel Xeon Processor 7040 3.00GHz	2/2/2	AMD Opteron 2.6GHz
<b>Cache</b>		2x2MB L2		1MB L2 Cache
<b>Memory</b>	32	8 (2x4GB) PC2-3200	4	512MB PC-3200
<b>Disk Controllers</b>	17 16 1	IBM System Storage N5500 IBM TotalStorage DS4000 HBA Emulex LightPulse HBA		
<b>Disk Drives</b>	4 1,344 56	36.4GB 10K SAS Drive 72GB 15K Drive 144GB 15K Drive	1	36.4GB 15K U320
<b>Total Storage</b>		96820.31GB		

**IBM Corporation**

**IBM® eServer™ xSeries® 460  
IBM System Storage™ N5000  
Microsoft® SQL Server 2005 (SP1)**

TPC-C Rev. 5.6

**Report Date  
03/21/06**

IBM Corporation		IBM eServer xSeries 460 c/s with Microsoft SQL Server 2005			TPC-C Revision 5.6 Report Date: Mar. 21, 2006			
Description	Part Number	Third Party		Unit Price	Quantity	Extended Price	3-Yr. Maint. Price	
		Brand	Pricing					
<b>Server Hardware</b>								
xSeries 460 with 4 x Intel Xeon Processor 7040 3.00GHz/2x2MB L2	8872-6EU*	IBM	1a	50,779	1	50,779		
Intel Xeon Processor 7040 3.00GHz/2x2MB L2	25R8942	IBM		4,729	12	56,748		
MXE-460 (0 Processors, 0 Memory, 2 Memory Cards)	8874-2EU*	IBM	1a	16,569	3	49,707		
2.3M Scalability Cable	13M7414	IBM		299	6	1,794		
8GB (2x4GB) PC2-3200 CL3 2RX4 ECC DDR2 SDRAM RDIMM	30R5145	IBM		5,299	32	169,568		
Active Memory 4-Slot Memory Expansion Card	13M7409	IBM		499	4	1,996		
xSeries 460 Scalability Enablement/Memory Adapter	40K2450	IBM		849	4	3,396		
IBM 36.4GB 10K 2.5 inch SAS Drive	26K5654	IBM		419	4	1,676		
IBM TotalStorage DS4000 Host Bus Adapter	24P0960	IBM		1,485	16	23,760		
Emulex LightPulse Fibre Channel Host Bus Adapter (2 spares)	LP9002L-F2	Emulex		1,195	3	3,585		
ServicePac for 3-Year 24x7x4 Support (x460 and MXE-460)	96P2688	IBM		3,390	4		13,560	
						<b>Subtotal</b>	<b>363,009</b>	<b>13,560</b>
<b>Server Storage</b>								
IBM System Storage N5500 Model A20 - 12.096TB Raw Storage	2865-A20	IBM		245,743	8	1,965,945		
2 x Dual-Port FC HBA	2865-1004	IBM			2	0		
2 x 5m Copper Cluster 4X IB Cable	2865-1038	IBM			2	0		
Field-Install Rkmt Kit	2865-9202	IBM			2	0		
IBM System Storage EXN2000	2863-001	IBM			2	0		
8 x 0.5m FC Copper Cable	2863-2021	IBM			2	0		
112 x 72GB 15K rpm FC HDD	2863-4001	IBM			2	0		
IBM System Storage EXN2000	2863-001	IBM			2	0		
4 x SFP GBIC	2863-2010	IBM			2	0		
4 x 5m FC Optical Cable	2863-2044	IBM			2	0		
56 x 72GB 15K rpm FC HDD	2863-4001	IBM			2	0		
IBM System Storage N5500 Model A10	2865-A10	IBM		154,131	1	154,131		
2 x Dual-Port FC HBA	2865-1004	IBM			2	0		
Field-Install Rkmt Kit	2865-9202	IBM			2	0		
IBM System Storage EXN2000	2863-001	IBM			2	0		
4 x SFP GBIC	2863-2010	IBM			2	0		
4x 5m FC Optical Cable	2863-2044	IBM			2	0		
56 x 144GB 15K rpm FC HDD	2863-4003	IBM			2	0		
IBM System Storage N5500 Licensed Functions 651 (Data ONTAP)	2870-651	IBM			2	0		
Fibre Channel Protocol	2870-7469	IBM			2	0		
APC SMART UPS 3000VA RM 2U (2 spares)	SUA3000RM2U	APC		1,080	3	3,240		
7x24x365 Support		IBM		21,653	4		86,610	
						<b>Subtotal</b>	<b>2,123,316</b>	<b>86,610</b>
<b>Server Software</b>								
Microsoft SQL Server 2005 Enterprise x64 Edition	810-03134	Microsoft		24,999	16	399,984		
Microsoft Problem Resolution Services		Microsoft		245	1		245	
Microsoft Windows Server 2003 Datacenter x64 Edition *	Included with x460	Microsoft		0	0	0		
Software Update Subscription for Datacenter x64 Edition	4818-HAX	IBM		2,239	4		8,956	
3 Year Remote Technical Support for xSeries and Datacenter	41C6022	IBM		\$13,755	1		13,755	
Microsoft Discount on SQL Server - Open Program Level C				6% Discount		25,072		
						<b>Subtotal</b>	<b>374,912</b>	<b>22,956</b>
<b>Client Hardware</b>								
eServer 326m Model 252 2.6 GHz/1MB, 1GB, SCSI H/S open bay	7969-81U	IBM	1a	2,109	16	33,744		
AMD Opteron Processor Model 252 2.6GHz/1MB	13N0703	IBM		919	16	14,704		
1GB (2x512MB) PC-3200 DDR ECC SDRAM RDIMM	73P3233	IBM		329	16	5,264		
36.4GB 15K Ultra320 SCSI Drive	90P1380	IBM		249	16	3,984		
NetXtreme 1000T Dual-Port Ethernet Adapter	73P4201	Intel		249	32	7,968		
ServicePac for 3-Year 24x7x4 Support (e326)	96P2250	IBM		419	16		6,704	
						<b>Subtotal</b>	<b>65,664</b>	<b>6,704</b>
<b>Client Software</b>								
Microsoft Windows Server 2003 Standard Edition	P73-00295	Microsoft		999	16	15,984		
Microsoft Visual C++ Standard Edition	254-00170	Microsoft		109	1	109		
Microsoft Discount on Server 2003 - Open Program No Level				28% Discount		4,480		
						<b>Subtotal</b>	<b>11,613</b>	
<b>Network Components</b>								
USB-to-PS2 Converter (2 spares)	35700			8	18	144		
Ethernet Cable 20 Ft. (10% spares)	CC5E-B14B			6	4	27	108	
Netgear 8-Port Switch	GS-108			80	7	560		
AutoView 424 2-Users Switch w/o Receiver / 24 Systems (2 spares)	AV424-AM		1a	2,695	3	8,085		
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM		139	1	139		
IBM USB Keyboard Enhanced Performance Keyboard	73P2620	IBM		29	1	29		
IBM USB Optical Wheel Mouse	06P4069	IBM		12	1	12		
ServicePac for 3-Year 24x7x4 Support (Monitor)	30L9183	IBM			1		90	
						<b>Subtotal</b>	<b>9,077</b>	<b>90</b>
Discounts amounts based on unit volume; prices vary if purchased separately (see Note 1)						<b>Discount</b>	<b>61,885</b>	<b>4,093</b>
						<b>Total</b>	<b>2,947,591</b>	<b>129,920</b>

Pricing: 1- Compsat Technology (\*Datacenter included); 2 - Jeskell; 3 - Microsoft; 4 - CDW.com; 5 - buy.com; 6 - newegg.com; 7 - www.cablestogo.com. **Three-Year Cost of Ownership USD: \$3,011,533**  
**tpmC: 492,307**  
**\$ USD/tpmC: \$6.12**

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.  
Audited by Bradley J. Askins, InfoSizing, Inc.

<b>IBM Corporation</b>	<b>IBM® eServer™ xSeries® 460 IBM System Storage™ N5000 Microsoft® SQL Server 2005 (SP1)</b>	<b>TPC-C Rev. 5.6</b>
		<b>Report Date 03/21/06</b>

### Numerical Quantities Summary

**MQTh, Computed Maximum Qualified Throughput: 492,307 tpmC**

Response Times (in seconds)	90 <sup>th</sup> Percentile	Average	Maximum
New Order	1.50	0.57	8.09
Payment	1.46	0.55	8.11
Delivery	1.02	0.33	3.33
Stock Level	1.72	0.77	5.06
Order Status	1.48	0.57	6.52
Delivery (Deferred)	0.16	0.12	5.11
Menu	1.00	0.33	3.98

**Response Time Delay Added for Emulated Components: 0.1 Seconds**

Transaction Mix (in percent of total transactions)	Percent
New Order	44.95
Payment	43.02
Delivery	4.01
Stock Level	4.01
Order Status	4.01

Keying/Think Times (in seconds)	Minimum	Average	Maximum
New Order	18.00 / 0.00	18.00 / 12.04	18.02 / 120.31
Payment	3.00 / 0.00	3.00 / 12.04	3.02 / 120.31
Delivery	2.00 / 0.00	2.00 / 5.04	2.02 / 50.31
Stock Level	2.00 / 0.00	2.00 / 5.04	2.02 / 50.31
Order Status	2.00 / 0.00	2.00 / 10.04	2.02 / 100.31

**Test Duration**

<b>Ramp-up Time</b>	85 minutes 41 seconds
<b>Measurement Interval</b>	120 minutes
<b>Number of Checkpoints</b>	4
<b>Checkpoint Interval</b>	30 minutes
<b>Number of transactions (all types) completed in measurement interval</b>	136,699,824