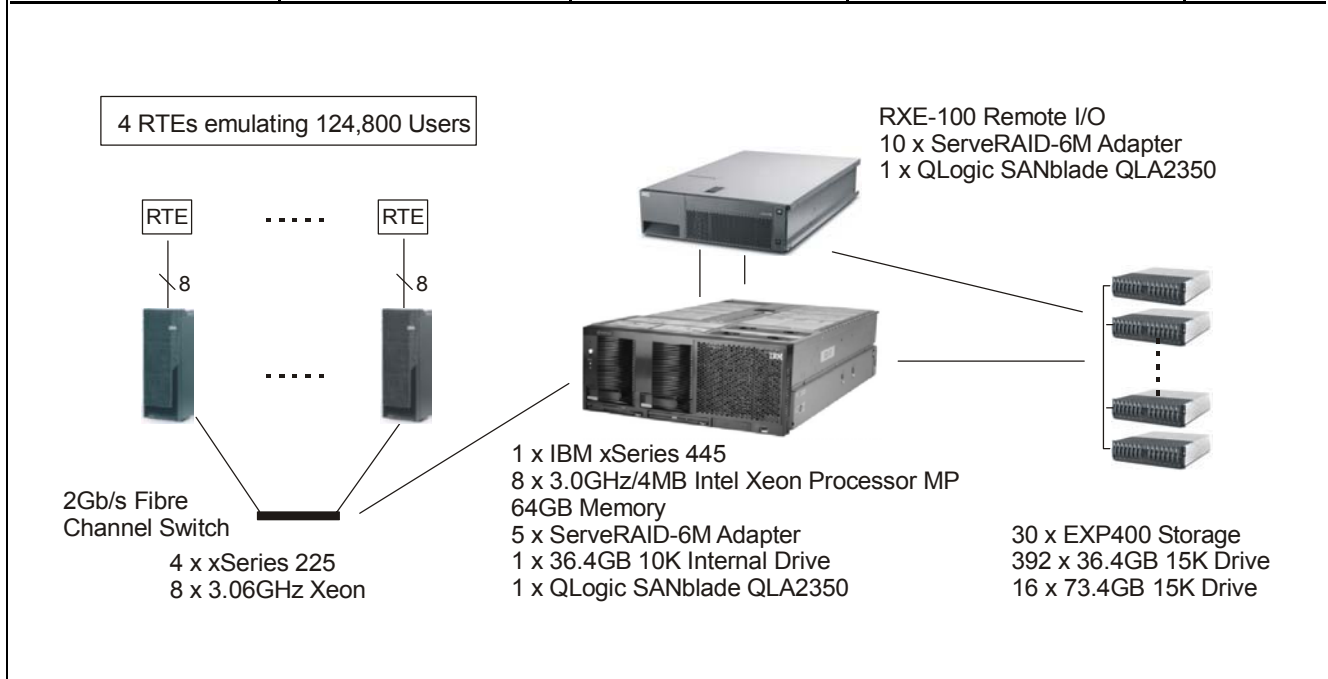


	<b>IBM® @server® xSeries® 445 c/s</b>		TPC-C Rev. 5.2
	<b>with Microsoft® SQL Server 2000</b>		Report Date: March 1, 2004

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
<b>\$672,287</b>	<b>156,105.72 tpmC</b>	<b>\$4.31 / tpmC</b>	<b>Aug. 31, 2004</b>

Database Server	Database Manager	Operating System	Other Software	Number of Users
<b>Processors/Cores/Threads: 8/8/16 Intel Xeon Processor MP 3.0GHz</b>	<b>Microsoft SQL Server 2000 Enterprise Edition SP3 with QFE</b>	<b>Microsoft Windows® Server 2003 Datacenter Edition with QFE KB834628</b>	<b>Microsoft Visual C++ 6.0 Professional Microsoft COM+</b>	<b>124,800</b>



System Component	Qty	Server:	Qty	Each of Four Clients:
Processors/Cores/Threads	8/8/16	3.0GHz Xeon Processor	2/2/4	3.06GHz Xeon DP
Cache		MP w/4MB L3 Cache		w/512KB L2 Cache
Memory	32	2GB ECC RDIMM	4	512MB
Disk Controllers	15	ServeRAID-6M Ultra320 SCSI Adapter	1	Ultra320 SCSI Interface
Disk Drives	1	36.4GB (10000 rpm)	1	36.4GB Hard Disk
	392	36.4GB (15000 rpm)		
	16	73.4GB (15000 rpm)		
Total Storage		14417.08GB		
Tape Drive	1	20/40GB SCSI Tape Drive		

IBM Corporation	IBM @server xSeries 445 c/s			TPC-C Revision 5.2			
	with Microsoft SQL Server 2000			Report Date: March 1, 2004			
Description	Part Number	Third Party Brand	Pricing	Unit Price	Quantity	Extended Price	3-Yr. Maint. Price
<b>Server Hardware</b>							
xSeries 445 with:	8870-4BX	IBM		26,599	1	26,599	3,221
2 x 3.0GHz/4MB Xeon Processor MP							0
4 x 512MB ECC RDIMM							0
xSeries 3.0GHz/4MB Xeon Processor MP Upgrade	13N0721	IBM		6,599	6	39,594	0
xSeries 445 SMP Expansion Module	02R1870	IBM		4,849	1	4,849	0
2GB PC2100 DDR ECC SDRAM RDIMM	33L5040	IBM		1,849	32	59,168	0
36.4GB 10K Ultra320 SCSI Hot-Swap Drive	32P0726	IBM		275	1	275	0
IBM Preferred Pro Full-Size Keyboard PS/2	31P7415	IBM		29	1	29	0
IBM Sleek 2-Button Mouse	28L3673	IBM		19	1	19	0
ServeRAID-6M Ultra320 SCSI Adapter	32P0033	IBM		999	15	14,985	0
QLLogic SANBlade QLA2350 FC-VI Adapter (2 spares)	QLA2350-BK	QLLogic		1,995	4	7,980	0
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM		119	1	119	90
					<b>Subtotal</b>	<b>153,617</b>	<b>3,311</b>
<b>Server Storage</b>							
IBM RXE-100 Remote Expansion Enclosure	8684-1RX	IBM		4,569	1	4,569	1,330
IBM Remote I/O PCI-X 6-Slot Expansion Kit	31P5998	IBM		1,699	1	1,699	0
IBM EXP400 Rack Storage Exp. Enclosure	17331RU	IBM		3,099	30	92,970	22,800
36.4GB 15K Ultra320 SCSI Hot-Swap Drive	32P0734	IBM		495	392	194,040	0
73.4GB 15K Ultra320 SCSI Hot-Swap Drive	32P0735	IBM		769	16	12,304	0
3.5M Remote I/O Cable Kit	31P6102	IBM		599	1	599	0
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	IBM		105	30	3,150	0
NetBAY42S Standard Rack	9306421	IBM		1,439	3	4,317	504
IBM UPS 500	252277	IBM		99	1	99	0
IBM NetBAY Tape Enclosure	0034B0X	IBM		849	1	849	120
20/40GB DDS/4 Tape AutoLoader	00N7991	IBM		699	1	699	0
Enterprise Rack Setup	06P7514	IBM		400	3	1,200	0
Enterprise Rack Configuration	06P7515	IBM		160	3	480	0
Option Integration Fee	58P8665	IBM		110	3	330	0
Load Non-Image Custom Ultra Image - Server	06P7505	IBM		35	1	35	0
					<b>Subtotal</b>	<b>317,340</b>	<b>24,754</b>
<b>Server Software</b>							
Microsoft SQL Server 2000 Enterprise Edition	810-00846	Microsoft		16,541	8	132,328	
Database Software Support Package		Microsoft		1,950	3		5,850
IBM Preload Kit for Datacenter 2003 (1-8 Processors)	4816-7BU	IBM		27,279	1	27,279	
IBM Maintenance Update Subscription (1-8 Processors-1 Yr)	4816-DBX	IBM		2,549	3	7,647	
Support for Datacenter - MAPS 10 incidents per year	23L9991			9000	3		27,000
					<b>Subtotal</b>	<b>167,254</b>	<b>32,850</b>
<b>Client Hardware</b>							
x225 with 3.06GHz/512KB Xeon DP, 1 x 36.4GB Drive	8647-62X	IBM		1,775	4	7,100	1,000
3.06GHz/512KB Xeon DP Processor Upgrade	24P8122	IBM		999	4	3,996	0
512MB PC2100 ECC SDRAM RDIMM	33L5038	IBM		249	16	3,984	0
QLLogic SANblade QLA 2350 FC-VI Adapter	QLA2350-BK	QLLogic		1,995	4	7,980	0
NetXtreme 1000T Dual-Port Ethernet Adapter	31P6401	IBM		269	8	2,152	0
Adaptec Quartet64 4-Port Adapter (2 spares)	ANA64044	Adaptec		440	6	2,640	0
E54 15" (13.8" Viewable) Color Monitor	633147N	IBM		119	4	476	360
					<b>Subtotal</b>	<b>28,328</b>	<b>1,360</b>
<b>Client Software</b>							
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft		738	4	2,952	0
Microsoft Visual C++ Professional 6.0	254-00170	Microsoft		109	1	109	0
					<b>Subtotal</b>	<b>3,061</b>	<b>0</b>
<b>Network Components</b>							
SAN Fibre Channel 8-Port Switch	3534F08	IBM		5,250	1	5,250	2,300
IBM Short Wave SFP Module	19K1271	IBM		499	2	998	0
IBM 5M LC-LC Fibre Channel Cable	19K1248	IBM		129	6	774	0
					<b>Subtotal</b>	<b>7,022</b>	<b>2,300</b>
					<b>Total</b>	<b>676,622</b>	<b>64,575</b>
Compsat Technology discount.					<b>Discount</b>	<b>61,293</b>	<b>7,617</b>
1 - Compsat Technology; 2 - Microsoft				<b>Three-Year Cost of Ownership:</b>		\$672,287	
Audited by Francois Raab, InfoSizing, Inc.				tpmC:		156,105.72	
				\$/tpmC:		\$4.31	
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.							

## Numerical Quantities Summary

MQTh, Computed Maximum Qualified Throughput: 156,105.72 tpmC

Response Times (in seconds)	90th Percentile	Average	Maximum
New-Order	0.55	0.32	35.15
Payment	0.49	0.27	42.61
Delivery	0.40	0.20	5.74
Stock Level	1.06	0.73	11.45
Order Status	0.51	0.29	12.44
Delivery (Deferred)	0.18	0.13	4.11
Menu	0.40	0.20	63.56
<b>Response Time Delay Added for Emulated Components: 0.1 Seconds</b>			
Transaction Mix (in percent of total transactions)			Percent
New-Order			44.96
Payment			43.02
Delivery			4.01
Stock-Level			4.01
Order Status			4.00
Keying/Think Times (in seconds)	Minimum	Average	Maximum
New Order	18.00 / 0.00	18.02 / 12.06	18.06 / 120.53
Payment	3.00 / 0.00	3.02 / 12.05	3.06 / 120.53
Delivery	2.00 / 0.00	2.02 / 5.05	2.05 / 50.52
Stock Level	2.00 / 0.00	2.02 / 5.05	2.06 / 50.52
Order Status	2.00 / 0.00	2.02 / 10.05	2.06 / 100.52
<b>Test Duration</b>			
Ramp-up time			52 minutes 0 seconds
Measurement interval			120 minutes
Number of checkpoints			4
Checkpoint interval			30 minutes
Number of transactions (all types) completed in measurement interval			43,338,961