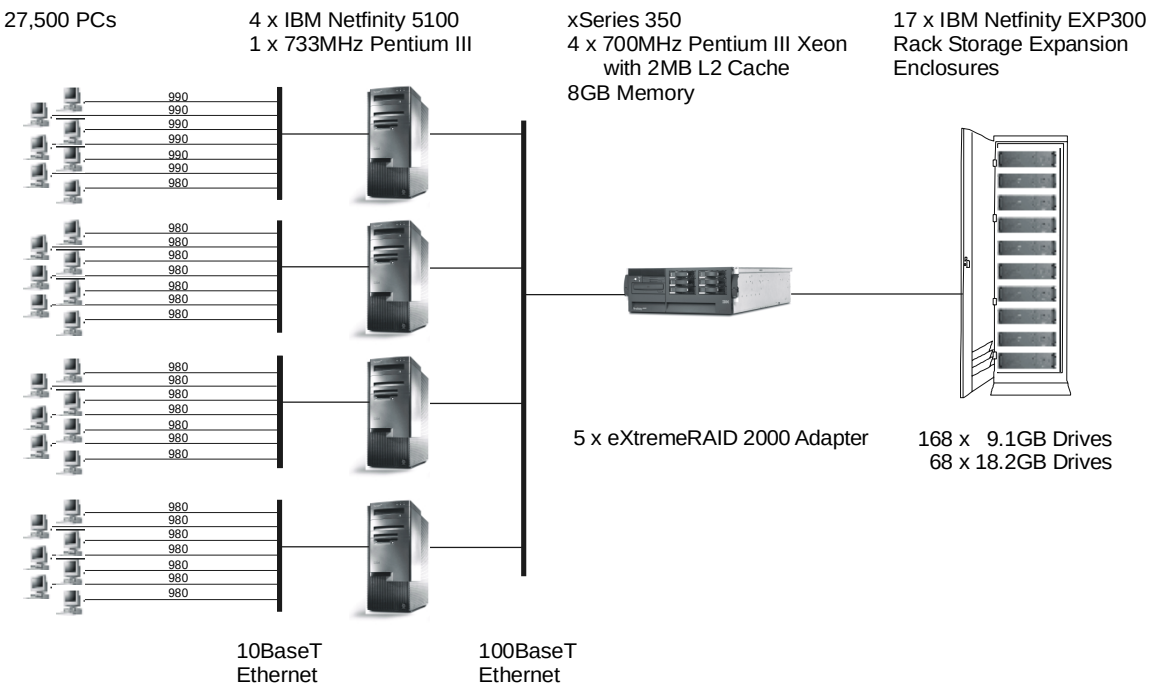
IBM @server xSeries 350 c/s with Microsoft SQL Server 2000

TPC-C Rev 5.0
Upgrade from Rev. 3.5

Report Date: April 12, 2001
(Original: December 12, 2000)

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$369,323	**34,264.90 tpmC**	**$10.78 /tpmC**	**Dec. 11, 2000**

Processors	Database Manager	Operating System	Other Software	Number of Users
4 Intel® Pentium® III Xeon 700MHz 2MB L2 Cache	**Microsoft® SQL Server 2000 Enterprise Edition**	**Microsoft Windows® 2000 Advanced Server**	**Microsoft Visual C++ 6.0 Win32 Microsoft COM+**	**27,500**



System Component	Qty	Server	Qty	Each of Four Clients
Processors	**4**	**700MHz Pentium III Xeon w/2MB L2 Cache**	**1**	**733MHz Pentium III w/256KB L2 Cache**
Memory	**16**	**512MB**	**1**	**128MB**
			1	**256MB**
Disk Controllers	**5**	**Mylex eXtremeRAID 2000**	**1**	**Ultra160 SCSI Onboard**
Disk Drives	**168**	**9.1GB (15000 rpm)**	**1**	**9.1GB Hard Disk**
	68	**18.2GB (15000 rpm)**		
	1	**9.1GB (10000rpm)**		
Total Storage		**2775.5GB**		
Tape Drive	**1**	**20/40GB SCSI Tape Drive**		

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Description	Order Number	Third-Party Brand	Pricing	Unit Price	Qty	Ext. Price	3-Yr. Maint.*
Server Hardware							
xSeries 350 / 700MHz/2MB Pentium III Xeon*	86825RY		1	$7,165	1	$7,165	$2,495
700MHz/2MB L2 Cache Processor Upgrade	00N7944		1	3,625	3	10,875	0
512MB ECC SDRAM RDIMM Memory Kit	33L3117		1	1,277	15	19,155	0
Netinity 9.1GB 10K Ultra160 SCSI Drive	37L7204		1	299	1	299	0
Mylex eXtremeRAID 2000 Adapter**	E2000-4-32NB	Mylex	3	1,872	7	13,104	0
Netfinity 4.2M Ultra2 SCSI Cable	03K9311		1	105	18	1,890	0
10/100 Ethernet Server Adapter	06P3601		1	99	1	99	0
E54 14” (13.8” Viewable) Color Monitor*	6331N2N		1	168	1	168	90
20/40GB Internal SCSI Tape Drive	00N7991		1	879	1	879	0
Netfinity Rack*	9306900		1	1,725	2	3,450	600
Side Panel Kit	94G6669		1	195	1	195	0
Storage Hardware							
Netfinity EXP300 Rack Storage Enclosure*	35311RU		1	3,179	17	54,043	3,400
9.1GB 15K Ultra160 SCSI Drive	19K0655		1	601	168	100,968	0
18.2GB 15K Ultra160 SCSI Drive	19K0656		1	789	68	53,652	0
					Subtotal	$265,942	$6,585
Server Software							
Microsoft SQL Server 2000 Enterprise Edition	810-00846	Microsoft	2	16,541	4	$66,164	$0
Microsoft Windows 2000 Advanced Server	C10-00475	Microsoft	2	2,399	1	2,399	0
Three-Year Maintenance for Software		Microsoft	2	2,095	3		6,285
					Subtotal	$68,563	$6,285
Client Hardware							
IBM Netfinity 5100 / 733MHz/256KB Pentium III*	86582RY		1	2,052	4	$8,208	$5,980
9.1GB 10K Ultra160 SCSI Drive	37L7204		1	299	4	1,196	0
256MB 133MHz ECC SDRAM RDIMM	33L3125		1	365	4	1,460	0
10/100 Ethernet Server Adapter	06P3601		1	99	4	396	0
E54 15” (13.8” Viewable) Color Monitor*	6331N2N		1	168	4	672	360
					Subtotal	$11,932	$6,340
Client Software							
Microsoft Windows 2000 Server with COM+	C11-00821	Microsoft	2	738	4	2,952	0
Microsoft Visual C++ Professional 6.0 Win32	048-00317	Microsoft	2	549	1	549	0
					Subtotal	$3,501	$0
User Connectivity							
8-Port 10/100Mbps Nway Fast Ethernet Switch***	NX-DSS8		4	25	7	175	0
					Subtotal	$175	$0
					Total	$350,113	$19,210

Notes: * The standard 3-year warranties on IBM hardware have been upgraded to 7x24, 4 -hour response time coverage. ** Five-year warranty. *** 10% or minimum 2 spares are added in place of on-site service (products have a 5-year return-to-vendor-warranty)
Pricing: 1 - IBM Corp.; 2 - Microsoft Corp.; 3 - Mylex ; 4 - Software House International.
Audited by Bradley J. Askins of InfoSizing, Inc.

Three-Year Cost of Ownership:	$369,323
tpmC Rating:	34,264.90
$ / tpmC:	$10.78

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 specification. 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

MQTh, Computed Maximum Qualified Throughput:	34,264.90 tpmC
% throughput difference, reported and reproducibility runs:	0.064%

Response Times (in seconds)	Average	Maximum	90 %-tile
New-Order	0.47	21.29	0.82
Payment	0.40	27.84	0.75
Delivery	0.13	7.21	0.16
Stock Level	1.20	11.88	1.75
Order Status	0.41	6.04	0.75
Delivery (Deferred)	0.21	0.89	0.35
Menu	0.13	13.46	0.17

Transaction Mix (in percent of total transactions)	Total Occurrences	Percent
New-Order	685,298	44.89
Payment	656,525	43.01
Delivery	61,504	4.03
Stock-Level	61,582	4.03
Order Status	61,643	4.04

Emulation Delay (in seconds)		Response Time	Menu
New-Order		0.1	0.1
Payment		0.1	0.1
Delivery		0.1	0.1
Stock-Level		0.1	0.1
Order Status		0.1	0.1

Keying/Think Times (in seconds)	Average	Minimum	Maximum
New Order	18.01 / 12.05	18.00 / 0.00	18.03 / 120.51
Payment	3.02 / 12.04	3.00 / 0.00	3.03 / 120.50
Delivery	2.01 / 5.06	2.00 / 0.00	2.03 / 50.50
Stock Level	2.01 / 5.03	2.00 / 0.00	2.03 / 48.61
Order Status	2.02 / 10.06	2.00 / 0.00	2.03 / 100.50

Test Duration	
Ramp-up time	21 minutes
Measurement interval	20 minutes
Number of transactions (all types) completed in measurement interval	1,588,062
Ramp-down time	22 minutes
Number of checkpoints in measurement interval	1
Checkpoint interval	20 minutes