IBM

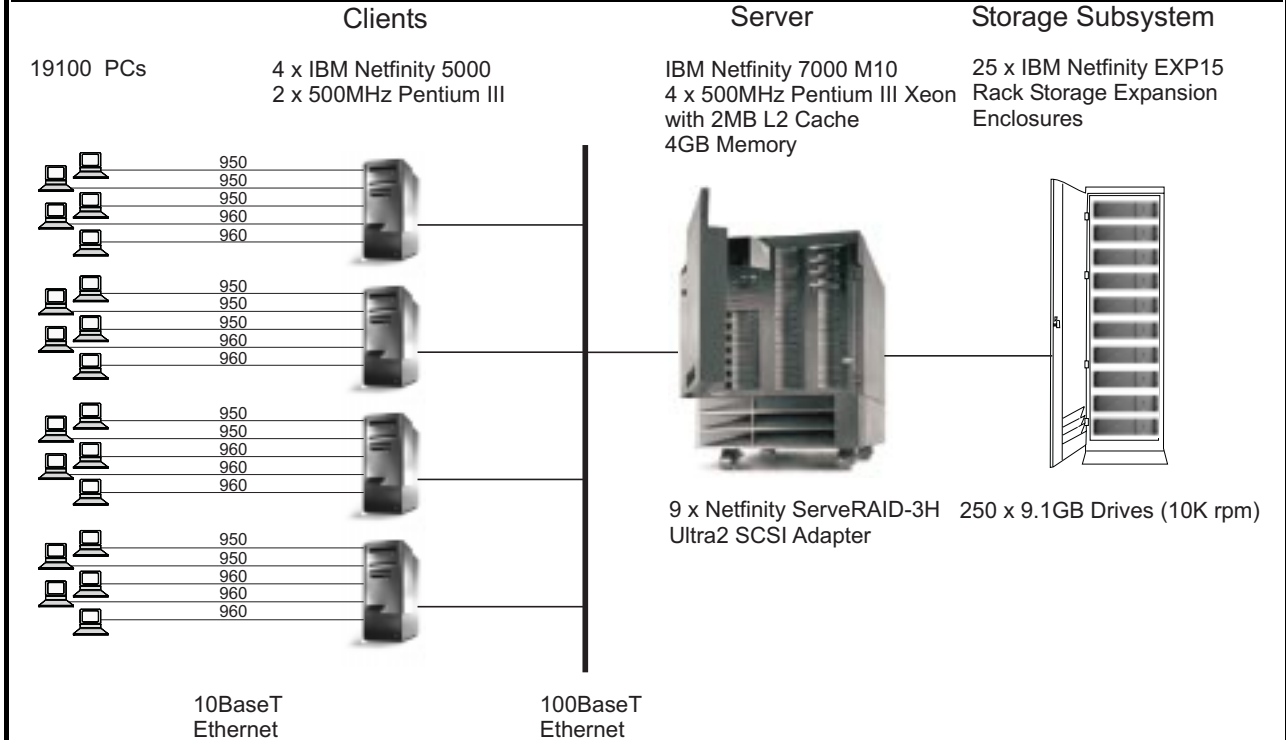# IBM Netfinity 7000 M10 C/S

TPC-C Rev 3.4

Report Date: 25 Mar. 1999

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$595,772	**23,640 tpmC**	**$25.20/tpmC**	**June 30, 1999**

Processors	Database Manager	Operating System	Other Software	Number of Users
4 Pentium® III Xeon 500MHz 2MB L2 Cache	**Microsoft® SQL Server 7.0 Enterprise Edition**	**Microsoft Windows® NT 4.0 Enterprise Edition**	**TXSeries V4.2 for Windows NT Server**	**19,100**

Clients	Server	Storage Subsystem
19100 PCs 4 x IBM Netfinity 5000 2 x 500MHz Pentium III	IBM Netfinity 7000 M10 4 x 500MHz Pentium III Xeon with 2MB L2 Cache 4GB Memory	25 x IBM Netfinity EXP15 Rack Storage Expansion Enclosures


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9 x Netfinity ServeRAID-3H Ultra2 SCSI Adapter   250 x 9.1GB Drives (10K rpm)

10BaseT Ethernet   100BaseT Ethernet

System Component	Qty	Server	Qty	Each of Four Clients
Processors	**4**	**500MHz Pentium III Xeon**	**2**	**500MHz Pentium III**
Cache	**1**	**2MB L2 Cache**	**1**	**512KB L2 Cache**
Memory		**4096MB**		**384MB**
Disk Controllers	**9**	**ServeRAID-3H Ultra2**	**1**	**Wide Ultra SCSI Onboard**
Disk Drives	**250**	**9.1GB (10000 rpm)**	**1**	**4.51GB Hard Disk**
Total Storage		**2275GB**		
Tape Drive	**1**	**10/20GB SCSI Tape Drive**		
Terminals	**1**	**14-inch Display**	**1**	**14-inch Display**
User Connectivity	**1**	**NETLUX 8-Port 100Mbps Hub**	**2627**	**COMPEX 8-Port 10Mbps Ethernet Hub**

Description	Order Number	Third-Party Brand	Pricing	Unit Price	Qty	Ext. Price	5-Yr. Maint.*
Server Hardware							
IBM Netfinity 7000 M10 / 500MHz Pentium III Xeon with 2MB L2 Cache*	86808RY		1	$16,250	1	$16,250	$7,995
500MHz / 2MB L2 Cache Processor Upgrade	28L4735		1	7,840	3	23,520	0
Memory Card	01K8004		1	523	1	523	0
Netfinity 512MB Memory Expansion Kit	01K8045		1	1,922	8	15,376	0
Netfinity ServeRAID-3H Ultra2 SCSI Adapter	01K7207		1	1,770	9	15,930	0
32MB Battery Backup Cache	28L1003		1	298	1	298	0
Netfinity 4.2M Ultra2 SCSI Cable	03K9311		1	104	25	2,600	0
IBM Third SCSI Internal Channel Cable	76H5400		1	27	8	216	0
Ethernet 10/100 PCI Adapter	34L0201		1	85	1	85	0
IBM G42 14" (13.2" Viewable) Color Monitor*	654000N		1	202	1	202	215
10/20GB NS Internal SCSI Tape Drive	01K1319		1	471	1	471	0
Netfinity Rack*	9306900		1	1,680	2	3,360	0
Side Panel Kit	94G6669		1	194	1	194	0
Server Storage							
Netfinity EXP15 Rack Storage (incl. 10% Spares)	35202RU		1	2,570	28	71,960	0
APC Smart-UPS 1400RMB	94G6674		1	1,112	1	1,112	0
Netfinity EXP10 9.1GB 10K Wide Ultra SCSI Drive (incl. 10% Spares)	01K8499		1	876	275	240,900	0
					Subtotal	$392,997	$8,210
Server Software							
Microsoft SQL Server 7.0, Enterprise Edition, unlimited user license		Microsoft	2	28,999	1	$28,999	$0
Microsoft Windows NT Server 4.0, Enterprise Edition, including 25 CALs		Microsoft	2	3,999	1	3,999	0
Five-Year Maintenance for Software		Microsoft	2	10,475	1		10,475
					Subtotal	$32,998	$10,475
Client Hardware							
IBM Netfinity 5000 / 500MHz Pentium III*	865941Y		1	3,355	4	$13,420	$22,780
500MHz Upgrade with Pentium III	36L9673		1	1,620	4	6,480	0
4.51GB Wide Ultra SCSI Drive	01K8009		1	554	4	2,216	0
128MB DIMMs	01K7262		1	410	12	4,920	0
Ethernet 100/10 PCI Adapter	34L0201		1	85	4	340	0
Adaptec Quartet 4-Port Ethernet PCI Adapter**	ANA-6944A		1	476	4	1,904	0
IBM G42 14" (13.2" Viewable) Color Monitor*	654000N		1	202	4	808	860
					Subtotal	$30,088	$23,640
Client Software							
Microsoft Windows NT Server 4.0, incl. 5 CALs		Microsoft	2	809	4	3,236	0
Microsoft Visual C++ Professional 5.0		Microsoft	2	499	1	499	0
TXSeries V4.2 for Windows NT Server		IBM	3	2,877	4	11,508	5,872
TXSeries Registered User		IBM	3	72	1	72	36
					Subtotal	$15,315	$5,908
User Connectivity							
COMPEX MicroHub/8-Port 10Mbps Hub***	DEH2924	COMPEX	1	28.75	2,627	75,526	0
NETLUX 8-Port 100Mbps Hub***	NX-H8TX	NETLUX	4	205	3	615	0
					Subtotal	$76,141	$0
					Total	$547,539	$48,233

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Notes: * The standard 3-year warranty and the extended warranty on IBM hardware is for 7x24, on-site same day 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 - Software House International; 2 - Microsoft Corp.; 3 - IBM Corp.; 4 - NETLUX
Audited by Francois Raab of Information Paradigm, Inc.

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Five-Year Cost of Ownership:	**$595,772**
tpmC Rating:	**23,640**
$ / tpmC:	**25.20**

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. Al l 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:			23,640 tpmC
% throughput difference, reported and reproducibility runs:			.0417 %
Response Times (in seconds)	**90th Percentile**	**Average**	**Maximum**
New-Order	1.0	0.500	4.203
Payment	0.9	0.396	4.172
Order-Status	1.0	0.469	4.219
Delivery (Interactive)	0.4	0.297	0.657
Delivery (Deferred)	0.542	0.381	1.500
Stock Level	2.7	2.005	5.985
Menu	NA	0.213	0.969
Response time delay added for menu delay is 0.1 seconds.			
Response time delay added for response time delay is 0.1 seconds.			
Transaction Mix, in percent of total transactions		**Total Occurrences**	**Percent**
New-Order		472,800	44.901
Payment		453,166	43.036
Order-Status		42,135	4.001
Delivery		42,694	4.055
Stock-Level		42,197	4.007
Keying/Think Times (in seconds)	**Minimum**	**Average**	**Maximum**
New-Order	18.00 / 0.015	18.002 / 12.063	18.187 / 120.86
Payment	3.00 / 0.015	3.00 / 12.072	3.141 / 120.813
Order Status	2.00 / 0.015	2.00 / 10.021	2.063 / 101.203
Delivery	2.00 / 0.015	2.00 / 5.099	2.078 / 50.375
Stock-Level	2.00 / 0.015	2.00 / 5.1	2.093 / 50.813
Test Duration			
Ramp-up time			19 minutes, 1 seconds
Measurement interval			20 minutes
Number of checkpoints in measurement interval			1
Checkpoint interval			20 minutes
Number of transactions (all types) completed in measurement interval			1,052,992