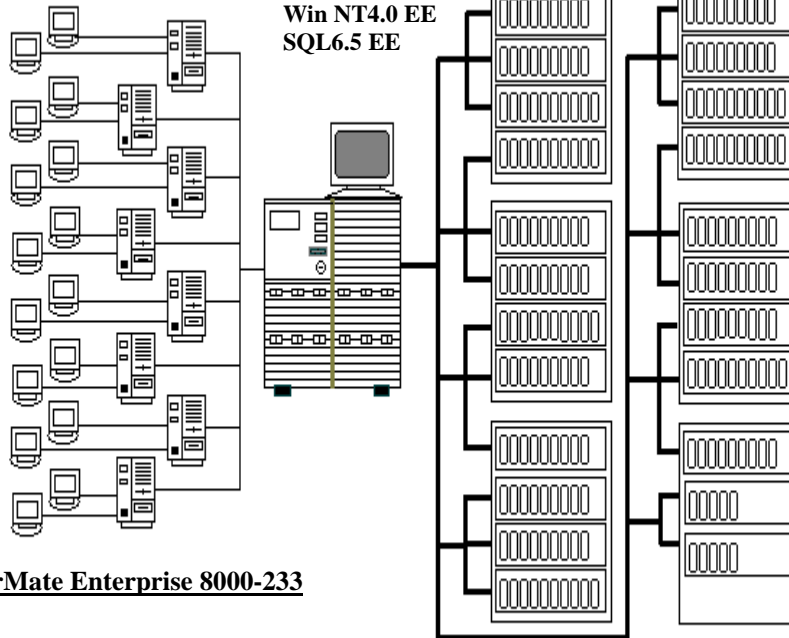


<b>BULL S.A.</b>		<b>Express5800 HV8000</b> C/S		<b>TPC-C Rev.3.3.2</b> Reported Date March 25th,1998
<b>Total System Cost</b>	<b>TPC-C Throughput</b>	<b>Price/Performance</b>		<b>Availability Date</b>
<b>\$643,619</b>	<b>16216.10 tpmC</b>	<b>\$39.69 per tpmC</b>		<b>June 15,1998</b>
<b>Processors</b>	<b>Database Manager</b>	<b>Operating System</b>	<b>Other Software</b>	<b>Number of Users</b>
8 x PentiumPro 200MHz 1MB cache	Microsoft SQL Server 6.5 Enterprise Edition	Microsoft Windows NT 4.0 Enterprise Edition	Microsoft IIS 3.0 BEA Tuxedo 6.3CFS Microsoft VC++	<b>13200</b>

Total of 13200 PCs

Server : Express5800 HV8000

8 x PPro200MHz/1MB  
4096MB Mem  
2 x Internal 4GB HDD  
10 x 9GB  
7 x Mylex DAC960-PJ  
Win NT4.0 EE  
SQL6.5 EE



Clients : PowerMate Enterprise 8000-233

Storage : Digital StorageWorks  
112 x 4GB HDD, 56 x 9GB HDD

<b>System Component</b>	<b>Server</b>		<b>Each Client</b>	
<b>Processors</b>	<b>8</b>	<b>Pentium Pro ® 200MHz</b>	1	Pentium II ® 233MHz
<b>Cache</b>		<b>1MB</b>		512KB
<b>Memory</b>	1	<b>4096MB</b>	1	256MB
<b>Disk Controllers</b>	7	Mylex DAC960-PJ	1	Integrated IDE
	1	Integrated Adaptec		
<b>Disk Drives</b>	66	9GB (8.47GB usable)	1	3. 2GB
	114	4GB (3.99GB usable)		
<b>Total Strage</b>		1013.88 GB		3.2GB
<b>Others</b>	1	EISA Ethernet Adapter	3	PCI Ethernet Adapter
	1	CD-ROM Drive	1	CD-ROM Drive
	1	Tape Drive		

BULL S.A.	Bull Express 5800 HV8000 C/S				TPC-C REV 3.3.2		
					Report Date: March 25,1998		
Description	Part Number	Third Party	Unit Price	Quantity	Extended Price	5-year Maint. Price	
<b>Server Hardware</b>		<b>Brand</b>	<b>Pricing</b>				
Express 5800 HV8000 4 x PentiumPro/200Mhz/1MB Model 2x4000 RAID 32MB L3 cache, 12X CD-ROM, 3.5" FDD, 128MB RAM, 2x4GB HDD, RAID Controler, Kbd, mouse 128MB to 1GB DIMM Memory factory upgrade kit 1GB (4X256MB) 60ns DIMM Memory upgrade kit CPU board with 4 Pentium Pro 200MHz/1MB and 32 4/8GB SCSI 4mm DDS-2 DAT internal drive 32 bit PCI 10/100Mbps Ethernet Adapter5+ 2 spares 15" Multisync monitor DEC PCI Bridge Card (+2spares)	HSHX004-100U CMMH001-000U CMMH004-000U CPUH002-400U MTUH001-000U DCCH003-000U M1502 21A52-02	BULL BULL BULL BULL BULL BULL BULL DEC	1 1 1 1 1 1 1 5	45 530 7 188 8 145 27 245 976 103 279 495	1 1 3 1 1 3 1 3	45 530 7 188 24 435 27 245 976 309 279 1 485	14 570 0 0 0 0 0 0 0
<b>Disk Subsystem</b>							
Mylex DAC960PJ 3channel w/ 8MB EDO (+2 spares) DEC Storage Works system 4.3GB W-Use Seagate Disk (+10% spare) 9GB W-Use Seagate Disk (+10% spare) Shelf (HA702WUHC single Bus) (+10% spare) 180W Power Supply SBB (+10% spare) ULTRA 68VHD TRI-LINK (+2 Spares) ULTRA 68VHD 0.5M SCSI Cable ASSBLY (+2 Spa ULTRA 68VHD 3M SCSI Cable ASSBLY (+2 Spare ULTRA 68VHD Converter Cable (+2 Spares) HD 9GB U/W SCSI 10KRPM	DACPJ-3-8E-MY1 DS-RZ1CB-VW DS-RZ1DB-VW DS-BA356-SD DS-BA35X-HH H8861-AA BN37A-0E BN37A-03 BN38E-0B 203350	Mylex DEC DEC DEC DEC DEC DEC DEC DEC NEC	4 5 5 5 5 5 5 5 7	1 845 900 1 723 733 375 134 103 103 103 1 829	9 124 62 40 40 20 20 20 8 10	16 605 111 600 106 826 29 320 15 000 2 680 2 060 2 060 824 18 290	450 0 0 0 0 0 0 0 0 0
					<b>Subtotal</b>	412 712	15 020
<b>Server Software</b>							
Microsoft Windows NT 4.0 Enterprise Edition Microsoft SQL Server6.5 Enterprise Edition Unlimited		Microsoft Microsoft	2 2	3 999 28 999	1 1	3 999 28 999	0 10 475
					<b>Subtotal</b>	32 998	10 475
<b>Client Hardware</b>							
PowerMate Enterprise 8000-233 PentiumII 233Mhz, 32MB, 3.2GB HDD, CD-ROM, KB, Mouse 128MB 60ns DIMM Memory upgrade kit EtherExpress Pro/100B NIC 20 pack (including spares) 15" Multisync monitor	MT-1790-24853C AMD-3128-IN-00 PILA8465B M1502	NEC BULL Intel BULL	7 1 6 1	1 499 900 1 262 279	8 16 2 8	11 992 14 400 2 524 2 232	2 878 0 0 0
					<b>Subtotal</b>	31 148	2 878
<b>Client Software</b>							
Microsoft Windows NT Server V. 4.0 w/5 cal Microsoft Visual C++ Professional Edition Microsoft SQL Workstation(includes program's toolkit) Tuxedo 6.3 Core functionality Services for NT		Microsoft Microsoft Microsoft BEA	2 2 2 3	809 499 499 3 000	8 1 1 8	6 472 499 499 24 000	0 0 0 18 000
					<b>Subtotal</b>	31 470	18 000
<b>User Connectivity</b>							
Linksys 16-port 100Mbps HUB (+2 spares) Linksys 20-prt 10Mbps HUB (+10% spares)	EXHUB12S EW20HUB	Linksys Linksys	6 6	286 119	3 740	858 88 060	0 0
					<b>Subtotal</b>	88 918	0
					<b>TOTAL</b>	597 246	46 373
<b>Notes:</b> All Microsoft maintenance is covered by the maintenance costs of Microsoft SQL Server Pricing: 1-Bull 2-Microsoft 3-BEA 4-Mylex 5-DEC 6-CDW 7-NEC Intel and 3Com offer a lifetime warranty free of charge: Linksys offers standard with 5-year warranty Audited by Francois Raab of Information Paradigm, Inc				<b>Five-Year Cost of Ownership: \$643 619</b> <b>tpmC Rating: 16216,10</b> <b>\$ / tpmC: 39,69</b>			
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 reflects standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specifications.If you find that the stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you.							

## Numerical Quantities Summary

<b>MQTh, Computed Maximum Qualified Throughput</b>				16216.10 tpmC
<b>%throughput difference ,reported &amp; reproducibility runs</b>				0.76%
<b><u>Response Times(in seconds)</u></b>	<b><u>90%</u></b>	<b><u>Average</u></b>	<b><u>Maximum</u></b>	
<b>New-Order</b>	1.09	0.66	38.29	
<b>Payment</b>	0.92	0.48	28.94	
<b>Stock-Level</b>	4.41	2.91	18.52	
<b>Delivery(interactive portion)</b>	0.30	0.30	1.89	
<b>Delivery(deferred portion)</b>	1.71	0.70	3.95	
<b>Order-status</b>	1.60	1.04	34.03	
<b>Menu</b>	0.30	0.20	2.30	
<b>Response time delay added for emulated components</b>				0.1
<b><u>Transaction Mix , in percent of total transaction</u></b>				
<b>New-Order</b>				44.83%
<b>Payment</b>				43.04%
<b>Order-status</b>				4.10%
<b>Delivery</b>				4.03%
<b>Stock-level</b>				4.01%
<b><u>Keying/Think Times (in seconds)</u></b>	<b><u>Min.</u></b>	<b><u>Average</u></b>	<b><u>Max</u></b>	
<b>New-Order</b>	18.01 0.00	18.01 12.06	18.03 120.70	
<b>Payment</b>	3.0 0.00	3.01 12.02	3.03 120.70	
<b>Stock-Level</b>	2.0 0.00	2.01 5.13	2.02 50.50	
<b>Delivery</b>	2.0 0.00	2.01 5.03	2.02 40.23	
<b>Order-status</b>	2.0 0.00	2.01 10.13	2.02 100.71	
<b><u>Test Duration</u></b>				
<b>Ramp-up time</b>				47 minutes
<b>Measurement interval</b>				30 minutes
<b>Number of checkpoints</b>				1
<b>Checkpoint interval</b>				30 minutes
<b>Number of transactions (all types) completed in measurement interval</b>				1,085,280