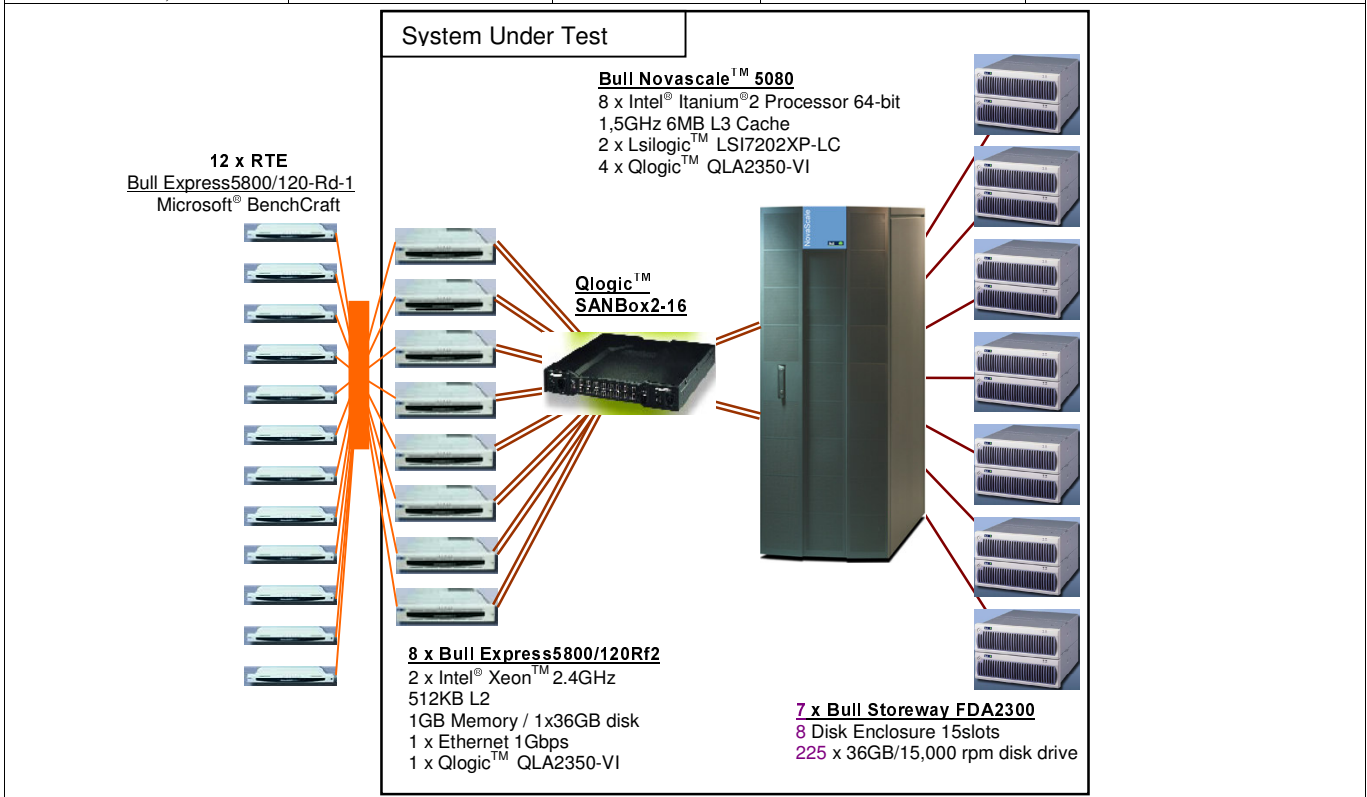

		<b>BULL Novascale 5080 (8 SMP)</b> C/S with Express5800/120Rf-2		TPC Benchmark C Standard Specification version 5.3	
				Report Date: June 30, 2004	
<b>Total System Cost</b>		<b>TPC-C Throughput</b>		<b>Price / Performance</b>	
<b>\$ 793,606 USD</b>		<b>175,366.24</b>		<b>\$ 4,53 USD / tpmC</b>	
				<b>Availability Date</b>	
				<b>June 2004</b>	
<b>Processors</b>		<b>Database Manager</b>		<b>OS</b>	
Server SMP : 8 * { Itanium2 64 bits 1,5GHz 512KB/L2 cache 6MB/L3 cache }		Microsoft SQL Server 2000, Enterprise Edition (64-bit)		Microsoft Windows 2003 server, Datacenter Edition (64bit)	
8 Clients : 2 * Xéon 2,4 GHz				Windows 2000 Server Microsoft Visual C++ Microsoft COM+	
				<b>Number of Users</b>	
				<b>140 000</b>	



System Component	Server		Each Client	
<b>Processors Cache</b>	8	Intel® Itanium® 2 Processor 64-bit 1,5GHz 6MB L3 Cache	2	Intel® Xeon™ 2.4GHz 512KB L2
<b>Memory (in GB)</b>	128	64 x 2GB	1	1GB
<b>Disk Controllers</b>	2	Lsilogic LSI7202XP-LC	1	36GB Ultra320 SCSI 15Krpm
<b>Disk Drives</b>	225	36GB/15Krpm	1	On-board SCSI
<b>Total GB of Storage</b>	7,48 TB	225 x 33,6GB (formatted disk)	1	36 GB
<b>Others</b>	4	Qlogic QLA2350-VI 2Gbps	1	Qlogic QLA2350-VI 2Gbps
			1	On-board Ethernet controller 1Gbps

		<b>Bull Novascale 5080 (8 SMP/128GB)</b> C/S with Express 5800/120Rf-2			<b>TPC-C REV 5.3 EXECUTIVE SUMMARY</b>		
				Report Date: 25/6/04			
Description	Part Number	Third Party	Unit Price	Qty	Extended Price	3 yr. Maint. Price	
<b>Server Hardware</b>							
Novascale 5080, 8 x Itanium2, 1.5Mhz/6MB, 128GB	CPXU303E-3000	Bull	1	311 777	1	33 376	
HBA PCI-X to FC QLA2350 (+2 spares)	QLA2350	Qlogic	2	890	6	5 340	
HBA PCI-X to FC LS17202XP-LC (+2 spares)	LS17202XP-LC	LSI	3	1 326	4	5 303	
				Bull subtotal	311 777	33 376	
				Third Party subtotal	10 643	0	
				<b>Subtotal</b>	<b>322 420</b>	<b>33 376</b>	
<b>Disk Subsystems</b>							
Expansion Rack 36U/19" (with one PDU)	RCKU204-0000	Bull	1	4 885	2	9 770	
FDA 2300 Fibre RAID 15-slot disks 2xSP 2x512MB	DSU080-2300	Bull	1	25 025	7	22 143	
1GB Memory Cache for FDA (2x512MB)	CMMU402-0FDA	Bull	1	1 950	14	27 300	
FDA Fibre Disk Enclosure 15-slots w/ cables	FDEU010-0FDA	Bull	1	3 564	8	3 594	
36GB Raid2G Fiber Disk (15Krpm) for FDA	MSUU304-0FDA	Bull	1	698	225	157 039	
10% spare (disks 36GB)	MSUU304-0FDA	Bull	1	698	23	16 053	
FC optical LC to LC 2Gb SAN cable 15m	CBLH008-1500	Bull	1	246	4	984	
FC optical LC to LC 2Gb SAN cable 5m	CBLH008-0500	Bull	1	200	6	1 200	
				Bull subtotal	416 033	25 737	
				Third Party subtotal	0	0	
				<b>Subtotal</b>	<b>416 033</b>	<b>25 737</b>	
<b>Server Software</b>							
Novascale Master	Included	Bull	1				
Preloaded Windows Server 2003, DTC Ed. (up to 8-CPU)	EXSU263-NA0H	Microsoft	1	14 771	1	14 000	
SQL Server 2000, Enterprise Edition (64-bit)	810-00560	Microsoft	4	16 541	8	5 850	
				Bull subtotal	14 771	14 000	
				Third Party subtotal	132 328	5 850	
				<b>Subtotal</b>	<b>147 099</b>	<b>19 850</b>	
<b>Client Hardware</b>							
Express 5800 / 120Rf-2 Xeon 2.4GHz/512KB	BASB120RF29902	Bull	1	2 466	8	19 728	
Xeon 2.4GHz/512KB/533MHz Processor Kit	CPUXEON2.499907	Bull	1	698	8	5 587	
1GB ECC (2x512MB) DDR266 SDRAM Memory Kit	MEM1GBMBXX99932	Bull	1	564	8	4 512	
8x/24x low profile internal EIDE DVD-ROM drive	DVDSLIMXX99902	Bull	1	175	8	1 402	
36GB Ultra320 SCSI HDD (15Krpm, 1")	HDD36GS CS199961	Bull	1	299	8	2 390	
Ratio Pack for 120Rf-2 - French	PKGBNATIOX00229	Included	1	0	8	0	
HBA PCI-X to FC QLA2350	QLA2350	Qlogic	2	890	8	7 120	
19" 36U Rack without doors with PDU 12 outlets	RCKH003-1000	Bull	1	3 384	1	3 384	
8-Server Monitor Concentrator	AEX-8000-00-BR	Bull	1	1 459	1	1 459	
7" BSU to Rack Mount Monitor Concentrator Monitor	ACN-0009-00-BR	Bull	1	71	8	566	
17" Display	ZCMB1720-H2-00	Bull	1	182	1	182	
Keyboard Tray	DRWH002-0000	Bull	1	258	1	258	
Compact Keyboard (102keys)+Mouse Kit for Rack	AIP-0020-00-BR	Bull	1	121	1	121	
12' Keyboard/Mouse/Monitor Extension Cable Set	ACN-0011-00BR	Bull	1	161	1	161	
3 years of warranty service to 4-h response, 24x7	BMHH024-S3C4	Bull	1	1 350	8	10 801	
				Bull subtotal	39 751	10 801	
				Third Party subtotal	7 120	0	
				<b>Subtotal</b>	<b>46 871</b>	<b>10 801</b>	
<b>Client Software</b>							
Preloaded Windows Server 2000, Licence 5 users	BUT-S210-IN-FF	Microsoft	1	984	8	included	
Visual C++ Standard	254-00170	Microsoft	4	109	1	included	
				Bull subtotal	7 872	0	
				Third Party subtotal	109	0	
				<b>Subtotal</b>	<b>7 981</b>	<b>0</b>	
<b>Network Components</b>							
FC Fabric Switch SANbox 2-16 ports 2Gb	SANbox-2-16	Qlogic	3	11 029	1	2 144	
SFP-Shortwave LC Optic / 8 SFPs per pack (10% spare included)		Qlogic	3	1 106	2	0	
FC optical LC to LC 2Gb SAN cable 5m	CBLH008-0500	Bull	1	200	8	1 600	
FC optical LC to LC 2Gb SAN cable 15m (+3 spares)	CBLH008-1500	Bull	1	246	7	1 722	
				Bull subtotal	3 322	2 144	
				Third Party subtotal	13 241	0	
				<b>Subtotal</b>	<b>16 563</b>	<b>2 144</b>	
				<b>Total Bull</b>	<b>793 526</b>	<b>86 058</b>	
				<b>Total Third Party</b>	<b>163 441</b>	<b>5 850</b>	
				<b>TOTAL</b>	<b>956 968</b>	<b>91 908</b>	
Bull brand Large Purchase Cash Prepay Discount for similar quantities and configurations.						-238 058	
Notes: Pricing: 1-Bull, 2-Compuview, 3-Privantage, 4-Microsoft							
					<b>3-Year Cost of Ownership: \$ USD</b>	<b>793 606</b>	
					<b>tpmC Rating:</b>	<b>175366</b>	
					<b>\$ USD /tpmC</b>	<b>4.53</b>	
Result and methodology audited by François Robb of InfoSizing Inc. (www.sizing.com)							

## Numerical Quantities Summary

<b>MQTh, Computed Maximum Qualified Throughput</b>		tpmC =		175 366,24	
<b><u>Response Times (in seconds)</u></b>		<b>Average</b>	<b>Max</b>	<b>90th %-tile</b>	
New Order	0,46	23,05	0,96		
Payment	0,42	21,87	0,91		
Delivery	0,11	1,43	0,11		
Stock Level	0,63	17,98	1,23		
Order Status	0,45	16,84	0,95		
Delivery (Def)	0,14	2,38	0,21		
Menu	0,00	1,34	0,01		
<b>Response time delay added for emulated components</b>			0,1		
<b><u>Transaction Mix, in percent of total transaction</u></b>					
New Order					44,88%
Payment					43,04%
Delivery					4,03%
Stock Level					4,03%
Order Status					4,03%
<b><u>Keying/Think Times (in seconds)</u></b>		<b>Min</b>	<b>Average</b>		<b>Max</b>
New Order	18,01	0,00	18,02	12,07	18,16 120,83
Payment	3,01	0,00	3,02	12,06	3,16 120,80
Delivery	2,01	0,00	2,02	5,08	2,16 50,72
Stock Level	2,01	0,00	2,02	5,08	2,16 50,70
Order Status	2,01	0,00	2,02	10,04	2,16 100,70
<b><u>Test duration</u></b>					
Ramp-up time					43 minutes
Measurement interval					120 minutes
Number of checkpoints					4
Checkpoint interval					30
Number of transactions (all types) completed in measurement interval					48 781 795