



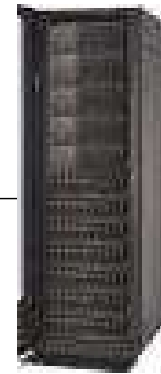
Bull Escala PL860R

TPC-C Rev. 5.9

Report Date: June 11, 2008

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
1,566,664 USD	629,159.19	\$2.49 USD	June 11, 2008
Database Server Processor Chip/Core/Thread	Database Manager	Operating System	Other Software
4/8/16 POWER6 4.2 GHz	DB2 9.5	AIX 5L V5.3	Microsoft Visual C++ Microsoft COM+
			No. Users
			519,680

SUT



16 Clients
 IBM System x3550
 Dual-core 2.0GHz Inter® Xeon™
 4MB L2 Cache
 1GB Memory
 73.4GB SAS Drive
 Integrated dualport 10/100/1000 Ethernet

Bull Escala PL860R
 4x 4.2GHz POWER6™
 Dual-core Processor Chips
 4x 32MB L3 Cache
 256GB Memory
 Internal SAS DASD Controller
 3x 73.4GB Internal SAS Drives
 10x IBM 4Gb dualport FC Adapters
 2x Integrated dualport 10/100/1000 Ethernet

Storage
 34 IBM System Storage DS3400
 96 EXP3000 Storage Expansion
 1550 73.4GB 15K RPM SAS Drives

System Components	Server		Each of the 16 Clients	
	Quantity	Description	Quantity	Description
Processors Chips /Cores/Threads	4/8/16	4.2GHz POWER6™	1/2/2	2.0GHz 4MB L2 Xeon Processor
Memory	16	16 GB	2	512 MB
Disk Controllers	1 10 34	Integrated SAS 4Gb Dual-port FC Adapters IBM System Storage DS3400	1	SAS Controller
Disk Drives	1553	73.4GB 15K RPM SAS	1	73.4GB 15K RPM SAS
Total Storage		103.60 TB		2,348.8 GB
Terminals	1	System Console	1	System Console



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Description	Part Number	Brand	Pricing	Unit Price	Quantity	Extended Price	3-year Maint. Price
Server Hardware							
ESCALA NODE PL860R	CPSG069-0000	Bull	1		1	6,298	4829
Indicator SYSTEM PL860R Package	PKHG033-0000	Bull	1		1	0	
4.2GHz P6, 2-Core Processor Card, 0-core active	CPUG159-0000	Bull	1		4	66,748	13553
ONE PROC.ACTIVATION FOR 2-core&4.2 (P6)	CPKG444-0000	Bull	1		8	60,584	
EXPANSION PCI-X I/O DRAWER	DRWG100-0000	Bull	1		2	13,900	13893
73 GB SAS Disk Drive (1"/15krpm)	MSUG251-0000	Bull	1		4	4,824	
2-Port 1GB Ethern.Daught.Board/RJ45 w/i 2sys.port	DCIG015-0000	Bull	1		1	224	
2-Port 10/100/1000 BASE-TX ETHERNET PCI-X ADAPTE	DCCG168-0000	Bull	1		1	860	0
4GB/s Fibre Channel PCI-X Adapter 2-port	DRCG196-0000	Bull	1		10	27,000	
GX Dual-port 12X Channel attach	DCCG206-0000	Bull	1		1	1,059	
IDE Slimline DVD-ROM Drive	CDRG032-0000	Bull	1		1	246	
Rack 25U with one PDU/12 Outlets (1 EIA)	RCKG026-0000	Bull	1		1	3,120	1601
POWER SUPPLY TYPE EUROPE	PSSG004-0002	Bull	1		1	0	
17" FLAT PANEL MONITOR	DMUG024-1000	Bull	1		1	1,040	
QUIET TOUCH KEYBOARD - USB, STEALTH BLACK, FR	KBUG009-000F	Bull	1		1	100	
Power Distribution Unit - Single Phase (1 EIA)	PSSG060-0000	Bull	1		1	920	
AC Power Supply, 1700W, Hot Swap	PSSG067-0000	Bull	1		1	673	
16GB (2x8GB) RDIMMs, 400MHz DRAM	CMMG282-0000	Bull	1		16	314,576	
KIT CABLES/FIRST EXPANSION DRAWER	CKTG308-0000	Bull	1		1	610	
I/O Drawer Mounting Enclosure (Two positions)	CKTG309-0000	Bull	1		1	619	
DASD/Media Back Plane (3.5") with External SAS Port	CKTG313-0000	Bull	1		1	539	
DEKSIDIE HMC w/o Monitor/Keyboard	CSKG018-0000	Bull	1		1	2,020	2330
Power Cord PDU/Wall (4.3M), 24A IEC309, 32A Plug	CBLG234-1700	Bull	1		2	530	
Power Cord (9-foot) - Drawer To PDU	CBLG240-1500	Bull	1		2	30	
Power Cord (14-foot) - Drawer To PDU	CBLG240-1700	Bull	1		4	60	
SAS Cable,DASD Bplane w/i Ext.SAS Port to Bulkhead	CBLG250-1000	Bull	1		1	77	
NUMBER OF AIX PARTITIONS	CPFG053-0000	Bull	1		1	0	
PowerVM Express	CPFG073-0000	Bull	1		8	0	
Subtotal						506,657	36206
Storage							
IBM System Storage DS3400 Express	1726-42E	IBM	2	8749	34	297,466	
IBM 1M SAS cable	39R6529	IBM	2	119	192	22,848	
IBM System Storage EXP3000	1727-01X	IBM	2	3199	96	307,104	
IBM Hot-Swap 3.5 inch 73.4GB 15K SAS HDD	40K1043	IBM	2	309	1550	478,950	
IBM TotalStorage SAN32B-3	2005-B5K	IBM	2	15810	3	47,430	
8-port Activation	22R5505	IBM	2	8100	6	48,600	
4 Gbps SW SFP Transceivers - 4 pack	2414	IBM	2	550	24	13,200	
IBM S2 42U Standard Rack	93074RX	IBM	2	1489	7	10,423	
ServicePac for 3-Year 24x7x4 Support (DS3400)	44J8073	IBM	2	1300	34		44,200
ServicePac for 3-Year 24x7x4 Support (EXP3000)	41L2768	IBM	2	760	96		72,960
ServicePac for 3-Year 24x7x4 Support (SAN32B-2)	41E9167	IBM	2	3300	3		9,900
ServicePac for 3-Year 24x7x4 Support (Rack)	41L2760	IBM	2	300	7		2,100
Subtotal						1,226,021	129,160
Server Software							
BASIC HW DOC POUR EP	MANG031-SPAZ	Bull	1		1	69	
BASIC HARDWARE DOCUMENTATION FOR PL860R	MANG130-SPOZ	Bull	1		1	50	
AIX SUBSCRIPTION CLASS E 1 YEAR PER CPU	SBYG013-IN01	Bull	1		8	0	
POWERVM EXPRESS SUBSCRIPTION - 1 YEAR PER CPU	SBYG085-IN00	Bull	1		8	0	
VIRTUAL I/O SERVER (MEDIA)	EXSG310-SVCE	Bull	1		1	0	
AIX 5.3 EXPANSION PACK	EXSG312-VA00	Bull	1		1	50	
AIX 5.3 CLASS E - LICENCE (PER CPU)	EXSG319-VE00	Bull	1		8	3,680	9,092
POWERVM EXPRESS - LICENCE (PER CPU)	EXSG371-VA00	Bull	1		8	216	
AIX 5.3 MEDIA KIT	UTSG191-VK00	Bull	1		1	60	
SOFTWARE DELIVERY ON DVDROM	MSDG002-0000	Bull	1		1	0	
AIX SUBSCRIPTION CLASS E 1 YEAR PER CPU	SBYG013-IN01	Bull	1		8		3,132
POWERVM EXPRESS SUBSCRIPTION - 1 YEAR PER CPU	SBYG085-IN00	Bull	1		8		194
DB2 9.5 ESE Lic&Mtce (278.52 perVU,p6 VU rating-120, 8 procs)		IBM	2	279	960	267,379	
DB2 9.5 ESE MtceRenewal (13.27 perVU,8 procs, 2 years)		IBM	2	13	1920		25,478
Subtotal						271,504	37,896



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Client Hardware							
IBM System x3550 (Dual-core Xeon 2.0GHz 4MB L2	7878AC1	IBM	2	1927	16	30,832	
512MB PC2-5300 CL5 ECC DDR2 Chipkill FBDIMM	546	IBM	2	115	32	3,680	
73GB 15K Hot-Swap SAS HDD	5161	IBM	2	309	16	4,944	
ServicePac for 3-Year 24x7x4 Support	96P2250	IBM	2	586	16		9,376
NetBAY S24 2U Standard Rack Cabinet	93074RX	IBM	2	1489	1	1,489	
Optical 3-Button Mouse-USB	40K9201	IBM	2	19	1	19	
Preferred Pro FullSize PS/2 Keyboard	40K9584	IBM	2	29	1	29	
IBM C117 17" CRT Monitor	49387NU	IBM	2	149	1	149	
Subtotal						41,142	9,376
Third party Hardware/Software							
Visual Studio Standard 2005	127-00012	Microsoft	3	250	1	250	
Microsoft Windows 2003 Server	P70-00275	Microsoft	3	399	16	6,384	
Microsoft Problem Resolution Services		Microsoft	3	245	1		245
Gigabit (+ 2 spares)	512294	3Com	1	290	3	870	
Subtotal						7,504	245
TOTAL						2,052,828	212,883
IBM Discount							-530,067
Bull Discount							-168,980

Notes:

Pricing: 1-Bull 2-IBM 3-Microsoft

Three-Year Cost of Ownership: \$1,566,664
tpmC Rating: 629159

\$ / tpmC: 2.49

Audited by Francois Raab of InfoSizing (www.sizing.com)

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 for the Escala PL860R

MQTH, computed Maximum Qualified Throughput: 629,159.19 tpmC

<u>Response Times (in seconds)</u>	<u>90th %</u>	<u>Average</u>	<u>Maximum</u>
New Order	1.35	0.89	6.14
Payment	1.37	0.89	5.73
Order-Status	1.28	0.84	4.23
Delivery (interactive)	0.75	0.36	3.33
Delivery (deferred)	0.75	0.32	2.36
Stock-Level	1.55	1.03	4.73
Menu	0.82	0.40	5.87

Response time delay added for emulated components was 0.1 seconds

<u>Transaction Mix, in percent of total transactions</u>	<u>Percent</u>
New Order	44.95%
Payment	43.01%
Order-Status	4.00%
Delivery	4.00%
Stock-Level	4.00%

<u>Keying/Think Times (in seconds)</u>	<u>Min.</u>	<u>Average</u>	<u>Max.</u>
New Order	18.00/0.01	18.01/12.02	18.02/120.20
Payment	3.00/0.01	3.01/12.02	3.02/120.20
Order-Status	2.00/0.01	2.01/10.01	2.02/100.10
Delivery	2.00/0.01	2.01/5.02	2.02/50.20
Stock-Level	2.00/0.01	2.01/5.02	2.02/50.20

Test Duration

Ramp-up Time	49 minutes
Measurement interval	2 hours 20 minutes
Transactions during measurement interval (all types)	195,917,329
Ramp-down time	15 minutes

Checkpoints

Number of checkpoints	N/A
Checkpoint interval	N/A