



## HP Integrity rx5670

C/S with 10 ProLiant DL360-G3

TPC-C Rev. 5.1

Report Date: December 31, 2003

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
<b>\$536,783</b>	<b>136110.98</b>	<b>\$3.94</b>	<b>March 5, 2004*</b> *Hardware available now

Processors	Database Manager	Operating System	Other Software	Number of Users
4 x 1.5GHz Intel Itanium 2 6M Processors – Server  20 x Xeon 2.4GHz – Client	Oracle Database 10g Standard Edition	Red Hat Enterprise Linux AS 3	BEA Tuxedo 8.1	<b>108000</b>



10 x DL360 G3

3 HP Rack 9142 containing: 24 X 4314R Storage Works Enclosure with 14X 18.2 GB 15K drives each and 2X Storage Works MSA 1000s each with 10X 36.4 GB 15K drives each

	Server		Each Client	
System Components	Quantity	Description	Quantity	Description
Processor	4	1.5GHz Itanium 2 6M w/ 6MB Cache	2	2.4GHz Xeon w/ 256K cache
Memory	48	2GB	4	1024MB
Disk Controllers	8	HP SMART Array Controller 5304/128	1	Integrated SMART 5i Controller
	1	Integrated SCSI Controller		
	1	hp StorageWorks fca2214DC		
Disk Drives	336	18GB 15K SCSI Drives	1	36 GB 15K SCSI Drive
	20	36GB 15K SCSI Drives		
Total Storage		6843.80 GB		36 GB
Tape Drives	1	20/40 GB DAT		

**Hewlett-Packard Company**

**HP Integrity rx5670 C/S**

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Description	Price Key	Part Number	Unit Price	Qty	Extended Price	3 Yr Maint Price
hp server rx5670,1.5GHz Itanium 2 w/ 6MB iL3 cache,0 MB RAM, 0 disk	1	A6838B	\$26,494	1	\$26,494	
CPU upgrade Itanium 2, 1.5GHz w/ 6MB iL3 cache	1	A9810A	\$8,250	3	\$24,750	
8GB PC2100 DDR-SDRAM (4x2GB DIMMs)	1	A6835A	\$16,000	12	\$192,000	
Memory Carrier Board	1	A6747A	\$1,981	2	\$3,962	
HP 36GB, 15krpm Ultra320 hot-swap disk	1	A7049A	\$819	1	\$819	
HP Rackmount Kit Factory	1	A5580A	\$134	1	\$134	
DVD Rom drive	1	A5557B	\$450	1	\$450	
Graphics USB Card	1	A6869A	\$349	1	\$349	
HP USB keyboard and mouse	1	A7861A	\$32	1	\$32	
HP Smart Array Controller 5304	2	283551-B21	\$2,247	8	\$17,976	
hp StorageWorks fca2214DC	2	321835-B21	\$2,500	1	\$2,500	
5m LC to LC Cable Kit	2	221692-B22	\$82	2	\$164	
S5500 15 carbon / silver monitor	2	261602-001	\$129	1	\$129	
HP Rack Model 9142 (42U - Opal) - Flat Pallet	2	120663-B21	\$1,321	3	\$3,963	
HP Power Distribution Unit 120-240V	1	E7671A	\$145	3	\$435	
UPS R1500 XR	2	204404-001	\$866	1	\$866	
HP Hardware Support 3 yr, 24x7, 4 hr rx5670	1	H4405Y-6BO	\$7,052	1		\$7,052
HP Hardware Support 3 yr, 24x7, 4 hr add'l CPU	1	H4405Y-6BP	\$1,153	3		\$3,459
20/40 GB DAT Drive, External	1	C5687B	\$1,450	1	\$1,450	
Storageworks Modular SAN Array 1000	2	201723-B22	\$9,995	2	\$19,990	
FM-FC724-36 3YR 24x7 4HR RA4X/MSA1x/SA	2	402164-002	\$3,538	2		\$7,076
Storageworks Enclosure Model 4314R	2	190209-001	\$2,955	24	\$70,920	
FM-4E724-36 3YR 24X7 4HR EMPTY DISK ENCL	2	171242-002	\$157	24		\$3,768
18GB, 15krpm Ultra320 Wide disk	2	286775-B22	\$299	336	\$100,464	
18GB, 15krpm Ultra320 Wide disk (10% spares)	2	286775-B22	\$299	34	\$10,166	
36GB, 15krpm Ultra320 Wide disk	2	286776-B22	\$519	20	\$10,380	
36GB, 15krpm Ultra320 Wide disk (10% spares)	2	286776-B22	\$519	2	\$1,038	
<b>Server Subtotal</b>					<b>\$489,431</b>	<b>\$21,355</b>
Oracle Database 10g Standard Edition, processor 3 yrd. unlimited users+A64	3	run-time	\$7,500	4	\$30,000	
Oracle Database Server Support Package 3 years	3	run-time	\$2,000	3		\$6,000
Red Hat Enterprise Linux AS for Itanium Processor (Ver. 3 Std. Edi.)	4		\$1,992	1	\$1,992	
2 Addi. Yrs Subs. to Red Hat Ent. Linux AS for Itanium (Ver. 3 Std. Edi.)	4		\$1,992	2		\$3,984
<b>Server Software Subtotal</b>					<b>\$31,992</b>	<b>\$9,984</b>
HP ProLiant DL360R03 X2.4-512KB/533, 512MB	2	292887-001	\$2,199	10	\$21,990	
2.4GHz Xeon processor kit	2	292891-B21	\$639	10	\$6,390	
2Gb Reg PC2100 2X1Gb	2	300680-B21	\$1,300	20	\$26,000	
36GB, 15krpm Ultra320 Wide disk	2	286776-B22	\$519	10	\$5,190	
FM-I0724-36-3yr 24X7 4HR 300 SERIES SVR	2	162657-002	\$949	10		\$9,490
<b>Client Subtotal</b>					<b>\$59,570</b>	<b>\$9,490</b>
Red Hat Enterprise Linux ES (version 3 Standard Edition)	4		\$799	10	\$7,990	
2 Addi. Yrs Subs. to Red Hat Ent. Linux ES (Ver. 3 Std Edi.)	4		\$799	20		\$15,980
BEA Tuxedo 8.1 Teir 1	5		\$1,200	10	\$12,000	7560
<b>Client Software Subtotal</b>					<b>\$19,990</b>	<b>\$23,540</b>
GS508TNA 8PORT 10/100/1000BTX COPPER GIGABIT SWITCH	6	GS508TNA	\$587	3	\$1,760	
<b>Connectivity Subtotal</b>					<b>\$1,760</b>	
HP's Large Configuration Discount *					-\$122,963	-\$5,566
Oracle Mandatory E-Business Discount (license and support)					-\$1,800	
<b>Total:</b>					<b>\$477,980</b>	<b>\$58,803</b>
<b>3 year cost of ownership:</b>						<b>\$536,783</b>
<b>tpmC:</b>						<b>136110.98</b>
<b>* All discounts are based on US list prices and for similar quantities and configurations</b>						<b>\$3.94</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 reflect 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. Results independently audited by Lorna Livingtree of Performance Metrics Inc. Original Report Date 5 September, 2003 and repriced on 17 September, 2003.

## Numerical Quantities Summary

**MQTH, Computed Maximum Qualified Throughput**

**136110.975 tpmC**

<b>Response Times (in seconds)</b>	<b>Average</b>	<b>90%</b>	<b>Maximum</b>
New-Order	0.302	0.459	18.672
Payment	0.211	0.318	98.901
Order-Status	0.239	0.364	6.971
Delivery (interactive portion)	0.101	0.102	7.169
Delivery (deferred portion)	0.023	0.037	258.549
Stock-Level	0.193	0.289	42.502
Menu	0.101	0.102	1.830

### **Transaction Mix, in percent of total transaction**

New-Order	44.915%
Payment	43.020%
Order-Status	4.020%
Delivery	4.020%
Stock-Level	4.020%

<b>Emulation Delay (in seconds)</b>	<b>Resp.Time</b>	<b>Menu</b>
New-Order	0.10	0.10
Payment	0.10	0.10
Order-Status	0.10	0.10
Delivery (interactive)	0.10	0.10
Stock-Level	0.10	0.10

<b>Keying/Think Times (in seconds)</b>	<b>Min.</b>	<b>Average</b>	<b>Max.</b>
New-Order	18.005/0.00	18.009/12.085	18.018/120.752
Payment	3.010/0.00	3.019/12.015	3.027/120.085
Order-Status	2.010/0.00	2.019/10.014	2.027/99.823
Delivery (interactive)	2.010/0.00	2.019/5.025	2.027/50.049
Stock-Level	2.010/0.00	2.019/5.014	2.026/49.782

### **Test Duration**

Ramp-up time	133minutes
Measurement interval	120 minutes
Transactions (all types) completed during measurement interval	37,040,792
Ramp down time	36 minutes

### **Checkpointing**

Number of checkpoints	5
Checkpoint interval	30 minutes