



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

### SPECint®\_rate2006 = 53.2

## Proliant DL365 (AMD Opteron 2220 SE)

### SPECint\_rate\_base2006 = 47.7

CPU2006 license: 3

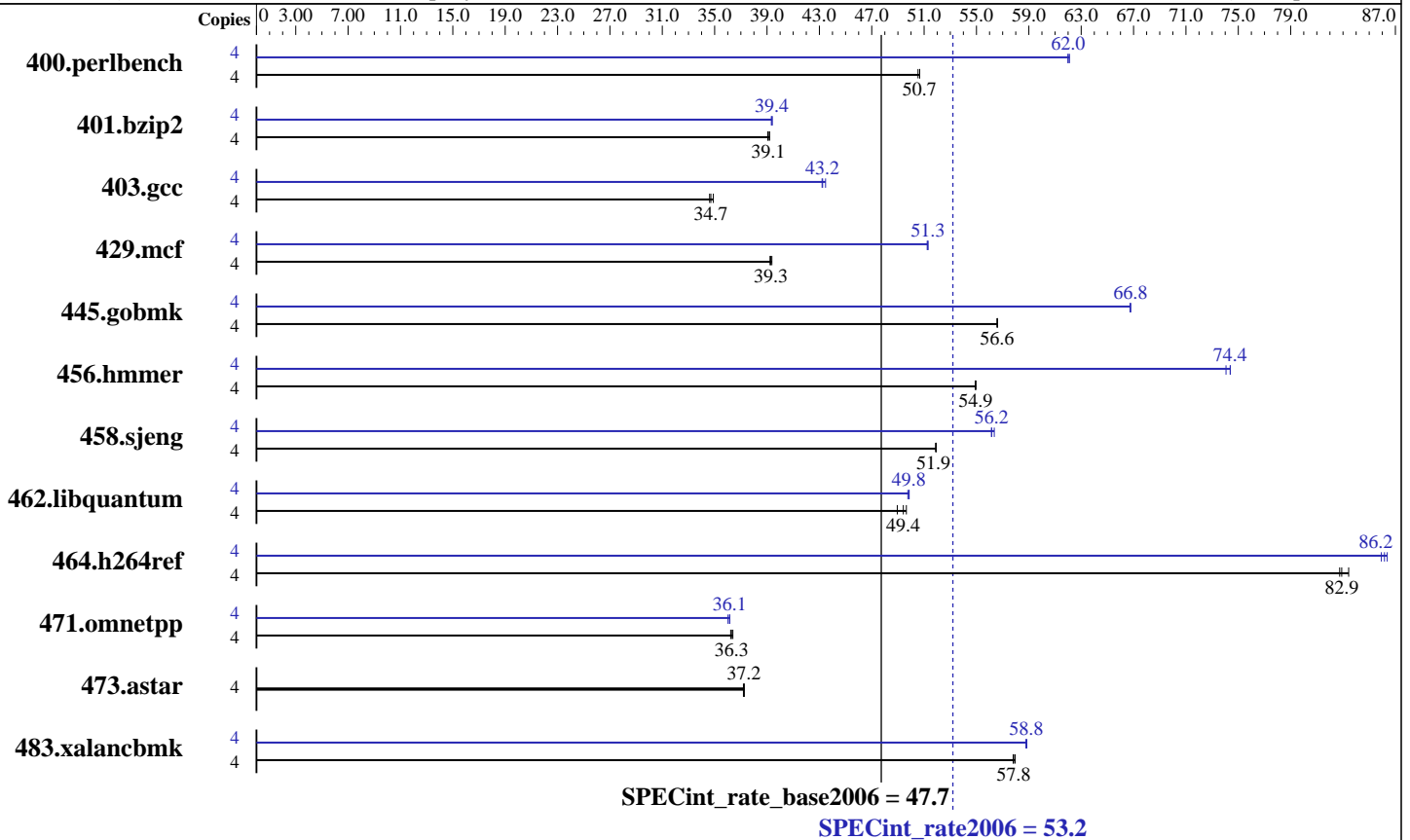
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: May-2007

Hardware Availability: Jan-2007

Software Availability: Apr-2007



### Hardware

CPU Name: AMD Opteron 2220 SE  
 CPU Characteristics:  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 1 MB I+D on chip per core  
 L3 Cache: None  
 Other Cache: None  
 Memory: 32 GB (8x4 GB, PC2-5300P CL5)  
 Disk Subsystem: 1x72 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 10 (x86-64)  
 SuSE kernel 2.6.16.21-0.8-smp  
 Compiler: QLogic PathScale  
 Compiler Suite, Release 3.0  
 Auto Parallel: No  
 File System: ext2  
 System State: Multi-user, run level 3  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None



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## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	<u>771</u>	<u>50.7</u>	771	50.7	773	50.5	4	630	62.0	<u>630</u>	<u>62.0</u>	629	62.1
401.bzip2	4	988	39.1	985	39.2	<u>987</u>	<u>39.1</u>	4	<u>980</u>	<u>39.4</u>	981	39.3	980	39.4
403.gcc	4	923	34.9	<u>928</u>	<u>34.7</u>	930	34.6	4	<u>745</u>	<u>43.2</u>	745	43.2	741	43.5
429.mcf	4	927	39.4	<u>929</u>	<u>39.3</u>	930	39.2	4	<u>711</u>	<u>51.3</u>	712	51.2	711	51.3
445.gobmk	4	<u>741</u>	<u>56.6</u>	742	56.6	741	56.6	4	629	66.7	<u>628</u>	<u>66.8</u>	628	66.8
456.hmmer	4	680	54.9	679	55.0	<u>679</u>	<u>54.9</u>	4	502	74.4	504	74.1	<u>502</u>	<u>74.4</u>
458.sjeng	4	933	51.9	<u>932</u>	<u>51.9</u>	932	51.9	4	<u>862</u>	<u>56.2</u>	859	56.4	862	56.1
462.libquantum	4	1693	48.9	<u>1677</u>	<u>49.4</u>	1669	49.6	4	1666	49.8	<u>1663</u>	<u>49.8</u>	1662	49.9
464.h264ref	4	1070	82.7	<u>1068</u>	<u>82.9</u>	1061	83.4	4	1025	86.4	<u>1027</u>	<u>86.2</u>	1030	85.9
471.omnetpp	4	687	36.4	<u>689</u>	<u>36.3</u>	690	36.2	4	692	36.2	<u>692</u>	<u>36.1</u>	694	36.0
473.astar	4	<u>754</u>	<u>37.2</u>	755	37.2	754	37.3	4	<u>754</u>	<u>37.2</u>	755	37.2	754	37.3
483.xalancbmk	4	476	58.0	<u>477</u>	<u>57.8</u>	477	57.8	4	469	58.8	470	58.8	<u>469</u>	<u>58.8</u>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

Node interleaving is disabled  
taskset utility used to bind CPU(s) to processes  
ulimit -s unlimited set

## Base Compiler Invocation

C benchmarks:  
pathcc

C++ benchmarks:  
pathCC

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64

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## Base Portability Flags (Continued)

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-Ofast -OPT:malloc\_alg=1

C++ benchmarks:

-Ofast -m32 -L/cpu2006/amd514K8.lib/32 -lsmartheap

## Peak Compiler Invocation

C benchmarks:

pathcc

C++ benchmarks:

pathCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:opt=0

401.bzip2: -O3 -LNO:ou\_prod\_max=10 -OPT:Ofast -OPT:alias=disjoint

403.gcc: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -m32 -O3  
-OPT:Ofast

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## Peak Optimization Flags (Continued)

429.mcf: -m32 -O3 -ipa -L/cpu2006/amd514K8.lib/32 -lsmartheap

445.gobmk: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off  
-WOPT:retype\_expr=on

456.hmmer: -O2 -OPT:alias=disjoint -OPT:malloc\_alg=1 -CG:cflow=0

458.sjeng: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-IPA:plimit=50000 -IPA:pu\_reorder=2

462.libquantum: -O3 -ipa -CG:local\_fwd\_sched=on -IPA:space=1000

464.h264ref: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0

C++ benchmarks:

471.omnetpp: -Ofast -CG:gcm=off -m32  
-L/cpu2006/amd514K8.lib/32 -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -Ofast -m32 -OPT:unroll\_times\_max=8  
-L/cpu2006/amd514K8.lib/32 -lsmartheap

The flags file that was used to format this result can be browsed at

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.16.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.16.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.16.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.16.xml)

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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