



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

SPECint®\_rate2006 = 52.1

ProLiant DL185 G5  
(2.3 GHz AMD Opteron 2356)

SPECint\_rate\_base2006 = 45.4

CPU2006 license: 3

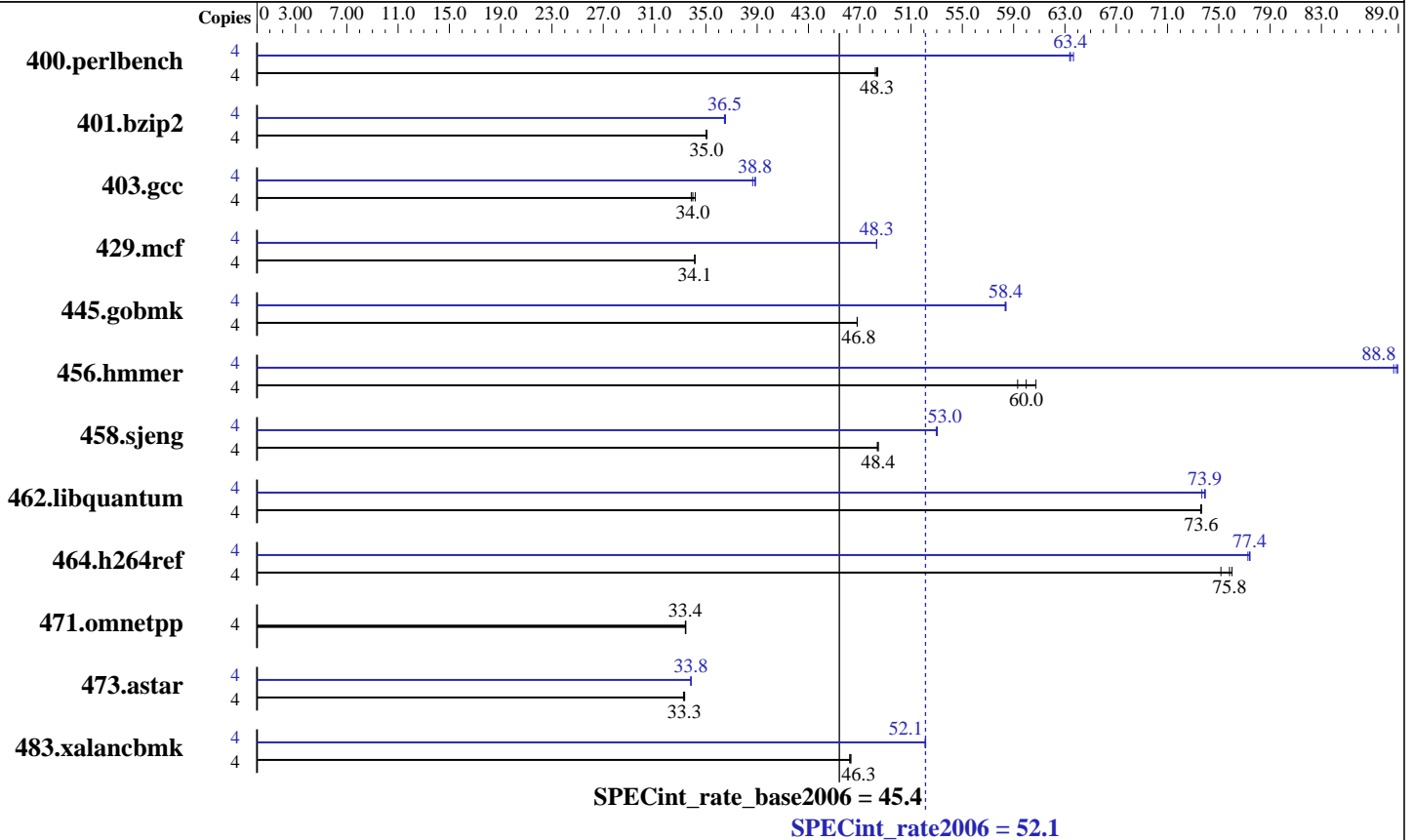
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008



### Hardware

CPU Name: AMD Opteron 2356  
 CPU Characteristics:  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 2 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 16 GB (4x4 GB, PC2-5300P CL5)  
 Disk Subsystem: 1x146 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: PGI Server Complete Version 7.2, PathScale Compiler Suite, Release Pre-3.2 Beta  
 Auto Parallel: No  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils-2.18.50, SmartHeap 8.1 32-bit Library for Linux



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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	<b>809</b>	<b>48.3</b>	811	48.2	807	48.4	4	617	63.4	614	63.7	<b>616</b>	<b>63.4</b>
401.bzip2	4	1100	35.1	<b>1102</b>	<b>35.0</b>	1102	35.0	4	1059	36.4	1057	36.5	<b>1058</b>	<b>36.5</b>
403.gcc	4	942	34.2	951	33.9	<b>947</b>	<b>34.0</b>	4	828	38.9	<b>829</b>	<b>38.8</b>	833	38.7
429.mcf	4	<b>1068</b>	<b>34.1</b>	1069	34.1	1068	34.1	4	755	48.3	755	48.3	<b>755</b>	<b>48.3</b>
445.gobmk	4	896	46.8	<b>896</b>	<b>46.8</b>	897	46.8	4	718	58.4	<b>719</b>	<b>58.4</b>	719	58.3
456.hammer	4	614	60.7	629	59.3	<b>622</b>	<b>60.0</b>	4	<b>420</b>	<b>88.8</b>	421	88.6	420	89.0
458.sjeng	4	<b>999</b>	<b>48.4</b>	999	48.4	1001	48.4	4	<b>912</b>	<b>53.0</b>	912	53.1	914	53.0
462.libquantum	4	1126	73.6	<b>1126</b>	<b>73.6</b>	1125	73.6	4	1121	73.9	1125	73.7	<b>1122</b>	<b>73.9</b>
464.h264ref	4	1178	75.2	<b>1167</b>	<b>75.8</b>	1164	76.0	4	1146	77.3	<b>1144</b>	<b>77.4</b>	1143	77.4
471.omnetpp	4	748	33.4	748	33.4	<b>748</b>	<b>33.4</b>	4	748	33.4	748	33.4	<b>748</b>	<b>33.4</b>
473.astar	4	<b>843</b>	<b>33.3</b>	842	33.3	844	33.3	4	830	33.8	<b>830</b>	<b>33.8</b>	830	33.8
483.xalancbmk	4	596	46.3	<b>596</b>	<b>46.3</b>	597	46.2	4	<b>530</b>	<b>52.1</b>	530	52.1	529	52.1

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

## Operating System Notes

Environment stack size set to 'unlimited'  
 Max locked memory set to 2097152  
 PGI\_HUGE\_PAGES set to 896.  
 Total number of huge pages available is 3584.  
 NCPUS set to number of cores  
 numactl used to bind processes to CPUs

## Platform Notes

BIOS configuration:  
 Power Regulator set to Static High Performance Mode

## Base Compiler Invocation

C benchmarks:  
 pgcc

C++ benchmarks:  
 pgcpp



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## 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  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

-fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc=huge:150 --zc\_eh -tp barcelona -Bstatic\_pgi

## Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

## Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

C++ benchmarks (except as noted below):

pathCC

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## Peak Compiler Invocation (Continued)

471.omnetpp: pgcpp

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
 401.bzip2: -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  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0  
 -WOPT:if\_conv=0 -CG:local\_sched\_alg=1

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4  
 -Msmartalloc=huge:150 -Mnounroll -tp barcelona-64  
 -Bstatic\_pgi

403.gcc: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -m32 -O3 -OPT:Ofast  
 -OPT:malloc\_alg=1

429.mcf: -fastsse -Mipa=jobs:4 -Mipa=fast -Mipa=inline:1  
 -Msmartalloc=huge:150 -tp barcelona -Bstatic\_pgi

445.gobmk: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -OPT:alias=restrict  
 -LNO:prefetch=1 -LNO:ignore\_feedback=off -CG:p2align=on

456.hmmer: -fastsse -Munroll=n:8 -Msmartalloc=huge:150 -Mfprelaxed  
 -Mvect=partial -Msafeptr -Mipa=jobs:4 -Mipa=const  
 -Mipa=ptr -Mipa=arg -Mipa=inline -tp barcelona-64  
 -Bstatic\_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)  
 -Mipa=inline:1(pass 2) -Mipa=noarg(pass 2) -Mpfo(pass 2)  
 -fastsse -Msmartalloc=huge:150 -Mfprelaxed  
 -tp barcelona-64 -Bstatic\_pgi

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## Peak Optimization Flags (Continued)

462.libquantum: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Munroll=m:8  
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mipa=noarg  
-tp barcelona-64 -Bstatic\_pgi

464.h264ref: -Mpfi=indirect(pass 1) -Mipa=jobs:4(pass 2)  
-Mipa=fast(pass 2) -Mipa=inline(pass 2)  
-Mpfo=indirect(pass 2) -fastsse -Msmartalloc=huge:150  
-Mfprelaxed -tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -Ofast -TENV:frame\_pointer=off  
-WOPT:if\_conv=0 -GRA:optimize\_boundary=on -IPA:plimit=525  
-m32 -lsmartheap

483.xalancbmk: -march=barcelona -Ofast -m32 -OPT:unroll\_times\_max=8  
-CG:push\_pop\_int\_saved\_regs=off -CG:ptr\_load\_use=0  
-lsmartheap

## Peak Other Flags

C benchmarks (except as noted below):

-w

400.perlbench: No flags used

403.gcc: No flags used

445.gobmk: No flags used

C++ benchmarks (except as noted below):

-L/root/work/cpu2006/amd123GH.libs/32

471.omnetpp: -w

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

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.html>

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

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.xml>



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

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