



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

SPECint®\_rate2006 = 26.7

## ProLiant BL465c (AMD Opteron 2220)

SPECint\_rate\_base2006 = 24.0

CPU2006 license: 3

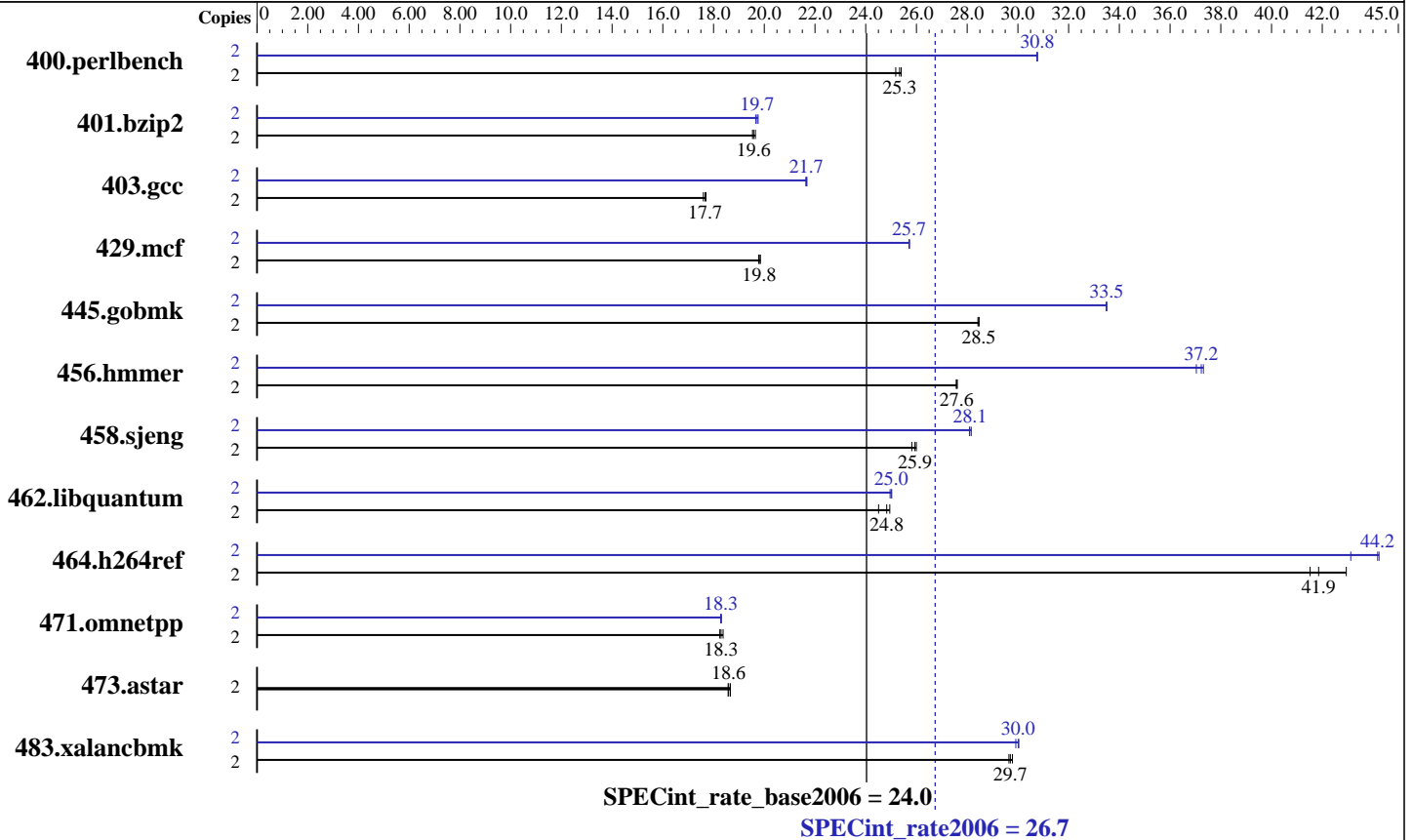
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Jul-2007

Hardware Availability: Jan-2007

Software Availability: Apr-2007



### Hardware

CPU Name: AMD Opteron 2220  
 CPU Characteristics: 2.8 GHz, 1 MB L2 cache  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 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: 16 GB (4x4 GB, PC2-5300P CL5)  
 Disk Subsystem: 2x72 GB 10 K SAS  
 Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64) 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: MicroQuill SmartHeap Library 8.1



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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	2	776	25.2	769	25.4	<u>771</u>	<u>25.3</u>	2	635	30.8	<u>635</u>	<u>30.8</u>	635	30.8
401.bzip2	2	982	19.6	988	19.5	<u>986</u>	<u>19.6</u>	2	<u>979</u>	<u>19.7</u>	977	19.8	982	19.7
403.gcc	2	<u>911</u>	<u>17.7</u>	910	17.7	915	17.6	2	<u>743</u>	<u>21.7</u>	743	21.7	744	21.6
429.mcf	2	919	19.8	922	19.8	<u>921</u>	<u>19.8</u>	2	709	25.7	710	25.7	<u>709</u>	<u>25.7</u>
445.gobmk	2	738	28.4	<u>737</u>	<u>28.5</u>	737	28.5	2	<u>626</u>	<u>33.5</u>	627	33.5	626	33.5
456.hmmer	2	676	27.6	677	27.6	<u>677</u>	<u>27.6</u>	2	504	37.0	<u>501</u>	<u>37.2</u>	500	37.3
458.sjeng	2	<u>933</u>	<u>25.9</u>	937	25.8	931	26.0	2	862	28.1	<u>861</u>	<u>28.1</u>	859	28.2
462.libquantum	2	1691	24.5	<u>1669</u>	<u>24.8</u>	1661	24.9	2	1660	25.0	<u>1657</u>	<u>25.0</u>	1656	25.0
464.h264ref	2	1031	42.9	<u>1057</u>	<u>41.9</u>	1066	41.5	2	<u>1002</u>	<u>44.2</u>	1026	43.1	1000	44.2
471.omnetpp	2	680	18.4	<u>683</u>	<u>18.3</u>	685	18.2	2	<u>684</u>	<u>18.3</u>	683	18.3	684	18.3
473.astar	2	752	18.7	<u>755</u>	<u>18.6</u>	756	18.6	2	752	18.7	<u>755</u>	<u>18.6</u>	756	18.6
483.xalancbmk	2	463	29.8	<u>465</u>	<u>29.7</u>	465	29.6	2	459	30.0	<u>460</u>	<u>30.0</u>	461	29.9

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

## General Notes

Node interleaving is disabled  
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  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

-Ofast -OPT:malloc\_alg=1

C++ benchmarks:

-Ofast -m32 -L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

-IPA:max\_jobs=4

C++ benchmarks:

-IPA:max\_jobs=4

## 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.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
483.xalanbmk: -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

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## Peak Optimization Flags (Continued)

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

429.mcf: -m32 -O3 -ipa -L/cpu2006/SmartHeap\_8.1/lib -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.hmmr: -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/SmartHeap\_8.1/lib -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -Ofast -m32 -OPT:unroll\_times\_max=8  
-L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

## Peak Other Flags

C benchmarks:

-IPA:max\_jobs=4

C++ benchmarks:

-IPA:max\_jobs=4

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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.15.html](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.15.html)

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

[http://www.spec.org/cpu2006/flags/CPU2006\\_flags.20090714.15.xml](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.15.xml)



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

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