



# SPEC<sup>®</sup> CINT2006 Result

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## Hewlett-Packard Company

### SPECint<sup>®</sup>\_rate2006 = 29.6

ProLiant BL465c  
(3.0GHz AMD Opteron 2222)

### SPECint\_rate\_base2006 = 27.4

CPU2006 license: 3

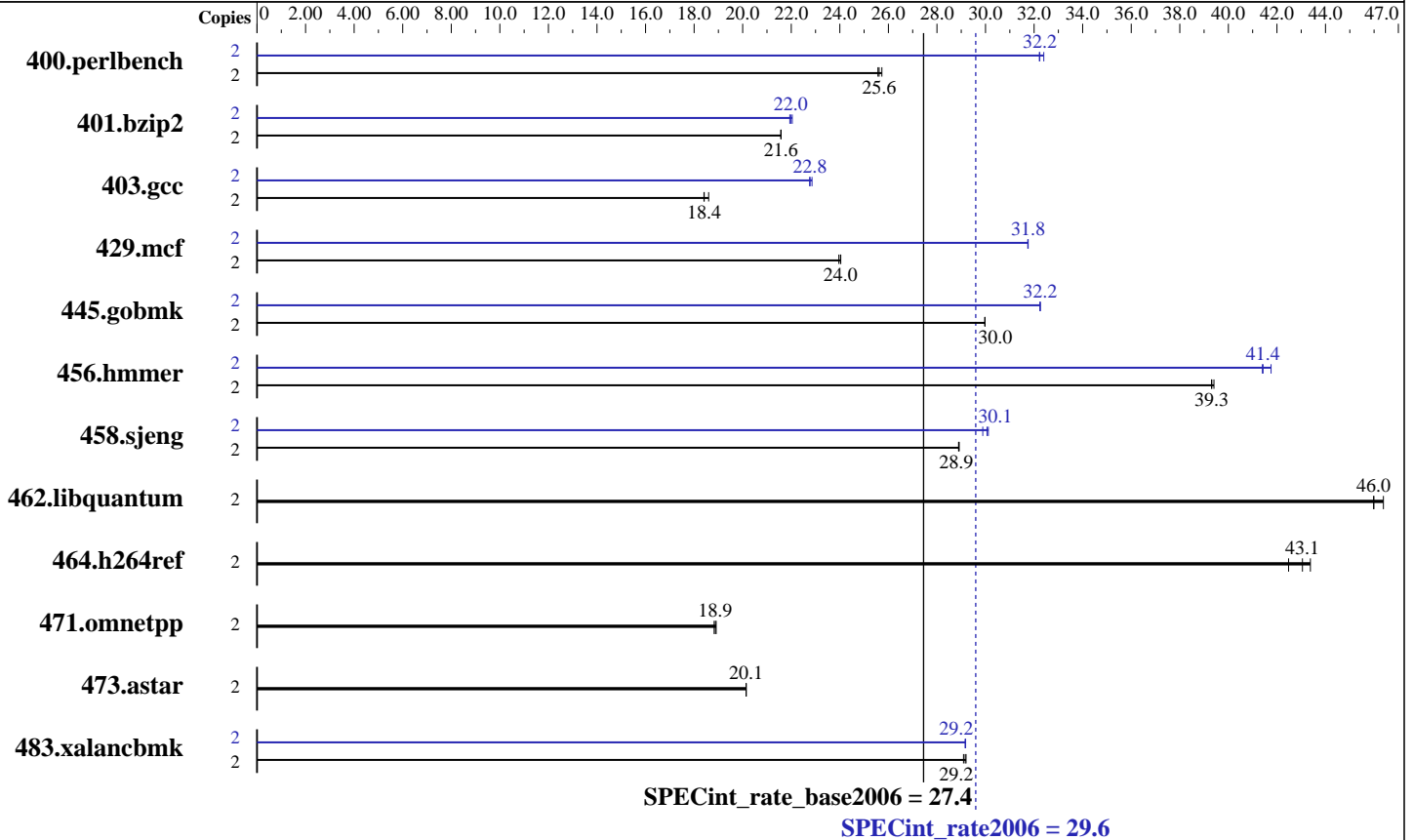
Test date: Aug-2007

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2007

Tested by: Hewlett-Packard Company

Software Availability: Oct-2007



### Hardware

CPU Name: AMD Opteron 2222  
 CPU Characteristics:  
 CPU MHz: 3000  
 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: 1x72 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: The Portland Group (PGI)  
 PGI pgcc 7.1-0 C Compiler  
 PGI pgCC 7.1-0 C++ Compiler  
 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: SmartHeap 8.0 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	2	764	25.6	759	25.7	<b>763</b>	<b>25.6</b>	2	<b>606</b>	<b>32.2</b>	603	32.4	607	32.2
401.bzip2	2	894	21.6	<b>895</b>	<b>21.6</b>	895	21.6	2	<b>878</b>	<b>22.0</b>	876	22.0	880	21.9
403.gcc	2	866	18.6	875	18.4	<b>874</b>	<b>18.4</b>	2	707	22.8	<b>707</b>	<b>22.8</b>	704	22.9
429.mcf	2	761	24.0	<b>759</b>	<b>24.0</b>	759	24.0	2	<b>574</b>	<b>31.8</b>	575	31.7	574	31.8
445.gobmk	2	700	30.0	<b>700</b>	<b>30.0</b>	700	30.0	2	<b>651</b>	<b>32.2</b>	651	32.2	650	32.3
456.hmmer	2	475	39.3	474	39.4	<b>475</b>	<b>39.3</b>	2	451	41.4	<b>450</b>	<b>41.4</b>	447	41.8
458.sjeng	2	838	28.9	<b>837</b>	<b>28.9</b>	837	28.9	2	<b>805</b>	<b>30.1</b>	810	29.9	804	30.1
462.libquantum	2	<b>901</b>	<b>46.0</b>	901	46.0	893	46.4	2	<b>901</b>	<b>46.0</b>	901	46.0	893	46.4
464.h264ref	2	<b>1028</b>	<b>43.1</b>	1020	43.4	1042	42.5	2	<b>1028</b>	<b>43.1</b>	1020	43.4	1042	42.5
471.omnetpp	2	<b>662</b>	<b>18.9</b>	661	18.9	664	18.8	2	<b>662</b>	<b>18.9</b>	661	18.9	664	18.8
473.astar	2	<b>697</b>	<b>20.1</b>	697	20.1	697	20.1	2	<b>697</b>	<b>20.1</b>	697	20.1	697	20.1
483.xalancbmk	2	473	29.2	<b>473</b>	<b>29.2</b>	474	29.1	2	473	29.2	<b>473</b>	<b>29.2</b>	473	29.2

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'
ulimit -l set to 1048576
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=1024 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

## Base Compiler Invocation

C benchmarks:  
pgcc  
  
C++ benchmarks:  
pgcpp

## 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
```

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## Base Portability Flags (Continued)

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=fast -Mipa=inline -Mipa=noarg -Mfprelaxed  
-Msmartalloc=huge:64 -tp k8-64 -Bstatic\_pgi

C++ benchmarks:

-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc\_eh  
-tp k8-32 -Bstatic\_pgi -lsmartheap

## Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w -L/proj/qa/smartheap/SmartHeap\_8/lib

## Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

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



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## Peak Optimization Flags

C benchmarks:

400.perlbench: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=inline(pass 2) -fast  
-O4 -Mfprelaxed -Msmartalloc=huge:8 -Mnounroll -tp k8-64  
-Bstatic\_pgi

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4  
-Msmartalloc=huge:64 -tp k8-64 -Bstatic\_pgi

403.gcc: -fastsse -Mfprelaxed -Msmartalloc=huge:32 -Mipa=fast  
-Mipa=inline -tp k8-32 -Bstatic\_pgi

429.mcf: -fastsse -Mipa=fast -Mipa=inline -Msmartalloc=huge:16  
-tp k8-32 -Bstatic\_pgi

445.gobmk: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2) -fast -O4  
-Msmartalloc=huge:32 -Mfprelaxed -Mnovect -tp k8-64  
-Bstatic\_pgi

456.hmmer: -fast -Msmartalloc=huge:32 -Mfprelaxed -Msafeptr  
-Mipa=const -Mipa=ptr -Mipa=arg -tp k8-64 -Bstatic\_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)  
-Mipa=noarg(pass 2) -Mpfo(pass 2) -fast  
-Msmartalloc=huge:32 -Mfprelaxed -tp k8-64 -Bstatic\_pgi

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: basepeak = yes

483.xalancbmk: -fastsse -O4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc --zc\_eh -tp k8-32 -Bstatic\_pgi -lsmartheap

## Peak Other Flags

C benchmarks:

-w

C++ benchmarks:

-w -L/proj/qa/smartheap/SmartHeap\_8/lib



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

[http://www.spec.org/cpu2006/flags/hp-pgi710\\_flags.html](http://www.spec.org/cpu2006/flags/hp-pgi710_flags.html)

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

[http://www.spec.org/cpu2006/flags/hp-pgi710\\_flags.xml](http://www.spec.org/cpu2006/flags/hp-pgi710_flags.xml)

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

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