



# SPEC<sup>®</sup> CINT2006 Result

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## Hewlett-Packard Company

SPECint<sup>®</sup>\_rate2006 = 82.0

ProLiant ML370 G5  
(3.33 GHz, Intel Xeon processor X5260)

SPECint\_rate\_base2006 = 69.7

CPU2006 license: 3

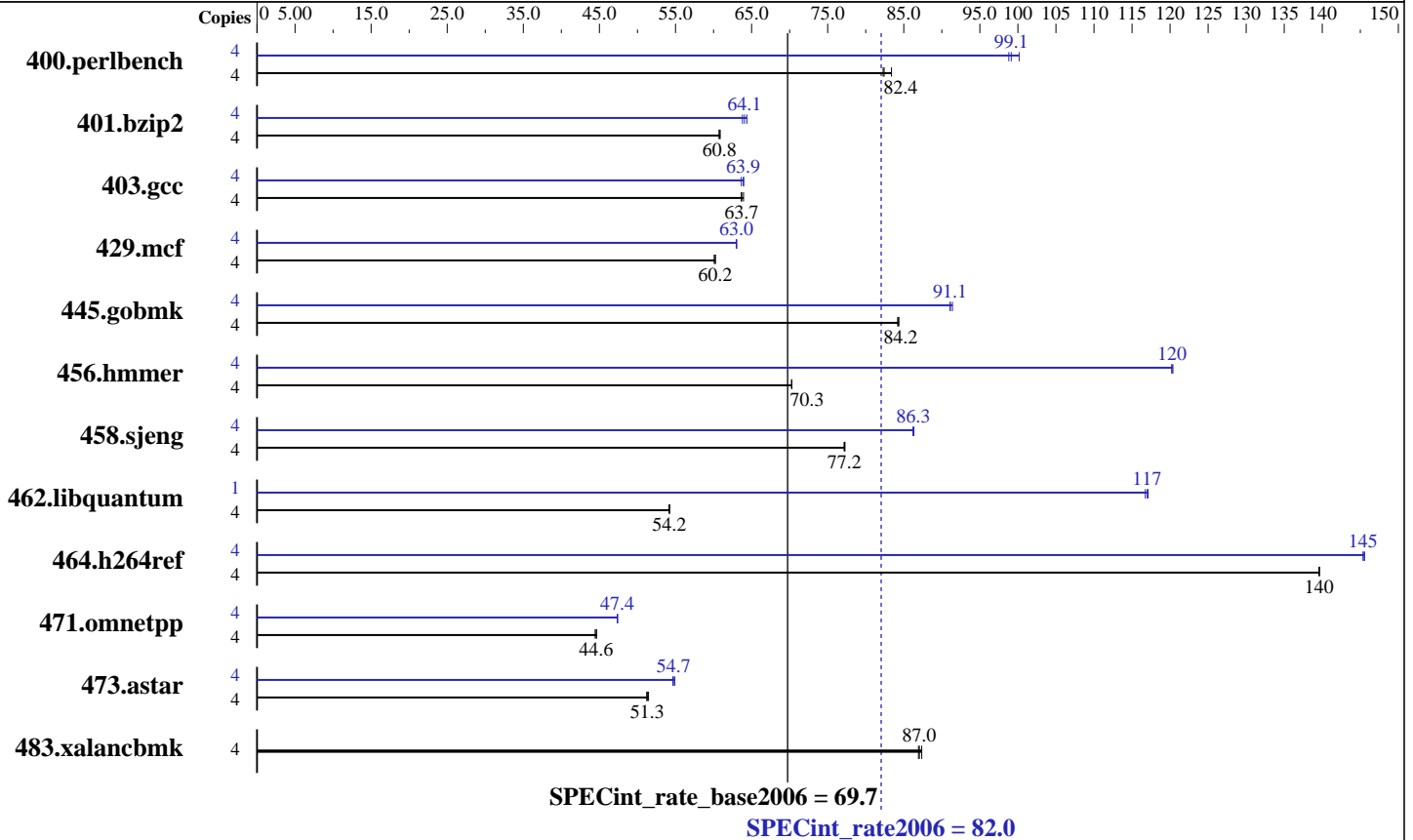
Test date: Dec-2007

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5260  
 CPU Characteristics: 3.33 GHz, 6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 6 MB I+D on chip per chip  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8x2 GB PC2-5300F CL5)  
 Disk Subsystem: 1x72 GB 15 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: Intel C++ Compiler for applications running on IA-32 and Intel 64, Version 10.1  
 Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Multi-user run level 3  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap Library 8.1  
 binutils-2.17.50



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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>474</b>  | <b>82.4</b> | 475        | 82.3        | 469        | 83.4        | 4      | <b>394</b> | <b>99.1</b> | 396        | 98.8        | 390        | 100        |
| 401.bzip2      | 4      | <b>635</b>  | <b>60.8</b> | 636        | 60.7        | 634        | 60.9        | 4      | 600        | 64.4        | <b>602</b> | <b>64.1</b> | 605        | 63.8       |
| 403.gcc        | 4      | 504         | 63.9        | <b>506</b> | <b>63.7</b> | 506        | 63.6        | 4      | 506        | 63.6        | <b>504</b> | <b>63.9</b> | 503        | 64.0       |
| 429.mcf        | 4      | <b>606</b>  | <b>60.2</b> | 607        | 60.1        | 606        | 60.2        | 4      | 579        | 63.0        | <b>579</b> | <b>63.0</b> | 579        | 63.0       |
| 445.gobmk      | 4      | 498         | 84.2        | 497        | 84.4        | <b>498</b> | <b>84.2</b> | 4      | 459        | 91.4        | <b>461</b> | <b>91.1</b> | 461        | 91.1       |
| 456.hammer     | 4      | 531         | 70.3        | <b>531</b> | <b>70.3</b> | 531        | 70.2        | 4      | <b>310</b> | <b>120</b>  | 310        | 120         | 310        | 120        |
| 458.sjeng      | 4      | <b>627</b>  | <b>77.2</b> | 627        | 77.2        | 626        | 77.3        | 4      | <b>561</b> | <b>86.3</b> | 561        | 86.2        | 561        | 86.3       |
| 462.libquantum | 4      | <b>1530</b> | <b>54.2</b> | 1530       | 54.2        | 1528       | 54.2        | 1      | 177        | 117         | 177        | 117         | <b>177</b> | <b>117</b> |
| 464.h264ref    | 4      | <b>634</b>  | <b>140</b>  | 634        | 140         | 634        | 140         | 4      | 609        | 145         | 608        | 146         | <b>609</b> | <b>145</b> |
| 471.omnetpp    | 4      | <b>561</b>  | <b>44.6</b> | 563        | 44.4        | 560        | 44.6        | 4      | 528        | 47.3        | <b>528</b> | <b>47.4</b> | 528        | 47.4       |
| 473.astar      | 4      | <b>547</b>  | <b>51.3</b> | 548        | 51.2        | 546        | 51.5        | 4      | <b>513</b> | <b>54.7</b> | 514        | 54.6        | 511        | 54.9       |
| 483.xalancbmk  | 4      | 316         | 87.4        | <b>317</b> | <b>87.0</b> | 317        | 86.9        | 4      | 316        | 87.4        | <b>317</b> | <b>87.0</b> | 317        | 86.9       |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 64M

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode  
Adjacent Sector Prefetch Disabled

## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32

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## Base Portability Flags (Continued)

462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc

401.bzip2: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:  
icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias  
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/cpu2006/SmartHeap\_8.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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

<http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-int-flags.20090713.html>



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

<http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-int-flags.20090713.xml>

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

Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 16:06:20 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 23 January 2008.