



# SPEC<sup>®</sup> CINT2006 Result

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## Hewlett-Packard Company

SPECint<sup>®</sup>\_rate2006 = 70.4

ProLiant DL160 G5  
(3.0 GHz, Intel Xeon E5472)

SPECint\_rate\_base2006 = 60.1

CPU2006 license: 3

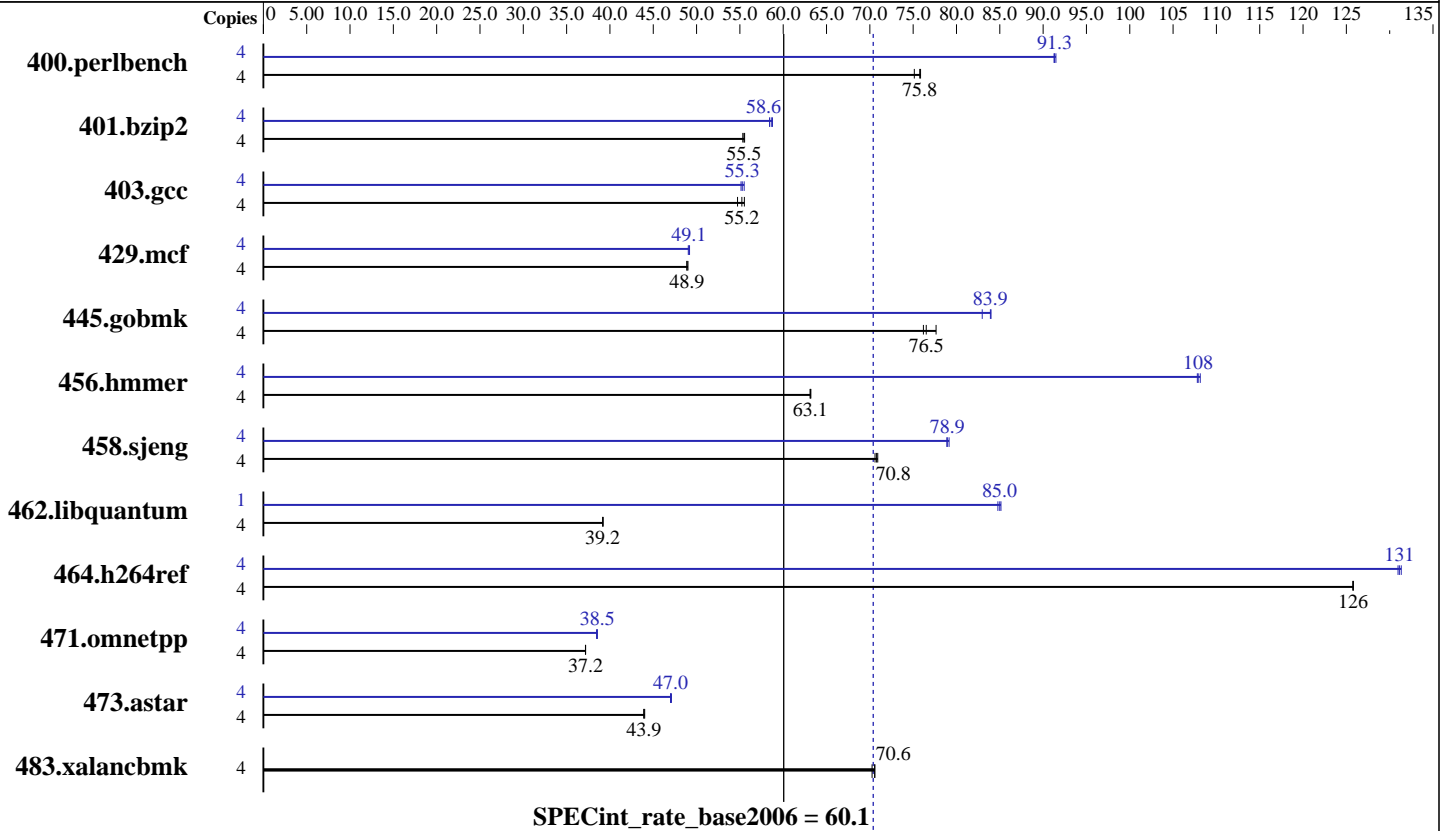
Test date: Jul-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: May-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5472  
 CPU Characteristics: 3.0 GHz, 2x6 MB L2 shared, 1600 MHz system bus  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 32 GB (8x4 GB PC2-6400F CL6)  
 Disk Subsystem: 1x250 GB 7.2 K SATA  
 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 10.1 for Linux Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 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      | 520         | 75.1        | 515        | 75.9        | <b>516</b> | <b>75.8</b> | 4      | 427        | 91.5        | 428        | 91.3        | <b>428</b> | <b>91.3</b> |
| 401.bzip2      | 4      | <b>696</b>  | <b>55.5</b> | 695        | 55.5        | 698        | 55.3        | 4      | 657        | 58.8        | 661        | 58.4        | <b>658</b> | <b>58.6</b> |
| 403.gcc        | 4      | <b>583</b>  | <b>55.2</b> | 580        | 55.5        | 588        | 54.7        | 4      | 584        | 55.1        | 580        | 55.5        | <b>583</b> | <b>55.3</b> |
| 429.mcf        | 4      | 744         | 49.0        | <b>746</b> | <b>48.9</b> | 746        | 48.9        | 4      | 742        | 49.2        | 744        | 49.0        | <b>743</b> | <b>49.1</b> |
| 445.gobmk      | 4      | 551         | 76.2        | 540        | 77.6        | <b>548</b> | <b>76.5</b> | 4      | 500        | 84.0        | 506        | 83.0        | <b>500</b> | <b>83.9</b> |
| 456.hammer     | 4      | 591         | 63.2        | 591        | 63.1        | <b>591</b> | <b>63.1</b> | 4      | 345        | 108         | 346        | 108         | <b>346</b> | <b>108</b>  |
| 458.sjeng      | 4      | 683         | 70.9        | 686        | 70.6        | <b>684</b> | <b>70.8</b> | 4      | <b>613</b> | <b>78.9</b> | 612        | 79.1        | 614        | 78.9        |
| 462.libquantum | 4      | <b>2115</b> | <b>39.2</b> | 2116       | 39.2        | 2114       | 39.2        | 1      | 244        | 84.8        | <b>244</b> | <b>85.0</b> | 243        | 85.1        |
| 464.h264ref    | 4      | <b>704</b>  | <b>126</b>  | 704        | 126         | 704        | 126         | 4      | 676        | 131         | <b>675</b> | <b>131</b>  | 674        | 131         |
| 471.omnetpp    | 4      | 672         | 37.2        | 673        | 37.2        | <b>672</b> | <b>37.2</b> | 4      | 650        | 38.5        | <b>649</b> | <b>38.5</b> | 649        | 38.5        |
| 473.astar      | 4      | 639         | 43.9        | 638        | 44.0        | <b>639</b> | <b>43.9</b> | 4      | 596        | 47.1        | <b>597</b> | <b>47.0</b> | 598        | 47.0        |
| 483.xalancbmk  | 4      | <b>391</b>  | <b>70.6</b> | 393        | 70.3        | 391        | 70.6        | 4      | <b>391</b> | <b>70.6</b> | 393        | 70.3        | 391        | 70.6        |

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/compiler/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/compiler/SmartHeap\_8.1/lib -lsmarheap

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/compiler/SmartHeap\_8.1/lib -lsmarheap

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.20090713.01.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.20090713.01.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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