



# SPEC® CINT2006 Result

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## Hewlett-Packard Company

SPECint®2006 = 29.9

ProLiant DL360 G5  
(3.33 GHz, Intel Xeon X5470)

SPECint\_base2006 = 26.1

CPU2006 license: 3

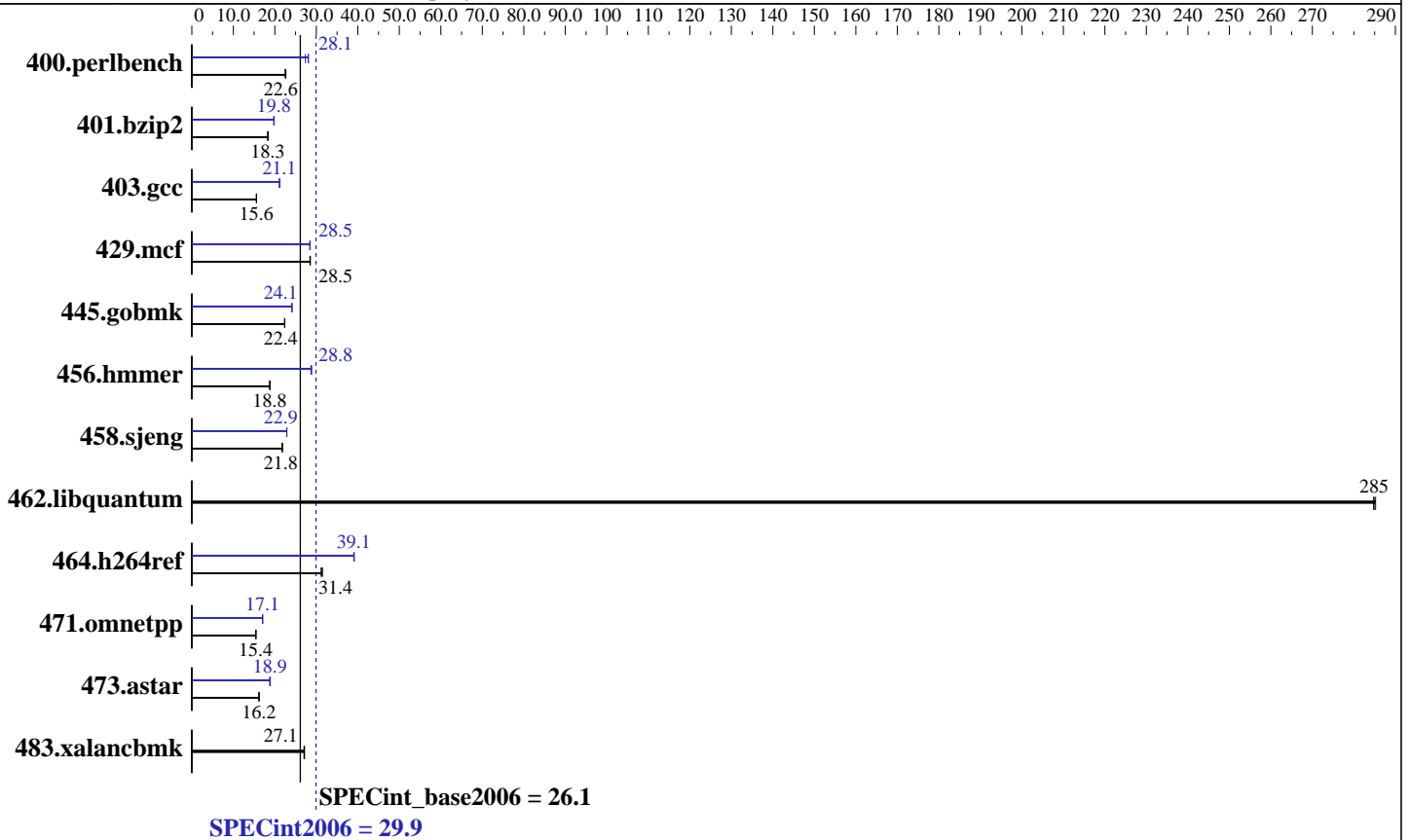
Test date: Aug-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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: 16 GB (8x2 GB PC2-5300F 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: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042  
 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 2.18.50.0.7.20080502



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## Results Table

| Benchmark      | Base              |                    |                    |                    |                   |                    | Peak               |                    |                    |                    |                   |                    |
|----------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
|                | Seconds           | Ratio              | Seconds            | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              | Seconds           | Ratio              |
| 400.perlbench  | 434               | 22.5               | 431                | 22.7               | <b><u>433</u></b> | <b><u>22.6</u></b> | 348                | 28.1               | 357                | 27.4               | <b><u>348</u></b> | <b><u>28.1</u></b> |
| 401.bzip2      | 527               | 18.3               | 524                | 18.4               | <b><u>527</u></b> | <b><u>18.3</u></b> | 487                | 19.8               | 488                | 19.8               | <b><u>488</u></b> | <b><u>19.8</u></b> |
| 403.gcc        | 516               | 15.6               | 517                | 15.6               | <b><u>517</u></b> | <b><u>15.6</u></b> | 381                | 21.1               | 380                | 21.2               | <b><u>381</u></b> | <b><u>21.1</u></b> |
| 429.mcf        | 321               | 28.4               | 319                | 28.6               | <b><u>320</u></b> | <b><u>28.5</u></b> | 321                | 28.4               | 320                | 28.5               | <b><u>320</u></b> | <b><u>28.5</u></b> |
| 445.gobmk      | 469               | 22.4               | <b><u>469</u></b>  | <b><u>22.4</u></b> | 469               | 22.4               | <b><u>435</u></b>  | <b><u>24.1</u></b> | 434                | 24.1               | 435               | 24.1               |
| 456.hammer     | <b><u>497</u></b> | <b><u>18.8</u></b> | 497                | 18.8               | 497               | 18.8               | 325                | 28.7               | <b><u>324</u></b>  | <b><u>28.8</u></b> | 323               | 28.9               |
| 458.sjeng      | <b><u>555</u></b> | <b><u>21.8</u></b> | 556                | 21.7               | 555               | 21.8               | <b><u>529</u></b>  | <b><u>22.9</u></b> | 529                | 22.9               | 528               | 22.9               |
| 462.libquantum | 72.8              | 285                | <b><u>72.7</u></b> | <b><u>285</u></b>  | 72.6              | 285                | <b><u>72.8</u></b> | 285                | <b><u>72.7</u></b> | <b><u>285</u></b>  | 72.6              | 285                |
| 464.h264ref    | 704               | 31.5               | <b><u>705</u></b>  | <b><u>31.4</u></b> | 711               | 31.1               | 565                | 39.2               | 567                | 39.0               | <b><u>567</u></b> | <b><u>39.1</u></b> |
| 471.omnetpp    | <b><u>405</u></b> | <b><u>15.4</u></b> | 404                | 15.5               | 406               | 15.4               | 366                | 17.1               | <b><u>366</u></b>  | <b><u>17.1</u></b> | 367               | 17.0               |
| 473.astar      | <b><u>434</u></b> | <b><u>16.2</u></b> | 433                | 16.2               | 434               | 16.2               | 372                | 18.9               | 374                | 18.8               | <b><u>372</u></b> | <b><u>18.9</u></b> |
| 483.xalancbmk  | 255               | 27.0               | <b><u>255</u></b>  | <b><u>27.1</u></b> | 254               | 27.2               | <b><u>255</u></b>  | <b><u>27.0</u></b> | <b><u>255</u></b>  | <b><u>27.1</u></b> | 254               | 27.2               |

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

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

```
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
```

C++ benchmarks:

```
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/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/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include
```

```
456.hmmer: /opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/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
```

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -auto-ilp32 -opt-prefetch  
-ansi-alias

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmcr: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias -auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

483.xalanbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.00.html>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.00.html>



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You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.00.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.00.xml>

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

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