



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®2006 = 20.8

ProLiant DL380 G5  
(3.0 GHz, Intel Xeon processor 5160)

SPECfp\_base2006 = 18.3

CPU2006 license: 3

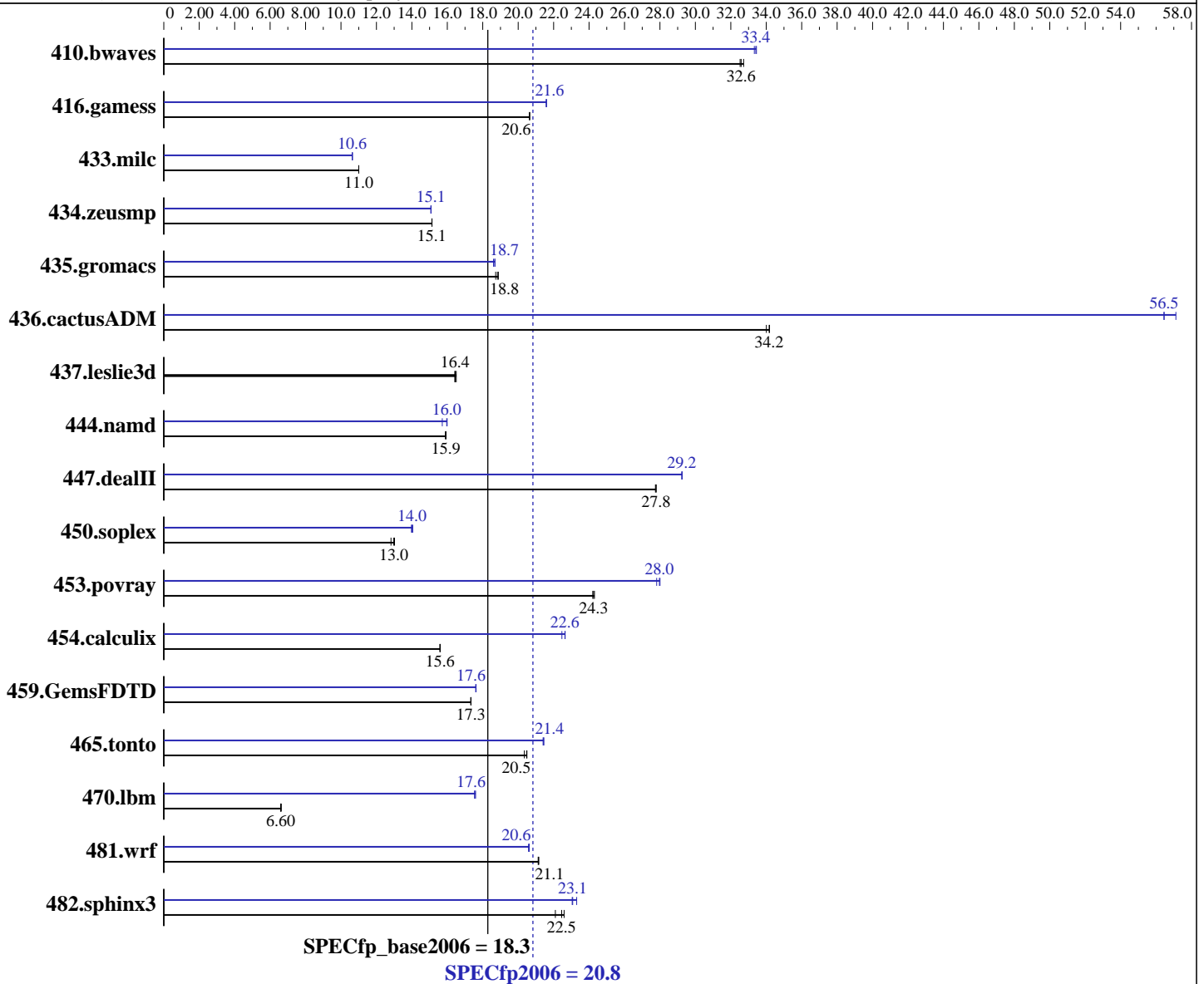
Test date: Aug-2007

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2006

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



**Hardware**

CPU Name: Intel Xeon 5160  
 CPU Characteristics: 3.0 GHz, 2x4 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1 or 2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per chip

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**Software**

Operating System: SuSE Linux Enterprise Server 10 (x86\_64) SP1  
 kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1  
 Build 20070824  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Multi-user run level 3  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 8 GB (8x1 GB PC2-5300F CL5)  
Disk Subsystem: 1x72 GB 10 K SAS  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.50

## Results Table

| Benchmark     | Base       |             |             |             |            |             | Peak       |             |            |             |            |             |
|---------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|               | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       |
| 410.bwaves    | 418        | 32.5        | <b>417</b>  | <b>32.6</b> | 415        | 32.7        | 408        | 33.3        | <b>407</b> | <b>33.4</b> | 406        | 33.4        |
| 416.gamess    | <b>949</b> | <b>20.6</b> | 948         | 20.6        | 949        | 20.6        | 907        | 21.6        | 907        | 21.6        | <b>907</b> | <b>21.6</b> |
| 433.milc      | 834        | 11.0        | <b>834</b>  | <b>11.0</b> | 835        | 11.0        | <b>863</b> | <b>10.6</b> | 863        | 10.6        | 863        | 10.6        |
| 434.zeusmp    | 601        | 15.1        | 601         | 15.1        | <b>601</b> | <b>15.1</b> | 603        | 15.1        | 604        | 15.1        | <b>604</b> | <b>15.1</b> |
| 435.gromacs   | 381        | 18.7        | <b>379</b>  | <b>18.8</b> | 378        | 18.9        | 384        | 18.6        | 382        | 18.7        | <b>382</b> | <b>18.7</b> |
| 436.cactusADM | 350        | 34.2        | <b>350</b>  | <b>34.2</b> | 351        | 34.0        | <b>212</b> | <b>56.5</b> | 209        | 57.1        | 212        | 56.4        |
| 437.leslie3d  | 570        | 16.5        | 572         | 16.4        | <b>572</b> | <b>16.4</b> | 570        | 16.5        | 572        | 16.4        | <b>572</b> | <b>16.4</b> |
| 444.namd      | <b>504</b> | <b>15.9</b> | 504         | 15.9        | 505        | 15.9        | <b>502</b> | <b>16.0</b> | 510        | 15.7        | 502        | 16.0        |
| 447.dealII    | 412        | 27.7        | 412         | 27.8        | <b>412</b> | <b>27.8</b> | 391        | 29.3        | <b>391</b> | <b>29.2</b> | 391        | 29.2        |
| 450.soplex    | 640        | 13.0        | 650         | 12.8        | <b>643</b> | <b>13.0</b> | 594        | 14.0        | 597        | 14.0        | <b>595</b> | <b>14.0</b> |
| 453.povray    | <b>219</b> | <b>24.3</b> | 220         | 24.2        | 219        | 24.3        | <b>190</b> | <b>28.0</b> | 191        | 27.8        | 190        | 28.0        |
| 454.calculix  | 529        | 15.6        | <b>529</b>  | <b>15.6</b> | 529        | 15.6        | 367        | 22.5        | 364        | 22.7        | <b>364</b> | <b>22.6</b> |
| 459.GemsFDTD  | <b>612</b> | <b>17.3</b> | 612         | 17.3        | 612        | 17.3        | 602        | 17.6        | <b>602</b> | <b>17.6</b> | 603        | 17.6        |
| 465.tonto     | 484        | 20.3        | <b>481</b>  | <b>20.5</b> | 480        | 20.5        | 459        | 21.4        | 460        | 21.4        | <b>459</b> | <b>21.4</b> |
| 470.lbm       | 2072       | 6.63        | <b>2083</b> | <b>6.60</b> | 2083       | 6.60        | 783        | 17.5        | <b>783</b> | <b>17.6</b> | 781        | 17.6        |
| 481.wrf       | 529        | 21.1        | <b>529</b>  | <b>21.1</b> | 528        | 21.2        | 543        | 20.6        | 542        | 20.6        | <b>542</b> | <b>20.6</b> |
| 482.sphinx3   | 882        | 22.1        | <b>868</b>  | <b>22.5</b> | 863        | 22.6        | 836        | 23.3        | 846        | 23.0        | <b>845</b> | <b>23.1</b> |

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 200M

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode



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**Software Availability:** Nov-2007

## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
 416.gamess: -DSPEC\_CPU\_LP64  
 433.milc: -DSPEC\_CPU\_LP64  
 434.zeusmp: -DSPEC\_CPU\_LP64  
 435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
 436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 447.dealII: -DSPEC\_CPU\_LP64  
 450.soplex: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-fast -parallel

C++ benchmarks:

-fast -parallel

Fortran benchmarks:

-fast -parallel

Benchmarks using both Fortran and C:

-fast -parallel



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icpc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Peak Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.deallI: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

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-flags.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-flags.xml>



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

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