



# SPEC<sup>®</sup> CFP2006 Result

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## Hewlett-Packard Company

SPECfp<sup>®</sup>2006 = 23.2

ProLiant BL260c G5  
(3.0 GHz, Intel Xeon E5450)

SPECfp\_base2006 = 19.7

CPU2006 license: 3

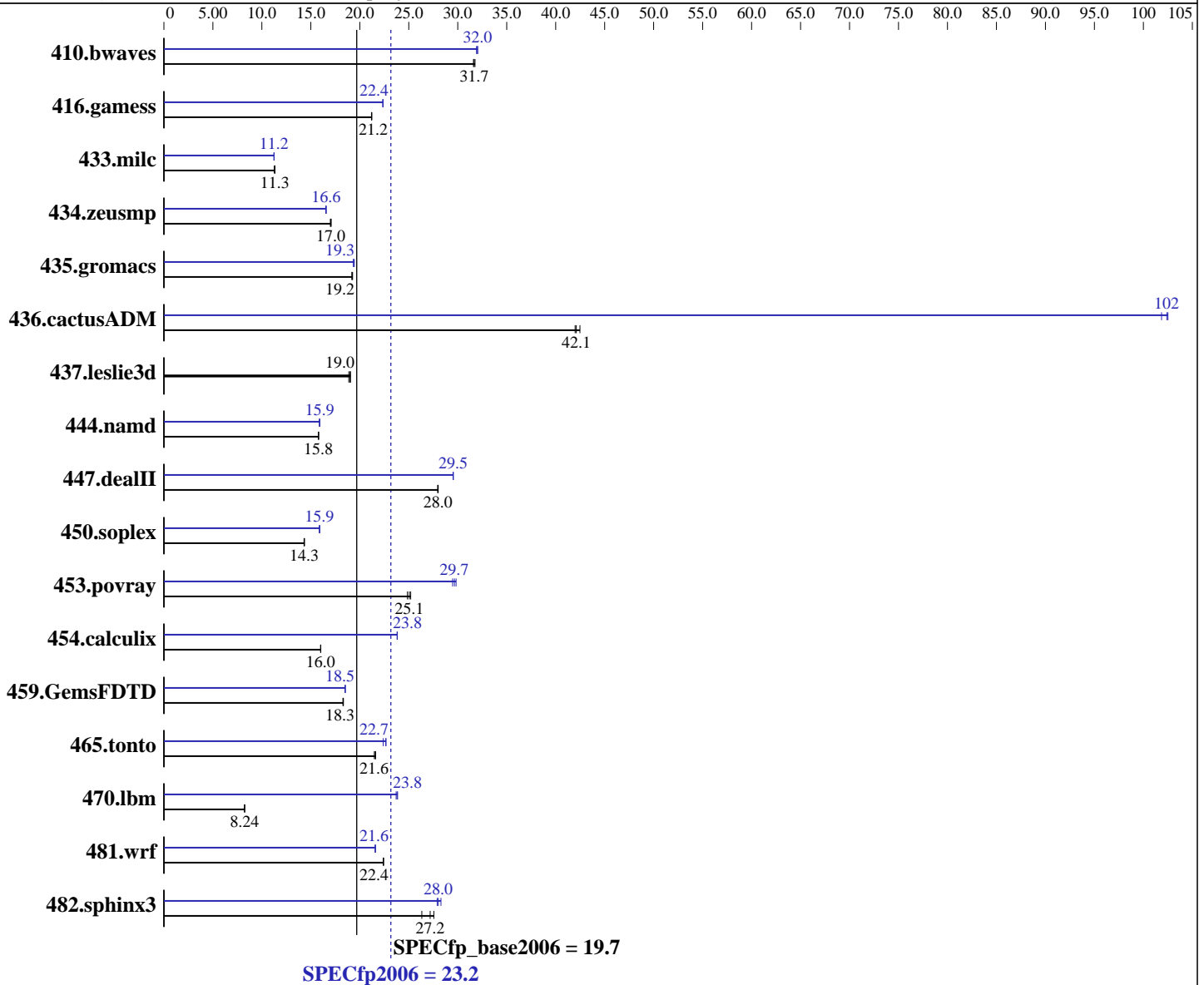
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5450  
 CPU Characteristics: 3.0 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3000  
 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

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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++ Compiler 10.1 for Linux Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Intel Fortran 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)

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (4x4 GB PC2-5300P CL5)  
Disk Subsystem: 1x72 GB 15 K SAS  
Other Hardware: None

Base Pointers: 64-bit  
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	430	31.6	<b>429</b>	<b>31.7</b>	428	31.8	426	31.9	424	32.0	<b>424</b>	<b>32.0</b>
416.gamess	<b>923</b>	<b>21.2</b>	923	21.2	924	21.2	<b>876</b>	<b>22.4</b>	875	22.4	876	22.4
433.milc	815	11.3	809	11.3	<b>810</b>	<b>11.3</b>	<b>816</b>	<b>11.2</b>	816	11.2	816	11.2
434.zeusmp	536	17.0	533	17.1	<b>534</b>	<b>17.0</b>	551	16.5	549	16.6	<b>550</b>	<b>16.6</b>
435.gromacs	<b>372</b>	<b>19.2</b>	372	19.2	371	19.3	367	19.4	<b>369</b>	<b>19.3</b>	369	19.3
436.cactusADM	<b>284</b>	<b>42.1</b>	285	42.0	281	42.5	<b>117</b>	<b>102</b>	117	103	117	102
437.leslie3d	498	18.9	493	19.0	<b>495</b>	<b>19.0</b>	498	18.9	493	19.0	<b>495</b>	<b>19.0</b>
444.namd	508	15.8	<b>508</b>	<b>15.8</b>	508	15.8	<b>504</b>	<b>15.9</b>	504	15.9	505	15.9
447.dealII	409	28.0	408	28.0	<b>409</b>	<b>28.0</b>	387	29.5	387	29.5	<b>387</b>	<b>29.5</b>
450.soplex	<b>582</b>	<b>14.3</b>	583	14.3	581	14.4	<b>525</b>	<b>15.9</b>	524	15.9	525	15.9
453.povray	211	25.2	<b>212</b>	<b>25.1</b>	214	24.9	180	29.5	<b>179</b>	<b>29.7</b>	178	29.8
454.calculix	516	16.0	515	16.0	<b>516</b>	<b>16.0</b>	346	23.8	<b>346</b>	<b>23.8</b>	347	23.8
459.GemsFDTD	580	18.3	<b>580</b>	<b>18.3</b>	579	18.3	573	18.5	573	18.5	<b>573</b>	<b>18.5</b>
465.tonto	455	21.6	<b>456</b>	<b>21.6</b>	458	21.5	<b>434</b>	<b>22.7</b>	434	22.7	439	22.4
470.lbm	<b>1668</b>	<b>8.24</b>	1668	8.24	1666	8.25	576	23.9	<b>577</b>	<b>23.8</b>	580	23.7
481.wrf	<b>498</b>	<b>22.4</b>	499	22.4	498	22.4	517	21.6	<b>517</b>	<b>21.6</b>	518	21.6
482.sphinx3	740	26.3	707	27.6	<b>717</b>	<b>27.2</b>	<b>696</b>	<b>28.0</b>	689	28.3	699	27.9

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 200M

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode



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## 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):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/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.dealII: -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-req- -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-fp-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-fp-flags.xml>



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

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