



# SPEC<sup>®</sup> CFP2006 Result

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## Hewlett-Packard Company

### SPECfp<sup>®</sup>\_rate2006 = 32.3

ProLiant BL460c  
(3.33 GHz, Intel Xeon processor X5260)

### SPECfp\_rate\_base2006 = 28.9

CPU2006 license: 3

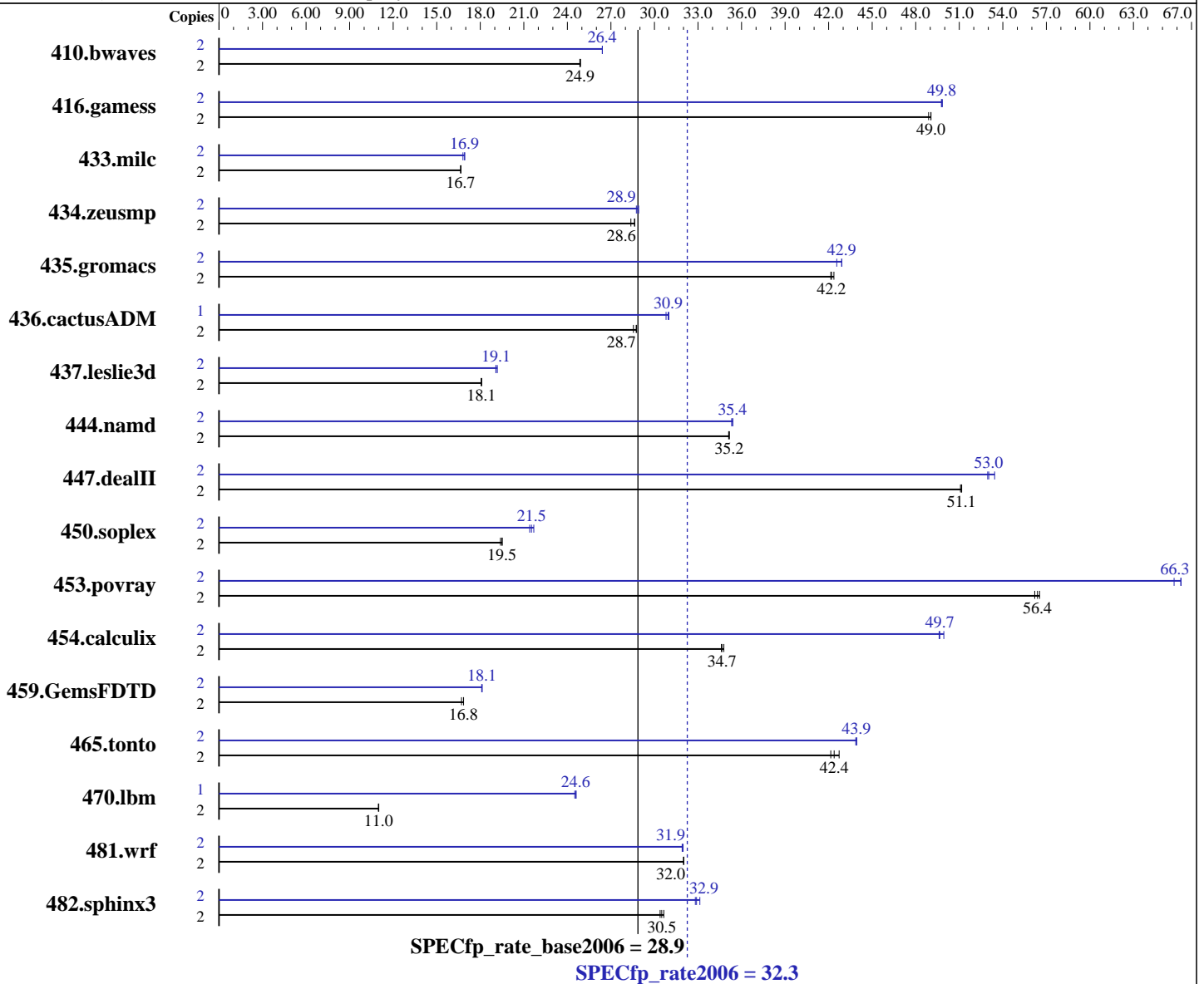
Test date: Dec-2007

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: 2 cores, 1 chip, 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

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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 for applications running on IA-32 and Intel 64, Version 10.1  
 Build 20070913 Package ID: l\_cc\_p\_10.1.008  
 Intel Fortran 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

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8x2 GB PC2-5300F CL5)  
Disk Subsystem: 1x72 GB 15 K SAS  
Other Hardware: None

System State: Multi-user run level 3  
Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.50

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	1093	24.9	<b><u>1093</u></b>	<b><u>24.9</u></b>	1091	24.9	2	1029	26.4	<b><u>1029</u></b>	<b><u>26.4</u></b>	1029	26.4
416.gamess	2	801	48.9	798	49.0	<b><u>798</u></b>	<b><u>49.0</u></b>	2	<b><u>786</u></b>	<b><u>49.8</u></b>	786	49.8	787	49.8
433.milc	2	1102	16.7	<b><u>1102</u></b>	<b><u>16.7</u></b>	1102	16.7	2	1092	16.8	1085	16.9	<b><u>1085</u></b>	<b><u>16.9</u></b>
434.zeusmp	2	641	28.4	635	28.6	<b><u>636</u></b>	<b><u>28.6</u></b>	2	630	28.9	633	28.8	<b><u>631</u></b>	<b><u>28.9</u></b>
435.gromacs	2	337	42.4	339	42.1	<b><u>338</u></b>	<b><u>42.2</u></b>	2	333	42.9	<b><u>333</u></b>	<b><u>42.9</u></b>	336	42.6
436.cactusADM	2	837	28.6	<b><u>832</u></b>	<b><u>28.7</u></b>	831	28.8	1	<b><u>386</u></b>	<b><u>30.9</u></b>	388	30.8	386	31.0
437.leslie3d	2	1041	18.1	1039	18.1	<b><u>1039</u></b>	<b><u>18.1</u></b>	2	986	19.1	<b><u>985</u></b>	<b><u>19.1</u></b>	980	19.2
444.namd	2	457	35.1	<b><u>456</u></b>	<b><u>35.2</u></b>	456	35.2	2	<b><u>453</u></b>	<b><u>35.4</u></b>	454	35.3	453	35.4
447.dealII	2	448	51.1	447	51.2	<b><u>447</u></b>	<b><u>51.1</u></b>	2	428	53.4	432	53.0	<b><u>431</u></b>	<b><u>53.0</u></b>
450.soplex	2	<b><u>856</u></b>	<b><u>19.5</u></b>	855	19.5	860	19.4	2	779	21.4	<b><u>775</u></b>	<b><u>21.5</u></b>	769	21.7
453.povray	2	188	56.5	189	56.2	<b><u>189</u></b>	<b><u>56.4</u></b>	2	<b><u>161</u></b>	<b><u>66.3</u></b>	162	65.8	161	66.3
454.calculix	2	474	34.8	<b><u>476</u></b>	<b><u>34.7</u></b>	477	34.6	2	330	49.9	333	49.6	<b><u>332</u></b>	<b><u>49.7</u></b>
459.GemsFDTD	2	<b><u>1260</u></b>	<b><u>16.8</u></b>	1270	16.7	1259	16.8	2	1170	18.1	1173	18.1	<b><u>1172</u></b>	<b><u>18.1</u></b>
465.tonto	2	461	42.7	467	42.1	<b><u>464</u></b>	<b><u>42.4</u></b>	2	<b><u>448</u></b>	<b><u>43.9</u></b>	448	43.9	449	43.9
470.lbm	2	2496	11.0	<b><u>2500</u></b>	<b><u>11.0</u></b>	2501	11.0	1	561	24.5	558	24.6	<b><u>559</u></b>	<b><u>24.6</u></b>
481.wrf	2	<b><u>698</u></b>	<b><u>32.0</u></b>	698	32.0	698	32.0	2	699	32.0	<b><u>700</u></b>	<b><u>31.9</u></b>	700	31.9
482.sphinx3	2	<b><u>1278</u></b>	<b><u>30.5</u></b>	1283	30.4	1272	30.6	2	<b><u>1185</u></b>	<b><u>32.9</u></b>	1188	32.8	1177	33.1

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  
'/usr/bin/taskset' used to bind processes to CPUs  
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



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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

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast



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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 (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/include
```

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
444.namd: -DSPEC_CPU_LP64
447.deall: -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

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

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

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 -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>



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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-fp-flags.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 15:12:49 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 14 January 2008.