



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®\_rate2006 = 74.9

ProLiant BL260c G5  
(3.0 GHz, Intel Xeon E5450)

SPECfp\_rate\_base2006 = 67.5

CPU2006 license: 3

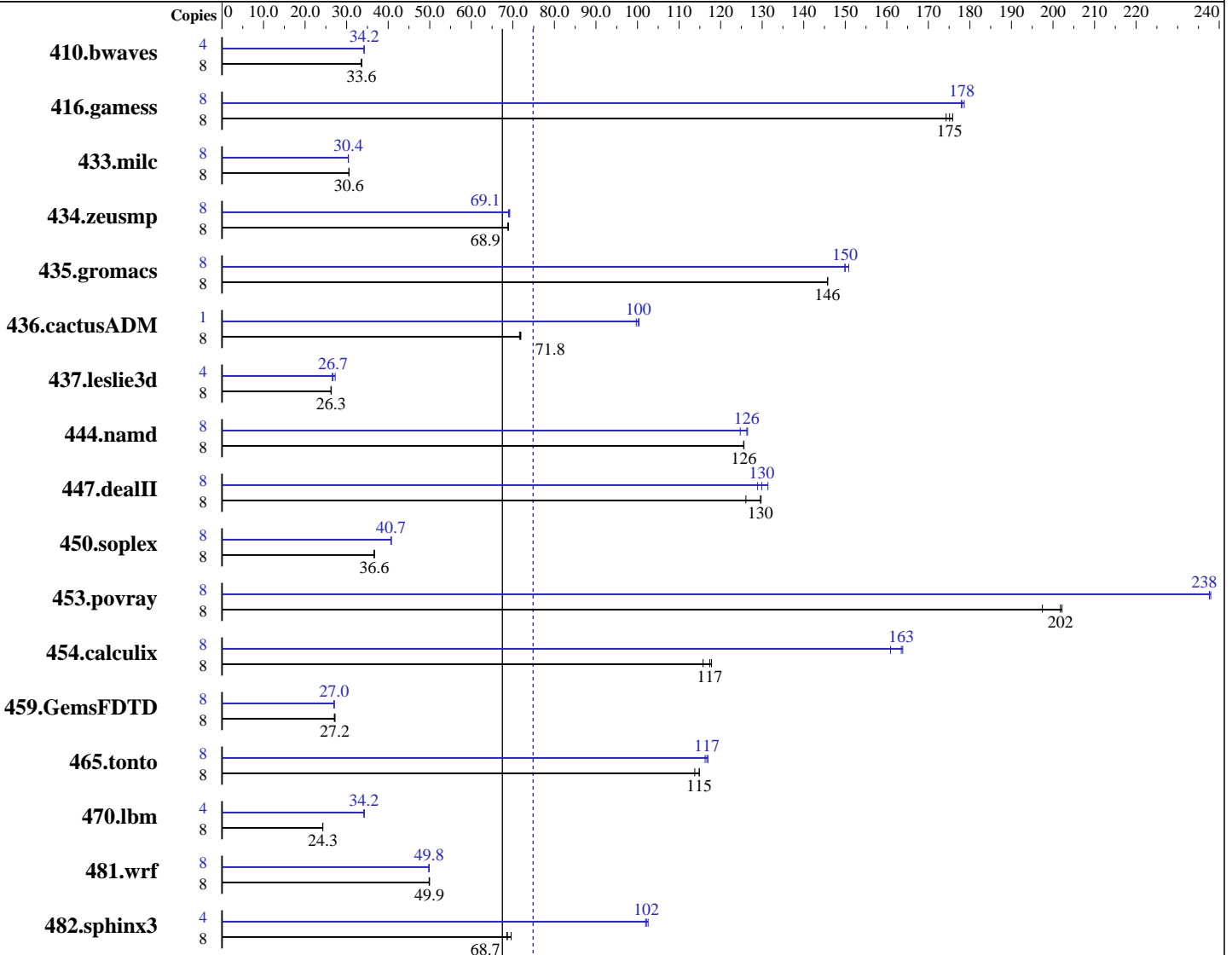
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



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### 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-smpp  
 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3239	33.6	<b><u>3239</u></b>	<b><u>33.6</u></b>	3235	33.6	4	1588	34.2	<b><u>1588</u></b>	<b><u>34.2</u></b>	1590	34.2
416.gamess	8	<b><u>895</u></b>	<b><u>175</u></b>	891	176	899	174	8	<b><u>880</u></b>	<b><u>178</u></b>	880	178	877	179
433.milc	8	2406	30.5	<b><u>2401</u></b>	<b><u>30.6</u></b>	2400	30.6	8	2417	30.4	<b><u>2416</u></b>	<b><u>30.4</u></b>	2413	30.4
434.zeusmp	8	1056	68.9	<b><u>1056</u></b>	<b><u>68.9</u></b>	1058	68.8	8	1051	69.2	1056	69.0	<b><u>1053</u></b>	<b><u>69.1</u></b>
435.gromacs	8	392	146	<b><u>392</u></b>	<b><u>146</u></b>	392	146	8	381	150	379	151	<b><u>381</u></b>	<b><u>150</u></b>
436.cactusADM	8	<b><u>1331</u></b>	<b><u>71.8</u></b>	1329	71.9	1335	71.6	1	120	99.7	<b><u>119</u></b>	<b><u>100</u></b>	119	100
437.leslie3d	8	2858	26.3	<b><u>2864</u></b>	<b><u>26.3</u></b>	2866	26.2	4	<b><u>1408</u></b>	<b><u>26.7</u></b>	1416	26.6	1380	27.2
444.namd	8	511	126	<b><u>511</u></b>	<b><u>126</u></b>	511	126	8	514	125	507	126	<b><u>508</u></b>	<b><u>126</u></b>
447.dealII	8	726	126	705	130	<b><u>706</u></b>	<b><u>130</u></b>	8	710	129	697	131	<b><u>704</u></b>	<b><u>130</u></b>
450.soplex	8	1818	36.7	<b><u>1821</u></b>	<b><u>36.6</u></b>	1823	36.6	8	<b><u>1639</u></b>	<b><u>40.7</u></b>	1637	40.8	1639	40.7
453.povray	8	211	202	216	197	<b><u>211</u></b>	<b><u>202</u></b>	8	179	238	179	238	<b><u>179</u></b>	<b><u>238</u></b>
454.calculix	8	560	118	570	116	<b><u>562</u></b>	<b><u>117</u></b>	8	<b><u>404</u></b>	<b><u>163</u></b>	403	164	410	161
459.GemsFDTD	8	3121	27.2	3141	27.0	<b><u>3126</u></b>	<b><u>27.2</u></b>	8	3141	27.0	<b><u>3144</u></b>	<b><u>27.0</u></b>	3149	27.0
465.tonto	8	685	115	<b><u>685</u></b>	<b><u>115</u></b>	692	114	8	<b><u>675</u></b>	<b><u>117</u></b>	677	116	673	117
470.lbm	8	4533	24.2	<b><u>4532</u></b>	<b><u>24.3</u></b>	4530	24.3	4	1604	34.3	<b><u>1608</u></b>	<b><u>34.2</u></b>	1608	34.2
481.wrf	8	1789	50.0	1793	49.8	<b><u>1791</u></b>	<b><u>49.9</u></b>	8	1796	49.7	<b><u>1793</u></b>	<b><u>49.8</u></b>	1792	49.9
482.sphinx3	8	2241	69.6	2273	68.6	<b><u>2270</u></b>	<b><u>68.7</u></b>	4	<b><u>763</u></b>	<b><u>102</u></b>	760	103	765	102

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  
Hardware Prefetcher 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).

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