



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®2006 = 26.7

ProLiant BL460c  
(3.5 GHz, Intel Xeon X5270)

SPECfp\_base2006 = 25.5

CPU2006 license: 3

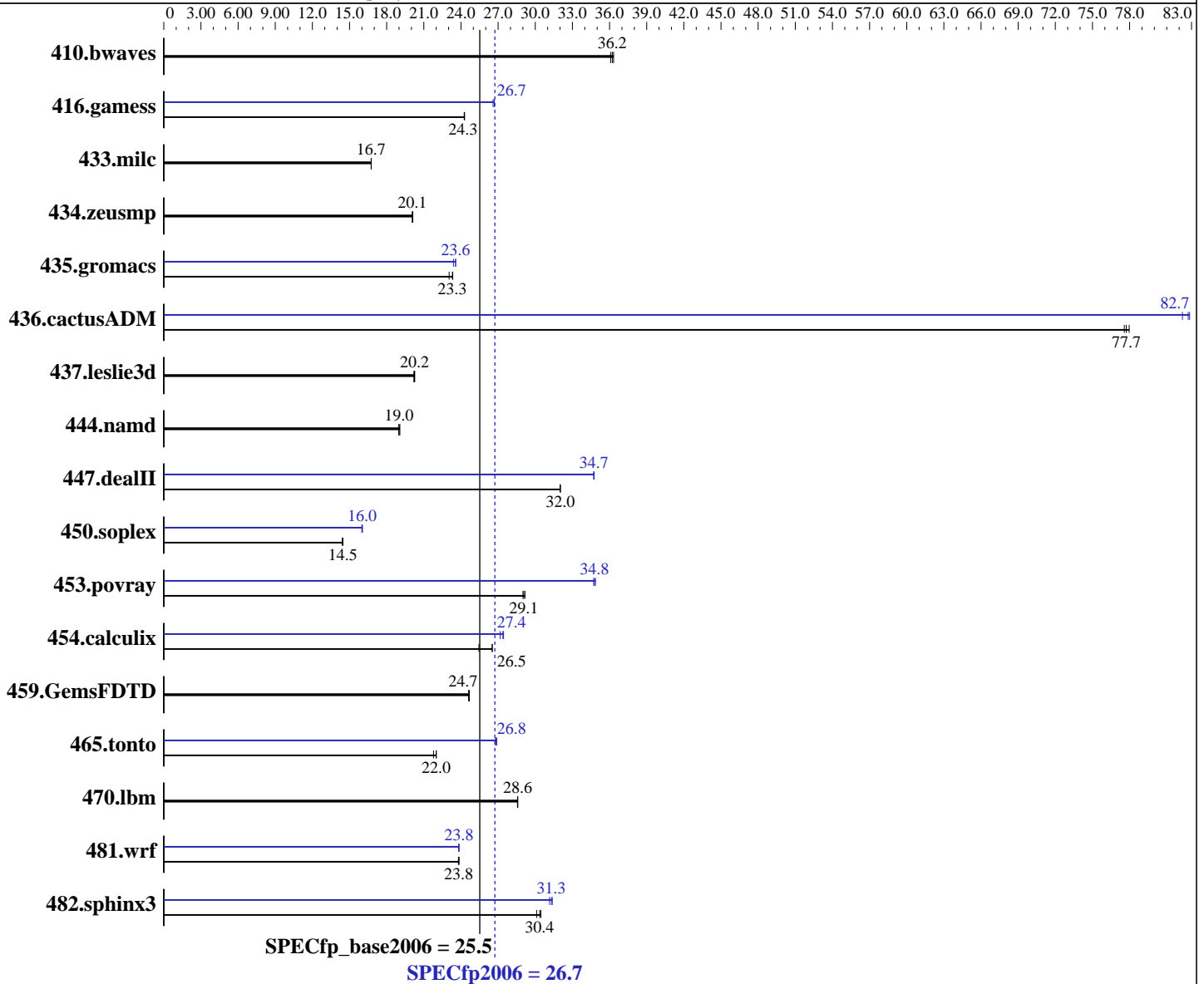
Test date: Aug-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X5270  
 CPU Characteristics: 3.5 GHz, 6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 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-smpp  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042, l\_fproc\_b\_11.0.042  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8x2 GB PC2-5300F CL5)  
Disk Subsystem: 2x72 GB 10 K SAS  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	377	36.1	<b>375</b>	<b>36.2</b>	374	36.3	377	36.1	<b>375</b>	<b>36.2</b>	374	36.3
416.gamess	<b>806</b>	<b>24.3</b>	806	24.3	807	24.3	736	26.6	733	26.7	<b>734</b>	<b>26.7</b>
433.milc	548	16.8	<b>548</b>	<b>16.7</b>	548	16.7	548	16.8	<b>548</b>	<b>16.7</b>	548	16.7
434.zeusmp	<b>453</b>	<b>20.1</b>	453	20.1	453	20.1	<b>453</b>	<b>20.1</b>	453	20.1	453	20.1
435.gromacs	306	23.3	<b>306</b>	<b>23.3</b>	310	23.0	305	23.4	303	23.6	<b>303</b>	<b>23.6</b>
436.cactusADM	153	78.0	<b>154</b>	<b>77.7</b>	154	77.6	144	82.8	145	82.3	<b>144</b>	<b>82.7</b>
437.leslie3d	464	20.3	<b>464</b>	<b>20.2</b>	465	20.2	464	20.3	<b>464</b>	<b>20.2</b>	465	20.2
444.namd	421	19.1	<b>422</b>	<b>19.0</b>	423	19.0	421	19.1	<b>422</b>	<b>19.0</b>	423	19.0
447.dealII	357	32.0	<b>357</b>	<b>32.0</b>	357	32.0	<b>329</b>	<b>34.7</b>	329	34.8	329	34.7
450.soplex	577	14.5	<b>577</b>	<b>14.5</b>	579	14.4	521	16.0	520	16.0	<b>520</b>	<b>16.0</b>
453.povray	182	29.2	183	29.0	<b>183</b>	<b>29.1</b>	<b>153</b>	<b>34.8</b>	153	34.9	153	34.7
454.calculix	324	25.4	<b>311</b>	<b>26.5</b>	311	26.5	301	27.4	<b>301</b>	<b>27.4</b>	304	27.2
459.GemsFDTD	430	24.7	<b>430</b>	<b>24.7</b>	431	24.6	430	24.7	<b>430</b>	<b>24.7</b>	431	24.6
465.tonto	447	22.0	<b>447</b>	<b>22.0</b>	452	21.8	366	26.9	<b>367</b>	<b>26.8</b>	367	26.8
470.lbm	481	28.6	<b>481</b>	<b>28.6</b>	481	28.6	481	28.6	<b>481</b>	<b>28.6</b>	481	28.6
481.wrf	469	23.8	468	23.8	<b>469</b>	<b>23.8</b>	<b>469</b>	<b>23.8</b>	468	23.8	469	23.8
482.sphinx3	640	30.5	<b>642</b>	<b>30.4</b>	647	30.1	621	31.4	626	31.2	<b>623</b>	<b>31.3</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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## 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:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

```
482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
             -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
             -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
            -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
            -I/opt/intel/Compiler/11.0/042/ipp/ia32/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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

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## Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

### C++ benchmarks:

444.namd: basepeak = yes

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-  
-opt-prefetch

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -Ob0 -ansi-alias  
-scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -opt-prefetch -parallel  
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32



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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-fp-linux64-revD.html>

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>

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