



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®2006 = 23.3

ProLiant ML310 G5  
(2.83 GHz, Intel Xeon X3360)

SPECfp\_base2006 = 21.4

CPU2006 license: 3

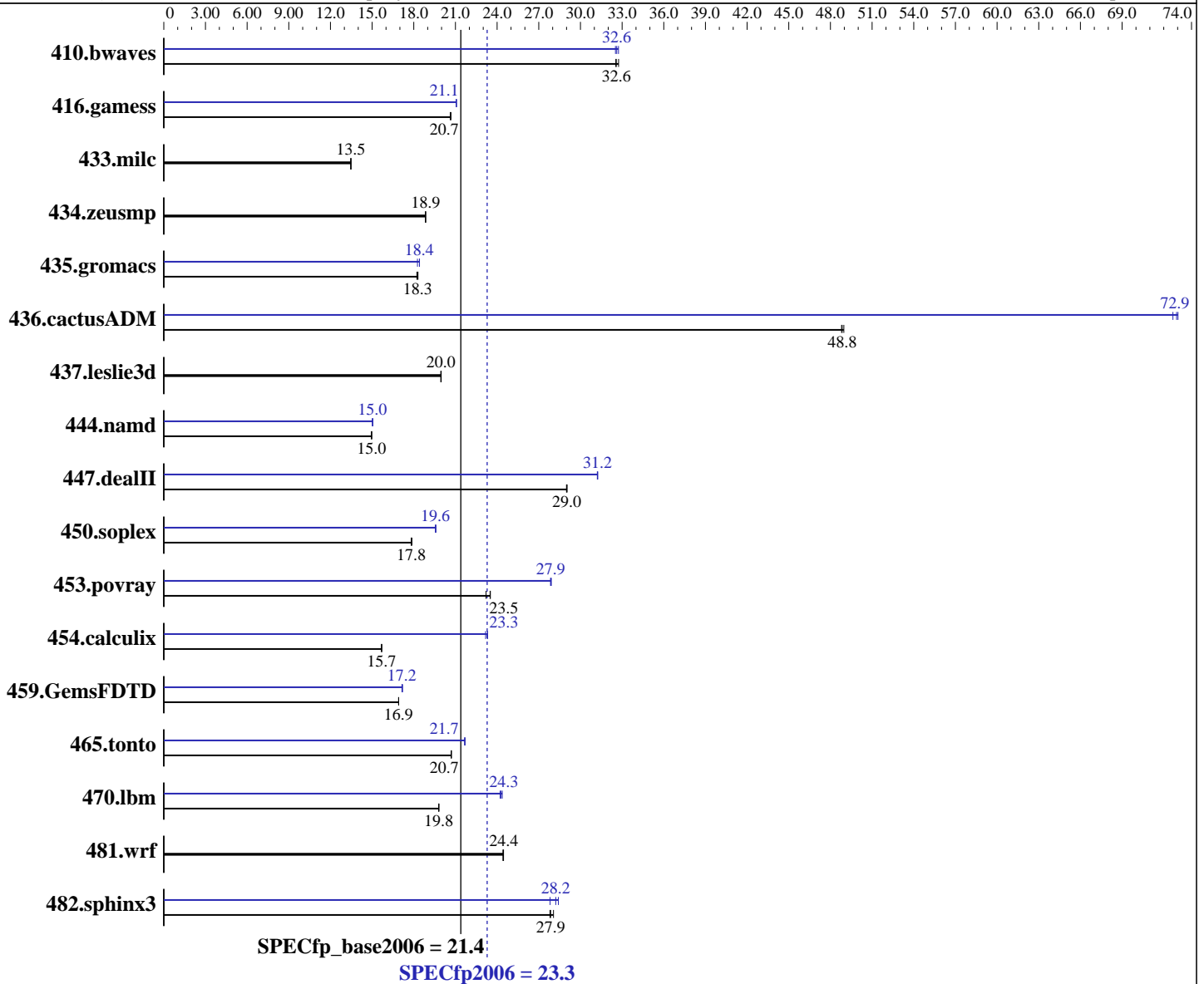
Test date: Apr-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: May-2008

Tested by: Hewlett-Packard Company

Software Availability: Sep-2007



### Hardware

CPU Name: Intel Xeon X3360  
 CPU Characteristics: 2.83 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 2833  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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: 8 GB (4x2 GB PC2-6400E CL5)  
Disk Subsystem: 1x250 GB 7.2 K SATA  
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	<b>417</b>	<b>32.6</b>	415	32.7	418	32.5	418	32.5	415	32.7	<b>417</b>	<b>32.6</b>
416.gamess	947	20.7	949	20.6	<b>948</b>	<b>20.7</b>	<b>930</b>	<b>21.1</b>	929	21.1	930	21.1
433.milc	681	13.5	<b>681</b>	<b>13.5</b>	682	13.5	681	13.5	<b>681</b>	<b>13.5</b>	682	13.5
434.zeusmp	<b>483</b>	<b>18.9</b>	483	18.8	483	18.9	<b>483</b>	<b>18.9</b>	483	18.8	483	18.9
435.gromacs	390	18.3	<b>391</b>	<b>18.3</b>	392	18.2	391	18.3	388	18.4	<b>388</b>	<b>18.4</b>
436.cactusADM	<b>245</b>	<b>48.8</b>	245	48.8	244	49.0	164	73.0	<b>164</b>	<b>72.9</b>	164	72.7
437.leslie3d	<b>471</b>	<b>20.0</b>	471	20.0	471	20.0	<b>471</b>	<b>20.0</b>	471	20.0	471	20.0
444.namd	<b>536</b>	<b>15.0</b>	536	15.0	536	15.0	534	15.0	533	15.1	<b>533</b>	<b>15.0</b>
447.dealII	<b>394</b>	<b>29.0</b>	395	29.0	394	29.0	<b>366</b>	<b>31.2</b>	367	31.2	366	31.2
450.soplex	467	17.9	468	17.8	<b>468</b>	<b>17.8</b>	<b>426</b>	<b>19.6</b>	426	19.6	426	19.6
453.povray	229	23.2	<b>226</b>	<b>23.5</b>	226	23.5	<b>191</b>	<b>27.9</b>	191	27.8	191	27.9
454.calculix	526	15.7	526	15.7	<b>526</b>	<b>15.7</b>	356	23.2	<b>354</b>	<b>23.3</b>	354	23.3
459.GemsFDTD	627	16.9	627	16.9	<b>627</b>	<b>16.9</b>	617	17.2	<b>619</b>	<b>17.2</b>	619	17.1
465.tonto	<b>475</b>	<b>20.7</b>	475	20.7	476	20.7	454	21.7	454	21.7	<b>454</b>	<b>21.7</b>
470.lbm	<b>694</b>	<b>19.8</b>	693	19.8	694	19.8	564	24.4	<b>566</b>	<b>24.3</b>	567	24.2
481.wrf	<b>457</b>	<b>24.4</b>	457	24.5	457	24.4	<b>457</b>	<b>24.4</b>	457	24.5	457	24.4
482.sphinx3	695	28.1	<b>700</b>	<b>27.9</b>	701	27.8	701	27.8	<b>691</b>	<b>28.2</b>	686	28.4

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

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

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## Base Compiler Invocation (Continued)

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

## 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

```

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## Peak Compiler Invocation (Continued)

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: basepeak = yes

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

482.sphinx3: -fast -unroll2

C++ benchmarks:

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### Peak Optimization Flags (Continued)

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

447.dealII: -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: basepeak = yes

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: basepeak = yes

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.20090714.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.20090714.xml>



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

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