



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

### SPECfp®\_rate2006 = 33.4

ProLiant DL320 G5p  
(3.0 GHz, Intel Xeon E3110)

### SPECfp\_rate\_base2006 = 31.6

CPU2006 license: 3

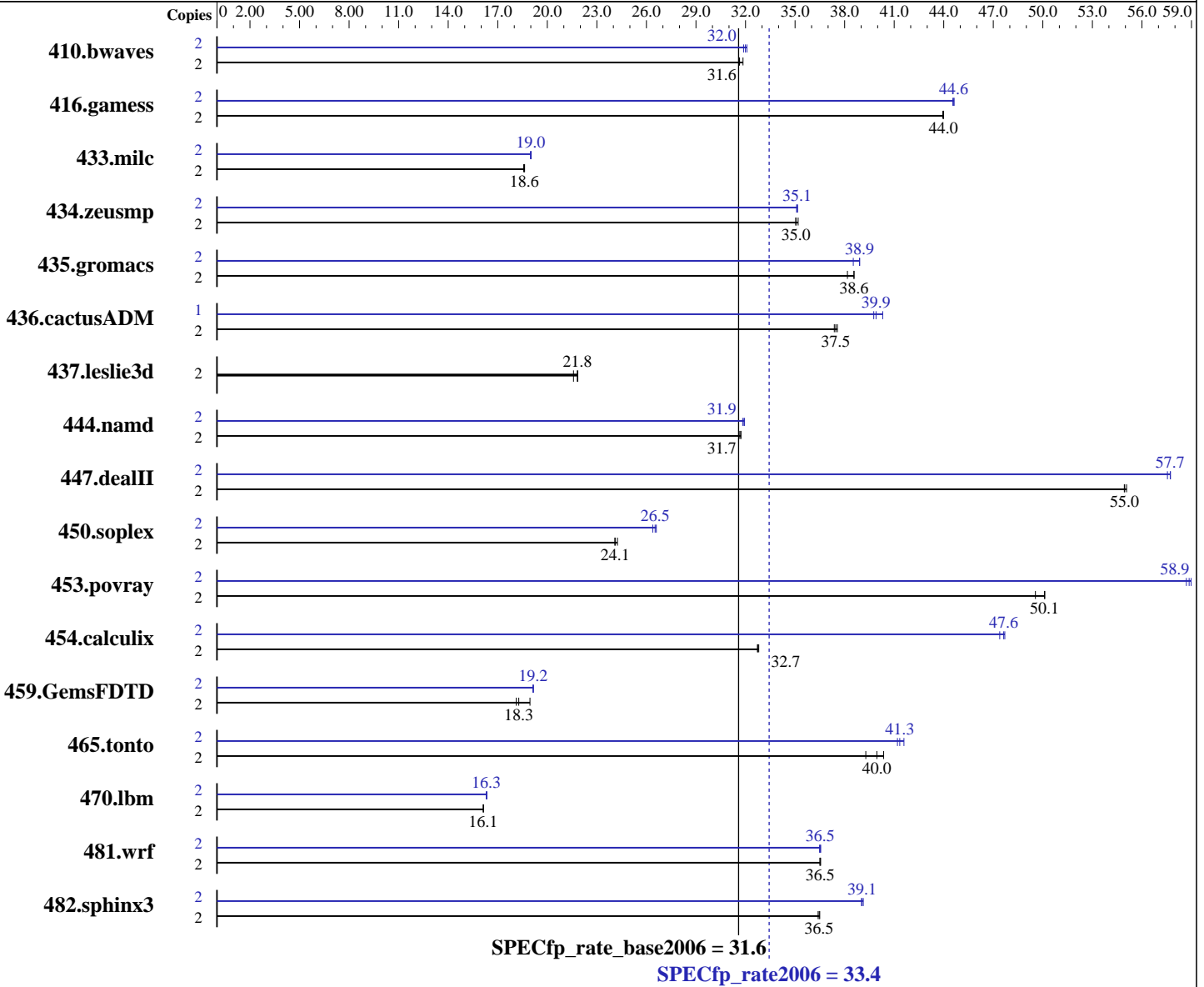
Test date: May-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E3110  
 CPU Characteristics: 3.0 GHz, 6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 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 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: 1 x 80 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	859	31.6	853	31.8	<b>859</b>	<b>31.6</b>	2	853	31.9	847	32.1	<b>850</b>	<b>32.0</b>
416.gamess	2	890	44.0	<b>890</b>	<b>44.0</b>	891	43.9	2	879	44.6	<b>878</b>	<b>44.6</b>	878	44.6
433.milc	2	<b>987</b>	<b>18.6</b>	986	18.6	989	18.6	2	<b>966</b>	<b>19.0</b>	967	19.0	965	19.0
434.zeusmp	2	517	35.2	<b>519</b>	<b>35.0</b>	519	35.0	2	519	35.1	518	35.2	<b>518</b>	<b>35.1</b>
435.gromacs	2	<b>370</b>	<b>38.6</b>	374	38.2	370	38.6	2	367	38.9	<b>367</b>	<b>38.9</b>	371	38.5
436.cactusADM	2	639	37.4	<b>638</b>	<b>37.5</b>	636	37.6	1	<b>299</b>	<b>39.9</b>	301	39.8	296	40.3
437.leslie3d	2	861	21.8	<b>862</b>	<b>21.8</b>	871	21.6	2	861	21.8	<b>862</b>	<b>21.8</b>	871	21.6
444.namd	2	<b>506</b>	<b>31.7</b>	507	31.6	506	31.7	2	<b>503</b>	<b>31.9</b>	504	31.8	502	31.9
447.dealII	2	417	54.9	<b>416</b>	<b>55.0</b>	415	55.1	2	396	57.7	398	57.5	<b>396</b>	<b>57.7</b>
450.soplex	2	692	24.1	688	24.2	<b>692</b>	<b>24.1</b>	2	<b>629</b>	<b>26.5</b>	627	26.6	632	26.4
453.povray	2	212	50.1	<b>212</b>	<b>50.1</b>	215	49.6	2	<b>181</b>	<b>58.9</b>	180	59.0	181	58.7
454.calculix	2	<b>504</b>	<b>32.7</b>	503	32.8	504	32.7	2	<b>346</b>	<b>47.6</b>	346	47.7	348	47.4
459.GemsFDTD	2	1171	18.1	<b>1161</b>	<b>18.3</b>	1120	19.0	2	1109	19.1	1108	19.2	<b>1108</b>	<b>19.2</b>
465.tonto	2	488	40.4	<b>493</b>	<b>40.0</b>	501	39.3	2	473	41.6	<b>476</b>	<b>41.3</b>	478	41.2
470.lbm	2	<b>1704</b>	<b>16.1</b>	1704	16.1	1704	16.1	2	1685	16.3	<b>1684</b>	<b>16.3</b>	1681	16.3
481.wrf	2	611	36.5	612	36.5	<b>612</b>	<b>36.5</b>	2	612	36.5	611	36.6	<b>612</b>	<b>36.5</b>
482.sphinx3	2	<b>1069</b>	<b>36.5</b>	1068	36.5	1071	36.4	2	999	39.0	<b>998</b>	<b>39.1</b>	996	39.1

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, except for 436.cactusADM at peak  
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 Dynamic Power Savings 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:

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

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

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.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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