



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

SPECfp®\_rate2006 = 48.1

ProLiant DL120 G5  
(2.66 GHz, Intel Xeon X3350)

SPECfp\_rate\_base2006 = 45.2

CPU2006 license: 3

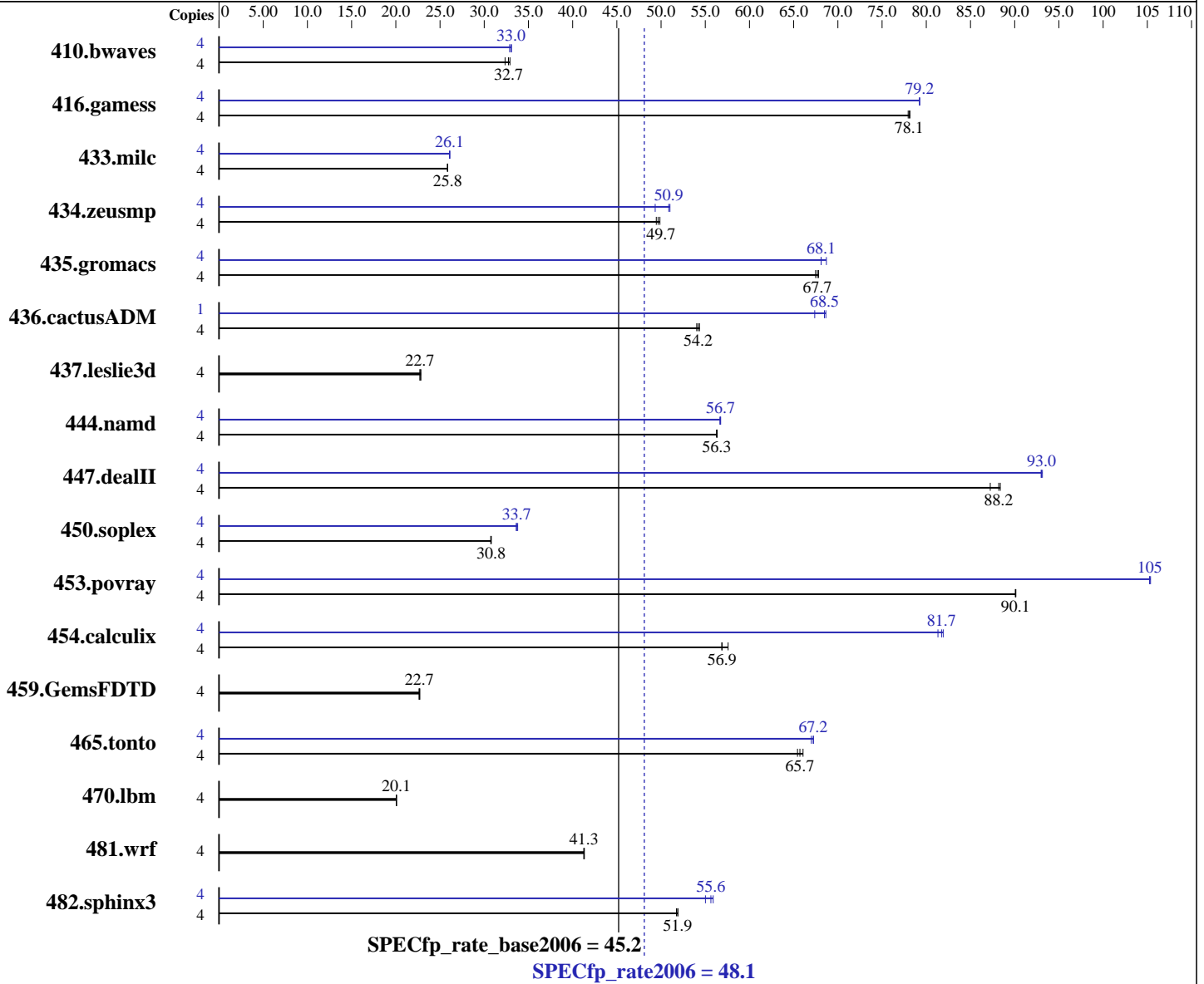
Test date: Jun-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X3350  
 CPU Characteristics: 2.66 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 2666  
 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 CL6)  
Disk Subsystem: 1x160 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	4	1680	32.4	1652	32.9	<b>1660</b>	<b>32.7</b>	4	1654	32.9	1643	33.1	<b>1646</b>	<b>33.0</b>
416.gamess	4	1005	77.9	1002	78.1	<b>1003</b>	<b>78.1</b>	4	988	79.2	<b>988</b>	<b>79.2</b>	988	79.2
433.milc	4	1421	25.8	<b>1421</b>	<b>25.8</b>	1419	25.9	4	1408	26.1	1406	26.1	<b>1407</b>	<b>26.1</b>
434.zeusmp	4	730	49.9	736	49.5	<b>733</b>	<b>49.7</b>	4	<b>716</b>	<b>50.9</b>	714	51.0	738	49.3
435.gromacs	4	423	67.5	421	67.8	<b>422</b>	<b>67.7</b>	4	<b>419</b>	<b>68.1</b>	416	68.7	419	68.1
436.cactusADM	4	879	54.4	<b>882</b>	<b>54.2</b>	885	54.0	1	<b>175</b>	<b>68.5</b>	177	67.4	174	68.6
437.leslie3d	4	<b>1654</b>	<b>22.7</b>	1654	22.7	1646	22.8	4	<b>1654</b>	<b>22.7</b>	1654	22.7	1646	22.8
444.namd	4	<b>570</b>	<b>56.3</b>	569	56.4	570	56.3	4	566	56.6	565	56.7	<b>566</b>	<b>56.7</b>
447.dealII	4	518	88.4	<b>519</b>	<b>88.2</b>	525	87.2	4	491	93.1	492	93.0	<b>492</b>	<b>93.0</b>
450.soplex	4	1083	30.8	<b>1084</b>	<b>30.8</b>	1085	30.7	4	987	33.8	992	33.6	<b>991</b>	<b>33.7</b>
453.povray	4	236	90.1	<b>236</b>	<b>90.1</b>	236	90.1	4	202	105	202	105	<b>202</b>	<b>105</b>
454.calculix	4	<b>580</b>	<b>56.9</b>	580	56.9	573	57.6	4	406	81.3	<b>404</b>	<b>81.7</b>	403	81.9
459.GemsFDTD	4	<b>1872</b>	<b>22.7</b>	1876	22.6	1868	22.7	4	<b>1872</b>	<b>22.7</b>	1876	22.6	1868	22.7
465.tonto	4	596	66.1	602	65.4	<b>599</b>	<b>65.7</b>	4	<b>586</b>	<b>67.2</b>	588	67.0	585	67.2
470.lbm	4	2740	20.1	2738	20.1	<b>2738</b>	<b>20.1</b>	4	2740	20.1	2738	20.1	<b>2738</b>	<b>20.1</b>
481.wrf	4	1083	41.3	1081	41.3	<b>1082</b>	<b>41.3</b>	4	1083	41.3	1081	41.3	<b>1082</b>	<b>41.3</b>
482.sphinx3	4	<b>1502</b>	<b>51.9</b>	1502	51.9	1507	51.7	4	1395	55.9	<b>1401</b>	<b>55.6</b>	1417	55.0

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:  
Hardware Prefetcher Disabled  
Adjacent Cache Line 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):

icc

```
482.sphinx3: /opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

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
470.lbm: -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: basepeak = yes
```

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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: basepeak = yes

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.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.xml>



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

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