



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

### SPECfp®\_rate2006 = 49.3

ProLiant DL120 G5  
(2.83 GHz, Intel Xeon X3360)

### SPECfp\_rate\_base2006 = 46.4

CPU2006 license: 3

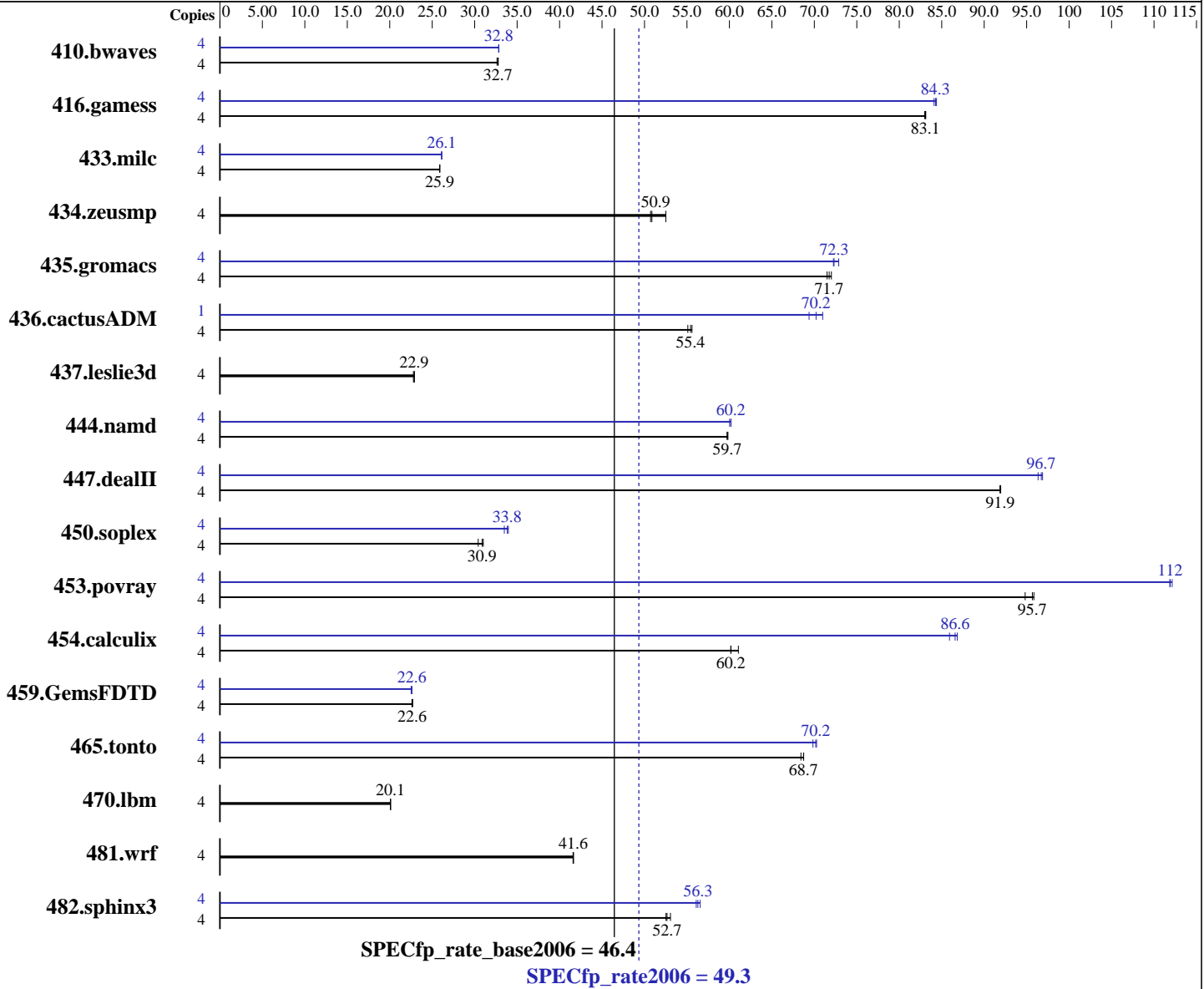
Test date: Jun-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon 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 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	<b>1660</b>	<b>32.7</b>	1658	32.8	1666	32.6	4	1655	32.9	1656	32.8	<b>1655</b>	<b>32.8</b>
416.gamess	4	<b>943</b>	<b>83.1</b>	942	83.1	944	83.0	4	931	84.1	928	84.4	<b>929</b>	<b>84.3</b>
433.milc	4	<b>1419</b>	<b>25.9</b>	1418	25.9	1419	25.9	4	1406	26.1	<b>1406</b>	<b>26.1</b>	1407	26.1
434.zeusmp	4	<b>716</b>	<b>50.9</b>	693	52.5	718	50.7	4	<b>716</b>	<b>50.9</b>	693	52.5	718	50.7
435.gromacs	4	399	71.5	<b>398</b>	<b>71.7</b>	397	72.0	4	395	72.2	392	72.9	<b>395</b>	<b>72.3</b>
436.cactusADM	4	860	55.6	<b>862</b>	<b>55.4</b>	867	55.1	1	172	69.4	168	71.0	<b>170</b>	<b>70.2</b>
437.leslie3d	4	1650	22.8	1642	22.9	<b>1644</b>	<b>22.9</b>	4	1650	22.8	1642	22.9	<b>1644</b>	<b>22.9</b>
444.namd	4	<b>537</b>	<b>59.7</b>	537	59.7	536	59.8	4	535	60.0	<b>533</b>	<b>60.2</b>	533	60.2
447.dealII	4	<b>498</b>	<b>91.9</b>	498	91.9	498	91.9	4	472	96.9	<b>473</b>	<b>96.7</b>	475	96.4
450.soplex	4	1097	30.4	1076	31.0	<b>1080</b>	<b>30.9</b>	4	996	33.5	<b>986</b>	<b>33.8</b>	982	34.0
453.povray	4	224	94.8	222	95.9	<b>222</b>	<b>95.7</b>	4	<b>190</b>	<b>112</b>	190	112	190	112
454.calculix	4	<b>548</b>	<b>60.2</b>	549	60.2	540	61.1	4	<b>381</b>	<b>86.6</b>	384	85.9	380	86.8
459.GemsFDTD	4	1869	22.7	1877	22.6	<b>1874</b>	<b>22.6</b>	4	1885	22.5	<b>1877</b>	<b>22.6</b>	1877	22.6
465.tonto	4	573	68.7	<b>573</b>	<b>68.7</b>	575	68.4	4	564	69.8	<b>561</b>	<b>70.2</b>	560	70.3
470.lbm	4	2736	20.1	2735	20.1	<b>2736</b>	<b>20.1</b>	4	2736	20.1	2735	20.1	<b>2736</b>	<b>20.1</b>
481.wrf	4	<b>1074</b>	<b>41.6</b>	1074	41.6	1073	41.6	4	<b>1074</b>	<b>41.6</b>	1074	41.6	1073	41.6
482.sphinx3	4	1469	53.1	1484	52.5	<b>1481</b>	<b>52.7</b>	4	<b>1385</b>	<b>56.3</b>	1378	56.6	1390	56.1

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:  
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: basepeak = yes

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: 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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