



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 45.8

ProLiant DL380 G5
(3.16 GHz, Intel Xeon X5460)

SPECfp_rate_base2006 = 41.2

CPU2006 license: 3

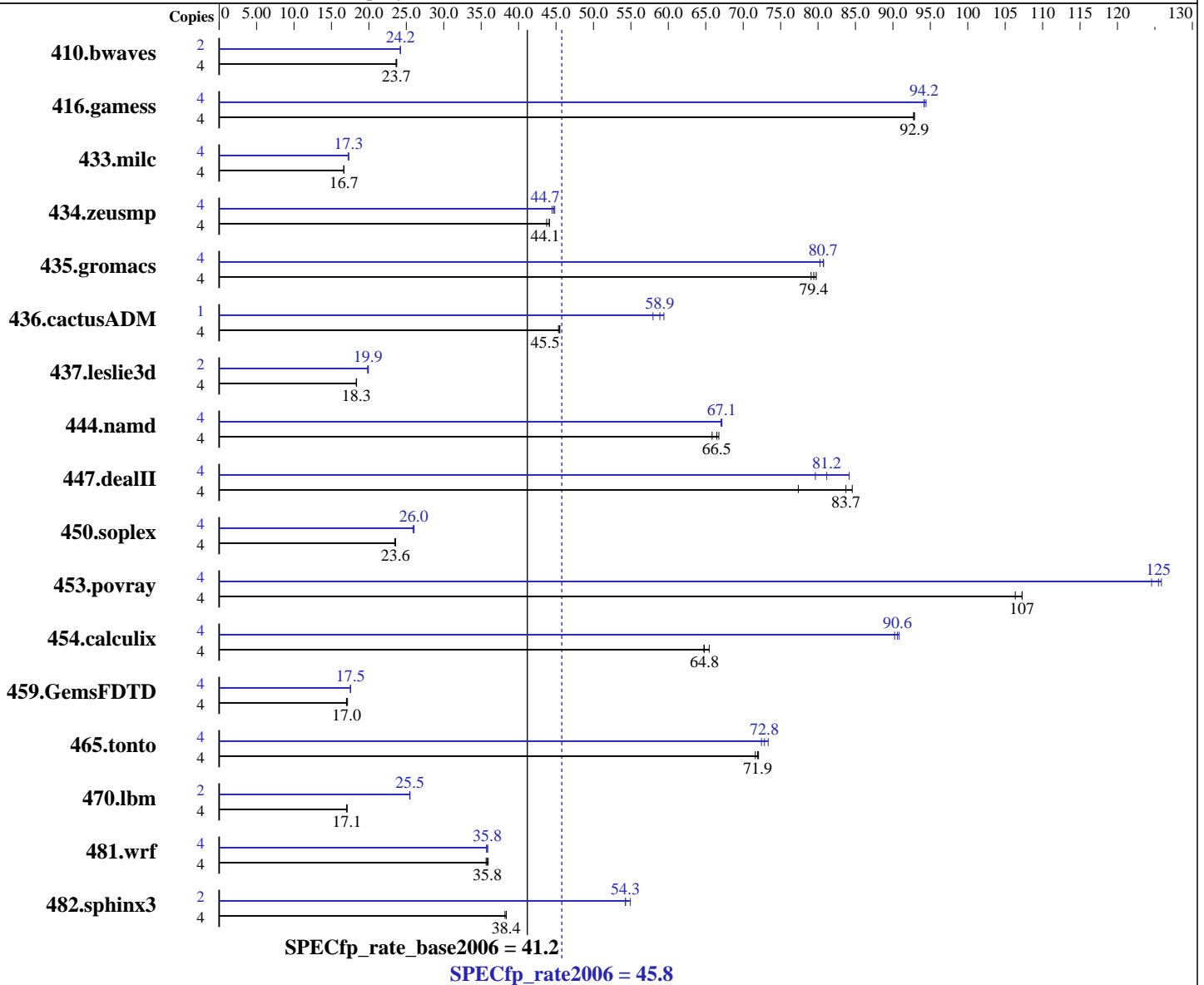
Test date: Jan-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jan-2008

Tested by: Hewlett-Packard Company

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon X5460
 CPU Characteristics: 3.16 GHz, 2x6 MB L2 shared, 1333 MHz system bus
 CPU MHz: 3166
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 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 for applications running on IA-32 and Intel 64, Version 10.1 Build 20070913 Package ID: 1_cc_p_10.1.008 Intel Fortran Compiler for applications running on IA-32 and Intel 64, Version 10.1 Build 20070913 Package ID: 1_cc_p_10.1.008
 Auto Parallel: Yes
 File System: ext2

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F CL5)
Disk Subsystem: 1x72 GB 15 K SAS
Other Hardware: None

System State: Multi-user run level 3
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	2291	23.7	2300	23.6	<u>2297</u>	<u>23.7</u>	2	<u>1123</u>	<u>24.2</u>	1123	24.2	1122	24.2
416.gamess	4	<u>843</u>	<u>92.9</u>	844	92.7	843	92.9	4	<u>832</u>	<u>94.2</u>	832	94.2	829	94.4
433.milc	4	2208	16.6	2201	16.7	<u>2201</u>	<u>16.7</u>	4	2123	17.3	<u>2124</u>	<u>17.3</u>	2125	17.3
434.zeusmp	4	<u>825</u>	<u>44.1</u>	832	43.7	825	44.1	4	818	44.5	812	44.8	<u>815</u>	<u>44.7</u>
435.gromacs	4	358	79.8	361	79.1	<u>360</u>	<u>79.4</u>	4	356	80.3	<u>354</u>	<u>80.7</u>	354	80.8
436.cactusADM	4	1055	45.3	<u>1051</u>	<u>45.5</u>	1050	45.5	1	<u>203</u>	<u>58.9</u>	201	59.4	206	58.0
437.leslie3d	4	2052	18.3	2048	18.4	<u>2051</u>	<u>18.3</u>	2	948	19.8	943	19.9	<u>946</u>	<u>19.9</u>
444.namd	4	481	66.8	487	65.9	<u>483</u>	<u>66.5</u>	4	479	67.0	<u>478</u>	<u>67.1</u>	478	67.2
447.dealII	4	591	77.4	541	84.6	<u>547</u>	<u>83.7</u>	4	544	84.2	575	79.6	<u>564</u>	<u>81.2</u>
450.soplex	4	1422	23.5	1415	23.6	<u>1417</u>	<u>23.6</u>	4	1288	25.9	1281	26.0	<u>1283</u>	<u>26.0</u>
453.povray	4	198	107	<u>198</u>	<u>107</u>	200	106	4	169	126	<u>170</u>	<u>125</u>	171	125
454.calculix	4	510	64.8	504	65.5	<u>509</u>	<u>64.8</u>	4	366	90.2	<u>364</u>	<u>90.6</u>	363	90.8
459.GemsFDTD	4	<u>2492</u>	<u>17.0</u>	2496	17.0	2474	17.2	4	<u>2419</u>	<u>17.5</u>	2418	17.6	2419	17.5
465.tonto	4	546	72.1	<u>547</u>	<u>71.9</u>	550	71.6	4	537	73.3	<u>540</u>	<u>72.8</u>	543	72.4
470.lbm	4	3221	17.1	<u>3220</u>	<u>17.1</u>	3220	17.1	2	1080	25.5	<u>1079</u>	<u>25.5</u>	1078	25.5
481.wrf	4	1243	35.9	<u>1248</u>	<u>35.8</u>	1253	35.7	4	1251	35.7	<u>1247</u>	<u>35.8</u>	1246	35.9
482.sphinx3	4	2032	38.4	<u>2033</u>	<u>38.4</u>	2042	38.2	2	718	54.3	710	54.9	<u>718</u>	<u>54.3</u>

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
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 Static High Performance 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 (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/include
```

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
444.namd: -DSPEC_CPU_LP64
447.deallI: -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-rep- -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: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-opt-malloc-options=3

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.html>



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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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