SPEC® CFP2006 Result

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Hewlett-Packard Company

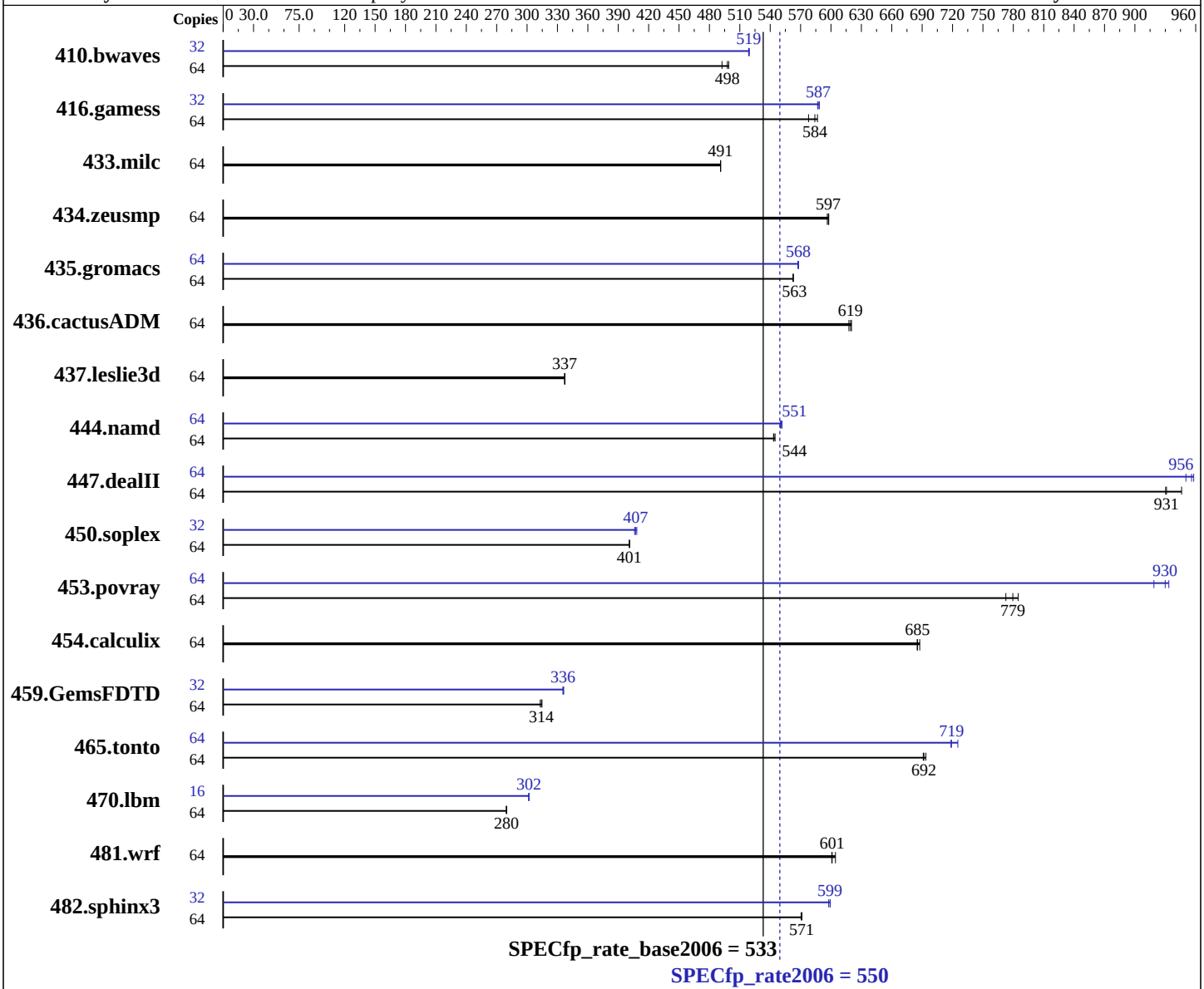
ProLiant DL580 G7
(2.27 GHz, Intel Xeon X7560)

SPECfp®_rate2006 = 550

SPECfp_rate_base2006 = 533

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Jul-2010
Hardware Availability: Jun-2010
Software Availability: Mar-2010



Hardware

CPU Name:	Intel Xeon X7560
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	Red Hat Enterprise Linux Server release 5.5 Advanced Platform, Kernel 2.6.18-194.el5
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20090827 Package ID: l_cproc_p_11.1.056, l_cprof_p_11.1.056
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 4Rx4 PC3-8500R CL7)
Disk Subsystem: 2 x 146 GB 15 K SAS
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.6-12.el5

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	1766	492	1743	499	**1748**	**498**	32	**838**	**519**	837	519	838	519
416.gamess	64	2136	587	**2145**	**584**	2169	578	32	1068	587	1065	589	**1067**	**587**
433.milc	64	1197	491	1196	491	**1197**	**491**	64	1197	491	1196	491	**1197**	**491**
434.zeusmp	64	974	598	**975**	**597**	977	596	64	974	598	**975**	**597**	977	596
435.gromacs	64	**812**	**563**	812	563	812	563	64	**805**	**568**	805	568	805	567
436.cactusADM	64	1233	620	1238	618	**1235**	**619**	64	1233	620	1238	618	**1235**	**619**
437.leslie3d	64	**1784**	**337**	1784	337	1784	337	64	**1784**	**337**	1784	337	1784	337
444.namd	64	**944**	**544**	945	543	942	545	64	**932**	**551**	933	550	930	552
447.dealII	64	774	946	787	930	**786**	**931**	64	764	958	**766**	**956**	770	950
450.soplex	64	1331	401	**1331**	**401**	1331	401	32	657	406	**656**	**407**	654	408
453.povray	64	434	785	441	773	**437**	**779**	64	371	919	365	933	**366**	**930**
454.calculix	64	771	685	768	688	**770**	**685**	64	771	685	768	688	**770**	**685**
459.GemsFDTD	64	2158	315	2169	313	**2161**	**314**	32	1012	336	1010	336	**1012**	**336**
465.tonto	64	**910**	**692**	911	691	908	694	64	877	718	**876**	**719**	868	725
470.lbm	64	3144	280	3145	280	**3145**	**280**	16	728	302	**728**	**302**	729	302
481.wrf	64	1183	604	**1189**	**601**	1190	601	64	1183	604	**1189**	**601**	1190	601
482.sphinx3	64	2183	571	2186	570	**2184**	**571**	32	1041	599	1043	598	**1041**	**599**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
```

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

Platform Notes

```
BIOS configuration:
 Power Profile set to Maximum Performance
 Thermal Configuration set to Increased Cooling
```

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:
-xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Peak Compiler Invocation

C benchmarks (except as noted below):
icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
icpc

450.soplex: icpc -m32

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: basepeak = yes

470.lbm: -opt-malloc-options=3 -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -opt-prefetch

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revF.20100511.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20100525.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revF.20100511.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20100525.xml

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For other inquiries, please contact webmaster@spec.org.

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