SPEC® CFP2006 Result

Hewlett-Packard Company

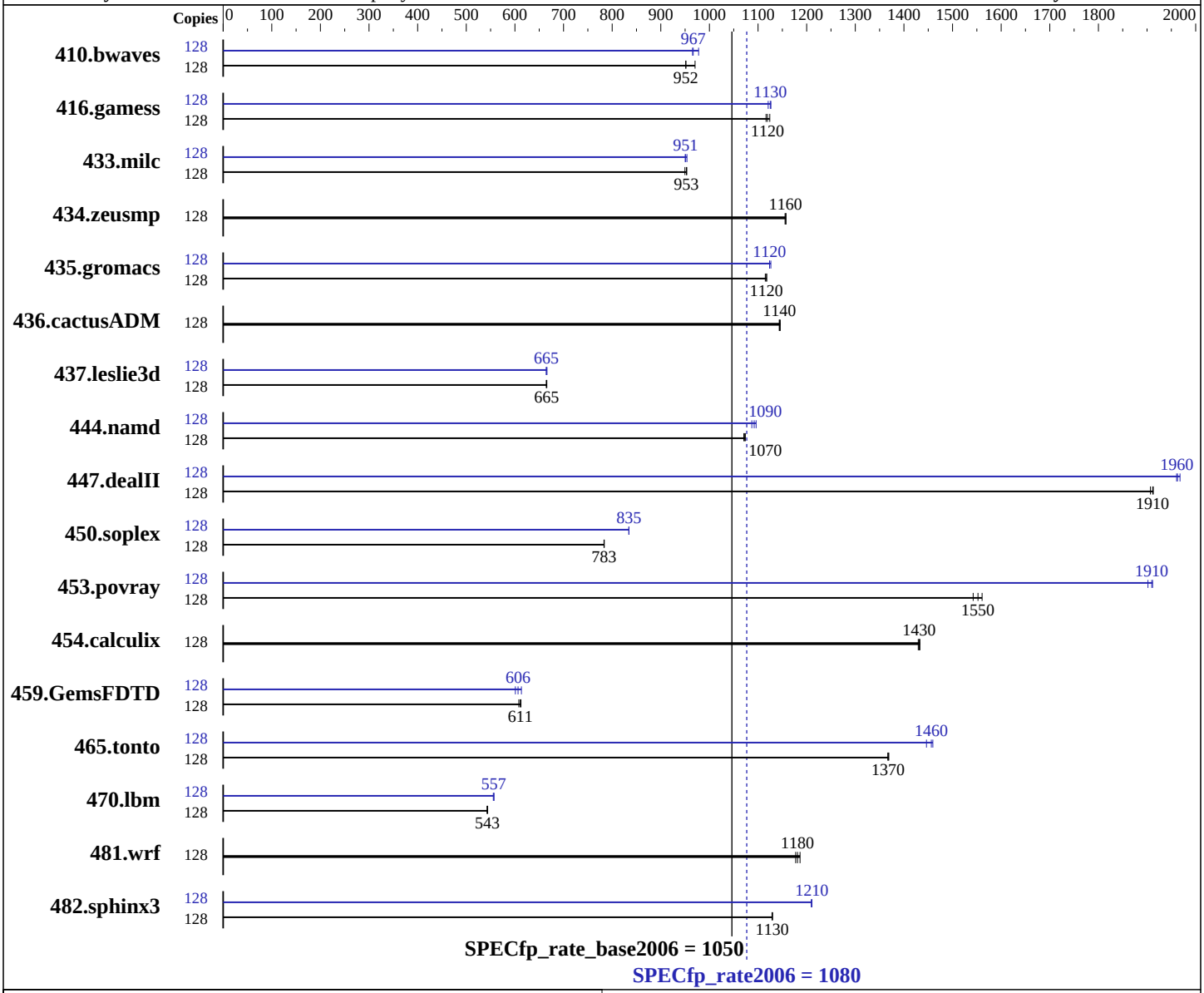
ProLiant DL980 G7 (2.27 GHz, Intel Xeon X7560)

SPECfp®_rate2006 = 1080

SPECfp_rate_base2006 = 1050

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

Test date: Sep-2010
Hardware Availability: Oct-2010
Software Availability: Jun-2010



Hardware

CPU Name:	Intel Xeon X7560
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2266
FPU:	Integrated
CPU(s) enabled:	64 cores, 8 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	4, 8 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:	SUSE Linux Enterprise Server 11 (x86_64) SP1 Kernel 2.6.32.12-0.7-default
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20100414 Package ID: l_cproc_p_11.1.072, l_cprof_p_11.1.072
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (128 x 8 GB PC3-10600R dual-rank)
Disk Subsystem: 2 x 146 GB 15K SAS
Other Hardware: 512 MB Flash Backed Write Controller Module for P410i Smart Array

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: none

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	1792	971	1829	951	**1828**	**952**	128	1802	965	1779	978	**1799**	**967**
416.gamess	128	2229	1120	2245	1120	**2239**	**1120**	128	2236	1120	2225	1130	**2228**	**1130**
433.milc	128	**1233**	**953**	1237	950	1232	953	128	1232	954	1237	950	**1235**	**951**
434.zeusmp	128	1008	1160	1006	1160	**1007**	**1160**	128	1008	1160	1006	1160	**1007**	**1160**
435.gromacs	128	**818**	**1120**	820	1110	818	1120	128	811	1130	813	1120	**813**	**1120**
436.cactusADM	128	**1337**	**1140**	1337	1140	1335	1150	128	**1337**	**1140**	1337	1140	1335	1150
437.leslie3d	128	1811	665	1808	666	**1809**	**665**	128	1810	665	**1810**	**665**	1807	666
444.namd	128	**958**	**1070**	959	1070	956	1070	128	944	1090	937	1100	**940**	**1090**
447.dealII	128	**766**	**1910**	768	1910	766	1910	128	744	1970	747	1960	**746**	**1960**
450.soplex	128	1363	783	**1363**	**783**	1362	784	128	1280	834	1279	835	**1279**	**835**
453.povray	128	442	1540	**439**	**1550**	436	1560	128	356	1910	358	1900	**357**	**1910**
454.calculix	128	737	1430	739	1430	**738**	**1430**	128	737	1430	739	1430	**738**	**1430**
459.GemsFDTD	128	2234	608	**2223**	**611**	2217	612	128	2214	613	2260	601	**2239**	**606**
465.tonto	128	922	1370	920	1370	**921**	**1370**	128	**865**	**1460**	863	1460	871	1450
470.lbm	128	3240	543	3233	544	**3237**	**543**	128	3166	556	**3159**	**557**	3158	557
481.wrf	128	**1210**	**1180**	1205	1190	1214	1180	128	**1210**	**1180**	1205	1190	1214	1180
482.sphinx3	128	**2209**	**1130**	2208	1130	2210	1130	128	**2061**	**1210**	2060	1210	2063	1210

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
SPEC files placed in /dev/shm/cpu2006 with /dev/shm
mounted as tempfs with mpol=interleave
The mpol=interleave option sets the NUMA memory allocation
policy for all files to allocate from each node in turn.
```

Platform Notes

```
Power Regulator set to HP Static High Performance Mode
```

Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

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
```

Continued on next page

Base Optimization Flags (Continued)

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

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

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:

Continued on next page

Peak Optimization Flags (Continued)

433.milc: -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 -opt-prefetch

470.lbm: -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 -ansi-alias -auto-ilp32

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

C++ benchmarks:

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

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

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:

Continued on next page

Peak Optimization Flags (Continued)

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-revE.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-revE.20100511.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20100525.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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