SPEC® CFP2006 Result

SGI

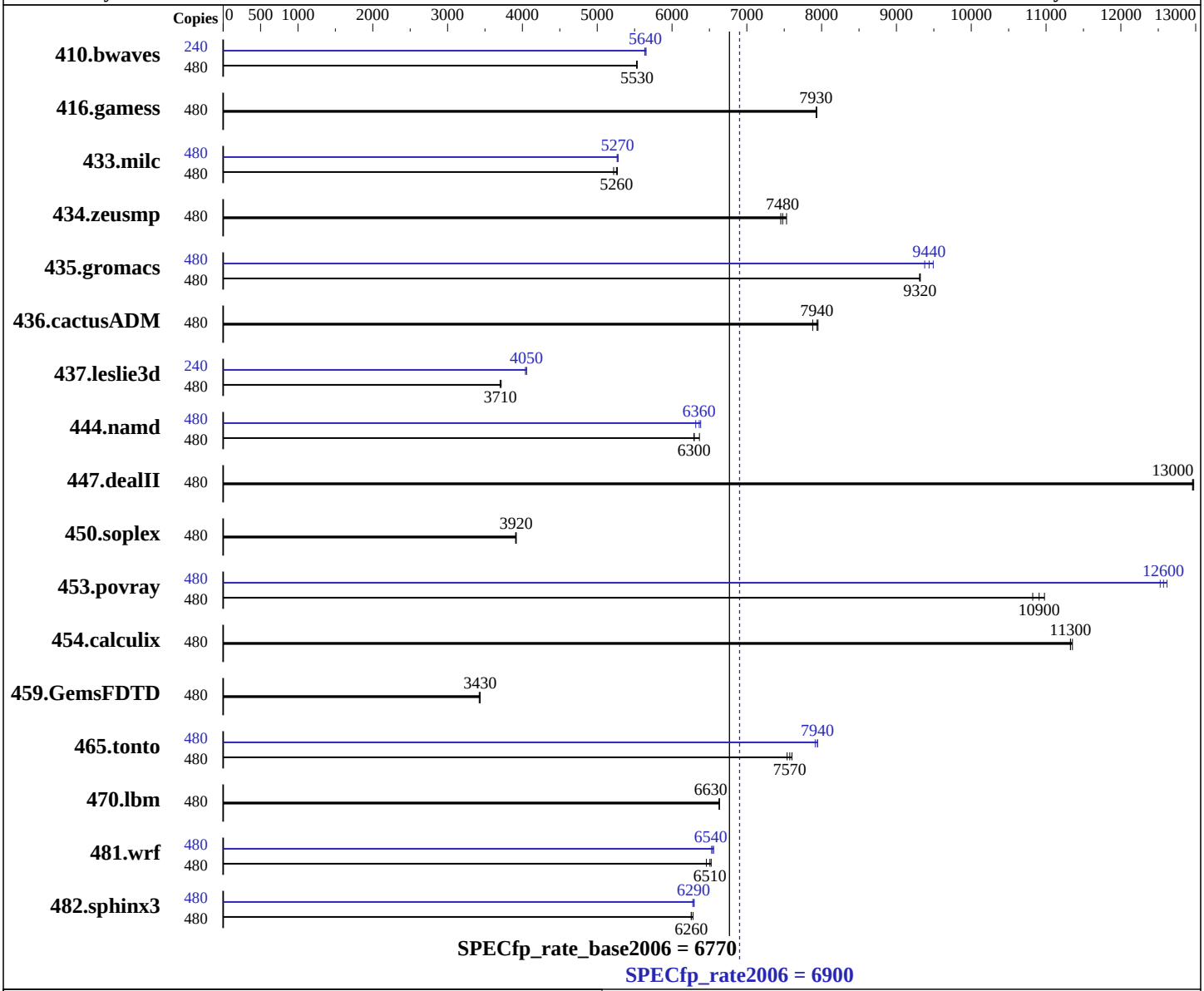
SGI UV 300 (Intel Xeon E7-8890 v2, 2.8 GHz)

SPECfp®_rate2006 = 6900

SPECfp_rate_base2006 = 6770

CPU2006 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Dec-2014
Hardware Availability: Dec-2014
Software Availability: Nov-2014



Hardware

CPU Name:	Intel Xeon E7-8890 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	240 cores, 16 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable:	4-32 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) SP3, Kernel 3.0.101-0.46-default
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multi-user)

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L3 Cache: 37.5 MB I+D on chip per chip
Other Cache: None
Memory: 2 TB (256 x 8 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
Disk Subsystem: 2 TB tmpfs
Other Hardware: None

Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: SGI Foundation Software 2.11, Build 711rp42.sles11sp3-1412152100

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	480	**1179**	**5530**	1180	5530	1179	5530	240	579	5630	577	5650	**578**	**5640**
416.gamess	480	**1185**	**7930**	1186	7930	1184	7940	480	**1185**	**7930**	1186	7930	1184	7940
433.milc	480	836	5270	844	5220	**838**	**5260**	480	**835**	**5270**	837	5270	835	5280
434.zeusmp	480	580	7530	**584**	**7480**	586	7450	480	580	7530	**584**	**7480**	586	7450
435.gromacs	480	**368**	**9320**	368	9320	368	9310	480	365	9380	**363**	**9440**	361	9490
436.cactusADM	480	721	7950	**723**	**7940**	728	7880	480	721	7950	**723**	**7940**	728	7880
437.leslie3d	480	1219	3700	1214	3720	**1218**	**3710**	240	**556**	**4050**	556	4060	558	4040
444.namd	480	605	6370	**611**	**6300**	612	6290	480	603	6380	609	6320	**605**	**6360**
447.dealII	480	**424**	**13000**	423	13000	424	13000	480	**424**	**13000**	423	13000	424	13000
450.soplex	480	**1022**	**3920**	1022	3920	1024	3910	480	**1022**	**3920**	1022	3920	1024	3910
453.povray	480	**234**	**10900**	236	10800	233	11000	480	**203**	**12600**	204	12500	202	12600
454.calculix	480	**350**	**11300**	349	11400	350	11300	480	**350**	**11300**	349	11400	350	11300
459.GemsFDTD	480	**1483**	**3430**	1488	3420	1483	3430	480	**1483**	**3430**	1488	3420	1483	3430
465.tonto	480	621	7600	**624**	**7570**	627	7540	480	597	7910	**595**	**7940**	595	7940
470.lbm	480	**994**	**6630**	995	6630	994	6630	480	**994**	**6630**	995	6630	994	6630
481.wrf	480	830	6460	822	6520	**824**	**6510**	480	821	6530	818	6560	**820**	**6540**
482.sphinx3	480	1495	6260	**1495**	**6260**	1489	6280	480	1486	6300	1490	6280	**1487**	**6290**

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

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"

Tmpfs filesystem set up with:
  mkdir -p /mnt/shm
  mount -t tmpfs -o size=2048g,rw tmpfs /mnt/shm/

Turbo mode activated with:
```

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Operating System Notes (Continued)

```
modprobe acpi_cpufreq
cpupower frequency-set -u 3400MHz -d 3400MHz -g performance
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/mnt/shm/cpu2006-1.2/libs/32:/mnt/shm/cpu2006-1.2/libs/64:/mnt/shm/cpu2006-1.2/sh"

 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1 > /proc/sys/vm/drop_caches
```

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:
`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

C++ benchmarks:
`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

Fortran benchmarks:
`-xAVX -ipo -O3 -no-prec-div -opt-prefetch`

Benchmarks using both Fortran and C:
`-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

Peak Compiler Invocation

C benchmarks:
`icc -m64`

C++ benchmarks:
`icpc -m64`

Fortran benchmarks:
`ifort -m64`

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-opt-mem-layout-trans=3`(pass 2) `-prof-use`(pass 2) `-auto-ilp32`

470.lbm: `basepeak = yes`

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Peak Optimization Flags (Continued)

482.sphinx3: -xAVX -prof-gen(pass 1) -ipo -O3 -no-prec-div -opt-mem-layout-trans=3 -prof-use(pass 2) -unroll2

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

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

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/SGI-UV300-Platform-Flags.html
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/SGI-UV300-Platform-Flags.xml
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Jan 27 13:29:48 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 27 January 2015.