SPEC® CFP2006 Result

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SGI

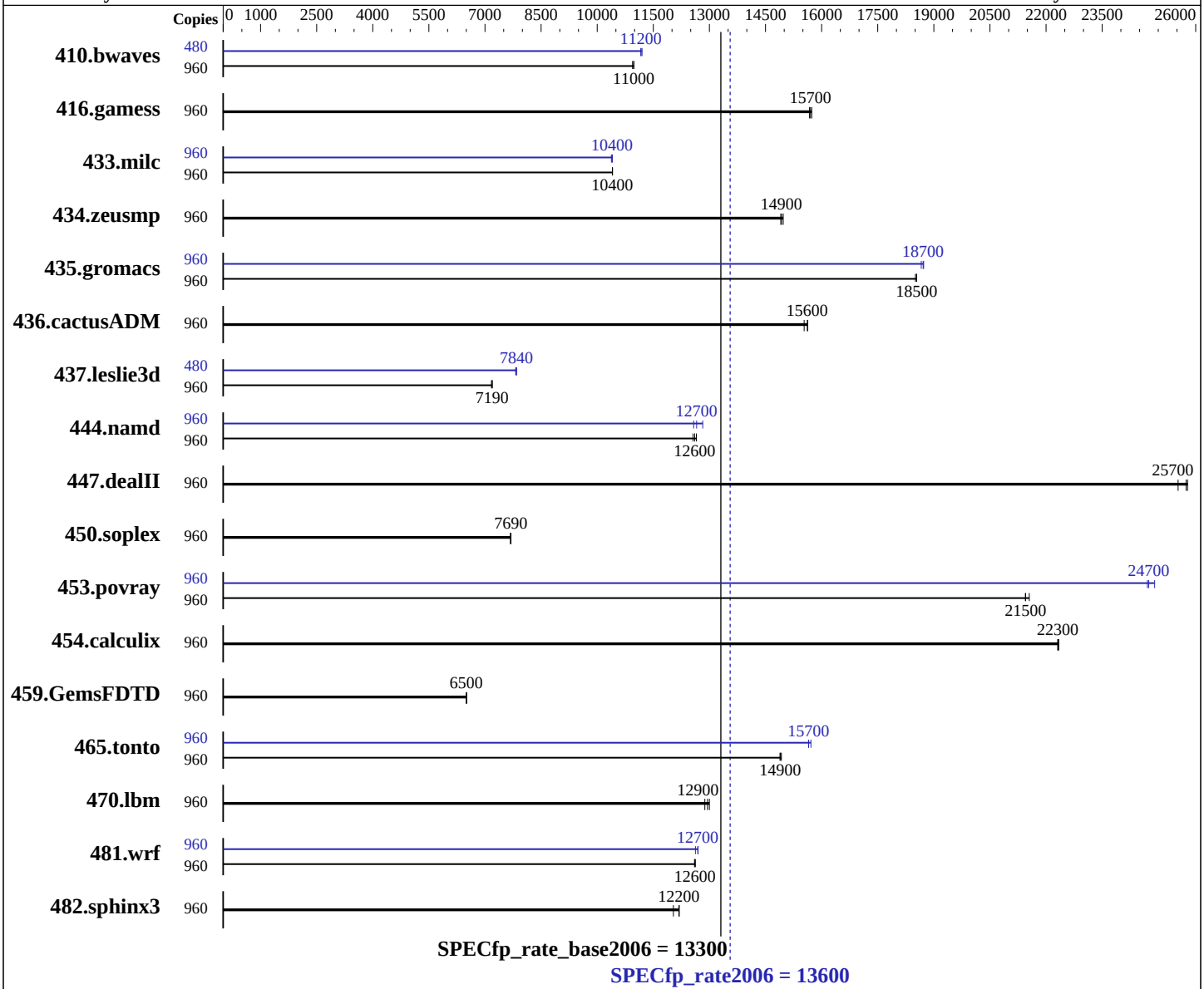
SGI UV 300 (Intel Xeon E7-8890 v2, 2.8 GHz)

SPECfp®_rate2006 = 13600

SPECfp_rate_base2006 = 13300

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:	480 cores, 32 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: 4 TB (256 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
Disk Subsystem: 4 TB tmpfs
Other Hardware: None

Base Pointers: 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	960	**1189**	**11000**	1192	10900	1188	11000	480	**584**	**11200**	582	11200	584	11200
416.gamess	960	1195	15700	**1197**	**15700**	1199	15700	960	1195	15700	**1197**	**15700**	1199	15700
433.milc	960	847	10400	**847**	**10400**	847	10400	960	847	10400	849	10400	**848**	**10400**
434.zeusmp	960	583	15000	586	14900	**585**	**14900**	960	583	15000	586	14900	**585**	**14900**
435.gromacs	960	370	18500	**370**	**18500**	370	18500	960	366	18700	367	18700	**366**	**18700**
436.cactusADM	960	**735**	**15600**	734	15600	739	15500	960	**735**	**15600**	734	15600	739	15500
437.leslie3d	960	1258	7170	1254	7200	**1255**	**7190**	480	575	7850	**576**	**7840**	577	7820
444.namd	960	613	12600	609	12700	**611**	**12600**	960	612	12600	**608**	**12700**	601	12800
447.dealII	960	426	25800	430	25500	**427**	**25700**	960	426	25800	430	25500	**427**	**25700**
450.soplex	960	**1041**	**7690**	1043	7680	1041	7690	960	**1041**	**7690**	1043	7680	1041	7690
453.povray	960	237	21600	**238**	**21500**	238	21400	960	205	24900	207	24700	**206**	**24700**
454.calculix	960	355	22300	**355**	**22300**	355	22300	960	355	22300	**355**	**22300**	355	22300
459.GemsFDTD	960	**1566**	**6500**	1567	6500	1566	6510	960	**1566**	**6500**	1567	6500	1566	6510
465.tonto	960	**634**	**14900**	635	14900	633	14900	960	**603**	**15700**	604	15700	601	15700
470.lbm	960	1024	12900	1015	13000	**1019**	**12900**	960	1024	12900	1015	13000	**1019**	**12900**
481.wrf	960	849	12600	851	12600	**850**	**12600**	960	845	12700	849	12600	**845**	**12700**
482.sphinx3	960	1554	12000	1534	12200	**1536**	**12200**	960	1554	12000	1534	12200	**1536**	**12200**

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=4096g,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: basepeak = yes

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

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