



# SPEC<sup>®</sup> CFP2006 Result

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## SGI

SPECfp<sup>®</sup>\_rate2006 = Not Run

SGI UV 2000 (Intel Xeon E5-4650, 2.7 GHz)

SPECfp\_rate\_base2006 = 12000

CPU2006 license: 4

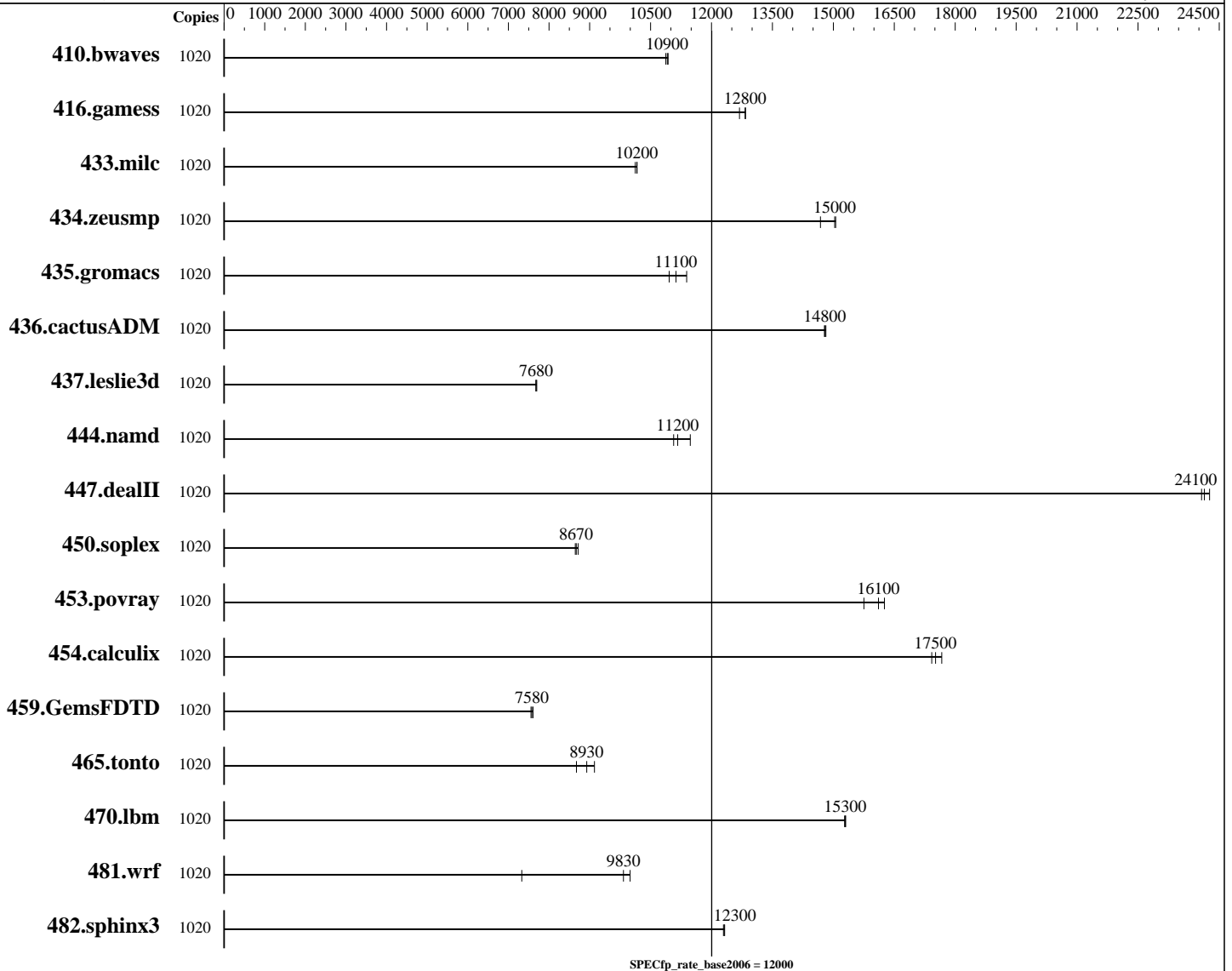
Test sponsor: SGI

Tested by: SGI

Test date: May-2012

Hardware Availability: Jun-2012

Software Availability: May-2012



### Hardware

CPU Name: Intel Xeon E5-4650  
 CPU Characteristics: Intel Turbo Boost Technology disabled  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 512 cores, 64 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 4-256 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) SP2, Kernel 3.0.13-0.27.1-uv  
 Compiler: C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.3.293 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: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 2 TB (256 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 2 TB tmpfs  
Other Hardware: NUMALink6 routers

Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: SGI Foundation Software 2.6,  
Build 706r30.sles11sp2-1205012006  
SGI Accelerate 1.4,  
Build 706r30.sles11sp2-1205012006

## Results Table

| Benchmark     | Base   |             |              |             |              |             |              | Peak   |         |       |         |       |         |       |
|---------------|--------|-------------|--------------|-------------|--------------|-------------|--------------|--------|---------|-------|---------|-------|---------|-------|
|               | Copies | Seconds     | Ratio        | Seconds     | Ratio        | Seconds     | Ratio        | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves    | 1020   | <b>1270</b> | <b>10900</b> | 1268        | 10900        | 1275        | 10900        |        |         |       |         |       |         |       |
| 416.gamess    | 1020   | 1556        | 12800        | <b>1557</b> | <b>12800</b> | 1574        | 12700        |        |         |       |         |       |         |       |
| 433.milc      | 1020   | <b>921</b>  | <b>10200</b> | 921         | 10200        | 925         | 10100        |        |         |       |         |       |         |       |
| 434.zeusmp    | 1020   | 632         | 14700        | 616         | 15100        | <b>617</b>  | <b>15000</b> |        |         |       |         |       |         |       |
| 435.gromacs   | 1020   | 639         | 11400        | 665         | 11000        | <b>655</b>  | <b>11100</b> |        |         |       |         |       |         |       |
| 436.cactusADM | 1020   | 825         | 14800        | <b>824</b>  | <b>14800</b> | 823         | 14800        |        |         |       |         |       |         |       |
| 437.leslie3d  | 1020   | <b>1248</b> | <b>7680</b>  | 1249        | 7670         | 1245        | 7700         |        |         |       |         |       |         |       |
| 444.namd      | 1020   | 713         | 11500        | <b>733</b>  | <b>11200</b> | 739         | 11100        |        |         |       |         |       |         |       |
| 447.dealII    | 1020   | 481         | 24300        | 485         | 24100        | <b>484</b>  | <b>24100</b> |        |         |       |         |       |         |       |
| 450.soplex    | 1020   | 984         | 8650         | 976         | 8720         | <b>981</b>  | <b>8670</b>  |        |         |       |         |       |         |       |
| 453.povray    | 1020   | 344         | 15800        | 334         | 16300        | <b>337</b>  | <b>16100</b> |        |         |       |         |       |         |       |
| 454.calculix  | 1020   | <b>480</b>  | <b>17500</b> | 483         | 17400        | 476         | 17700        |        |         |       |         |       |         |       |
| 459.GemsFDTD  | 1020   | 1432        | 7560         | <b>1429</b> | <b>7580</b>  | 1423        | 7610         |        |         |       |         |       |         |       |
| 465.tonto     | 1020   | <b>1124</b> | <b>8930</b>  | 1101        | 9120         | 1157        | 8670         |        |         |       |         |       |         |       |
| 470.lbm       | 1020   | <b>916</b>  | <b>15300</b> | 916         | 15300        | 917         | 15300        |        |         |       |         |       |         |       |
| 481.wrf       | 1020   | <b>1159</b> | <b>9830</b>  | 1555        | 7330         | 1140        | 10000        |        |         |       |         |       |         |       |
| 482.sphinx3   | 1020   | 1617        | 12300        | 1613        | 12300        | <b>1615</b> | <b>12300</b> |        |         |       |         |       |         |       |

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

## Submit Notes

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

## Operating System Notes

Tmpfs filesystem set up with:  
mount -t tmpfs -o remount,size=2048g,rw,mpol=interleave tmpfs /dev/shm/  
The mpol=interleave option sets the NUMA memory allocation policy for all files to allocate from each node in turn.  
Stack size set to unlimited using "ulimit -s unlimited"  
Kernel is generally available as 3.0.26-0.7.6.4317.0.PTF-default



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## General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/dev/shm/cpu2006-1.2/libs/32:/dev/shm/cpu2006-1.2/libs/64"

Binaries compiled on a system with 2x Xeon E5540 CPU + 32GB memory using SLES11 SP1

Transparent Huge Pages disabled with:

```
echo never > /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

```



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## 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

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/SGI-platform.20120605.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/SGI-platform.20120605.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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