



# SPEC<sup>®</sup> CFP2006 Result

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## SGI

SGI Rackable C2112-4TY14 (Intel Xeon X5675, 3.07 GHz)

SPECfp<sup>®</sup>2006 = **62.1**

SPECfp\_base2006 = **59.3**

CPU2006 license: 4

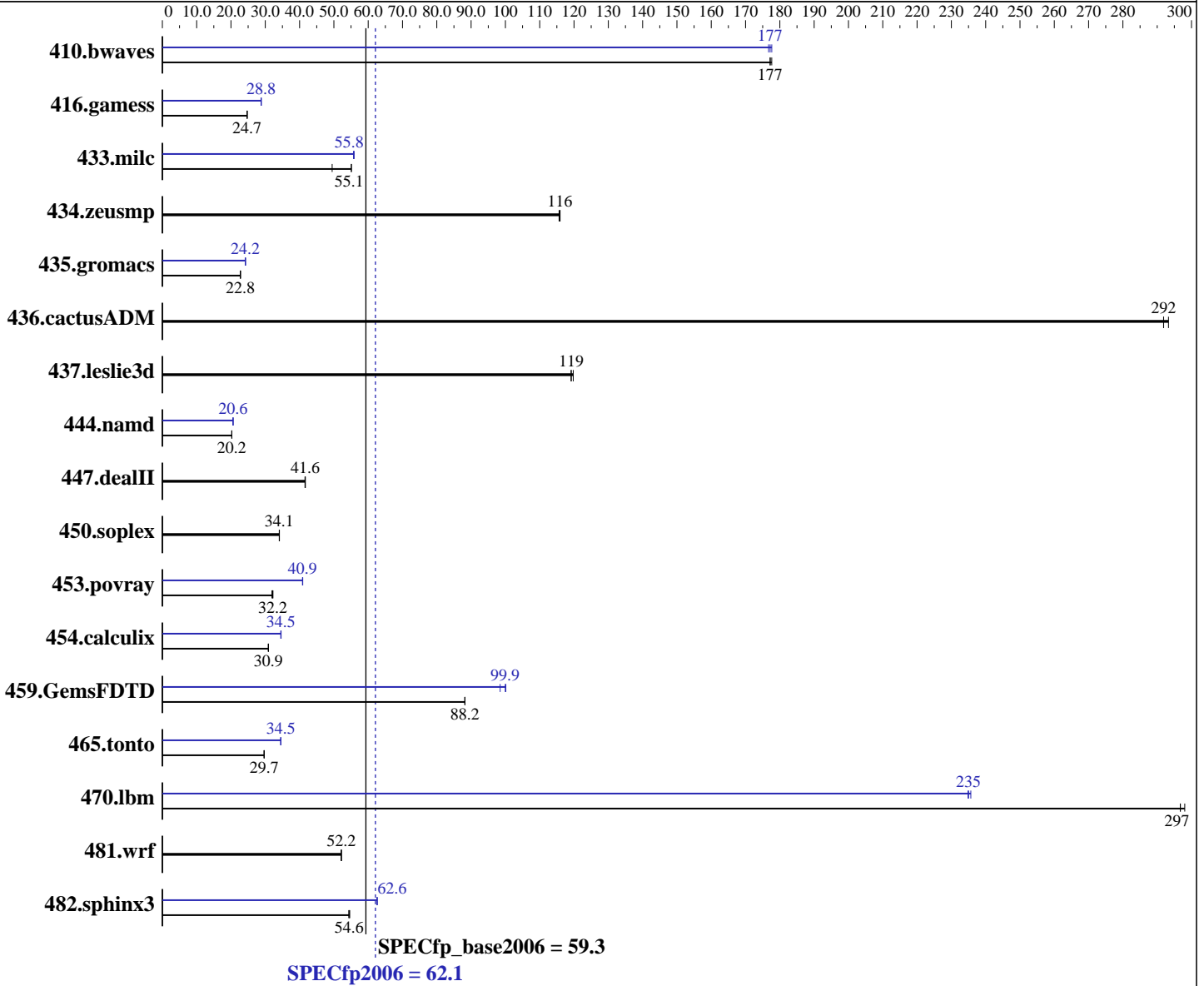
Test sponsor: SGI

Tested by: SGI

Test date: Apr-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



### Hardware

CPU Name: Intel Xeon X5675  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3067  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chip  
 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 2.6.32.27-0.2-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Update 3  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

Continued on next page



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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)  
Disk Subsystem: 2 x 300 GB SATA, 10000 RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	76.5	178	<b>76.7</b>	<b>177</b>	76.7	177	<b>76.7</b>	<b>177</b>	76.5	178	76.9	177
416.gamess	792	24.7	793	24.7	<b>792</b>	<b>24.7</b>	<b>680</b>	<b>28.8</b>	679	28.8	680	28.8
433.milc	167	55.1	185	49.5	<b>167</b>	<b>55.1</b>	<b>164</b>	<b>55.8</b>	164	55.9	165	55.7
434.zeusmp	78.7	116	78.5	116	<b>78.5</b>	<b>116</b>	78.7	116	78.5	116	<b>78.5</b>	<b>116</b>
435.gromacs	314	22.7	313	22.8	<b>314</b>	<b>22.8</b>	295	24.2	295	24.2	<b>295</b>	<b>24.2</b>
436.cactusADM	40.7	293	40.9	292	<b>40.9</b>	<b>292</b>	40.7	293	40.9	292	<b>40.9</b>	<b>292</b>
437.leslie3d	78.5	120	78.9	119	<b>78.9</b>	<b>119</b>	78.5	120	78.9	119	<b>78.9</b>	<b>119</b>
444.namd	396	20.3	396	20.2	<b>396</b>	<b>20.2</b>	389	20.6	<b>389</b>	<b>20.6</b>	389	20.6
447.dealII	<b>275</b>	<b>41.6</b>	275	41.6	274	41.7	<b>275</b>	<b>41.6</b>	275	41.6	274	41.7
450.soplex	245	34.1	244	34.1	<b>245</b>	<b>34.1</b>	245	34.1	244	34.1	<b>245</b>	<b>34.1</b>
453.povray	167	31.9	<b>165</b>	<b>32.2</b>	165	32.2	130	40.9	<b>130</b>	<b>40.9</b>	130	40.9
454.calculix	267	30.9	267	30.9	<b>267</b>	<b>30.9</b>	238	34.6	<b>239</b>	<b>34.5</b>	239	34.5
459.GemsFDTD	<b>120</b>	<b>88.2</b>	120	88.2	120	88.2	<b>106</b>	<b>99.9</b>	106	100	108	98.5
465.tonto	332	29.6	<b>331</b>	<b>29.7</b>	331	29.7	<b>285</b>	<b>34.5</b>	285	34.5	285	34.5
470.lbm	<b>46.3</b>	<b>297</b>	46.3	297	46.1	298	58.5	235	<b>58.5</b>	<b>235</b>	58.3	236
481.wrf	214	52.2	214	52.2	<b>214</b>	<b>52.2</b>	214	52.2	214	52.2	<b>214</b>	<b>52.2</b>
482.sphinx3	<b>357</b>	<b>54.6</b>	357	54.6	359	54.3	311	62.6	311	62.6	<b>311</b>	<b>62.6</b>

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
Set 900 in /proc/sys/vm/nr_hugepages
mount -t hugetlbfs nodev /mnt/hugepages
```

## General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,compact,1
KMP_STACKSIZE set to 200M
Binaries compiled on RHEL5.5 with
binutils-2.17.50.0.6-14.el5
```



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## 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 -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias



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

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -parallel  
-ansi-alias -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

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

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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## Peak Optimization Flags (Continued)

Fortran benchmarks:

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

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep- -static

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) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc -opt-malloc-options=3 -auto -unroll4 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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) -prof-use(pass 2) -static -auto-ilp32 -ansi-alias

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic12.0-linux64-revB.html>  
<http://www.spec.org/cpu2006/flags/platform.20110524.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>  
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