



# SPEC® CFP2006 Result

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## SGI

SGI Rackable C2005-TY3 (Intel Xeon X5687, 3.60 GHz)

SPECfp®2006 = **67.0**

SPECfp\_base2006 = **64.9**

CPU2006 license: 4

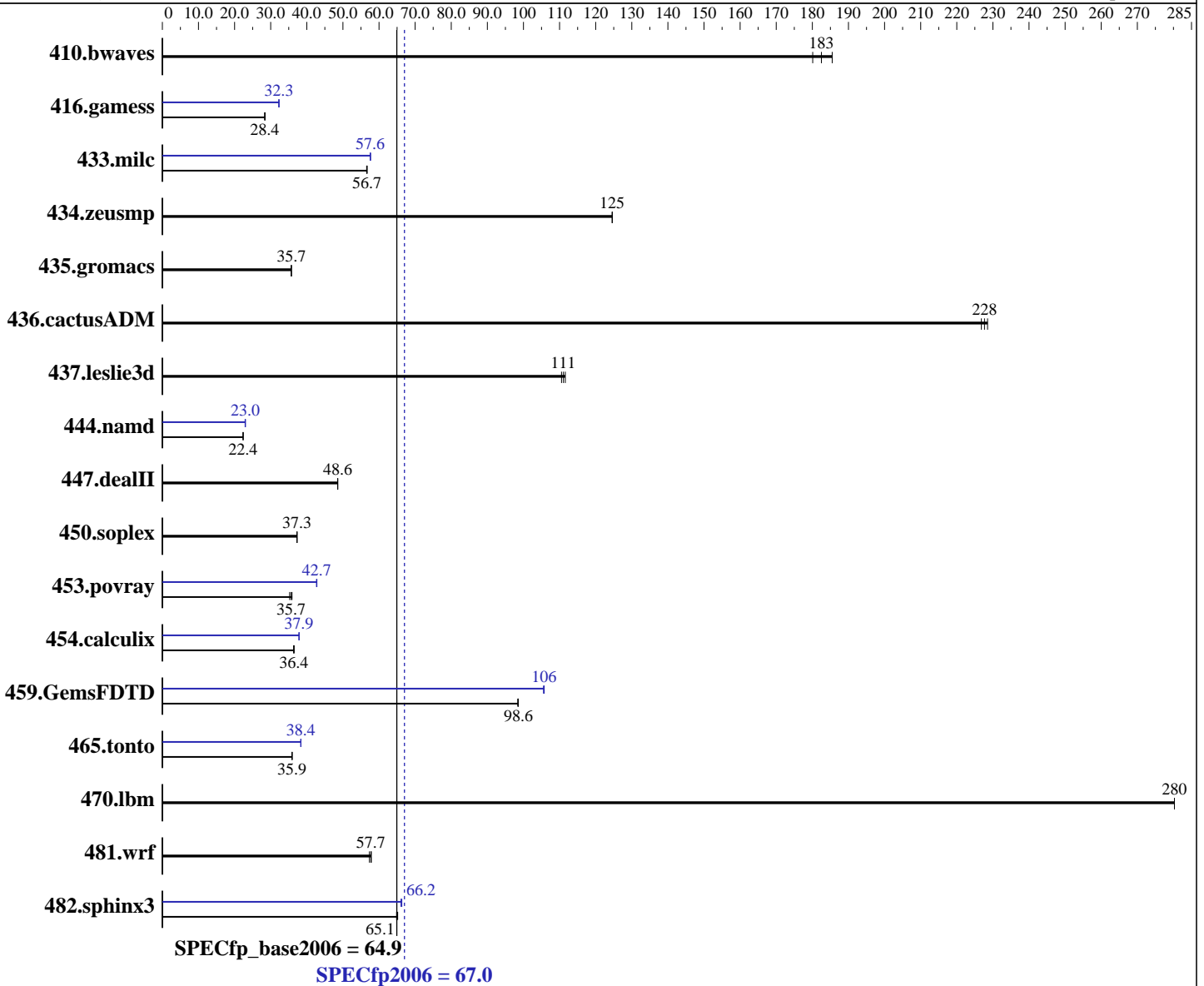
Test sponsor: SGI

Tested by: SGI

Test date: Aug-2011

Hardware Availability: Feb-2011

Software Availability: Sep-2011



### Hardware

CPU Name: Intel Xeon X5687  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.86 GHz  
 CPU MHz: 3600  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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 2.6.32.36-0.5-default  
 Compiler: Intel C++ and Fortran Compiler XE for applications running on IA32 and Intel 64 12.1.0.225 Build 20110803  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
Disk Subsystem: 876 GB RAID 5  
6 x 146 GB SAS, 15000 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	75.5	180	<b><u>74.5</u></b>	<b><u>183</u></b>	73.3	186	75.5	180	<b><u>74.5</u></b>	<b><u>183</u></b>	73.3	186
416.gamess	688	28.4	<b><u>690</u></b>	<b><u>28.4</u></b>	691	28.3	606	32.3	<b><u>607</u></b>	<b><u>32.3</u></b>	607	32.3
433.milc	162	56.6	162	56.7	<b><u>162</u></b>	<b><u>56.7</u></b>	159	57.7	<b><u>159</u></b>	<b><u>57.6</u></b>	160	57.5
434.zeusmp	<b><u>73.0</u></b>	<b><u>125</u></b>	73.0	125	73.0	125	<b><u>73.0</u></b>	<b><u>125</u></b>	73.0	125	73.0	125
435.gromacs	<b><u>200</u></b>	<b><u>35.7</u></b>	200	35.7	200	35.7	<b><u>200</u></b>	<b><u>35.7</u></b>	200	35.7	200	35.7
436.cactusADM	52.7	227	<b><u>52.5</u></b>	<b><u>228</u></b>	52.3	229	52.7	227	<b><u>52.5</u></b>	<b><u>228</u></b>	52.3	229
437.leslie3d	<b><u>84.6</u></b>	<b><u>111</u></b>	85.0	111	84.2	112	<b><u>84.6</u></b>	<b><u>111</u></b>	85.0	111	84.2	112
444.namd	<b><u>359</u></b>	<b><u>22.4</u></b>	358	22.4	359	22.4	<b><u>349</u></b>	<b><u>23.0</u></b>	349	23.0	350	22.9
447.dealII	236	48.6	<b><u>236</u></b>	<b><u>48.6</u></b>	236	48.6	236	48.6	<b><u>236</u></b>	<b><u>48.6</u></b>	236	48.6
450.soplex	224	37.3	224	37.3	<b><u>224</u></b>	<b><u>37.3</u></b>	224	37.3	224	37.3	<b><u>224</u></b>	<b><u>37.3</u></b>
453.povray	148	35.9	151	35.2	<b><u>149</u></b>	<b><u>35.7</u></b>	125	42.7	124	42.8	<b><u>124</u></b>	<b><u>42.7</u></b>
454.calculix	226	36.5	227	36.4	<b><u>227</u></b>	<b><u>36.4</u></b>	218	37.9	<b><u>218</u></b>	<b><u>37.9</u></b>	218	37.8
459.GemsFDTD	108	98.4	108	98.6	<b><u>108</u></b>	<b><u>98.6</u></b>	<b><u>100</u></b>	<b><u>106</u></b>	101	106	100	106
465.tonto	<b><u>274</u></b>	<b><u>35.9</u></b>	274	35.9	274	35.9	256	38.4	<b><u>257</u></b>	<b><u>38.4</u></b>	257	38.3
470.lbm	49.0	280	<b><u>49.0</u></b>	<b><u>280</u></b>	49.0	280	49.0	280	<b><u>49.0</u></b>	<b><u>280</u></b>	49.0	280
481.wrf	193	57.9	195	57.3	<b><u>193</u></b>	<b><u>57.7</u></b>	193	57.9	195	57.3	<b><u>193</u></b>	<b><u>57.7</u></b>
482.sphinx3	299	65.2	<b><u>299</u></b>	<b><u>65.1</u></b>	300	64.9	295	66.1	<b><u>294</u></b>	<b><u>66.2</u></b>	294	66.3

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

## General Notes

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

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/scratch/cma/cpu2006-1.1/smartheap:/scratch/cma/cpu2006-1.1/ic12.1-libs/ia32:/scratch/cma/cpu2006-1.1/ic12.1-libs/intel64"

OMP\_NUM\_THREADS = "8"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory  
using RHEL5.5 with binutils-2.17.50.0.6-14.el5  
Stack size set to unlimited using "ulimit -s unlimited"



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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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**Tested by:** SGI

**Test date:** Aug-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Sep-2011

## 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: basepeak = yes

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.dealIII: 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

Fortran benchmarks:

410.bwaves: basepeak = yes

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## Peak Optimization Flags (Continued)

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

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

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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-ic12.1-linux64.html>

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

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

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

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

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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