



SPEC® CFP2006 Result

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SGI

SGI Rackable C2112-4RP4 (Intel Xeon E5-2697 v2, 2.70 GHz)

SPECfp®2006 = 94.7

SPECfp_base2006 = 89.6

CPU2006 license: 4

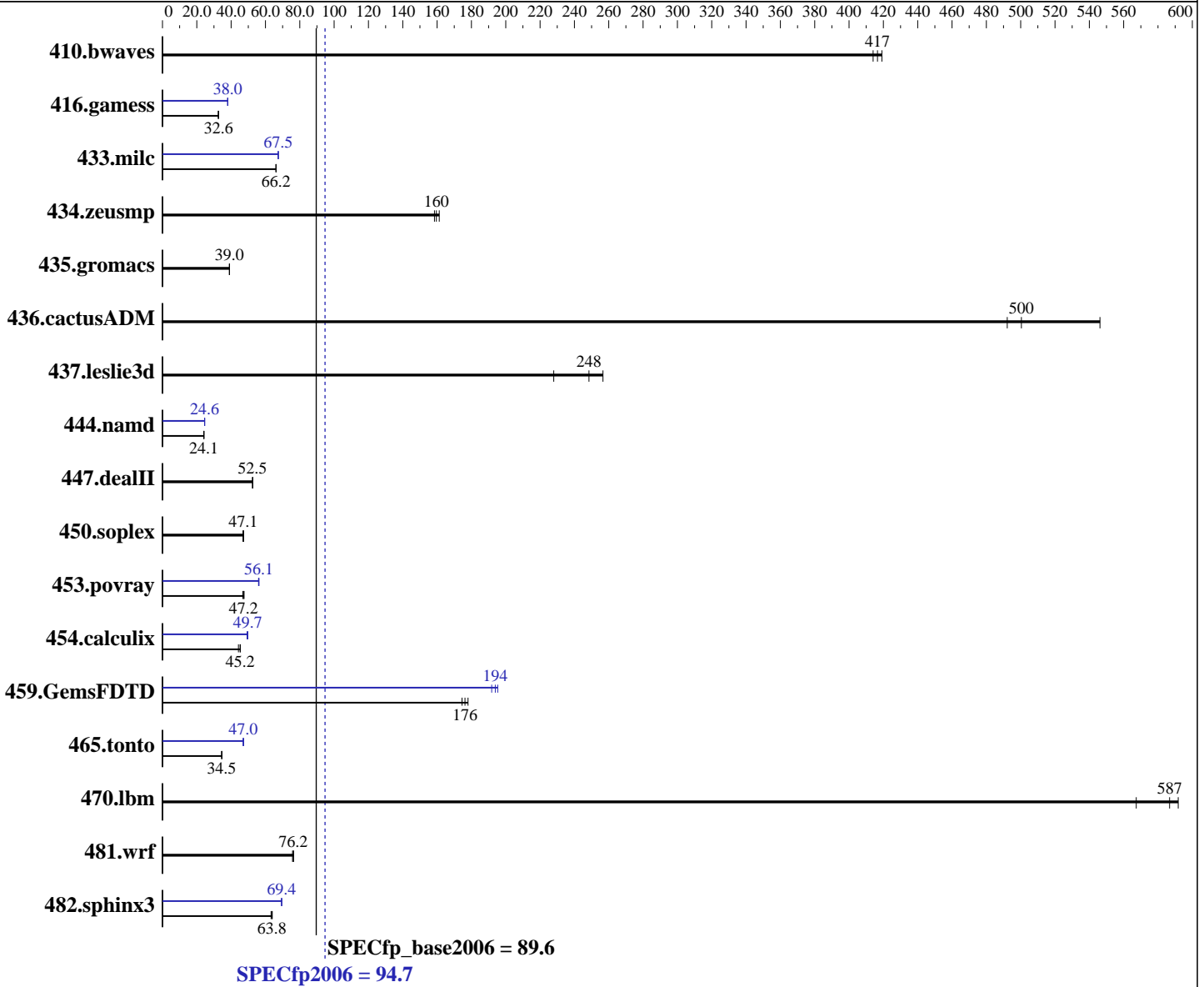
Test sponsor: SGI

Tested by: SGI

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Aug-2013



Hardware

CPU Name: Intel Xeon E5-2697 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 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

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP2, kernel 3.0.74-0.6.6-default
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: xfs
 System State: Run level 3 (multi-user)

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L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 2 x 600 GB SAS, 15000 RPM
Other Hardware: None

Base Pointers: 64-bit
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	32.4	419	32.8	414	<u>32.6</u>	<u>417</u>	32.4	419	32.8	414	<u>32.6</u>	<u>417</u>
416.gamess	<u>600</u>	<u>32.6</u>	602	32.5	600	32.6	<u>515</u>	<u>38.0</u>	515	38.1	516	38.0
433.milc	139	66.2	139	66.1	<u>139</u>	<u>66.2</u>	136	67.4	136	67.5	<u>136</u>	<u>67.5</u>
434.zeusmp	<u>57.0</u>	<u>160</u>	57.4	158	56.4	161	<u>57.0</u>	<u>160</u>	57.4	158	56.4	161
435.gromacs	<u>183</u>	<u>39.0</u>	183	39.1	183	39.0	<u>183</u>	<u>39.0</u>	183	39.1	183	39.0
436.cactusADM	24.3	492	21.9	546	<u>23.9</u>	<u>500</u>	24.3	492	21.9	546	<u>23.9</u>	<u>500</u>
437.leslie3d	<u>37.8</u>	<u>248</u>	41.2	228	36.6	257	<u>37.8</u>	<u>248</u>	41.2	228	36.6	257
444.namd	332	24.2	<u>332</u>	<u>24.1</u>	333	24.1	326	24.6	<u>326</u>	<u>24.6</u>	326	24.6
447.dealII	217	52.6	<u>218</u>	<u>52.5</u>	218	52.4	217	52.6	<u>218</u>	<u>52.5</u>	218	52.4
450.soplex	178	46.9	176	47.3	<u>177</u>	<u>47.1</u>	178	46.9	176	47.3	<u>177</u>	<u>47.1</u>
453.povray	112	47.5	114	46.8	<u>113</u>	<u>47.2</u>	<u>94.8</u>	<u>56.1</u>	94.6	56.2	95.1	56.0
454.calculix	<u>182</u>	<u>45.2</u>	186	44.3	182	45.4	<u>166</u>	<u>49.7</u>	166	49.7	167	49.3
459.GemsFDTD	<u>60.2</u>	<u>176</u>	59.6	178	60.8	175	<u>54.7</u>	<u>194</u>	55.3	192	54.3	195
465.tonto	286	34.5	284	34.7	<u>285</u>	<u>34.5</u>	208	47.3	209	47.0	<u>209</u>	<u>47.0</u>
470.lbm	24.2	567	23.2	592	<u>23.4</u>	<u>587</u>	24.2	567	23.2	592	<u>23.4</u>	<u>587</u>
481.wrf	<u>147</u>	<u>76.2</u>	147	75.8	146	76.4	<u>147</u>	<u>76.2</u>	147	75.8	146	76.4
482.sphinx3	305	64.0	308	63.3	<u>306</u>	<u>63.8</u>	<u>281</u>	<u>69.4</u>	280	69.5	281	69.3

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

Operating System Notes

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

Platform Notes

Sysinfo program /scratch_local/cpu2006-v1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on n013 Thu Aug 22 20:41:22 2013

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2697 v2 @ 2.70GHz
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Platform Notes (Continued)

```

2 "physical id"s (chips)
48 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
  cpu cores : 12
  siblings  : 24
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB

From /proc/meminfo
MemTotal:      132068080 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

/usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
SuSE-release:
    SUSE Linux Enterprise Server 11 (x86_64)
    VERSION = 11
    PATCHLEVEL = 2
sgi-accelerate-release: SGI Accelerate 1.6, Build 708r14.sles11sp2-1304102205
sgi-foundation-release: SGI Foundation Software 2.8, Build
708r14.sles11sp2-1304102205
sgi-mpi-release: SGI MPI 1.6, Build 708r14.sles11sp2-1304102205
sgi-upc-release: SGI UPC 1.6, Build 708r14.sles11sp2-1304102205

uname -a:
Linux n013 3.0.74-0.6.6-default #1 SMP Thu Apr 25 12:25:38 UTC 2013 (395d734)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 2 06:38 last=S

SPEC is set to: /scratch_local/cpu2006-v1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/md3         xfs   1012G  94G  918G  10% /scratch_local

Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

(End of data from sysinfo program)

```

General Notes

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

```
LD_LIBRARY_PATH = "/scratch_local/cpu2006-v1.2/libs/32:/scratch_local/cpu2006-v1.2/libs/64:/scratch_local/cpu2006-v1.2/sh"
OMP_NUM_THREADS = "24"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

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General Notes (Continued)

memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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.deall: -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 -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias`

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

470.lbm: `basepeak = yes`

482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

C++ benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

444.namd: -xAVX(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: -xAVX(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

416.gamess: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX -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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/SGI-platform-2S.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/SGI-platform-2S.xml>



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