



SPEC[®] CFP2006 Result

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Sugon I950r-G (Intel Xeon E7-8850)

SPECfp[®]_rate2006 = 974

SPECfp_rate_base2006 = 954

CPU2006 license: 9046

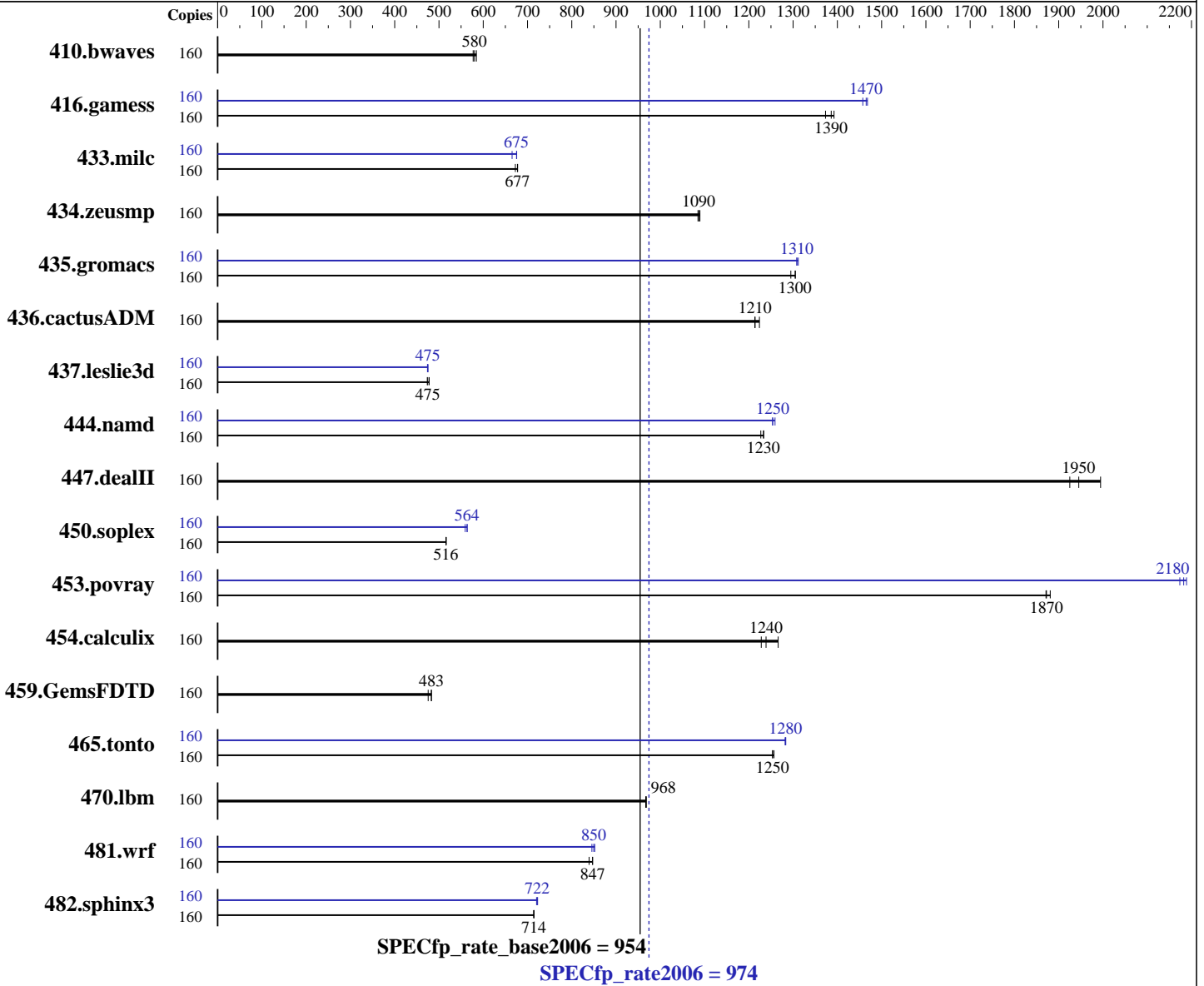
Test sponsor: Sugon

Tested by: Sugon

Test date: Apr-2013

Hardware Availability: Apr-2011

Software Availability: Jun-2012



Hardware

CPU Name: Intel Xeon E7-8850
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2,3,4,5,6,7,8 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: Red Hat Enterprise Linux Server release 6.3 (Santiago)
 2.6.32-279.el6.x86_64
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (64 x 8 GB 2Rx4 PC3-10600R-11, ECC)
Disk Subsystem: 1 x 2 TB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (Full multiuser with network)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	160	3720	585	<u>3748</u>	<u>580</u>	3767	577	160	3720	585	<u>3748</u>	<u>580</u>	3767	577
416.gamess	160	2250	1390	<u>2260</u>	<u>1390</u>	2281	1370	160	2134	1470	2150	1460	<u>2138</u>	<u>1470</u>
433.milc	160	<u>2169</u>	<u>677</u>	2184	673	2167	678	160	<u>2175</u>	<u>675</u>	2174	676	2208	665
434.zeusmp	160	<u>1340</u>	<u>1090</u>	1342	1090	1336	1090	160	<u>1340</u>	<u>1090</u>	1342	1090	1336	1090
435.gromacs	160	<u>876</u>	<u>1300</u>	882	1290	875	1310	160	871	1310	873	1310	<u>873</u>	<u>1310</u>
436.cactusADM	160	1575	1210	1562	1220	<u>1575</u>	<u>1210</u>	160	1575	1210	1562	1220	<u>1575</u>	<u>1210</u>
437.leslie3d	160	3147	478	3176	474	<u>3168</u>	<u>475</u>	160	3173	474	3165	475	<u>3169</u>	<u>475</u>
444.namd	160	1046	1230	<u>1041</u>	<u>1230</u>	1040	1230	160	1024	1250	<u>1023</u>	<u>1250</u>	1019	1260
447.dealII	160	951	1930	918	1990	<u>941</u>	<u>1950</u>	160	951	1930	918	1990	<u>941</u>	<u>1950</u>
450.soplex	160	2587	516	<u>2587</u>	<u>516</u>	2584	516	160	<u>2368</u>	<u>564</u>	2367	564	2386	559
453.povray	160	455	1870	453	1880	<u>455</u>	<u>1870</u>	160	389	2190	<u>390</u>	<u>2180</u>	392	2170
454.calculix	160	<u>1065</u>	<u>1240</u>	1042	1270	1075	1230	160	<u>1065</u>	<u>1240</u>	1042	1270	1075	1230
459.GemsFDTD	160	3569	476	3515	483	<u>3517</u>	<u>483</u>	160	3569	476	3515	483	<u>3517</u>	<u>483</u>
465.tonto	160	1253	1260	<u>1256</u>	<u>1250</u>	1256	1250	160	1227	1280	<u>1227</u>	<u>1280</u>	1228	1280
470.lbm	160	2273	967	<u>2271</u>	<u>968</u>	2271	968	160	2273	967	<u>2271</u>	<u>968</u>	2271	968
481.wrf	160	<u>2110</u>	<u>847</u>	2130	839	2110	847	160	2098	852	<u>2104</u>	<u>850</u>	2114	845
482.sphinx3	160	4367	714	4362	715	<u>4367</u>	<u>714</u>	160	<u>4319</u>	<u>722</u>	4314	723	4329	720

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"

Platform Notes

Sysinfo program /home/speccpu/config/sysinfo.rev6800
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
running on speccpu.sugon.com Wed Apr 17 05:40:06 2013

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Platform Notes (Continued)

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 E7- 8850 @ 2.00GHz
 8 "physical id"s (chips)
160 "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      : 10
siblings       : 20
physical 0:    : cores 0 1 2 8 9 16 17 18 24 25
physical 1:    : cores 0 1 2 8 9 16 17 18 24 25
physical 2:    : cores 0 1 2 8 9 16 17 18 24 25
physical 3:    : cores 0 1 2 8 9 16 17 18 24 25
physical 4:    : cores 0 1 2 8 9 16 17 18 24 25
physical 5:    : cores 0 1 2 8 9 16 17 18 24 25
physical 6:    : cores 0 1 2 8 9 16 17 18 24 25
physical 7:    : cores 0 1 2 8 9 16 17 18 24 25
cache size     : 24576 KB
```

```
From /proc/meminfo
MemTotal:      529291760 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.3 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.3 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux speccpu.sugon.com 2.6.32-279.el6.x86_64 #1 SMP Wed Jun 13 18:24:36 EDT 2012 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Apr 16 21:36
```

```
SPEC is set to: /home/speccpu
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/mapper/vg_speccpu-lv_home
ext4            1.8T      703G      988G    42% /home
```

```
Additional information from dmidecode:
Memory:
64x Samsung M393B1G70BH0-YK0 8 GB 1067 MHz 1 rank
```

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Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/speccpu/libs/32:/home/speccpu/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
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.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

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Base Portability Flags (Continued)

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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

```
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
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
```

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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2
```

C++ benchmarks:

```
444.namd: -xSSE4.2(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: -xSSE4.2(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-malloc-options=3

453.povray: -xSSE4.2(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: 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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

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) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

The flags file that was used to format this result can be browsed at

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

You can also download the XML flags source by saving the following link:

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

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