SPEC® CFP2006 Result

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Sugon

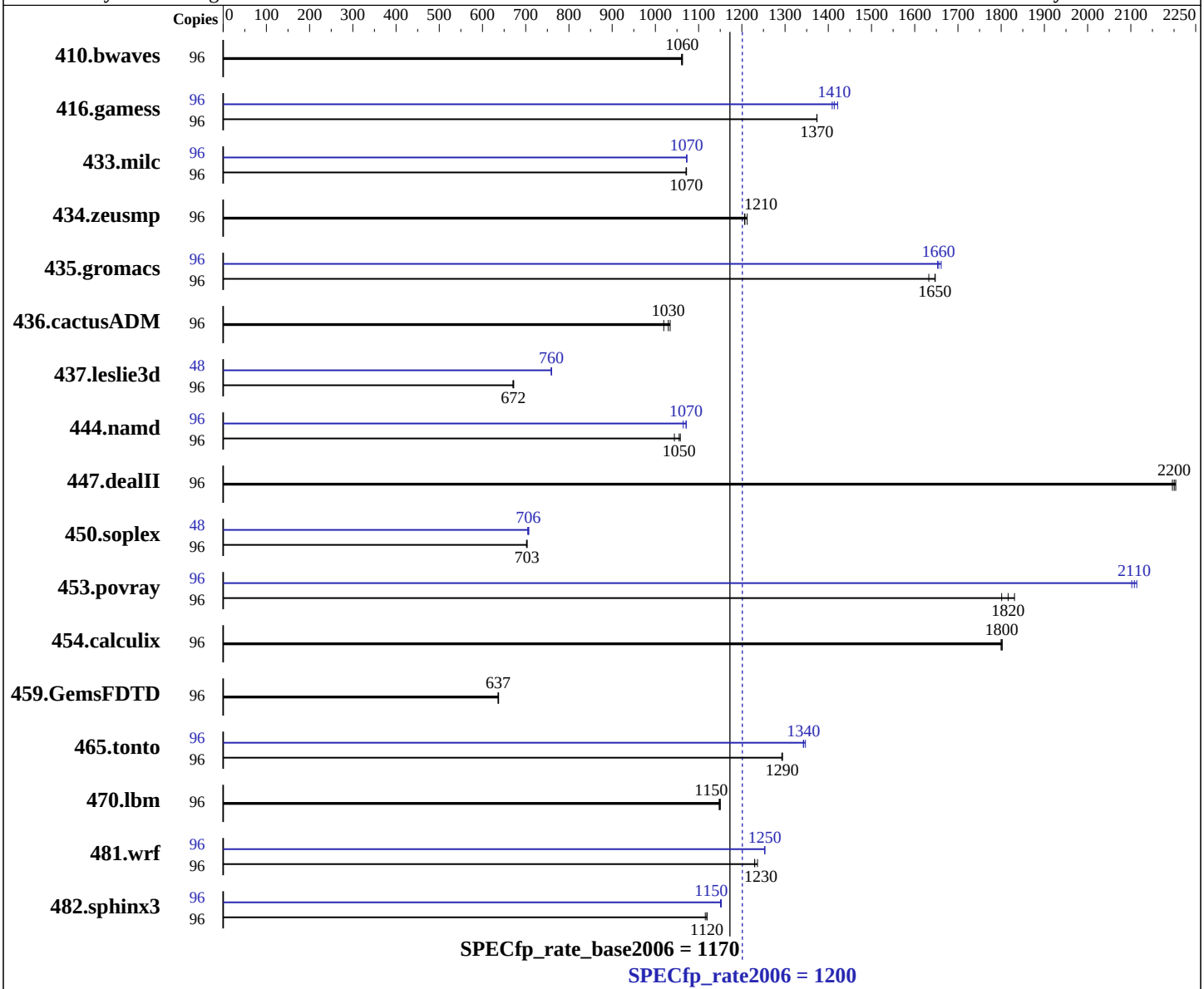
Sugon I840-G25 (Intel Xeon E7-4850 v2)

SPECfp®_rate2006 = 1200

SPECfp_rate_base2006 = 1170

CPU2006 license: 9046
Test sponsor: Sugon
Tested by: Sugon

Test date: Jun-2014
Hardware Availability: Jun-2014
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E7-4850 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	48 cores, 4 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.el6.x86_64
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:	No
File System:	ext4

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L3 Cache: 24 MB I+D on chip per chip
Other Cache: None
Memory: 1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, running at 1067 MHz, ECC)
Disk Subsystem: 1 x 300 GB SATA Disk
Other Hardware: None

System State: Run level 3 (multi-user)
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	96	**1229**	**1060**	1227	1060	1230	1060	96	**1229**	**1060**	1227	1060	1230	1060
416.gamess	96	**1368**	**1370**	1368	1370	1369	1370	96	1334	1410	1322	1420	**1329**	**1410**
433.milc	96	**822**	**1070**	823	1070	822	1070	96	821	1070	822	1070	**822**	**1070**
434.zeusmp	96	721	1210	724	1210	**724**	**1210**	96	721	1210	724	1210	**724**	**1210**
435.gromacs	96	**416**	**1650**	420	1630	416	1650	96	**414**	**1660**	415	1650	413	1660
436.cactusADM	96	1125	1020	**1114**	**1030**	1109	1030	96	1125	1020	**1114**	**1030**	1109	1030
437.leslie3d	96	1346	670	**1343**	**672**	1343	672	48	595	759	**594**	**760**	594	760
444.namd	96	**730**	**1050**	738	1040	728	1060	96	723	1060	719	1070	**719**	**1070**
447.dealII	96	500	2200	**499**	**2200**	498	2200	96	500	2200	**499**	**2200**	498	2200
450.soplex	96	1138	703	**1139**	**703**	1141	702	48	568	705	**567**	**706**	566	707
453.povray	96	**281**	**1820**	279	1830	284	1800	96	242	2110	243	2100	**242**	**2110**
454.calculix	96	439	1800	**440**	**1800**	440	1800	96	439	1800	**440**	**1800**	440	1800
459.GemsFDTD	96	1598	637	**1600**	**637**	1601	636	96	1598	637	**1600**	**637**	1601	636
465.tonto	96	730	1290	**730**	**1290**	731	1290	96	701	1350	**703**	**1340**	704	1340
470.lbm	96	1147	1150	1149	1150	**1149**	**1150**	96	1147	1150	1149	1150	**1149**	**1150**
481.wrf	96	872	1230	**872**	**1230**	867	1240	96	856	1250	**856**	**1250**	856	1250
482.sphinx3	96	1671	1120	**1672**	**1120**	1677	1120	96	1623	1150	**1625**	**1150**	1626	1150

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

```
BIOS Configuration:
Power Technology set to performance
T-state set to disable
```

Continued on next page

Platform Notes (Continued)

```
C6 report set to disable
 Sysinfo program /home/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on localhost.localdomain Sat Jun 14 23:06:55 2014

 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 E7-4850 v2 @ 2.30GHz
       4 "physical id"s (chips)
       96 "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
       physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
       physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
    cache size : 24576 KB

 From /proc/meminfo
    MemTotal:       1058645432 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.5 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
    EST 2013 x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Jun 13 02:17

 SPEC is set to: /home/cpu2006
    Filesystem                   Type  Size  Used Avail Use% Mounted on
    /dev/mapper/VolGroup-lv_home ext4  239G   86G  142G  38% /home

 Additional information from dmidecode:
   BIOS American Megatrends Inc. 1.0 04/11/2014
   Memory:
    64x   16 GB
    32x NO DIMM NO DIMM
```

Continued on next page

Platform Notes (Continued)

```
      32x Samsung M393B2G70DB0-YK0 16 GB 1067 MHz 2 rank
      32x Samsung M393B2G70QH0-YK0 16 GB 1067 MHz 2 rank

  (End of data from sysinfo program)
The memory info above is read from dmidecode,the capacity is actually 1 TB.
The confusing display caused by old version sysinfo in benchmark suite, and
it has nothing to do with the system performance.
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 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>

Submitted_by: Tian Yuwan <tianyw@sugon.com>
Submitted: Thu Oct 30 23:04:20 EDT 2014
Submission: cpu2006-20140914-31533.sub
```

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

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Base Portability Flags (Continued)

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

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

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -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

Continued on next page

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak 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
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) -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

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Peak Optimization Flags (Continued)

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

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-

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -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 -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20141104.html
http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-IVB.20141104.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20141104.xml
http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-IVB.20141104.xml

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