SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sugon

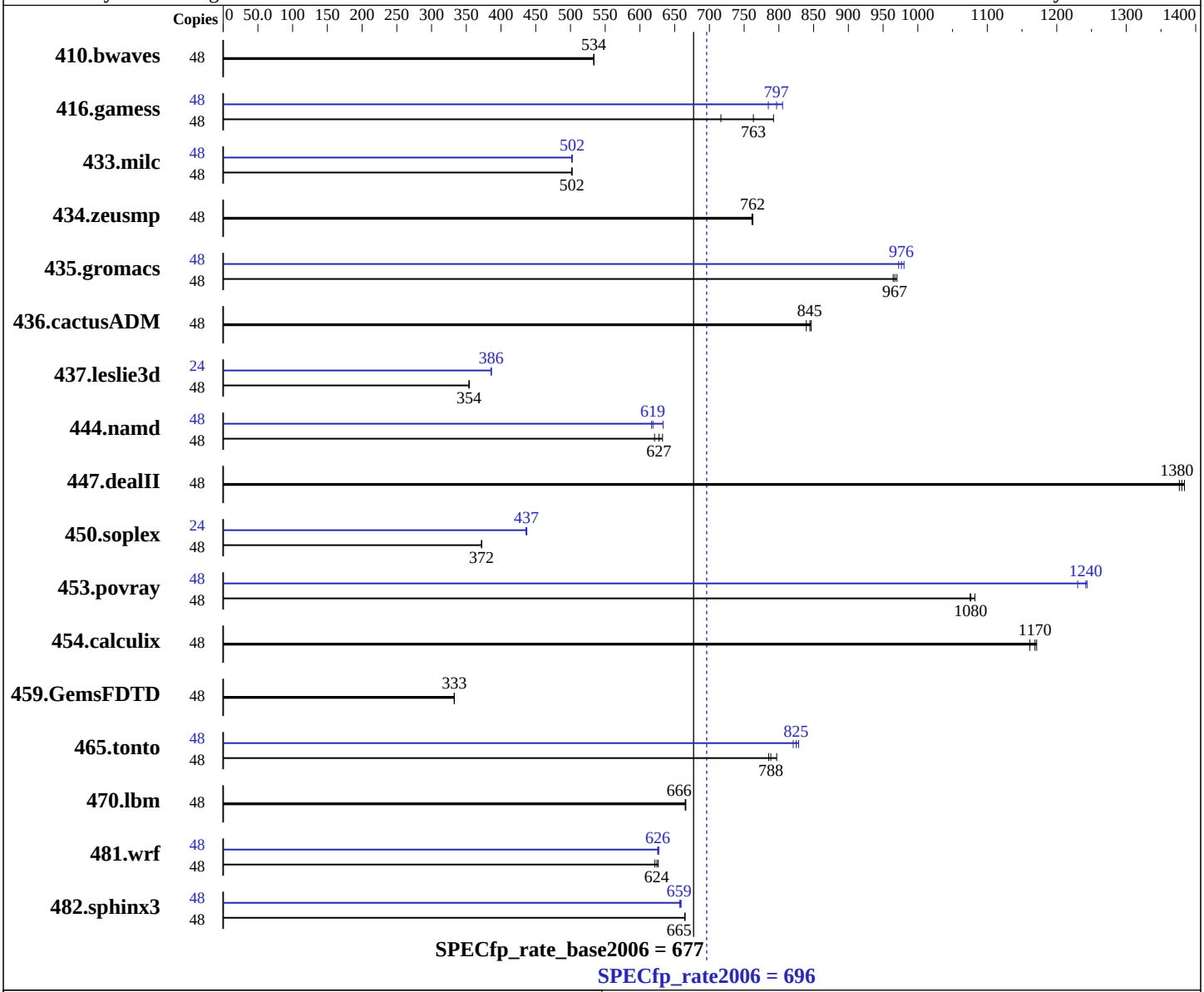
I620-G15 (Intel Xeon E5-2697 v2, 2.70 GHz)

SPECfp®_rate2006 = 696

SPECfp_rate_base2006 = 677

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

Test date: Nov-2013
Hardware Availability: Nov-2013
Software Availability: Nov-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) 3.0.76-0.11-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:	No
File System:	ext3
System State:	Run level 3 (Full multiuser with network)

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sugon

I620-G15 (Intel Xeon E5-2697 v2, 2.70 GHz)

SPECfp_rate2006 = 696

SPECfp_rate_base2006 = 677

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

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

L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 3 TB SATA, 7200RPM
Other Hardware: None

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	48	1222	534	**1223**	**534**	1223	534	48	1222	534	**1223**	**534**	1223	534
416.gamess	48	1312	717	**1231**	**763**	1186	792	48	1198	785	**1180**	**797**	1167	805
433.milc	48	878	502	877	502	**877**	**502**	48	877	502	878	502	**877**	**502**
434.zeusmp	48	**573**	**762**	573	762	574	761	48	**573**	**762**	573	762	574	761
435.gromacs	48	**354**	**967**	355	965	353	970	48	352	972	350	980	**351**	**976**
436.cactusADM	48	678	846	**679**	**845**	683	840	48	678	846	**679**	**845**	683	840
437.leslie3d	48	1273	354	1275	354	**1274**	**354**	24	584	386	**585**	**386**	585	386
444.namd	48	609	633	**613**	**627**	620	621	48	624	617	608	633	**622**	**619**
447.dealII	48	**398**	**1380**	399	1380	397	1380	48	**398**	**1380**	399	1380	397	1380
450.soplex	48	1076	372	**1076**	**372**	1076	372	24	459	436	458	437	**458**	**437**
453.povray	48	**237**	**1080**	236	1080	237	1080	48	208	1230	205	1240	**206**	**1240**
454.calculix	48	341	1160	**339**	**1170**	338	1170	48	341	1160	**339**	**1170**	338	1170
459.GemsFDTD	48	1532	333	**1530**	**333**	1530	333	48	1532	333	**1530**	**333**	1530	333
465.tonto	48	**599**	**788**	601	785	593	797	48	**573**	**825**	570	828	576	821
470.lbm	48	992	665	990	666	**991**	**666**	48	992	665	990	666	**991**	**666**
481.wrf	48	856	626	863	621	**859**	**624**	48	855	627	**857**	**626**	857	626
482.sphinx3	48	**1407**	**665**	1407	665	1408	664	48	**1420**	**659**	1419	659	1424	657

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:
Intel Virtualization technology set to disabled
Power Technology set to performance
```

Continued on next page

Platform Notes (Continued)

```
Turbo boost set to enabled
DDR Speed set to force 1866
Sysinfo program /root/cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux-e494 Tue Nov 12 13:32:58 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
      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:       264519660 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux linux-e494 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
   (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 12 01:31 last=S

SPEC is set to: /root/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      ext3  2.7T  338G  2.4T  13% /

Additional information from dmidecode:
  BIOS American Megatrends Inc. V8.100A 10/31/2013
  Memory:
   16x   16 GB
   16x Samsung M393B2G70QH0-CMA 16 GB 1866 MHz

(End of data from sysinfo program)
There is a error in sysinfo output. There are only 16 DIMMs in this
```

Continued on next page

Platform Notes (Continued)

```
system. The cause of this error is the sysinfo itself. The sysinfo
of revsion 6818 can't identify the correct memory information.
The memory information should be:
    Memory:
     16x Samsung M393B2G70QH0-CMA 16 GB 1866 MHz
```

General Notes

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

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /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
```

Continued on next page

Base Portability Flags (Continued)

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

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

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -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

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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
-unroll2

C++ benchmarks:

444.namd: -xAVX(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: -xAVX(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: -xAVX(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:

Continued on next page

Peak Optimization Flags (Continued)

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-

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(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: -xAVX(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: -xAVX -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/Sugon-Platform-Settings-V1.2-IVB.html
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-IVB.xml
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 18:15:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 December 2013.