SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

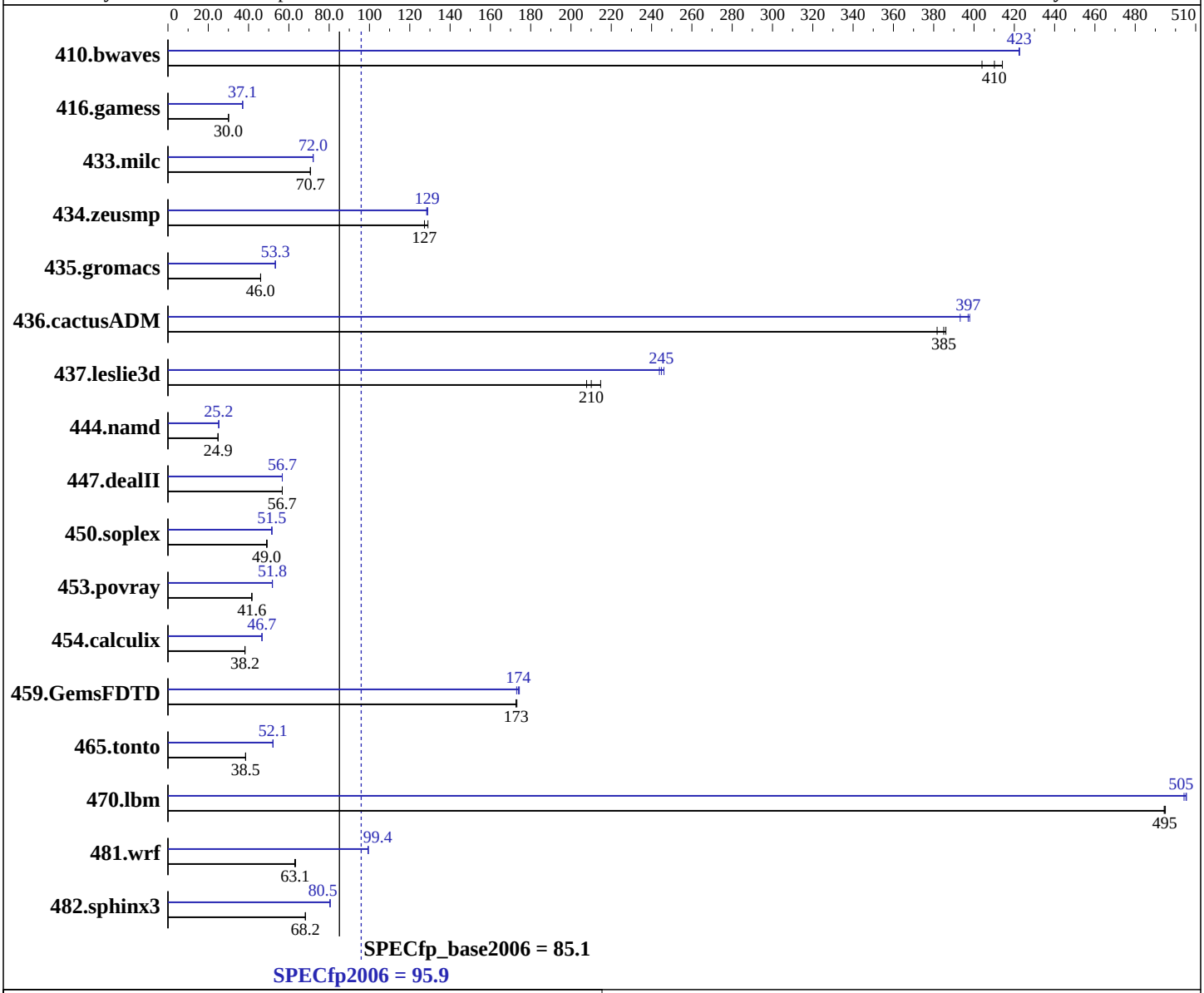
Sun Fire X4270 M3 (Intel Xeon E5-2690 2.9GHz)

SPECfp®2006 = 95.9

SPECfp_base2006 = 85.1

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Apr-2012
Hardware Availability: Apr-2012
Software Availability: Jun-2012



Hardware

CPU Name:	Intel Xeon E5-2690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2900
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 2 chips
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:	Oracle Solaris 11 11/11 (SRU 03)
Compiler:	C/C++/Fortran: Version 12.3 of Oracle Solaris Studio (patch update 1, tested with nightly build 20120313)
Auto Parallel:	Yes
File System:	zfs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

Sun Fire X4270 M3 (Intel Xeon E5-2690 2.9GHz)

SPECfp2006 = 95.9

SPECfp_base2006 = 85.1

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Apr-2012
Hardware Availability: Apr-2012
Software Availability: Jun-2012

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 600 GB 10K RPM SAS
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	33.6	404	**33.1**	**410**	32.8	414	32.2	422	32.2	423	**32.2**	**423**
416.gamess	652	30.0	**652**	**30.0**	652	30.0	528	37.1	**528**	**37.1**	528	37.1
433.milc	**130**	**70.7**	130	70.7	130	70.7	127	72.0	127	72.1	**127**	**72.0**
434.zeusmp	70.5	129	71.5	127	**71.5**	**127**	70.9	128	70.6	129	**70.7**	**129**
435.gromacs	**155**	**46.0**	155	46.0	155	46.0	134	53.3	134	53.3	**134**	**53.3**
436.cactusADM	31.0	386	**31.0**	**385**	31.3	382	30.4	393	**30.1**	**397**	30.0	398
437.leslie3d	**44.7**	**210**	45.2	208	43.8	215	38.5	244	38.2	246	**38.4**	**245**
444.namd	323	24.9	**323**	**24.9**	323	24.9	**318**	**25.2**	318	25.2	318	25.2
447.dealII	202	56.7	**202**	**56.7**	202	56.7	**202**	**56.7**	202	56.7	202	56.7
450.soplex	**170**	**49.0**	170	48.9	169	49.2	162	51.5	**162**	**51.5**	162	51.6
453.povray	128	41.6	**128**	**41.6**	128	41.6	**103**	**51.8**	103	51.8	103	51.9
454.calculix	216	38.2	**216**	**38.2**	216	38.2	177	46.7	177	46.7	**177**	**46.7**
459.GemsFDTD	**61.4**	**173**	61.4	173	61.3	173	**61.0**	**174**	60.8	174	61.3	173
465.tonto	255	38.5	255	38.5	**255**	**38.5**	189	52.1	**189**	**52.1**	189	52.1
470.lbm	27.8	495	**27.8**	**495**	27.8	494	27.2	504	27.2	505	**27.2**	**505**
481.wrf	**177**	**63.1**	178	62.9	176	63.3	**112**	**99.4**	112	99.4	113	99.3
482.sphinx3	286	68.2	**286**	**68.2**	286	68.2	**242**	**80.5**	242	80.5	242	80.4

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

Submit Notes

```
The config file option 'submit' was used to bind processes to CPU threads with pbind(1)
```

Operating System Notes

```
ulimit -s 10000  (shell): increases stack

/etc/system parameters
   autoup=1000
   zfs:zfs_arc_max=0x400000000
   zfs:zfs_arc_min=0x400000000
   ncsize=0x10000
   lpg_alloc_prefer=1

gzip compression set using "zfs set compression=gzip <zfs-filesystem>"
```

Platform Notes

```
Default BIOS Settings were used, except:
  Energy Performance set to Performance

Oracle's Sun Fire X4270 M3 is now known as the Sun Server X3-2L.

Sysinfo program /export/home/gnana/cpu2006v1.2/Docs/sysinfo
: 6775  2011-08-16 #f7622badcf24e01c368b1db4377c
running on bur398-107 Fri Apr  6 07:06:07 2012

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 /usr/sbin/psrinfo -pv
 Intel(r) Xeon(r) CPU E5-2690 0 @ 2.90GHz
 x86 (GenuineIntel 206D7 family 6 model 45 step 7 clock 2900 MHz)

/usr/sbin/psrinfo -p:   2 chips
/usr/sbin/psrinfo -pv | grep "core has" | wc -l:  16 cores
/usr/sbin/psrinfo | wc -l: 32 threads

/usr/sbin/prtconf | grep "Memory size:": 131062 Megabytes

/etc/release:
                            Oracle Solaris 11 11/11 X86
uname -a:
SunOS bur398-107 5.11 11.0 i86pc i386 i86pc

disk: df -h
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export/home      547G    15G        83G    16%    /export/home

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
MTEXCLUSIVE = "Y"
OMP_NUM_THREADS = "16"
SUNW_MP_PROCBIND = "true"
SUNW_MP_THR_IDLE = "spin"
```

Base Compiler Invocation

C benchmarks:

cc

Continued on next page

Base Compiler Invocation (Continued)

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

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
436.cactusADM: -DSPEC_CPU_LP64
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
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-g -fast -xipo=2 -m64 -xautopar -xreduction -xalias_level=std

C++ benchmarks:
-fast -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-library=stdcxx4

Fortran benchmarks:
-fast -xipo=2 -m64 -xautopar -xreduction -xpagesize=2M

Benchmarks using both Fortran and C:
-g -fast(cc) -xipo=2 -m64 -xautopar -xreduction -xalias_level=std
-fast(f90) -xpagesize=2M

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Portability Flags

436.cactusADM: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: -g -fast -xipo=2 -m64 -xpagesize=2M -xalias_level=std
-xautopar -xreduction -lmtmalloc

470.lbm: -g -fast -Wu,-nontemporal -xprefetch_level=3 -xipo=2 -m64
-xautopar -xreduction -xpagesize=4K -lmtmalloc

482.sphinx3: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xalias_level=std -xrestrict
-xprefetch=no%auto -xautopar -xreduction
-W2,-Aparallel:nthreads=8

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xO3
-xprefetch=no%auto -m64 -xpagesize=2M
-xalias_level=compatible -library=stlport4

447.dealII: -fast -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-library=stdcxx4

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=2M -xalias_level=compatible -library=stlport4
-m64 -Qoption iropt -Rtile

Continued on next page

Peak Optimization Flags (Continued)

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xprefetch=no%auto
-xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-qoption iropt -Atile:skew=on -qoption iropt -Ainline:cs=700
-library=stlport4

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=4K -xautopar -xreduction

416.gamess: -fast -xipo=2 -m64 -xpagesize=2M -xunroll=1
-xvector=no%simd -xprefetch=no%auto

434.zeusmp: -fast -xipo=2 -m64 -xpagesize=2M -xautopar -xreduction

437.leslie3d: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xautopar -xreduction -lmtmalloc

459.GemsFDTD: Same as 434.zeusmp

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=2M -O3
-m64 -stackvar -xprefetch=no%auto -xalias -xautopar
-xreduction -Qoption iropt -Aparallel:nthreads=8 -lfast_r

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -m64 -xpagesize=2M -fsimple=2
-Qoption ube -fsimple=3 -xautopar -xreduction
-Qoption iropt -Aparallel:nthreads=8 -lmtmalloc

436.cactusADM: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -m64
-xautopar -xreduction -xpagesize=2M -lumem -lmvec

454.calculix: -g -fast(cc) -fast(f90) -xipo=0 -m64 -xpagesize=2M
-xprefetch_level=2 -xprefetch_auto_type=indirect_array_access
-Qoption ube -xprefetch_mult=24 -xunroll=2

481.wrf: -g -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -O4
-xchip=nehalem -xarch=sse4_2 -xipo=2 -m64 -xpagesize=2M
-xprefetch=no%auto -xautopar -xreduction
-Qoption iropt -Aparallel:nthreads=8

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-x86_64.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.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 03:58:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 April 2012.