SPEC® CFP2006 Result

Oracle Corporation

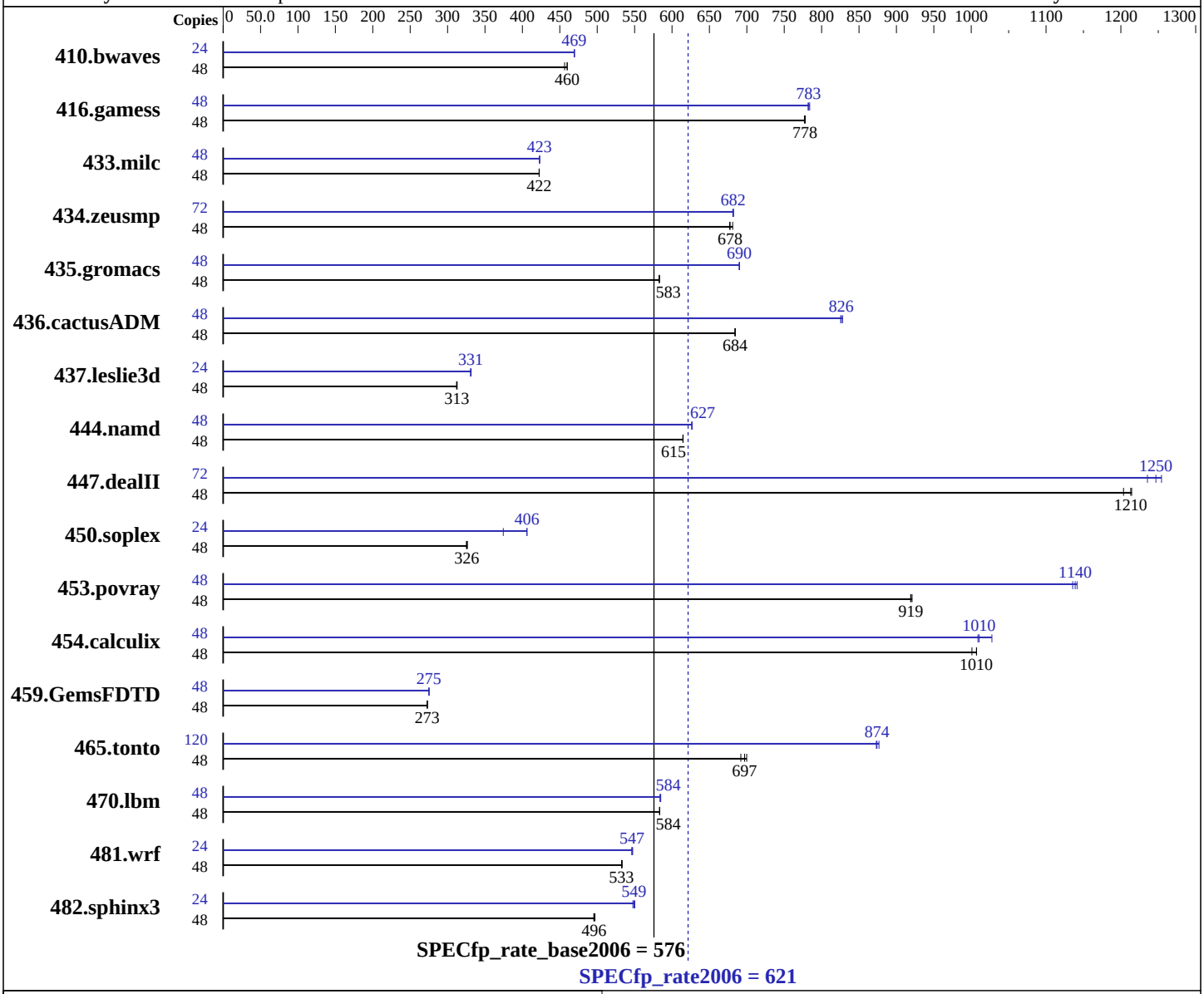
Sun Fire X4-2L (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp®_rate2006 = 621

SPECfp_rate_base2006 = 576

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

Test date: Sep-2013
Hardware Availability: Sep-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:	2 chips
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:	Solaris 11.1 (SRU 11)
Compiler:	C/C++: Version 12.3 of Oracle Solaris Studio 10/13 Patch Set (tested with nightly build 20130822)
Auto Parallel:	No
File System:	zfs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

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L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 600 GB SAS, 10K RPM
Other Hardware: None

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	1429	456	1418	460	**1419**	**460**	24	695	469	**695**	**469**	694	470
416.gamess	48	1208	778	**1209**	**778**	1210	777	48	1199	784	**1201**	**783**	1202	782
433.milc	48	1043	422	1043	423	**1043**	**422**	48	1042	423	**1042**	**423**	1042	423
434.zeusmp	48	**645**	**678**	641	681	645	677	72	962	681	960	682	**961**	**682**
435.gromacs	48	**588**	**583**	588	583	588	583	48	**497**	**690**	497	690	497	690
436.cactusADM	48	838	685	**838**	**684**	838	684	48	693	828	**694**	**826**	695	825
437.leslie3d	48	1446	312	**1443**	**313**	1443	313	24	682	331	681	332	**682**	**331**
444.namd	48	**626**	**615**	626	615	626	615	48	615	626	614	627	**614**	**627**
447.dealII	48	456	1200	452	1210	**453**	**1210**	72	**661**	**1250**	657	1250	667	1240
450.soplex	48	1226	327	1231	325	**1229**	**326**	24	534	374	493	406	**493**	**406**
453.povray	48	**278**	**919**	278	919	277	921	48	224	1140	**224**	**1140**	225	1140
454.calculix	48	396	1000	**393**	**1010**	393	1010	48	**392**	**1010**	385	1030	392	1010
459.GemsFDTD	48	1865	273	1869	272	**1866**	**273**	48	**1851**	**275**	1853	275	1849	275
465.tonto	48	**678**	**697**	683	692	675	700	120	1352	873	**1351**	**874**	1347	877
470.lbm	48	1131	583	**1130**	**584**	1130	584	48	1129	584	1127	585	**1129**	**584**
481.wrf	48	1005	533	1007	533	**1007**	**533**	24	491	546	**490**	**547**	490	547
482.sphinx3	48	1888	496	1882	497	**1887**	**496**	24	854	548	850	550	**852**	**549**

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 unlimited  (shell): increases stack

/etc/system parameters
   autoup=1000
   tune_t_fsflushr=10
   zfs:zfs_arc_max=0x10000000
   zfs:zfs_arc_min=0x04001000
   lpg_alloc_prefer=1

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

Platform Notes

```
 Default BIOS Settings were used.

 Sysinfo program /export/home/cpu2006v1.2/Docs/sysinfo
 : 6775  2011-08-16 #f7622badcf24e01c368b1db4377c
 running on x4-2l-001 Sat Aug 31 21:28:33 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 /usr/sbin/psrinfo -pv
  Intel(r) Xeon(r) CPU E5-2697 v2 @ 2.70GHz
  x86 (GenuineIntel 306E4 family 6 model 62 step 4 clock 2693 MHz)

 /usr/sbin/psrinfo -p:   2 chips
 /usr/sbin/psrinfo -pv | grep "core has" | wc -l:  24 cores
 /usr/sbin/psrinfo | wc -l: 48 threads

 /usr/sbin/prtconf | grep "Memory size:": 262087 Megabytes

 /etc/release:
                              Oracle Solaris 11.1 X86
 uname -a:
 SunOS x4-2l-001 5.11 11.1 i86pc i386 i86pc

 disk: df -h
 Filesystem             Size   Used  Available Capacity  Mounted on
 rpool/export/home      547G    23G       450G     5%    /export/home

 (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "1"
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Continued on next page

Base Compiler Invocation (Continued)

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 -xtarget=ivybridge -xipo=2 -m64 -xalias_level=std

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

Fortran benchmarks:
-g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M

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

Peak Compiler Invocation

C benchmarks:
cc

Continued on next page

Peak Compiler Invocation (Continued)

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 -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xalias_level=std

470.lbm: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=4K -lbsdmalloc

482.sphinx3: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -xpagesize=2M -xalias_level=std -xunroll=6 -W2,-Aujam:noinner -lumem -lmvec

C++ benchmarks:

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

447.dealII: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible -library=stdcxx4 -xvector -xprefetch -xrestrict

450.soplex: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -xpagesize=2M -xalias_level=compatible -library=stlport4 -m32 -qoption iropt -Rujam -qoption iropt -Rtile

Continued on next page

Peak Optimization Flags (Continued)

453.povray: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xprefetch=no%auto -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible -qoption iropt -Atile:skew=on -qoption iropt -Ainline:cs=700 -library=stdcxx4

Fortran benchmarks:

410.bwaves: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M

416.gamess: -g -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xunroll=1 -xvector=no%simd -xprefetch_level=1

434.zeusmp: Same as 410.bwaves

437.leslie3d: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -m64

459.GemsFDTD: Same as 410.bwaves

465.tonto: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -xvector=lib -xalias -lbsdmalloc -stackvar

Benchmarks using both Fortran and C:

435.gromacs: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -fsimple=2 -Qoption ube -fsimple=3 -xvector=no%simd

436.cactusADM: -g -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90) -xtarget=ivybridge -xipo=2 -m64 -xpagesize=2M -lumem -xprefetch_level=3

454.calculix: -g -fast(cc) -fast(f90) -xtarget=ivybridge -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) -xtarget=ivybridge -xipo=2 -m64

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_64.20130924.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_64.20130924.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.20120425.xml

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

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