



SPEC[®] CFP2006 Result

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Oracle Corporation

SPECfp[®]_rate2006 = 497

Sun Blade X6270 M3 (Intel Xeon E5-2690 2.9GHz)

SPECfp_rate_base2006 = 460

CPU2006 license: 6

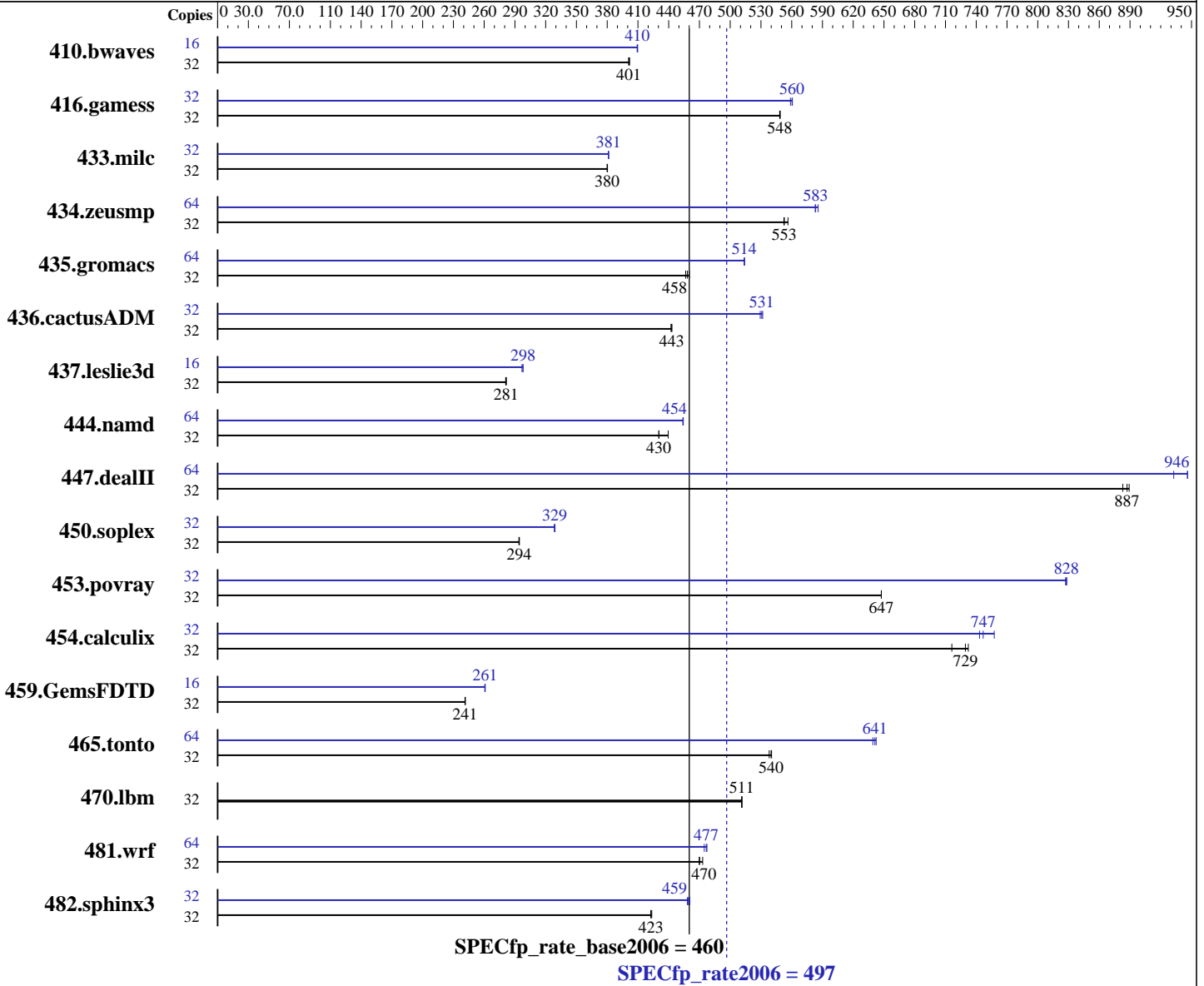
Test date: Mar-2012

Test sponsor: Oracle Corporation

Hardware Availability: Apr-2012

Tested by: Oracle Corporation

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: 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: Oracle Solaris 11 11/11 (SRU 02)
 Compiler: C/C++/Fortran: Version 12.3 of Oracle Solaris Studio (patch update 1, tested with nightly build 20120313)
 Auto Parallel: No
 File System: zfs (with raidz)
 System State: Default
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

Continued on next page



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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: 3 x 300 GB 10K RPM SAS
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	32	1085	401	1082	402	1084	401	16	531	410	531	410	531	409
416.gamess	32	1142	548	1142	549	1143	548	32	1121	559	1118	560	1118	561
433.milc	32	772	380	773	380	773	380	32	770	381	770	381	770	381
434.zeusmp	32	527	552	527	553	523	556	64	998	583	999	583	994	586
435.gromacs	32	497	460	500	457	499	458	64	890	514	889	514	889	514
436.cactusADM	32	865	442	863	443	863	443	32	720	531	719	532	722	529
437.leslie3d	32	1069	281	1068	282	1071	281	16	505	298	507	297	505	298
444.namd	32	584	440	596	430	596	430	64	1131	454	1130	454	1130	454
447.dealII	32	413	887	415	883	412	889	64	774	946	785	933	774	946
450.soplex	32	908	294	908	294	907	294	32	811	329	812	329	812	329
453.povray	32	263	647	263	647	263	647	32	206	827	206	828	206	828
454.calculix	32	369	716	361	732	362	729	32	348	758	354	747	355	743
459.GemsFDTD	32	1405	242	1407	241	1407	241	16	651	261	651	261	650	261
465.tonto	32	583	540	583	540	585	538	64	980	642	985	639	982	641
470.lbm	32	860	511	860	511	860	511	32	860	511	860	511	860	511
481.wrf	32	755	473	761	470	760	470	64	1506	475	1500	477	1498	477
482.sphinx3	32	1476	423	1473	423	1475	423	32	1354	461	1361	458	1358	459

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
  ncsiz=0x10000
  lpg_alloc_prefer=1

```

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



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Platform Notes

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

Oracle's Sun Blade X6270 M3 is now known as the Sun Blade X3-2B.

```
Sysinfo program /benchpool/data1/cpu2006v1.2/Docs/sysinfo
: 6775 2011-08-16 #f7622badcf24e01c368b1db4377c
running on bur398-85 Thu Mar 29 01:33:11 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 2893 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:": 131038 Megabytes
```

```
/etc/release: Oracle Solaris 11 11/11 X86
```

```
uname -a:
SunOS bur398-85 5.11 11.0 i86pc i386 i86pc
```

```
disk: df -h
Filesystem      Size  Used  Available Capacity  Mounted on
benchpool/data1 545G  16G   529G      4%   /benchpool/data1
```

(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

Continued on next page



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Base Compiler Invocation (Continued)

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 -xalias_level=std

C++ benchmarks:

-fast -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-library=stdcxx4

Fortran benchmarks:

-fast -xipo=2 -m64 -xpagesize=2M

Benchmarks using both Fortran and C:

-g -fast(cc) -xipo=2 -m64 -xalias_level=std -fast(f90)
-xpagesize=2M



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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

470.lbm: -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

470.lbm: basepeak = yes

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

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.dealIII: -fast -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-library=stdcxx4 -xvector -xprefetch

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

Continued on next page



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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=2M
```

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

434.zeusmp: Same as 410.bwaves

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

459.GemsFDTD: Same as 410.bwaves

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

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 -xvector=no%simd
```

```
436.cactusADM: -g -fast(cc) -fast(f90) -xipo=2 -m64 -xpagesize=2M
-lumem
```

```
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)
-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.html

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



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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

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