



SPEC® CFP2006 Result

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Oracle Corporation

SPECfp®_rate2006 = 622

Sun Blade X4-2B (Intel Xeon E5-2697 v2 2.7GHz)

SPECfp_rate_base2006 = 575

CPU2006 license: 6

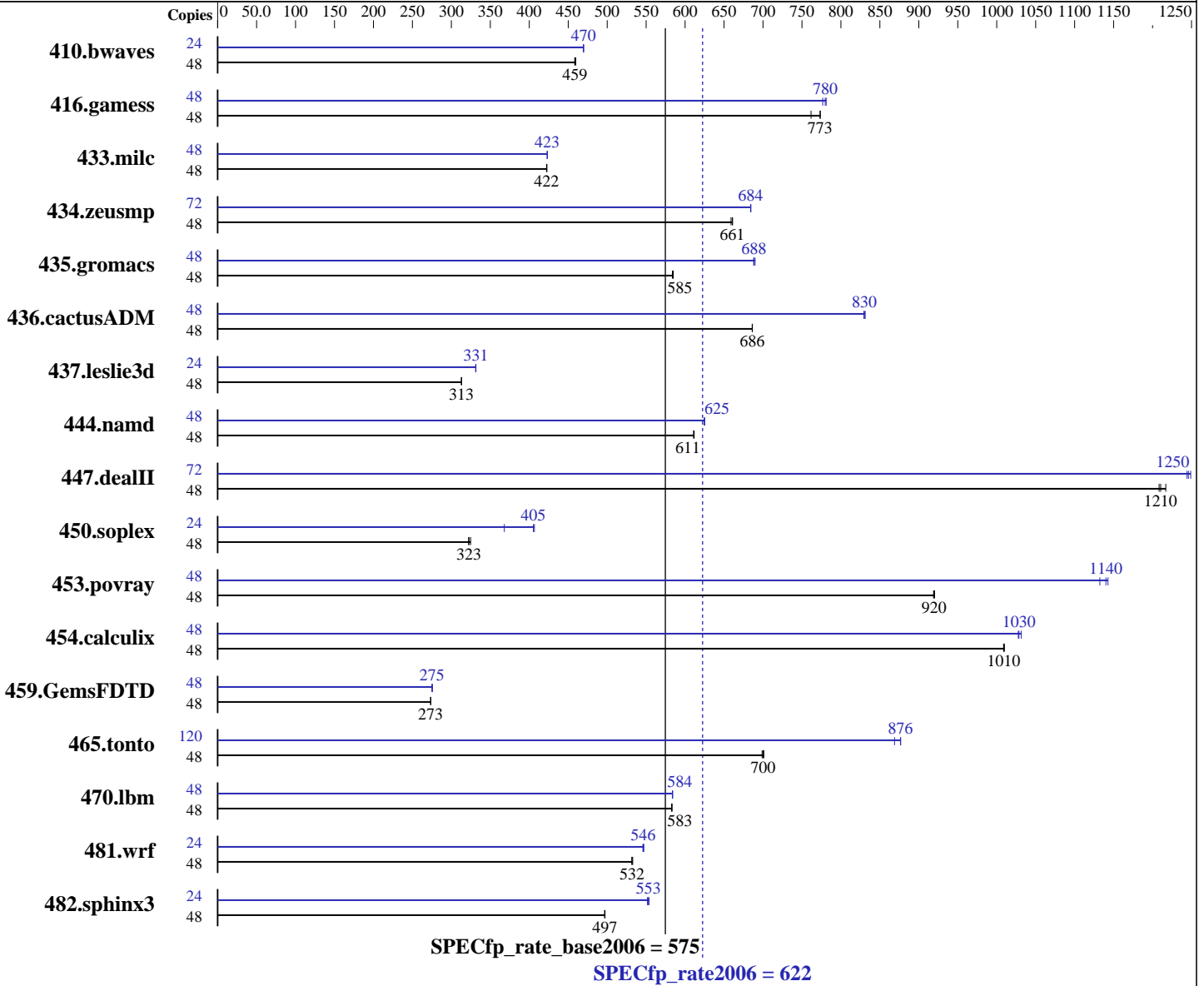
Test date: Aug-2013

Test sponsor: Oracle Corporation

Hardware Availability: Sep-2013

Tested by: Oracle Corporation

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 300 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	1419	460	1422	459	1423	458	24	695	470	695	470	694	470
416.gamess	48	1216	773	1215	774	1234	762	48	1210	777	1203	781	1205	780
433.milc	48	1044	422	1043	423	1043	422	48	1042	423	1041	423	1042	423
434.zeusmp	48	661	661	661	661	663	659	72	958	684	958	684	957	684
435.gromacs	48	586	585	587	584	586	585	48	498	688	498	688	497	690
436.cactusADM	48	836	686	836	686	836	686	48	691	830	691	830	690	831
437.leslie3d	48	1442	313	1441	313	1441	313	24	680	332	681	331	681	331
444.namd	48	630	611	630	611	629	612	48	616	625	616	625	616	625
447.dealII	48	454	1210	451	1220	454	1210	72	661	1250	662	1240	659	1250
450.soplex	48	1233	325	1241	323	1243	322	24	544	368	492	407	494	405
453.povray	48	278	920	278	919	277	920	48	226	1130	224	1140	223	1140
454.calculix	48	392	1010	392	1010	393	1010	48	385	1030	384	1030	385	1030
459.GemsFDTD	48	1862	273	1862	274	1862	273	48	1847	276	1850	275	1850	275
465.tonto	48	674	701	676	699	675	700	120	1359	869	1347	877	1347	876
470.lbm	48	1131	583	1131	583	1131	583	48	1129	584	1130	584	1130	584
481.wrf	48	1006	533	1009	532	1008	532	24	491	546	491	546	490	547
482.sphinx3	48	1881	497	1884	497	1882	497	24	845	554	848	552	846	553

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>"



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Platform Notes

Default BIOS Settings were used.
Sysinfo program /export/home/cpu2006v1.2/Docs/sysinfo
: 6775 2011-08-16 #f7622badcf24e01c368b1db4377c
running on bur408-94 Fri Aug 30 23:03:44 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 bur408-94 5.11 11.1 i86pc i386 i86pc
```

```
disk: df -h
Filesystem      Size  Used  Available Capacity  Mounted on
rpool/export/home 274G  9.2G   188G      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

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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
```

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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:notinners -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.dealIII: -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

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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
```



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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

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