SPEC® CFP2006 Result
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Oracle Corporation

Sun Fire X4800 (Intel Xeon X7560 2.26GHz)
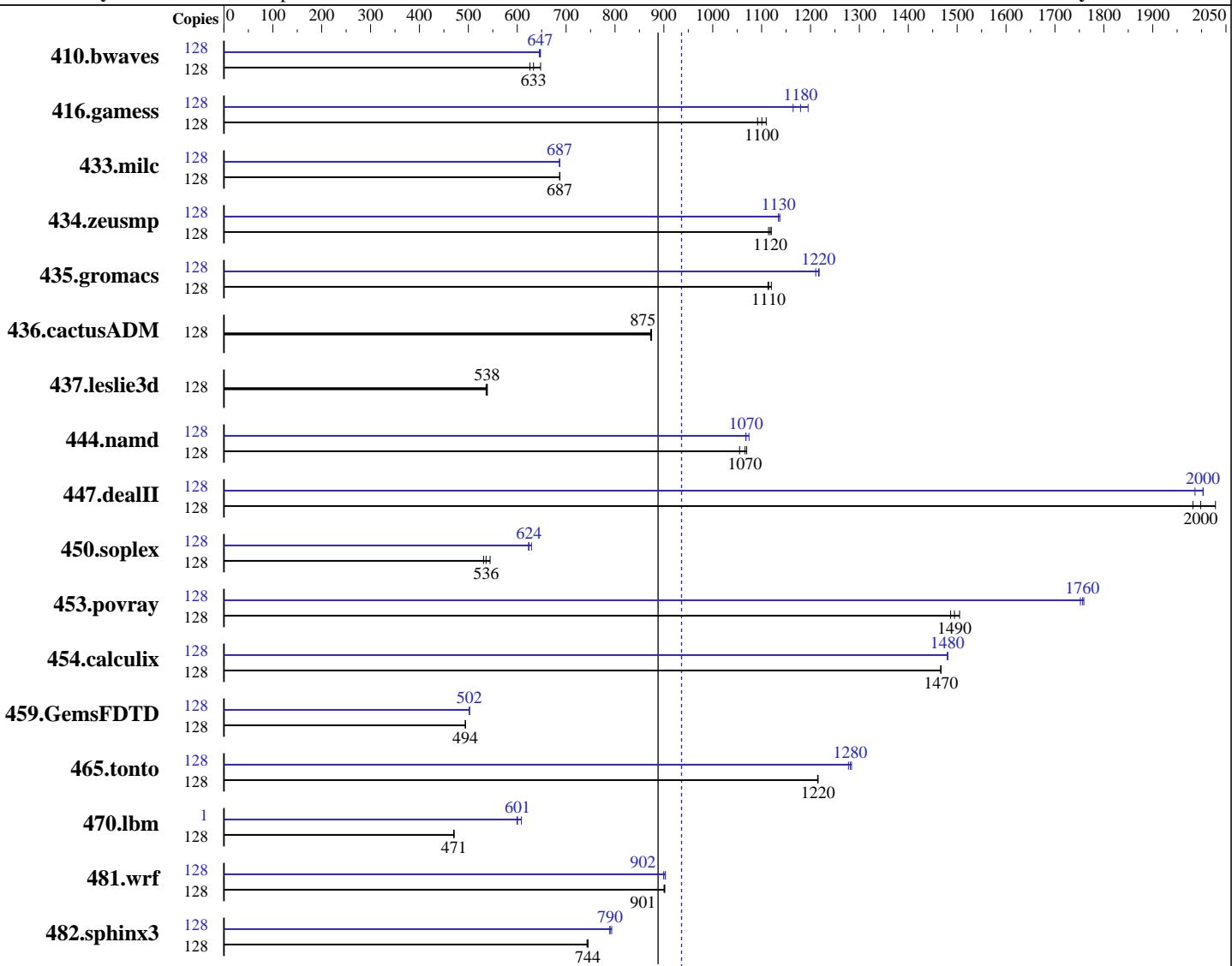
$SPECfp^®\_rate2006 =$ 936

$SPECfp\_rate\_base2006 =$ 888

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

Test date: Apr-2010
Hardware Availability: Jul-2010
Software Availability: Jun-2010

	Copies	
410.bwaves	128	647
	128	633
416.gamess	128	1180
	128	1100
433.milc	128	687
	128	687
434.zeusmp	128	1130
	128	1120
435.gromacs	128	1220
	128	1110
436.cactusADM	128	875
437.leslie3d	128	538
444.namd	128	1070
	128	1070
447.dealII	128	2000
	128	2000
450.soplex	128	624
	128	536
453.povray	128	1760
	128	1490
454.calculix	128	1480
	128	1470
459.GemsFDTD	128	502
	128	494
465.tonto	128	1280
	128	1220
470.lbm	1	601
	128	471
481.wrf	128	902
	128	901
482.sphinx3	128	790
	128	744

SPECfp_rate_base2006 = 888

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Hardware

CPU Name: Intel Xeon X7560
CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz: 2266
FPU: Integrated
CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 4,8 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Software

Operating System: Oracle Solaris 10 10/09
Compiler: Oracle Solaris Studio Express 6/10
Auto Parallel: Yes
File System: zfs
System State: Default
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Apache C++ Standard Library V4.2.1

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L3 Cache:	24 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (64x4GB, DDR3-1066 CL7 dual-rank ECC Reg)
Disk Subsystem:	3 x 300 GB, SAS, 10000 RPM in RAIDZ Configuration
Other Hardware:	None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	2778	626	2685	648	**2746**	**633**	128	**2689**	**647**	2686	648	2697	645
416.gamess	128	2259	1110	**2278**	**1100**	2296	1090	128	**2125**	**1180**	2152	1160	2097	1200
433.milc	128	**1711**	**687**	1709	687	1711	687	128	1711	687	**1711**	**687**	1712	686
434.zeusmp	128	1040	1120	**1042**	**1120**	1045	1110	128	1024	1140	**1026**	**1130**	1027	1130
435.gromacs	128	816	1120	821	1110	**820**	**1110**	128	751	1220	**751**	**1220**	755	1210
436.cactusADM	128	**1749**	**875**	1748	875	1752	873	128	**1749**	**875**	1748	875	1752	873
437.leslie3d	128	2244	536	**2235**	**538**	2233	539	128	2244	536	**2235**	**538**	2233	539
444.namd	128	960	1070	973	1050	**963**	**1070**	128	956	1070	**961**	**1070**	962	1070
447.dealII	128	**733**	**2000**	722	2030	739	1980	128	731	2000	737	1990	**731**	**2000**
450.soplex	128	2010	531	**1991**	**536**	1961	544	128	1697	629	1713	623	**1710**	**624**
453.povray	128	458	1490	**456**	**1490**	452	1500	128	389	1750	387	1760	**388**	**1760**
454.calculix	128	720	1470	**720**	**1470**	720	1470	128	713	1480	**713**	**1480**	713	1480
459.GemsFDTD	128	**2750**	**494**	2748	494	2750	494	128	2703	502	2706	502	**2704**	**502**
465.tonto	128	1037	1210	**1036**	**1220**	1036	1220	128	986	1280	981	1280	**983**	**1280**
470.lbm	128	**3737**	**471**	3736	471	3740	470	1	22.6	608	**22.9**	**601**	22.9	599
481.wrf	128	1585	902	**1587**	**901**	1588	900	128	1583	903	**1585**	**902**	1590	899
482.sphinx3	128	3350	745	3359	743	**3351**	**744**	128	3144	793	**3158**	**790**	3161	789

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

Compiler Invocation Notes

```
The Apache C++ Standard Library V4.2.1 was installed from
http://stdcxx.apache.org/download.html using:
    alias gmake=specmake
    gmake BUILDTYPE=8D CONFIG=sunpro.config
```

Submit Notes

```
The config file option 'submit' was used.
```

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Operating System Notes

```
ulimit -s unlimited  (shell)

/etc/system parameters
   tune_t_fsflushr=10
   autoup=900
   zfs:zfs_arc_max = 0x10000000
   lpg_alloc_prefer=1
```

Platform Notes

```
Default BIOS settings used.
```

General Notes

```
Environment variables set by runspec before the start of the run:
SUNW_MP_PROCBIND = "TRUE"
SUNW_MP_THR_IDLE = "SPIN"

447.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdcxx_4_2_1" src.alt was used.
```

Base Compiler Invocation

C benchmarks:
```
cc
```

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
```

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Base Portability Flags (Continued)

```
  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:
```
-fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M -xalias_level=std
```

C++ benchmarks:
```
-fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=compatible -library=no%Cstd -I/data1/stdcxx-4.2.1/include
-I/data1/stdcxx-4.2.1/build/include -L/data1/stdcxx-4.2.1/build/lib
-R/data1/stdcxx-4.2.1/build/lib -lstd8D
```

Fortran benchmarks:
```
-fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
```

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

Base Other Flags

C benchmarks:
```
-V -# -xjobs=128
```

C++ benchmarks:
```
-verbose=diags,version -xjobs=128
```

Fortran benchmarks:
```
-V -v -xjobs=128
```

Benchmarks using both Fortran and C:
```
-V -# -xjobs=128 -v
```

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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
   437.leslie3d: -DSPEC_CPU_LP64
        481.wrf: -DSPEC_CPU_WORDS_LITTLEENDIAN
```

Peak Optimization Flags

C benchmarks:

```
   433.milc: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
             -xalias_level=std

    470.lbm: -xprofile=collect:./feedback(pass 1)
             -xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
             -xipo=2 -m64 -xpagesize=2M -xautopar -xreduction
             -W2,-Aparallel:nthreads=128

482.sphinx3: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
             -xalias_level=std -xunroll=3 -xprefetch=no%auto
```

C++ benchmarks:

```
  444.namd: -xprofile=collect:./feedback(pass 1)
            -xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
            -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
            -library=stlport4

447.dealII: -xprofile=collect:./feedback(pass 1)
            -xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
            -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
            -library=no%Cstd -I/data1/stdcxx-4.2.1/include
            -I/data1/stdcxx-4.2.1/build/include
            -L/data1/stdcxx-4.2.1/build/lib
            -R/data1/stdcxx-4.2.1/build/lib -lstd8D
```

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Peak Optimization Flags (Continued)

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

      453.povray: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
                  -xipo=2 -m64 -xpagesize=2M -xvector=no%simd
                  -xalias_level=compatible -library=stlport4
```

Fortran benchmarks:

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

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

      434.zeusmp: Same as 410.bwaves

      437.leslie3d: basepeak = yes

    459.GemsFDTD: Same as 410.bwaves

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

Benchmarks using both Fortran and C:

```
     435.gromacs: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
                  -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
                  -Qoption ube -fsimple=3

   436.cactusADM: basepeak = yes

     454.calculix: -fast(cc) -fast(f90) -xtarget=nehalem -xipo=2 -m64
                  -xpagesize=2M -xunroll=3 -xprefetch_level=2
                  -xprefetch_auto_type=indirect_array_access

         481.wrf: -fast(cc) -fast(f90) -xtarget=nehalem -xipo=2 -m64
                  -xpagesize=2M
```

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Peak Other Flags

C benchmarks:
```
-V -# -xjobs=128
```

C++ benchmarks:
```
-verbose=diags,version -xjobs=128
```

Fortran benchmarks:
```
-V -v -xjobs=128
```

Benchmarks using both Fortran and C:
```
-V -# -xjobs=128 -v
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.xml

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

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