SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

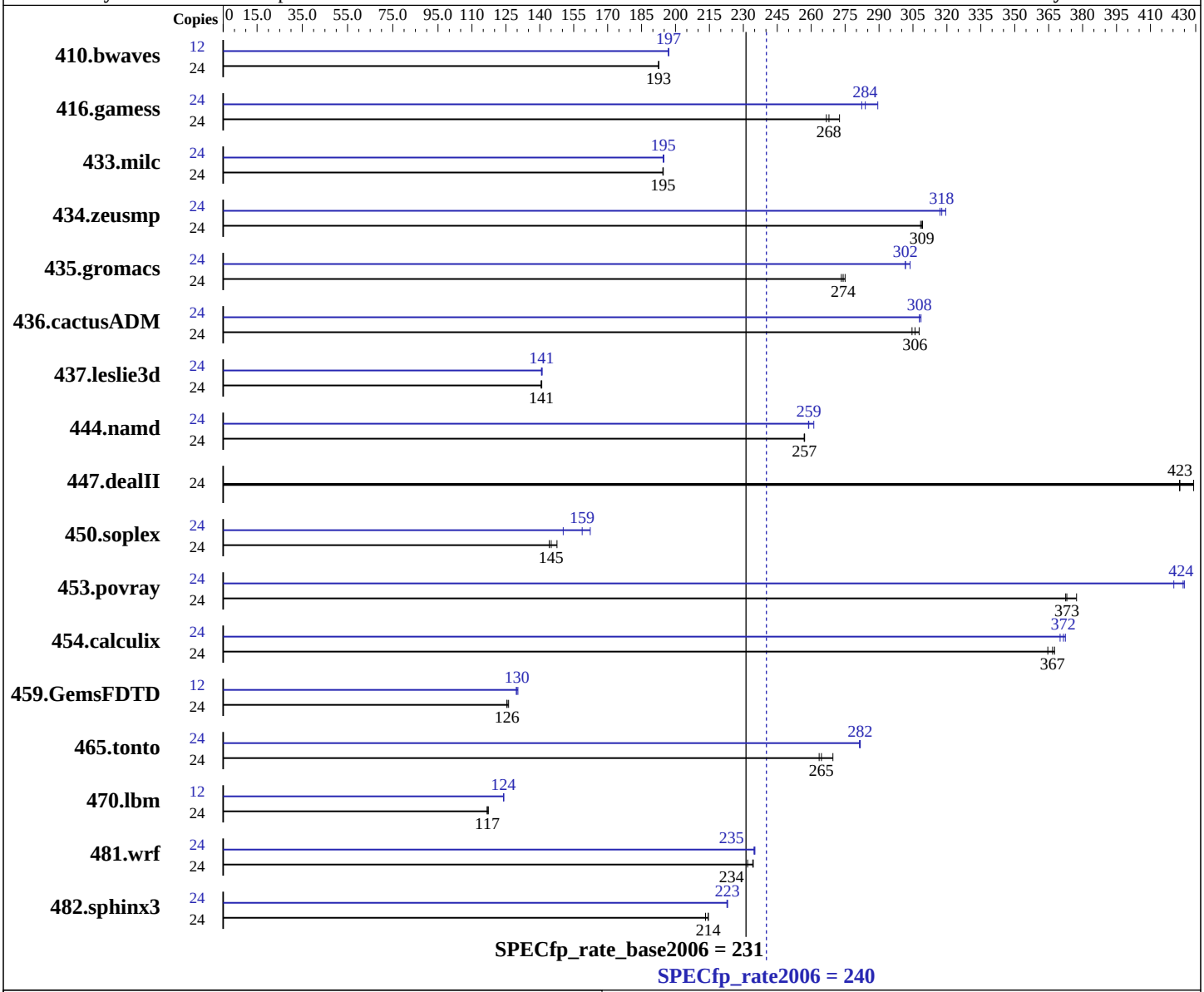
Sun Fire X2270 M2 (Intel Xeon X5670 2.93GHz)

SPECfp®_rate2006 = 240

SPECfp_rate_base2006 = 231

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

Test date: Mar-2010
Hardware Availability: May-2010
Software Availability: Jun-2010



Hardware

CPU Name:	Intel Xeon X5670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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

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Software

Operating System:	Oracle Solaris 10 10/09
Compiler:	Oracle Solaris Studio Express 6/10
Auto Parallel:	No
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: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB DDR3-1333 CL9, 2 Rank, ECC)
Disk Subsystem: 1 x 1 TB, SATA, 7200 RPM
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1695	192	**1693**	**193**	1693	193	12	828	197	829	197	**828**	**197**
416.gamess	24	1724	273	**1754**	**268**	1762	267	24	1623	289	**1655**	**284**	1664	282
433.milc	24	1133	194	1132	195	**1133**	**195**	24	**1132**	**195**	1132	195	1131	195
434.zeusmp	24	706	309	**707**	**309**	708	308	24	684	319	**687**	**318**	689	317
435.gromacs	24	623	275	**625**	**274**	627	273	24	564	304	**568**	**302**	568	302
436.cactusADM	24	**938**	**306**	932	308	942	305	24	**932**	**308**	932	308	929	309
437.leslie3d	24	1601	141	**1603**	**141**	1605	141	24	**1601**	**141**	1599	141	1603	141
444.namd	24	749	257	749	257	**749**	**257**	24	737	261	**743**	**259**	744	259
447.dealII	24	649	423	**649**	**423**	640	429	24	649	423	**649**	**423**	640	429
450.soplex	24	1356	148	**1380**	**145**	1388	144	24	**1261**	**159**	1331	150	1233	162
453.povray	24	**342**	**373**	338	377	343	373	24	300	425	**301**	**424**	304	420
454.calculix	24	539	368	**540**	**367**	543	365	24	**533**	**372**	532	372	535	370
459.GemsFDTD	24	2018	126	**2028**	**126**	2029	125	12	**980**	**130**	977	130	983	130
465.tonto	24	**893**	**265**	876	270	896	264	24	839	281	**839**	**282**	838	282
470.lbm	24	2812	117	**2822**	**117**	2825	117	12	1330	124	1328	124	**1330**	**124**
481.wrf	24	1144	234	**1145**	**234**	1156	232	24	1142	235	**1141**	**235**	1140	235
482.sphinx3	24	2193	213	**2181**	**214**	2181	215	24	**2098**	**223**	2100	223	2097	223

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.
```

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

```
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
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

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=24

C++ benchmarks:
-verbose=diags,version -xjobs=24

Fortran benchmarks:
-V -v -xjobs=24

Benchmarks using both Fortran and C:
-V -# -xjobs=24 -v

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
447.dealII: -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: -fast -xtarget=nehalem -xipo=2 -m64 -lbsdmalloc

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: basepeak = yes

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

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Peak Optimization Flags (Continued)

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: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-Qoption ube -xprefetch_mult=2

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: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m64 -fast(cc) -fast(f90)
-xtarget=nehalem -xipo=0 -xpagesize=2M -xprefetch_level=2
-lumem

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

Peak Other Flags

C benchmarks:
-V -# -xjobs=24

Continued on next page

Peak Other Flags (Continued)

C++ benchmarks:
```
-verbose=diags,version -xjobs=24
```

Fortran benchmarks:
```
-V -v -xjobs=24
```

Benchmarks using both Fortran and C:
```
-V -# -xjobs=24 -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

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