SPEC® CFP2006 Result

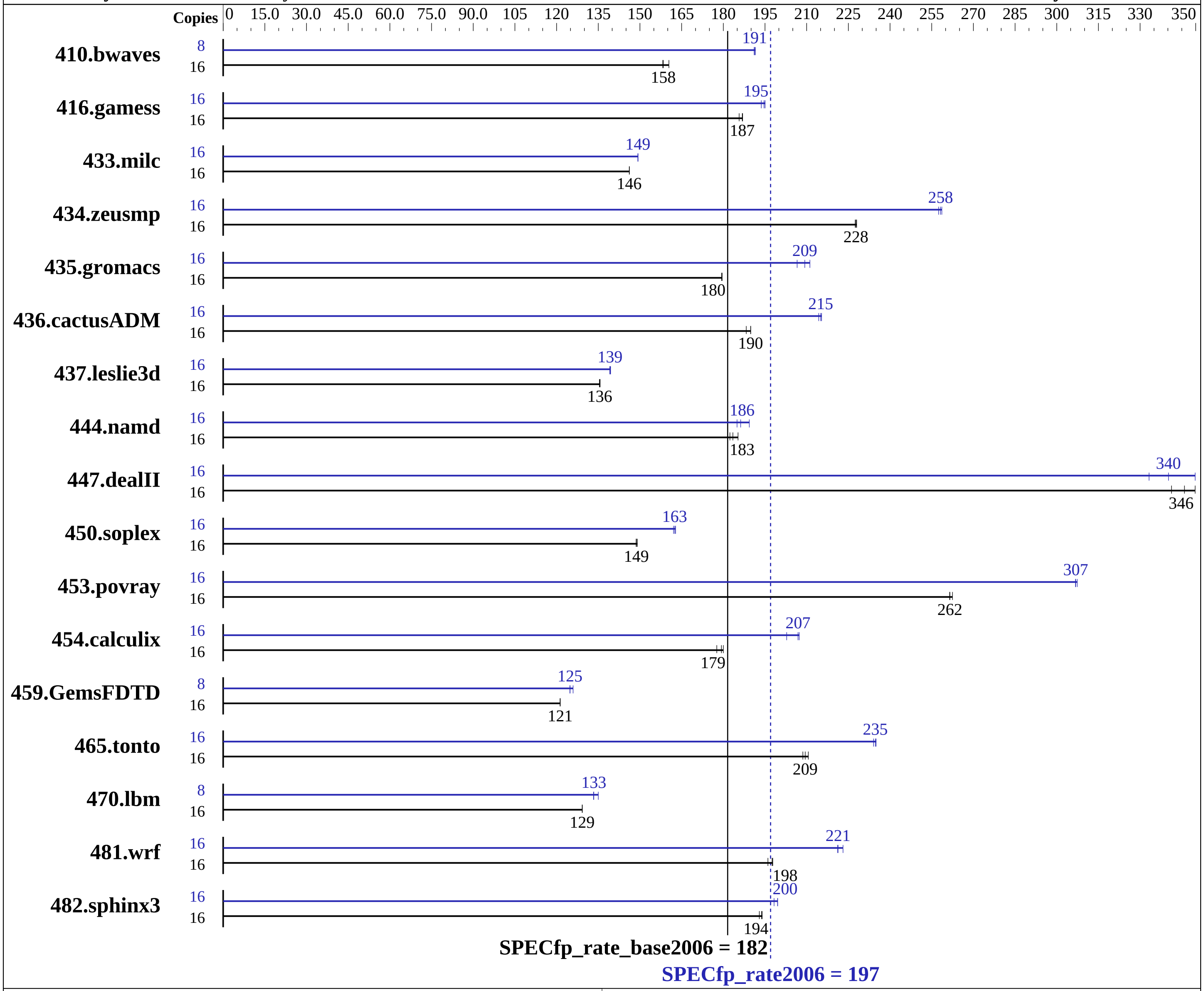
Sun Microsystems

Sun Blade X6270 (Intel Xeon X5570 2.93GHz)

SPECfp®_rate2006 = 197

SPECfp_rate_base2006 = 182

CPU2006 license:	6	**Test date:**	Mar-2009
Test sponsor:	Sun Microsystems	**Hardware Availability:**	Apr-2009
Tested by:	Sun Microsystems	**Software Availability:**	Jun-2009



Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	OpenSolaris 2008.11
Compiler:	Sun Studio 12 Update 1 (nightly build 090328)
Auto Parallel:	No
File System:	zfs with gzip compression
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB DDR3-1333)
Disk Subsystem: 134 GB using 1x ST914602SSUN146GSAS SAS 10 K RPM
Other Hardware: None

Other Software: MicroQuill SmartHeap Library 9.01 for x64
Apache C++ Standard Library V4.2.1

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	**1373**	**158**	1374	158	1355	160	8	**568**	**191**	568	192	569	191
416.gamess	16	1676	187	**1677**	**187**	1687	186	16	1606	195	**1609**	**195**	1618	194
433.milc	16	1005	146	1005	146	**1005**	**146**	16	984	149	984	149	**984**	**149**
434.zeusmp	16	**639**	**228**	639	228	640	227	16	565	257	**564**	**258**	563	259
435.gromacs	16	637	179	636	180	**636**	**180**	16	**546**	**209**	541	211	553	207
436.cactusADM	16	1016	188	**1007**	**190**	1007	190	16	**889**	**215**	892	214	888	215
437.leslie3d	16	1111	135	1109	136	**1109**	**136**	16	1079	139	**1080**	**139**	1081	139
444.namd	16	693	185	**700**	**183**	704	182	16	678	189	**689**	**186**	694	185
447.dealII	16	**529**	**346**	523	350	536	341	16	523	350	**538**	**340**	549	333
450.soplex	16	**897**	**149**	895	149	898	149	16	823	162	**821**	**163**	820	163
453.povray	16	**325**	**262**	326	261	324	262	16	**277**	**307**	277	307	277	307
454.calculix	16	733	180	**736**	**179**	743	178	16	637	207	**638**	**207**	651	203
459.GemsFDTD	16	1399	121	**1400**	**121**	1400	121	8	680	125	**680**	**125**	674	126
465.tonto	16	755	209	748	211	**752**	**209**	16	**671**	**235**	673	234	670	235
470.lbm	16	1701	129	1701	129	**1701**	**129**	8	**824**	**133**	814	135	825	133
481.wrf	16	912	196	**905**	**198**	904	198	16	**808**	**221**	808	221	801	223
482.sphinx3	16	1608	194	**1609**	**194**	1616	193	16	1573	198	**1563**	**200**	1563	200

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, along with 'pbind", to
assign processes to cores.
```

Operating System Notes

```
ulimit -s 131072  (shell): increases stack

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

Platform Notes

```
AMIBIOS Build Date 1/26/09 ID 07.01.36.00
  Default BIOS settings used except:
  Intel VT-d: Disabled.  VT-d, if enabled, supports
  remapping of I/O DMA transfers for virtualization.
```

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:
/data1/20090309_ceres_x86/bin/cc

C++ benchmarks:
/data1/20090309_ceres_x86/bin/CC

Fortran benchmarks:
/data1/20090309_ceres_x86/bin/f90

Benchmarks using both Fortran and C:
/data1/20090309_ceres_x86/bin/cc /data1/20090309_ceres_x86/bin/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

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Base Portability Flags (Continued)

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

C++ benchmarks:
-fast -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 -xipo=2 -m64 -xpagesize=2M

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

Base Other Flags

C benchmarks:
-V -# -xjobs=16

C++ benchmarks:
-verbose=diags,version -xjobs=16

Fortran benchmarks:
-V -v -xjobs=16

Benchmarks using both Fortran and C:
-V -# -xjobs=16 -v

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Peak Compiler Invocation

C benchmarks:
`/data1/20090309_ceres_x86/bin/cc`

C++ benchmarks:
`/data1/20090309_ceres_x86/bin/CC`

Fortran benchmarks:
`/data1/20090309_ceres_x86/bin/f90`

Benchmarks using both Fortran and C:
`/data1/20090309_ceres_x86/bin/cc /data1/20090309_ceres_x86/bin/f90`

Peak Portability Flags

436.cactusADM: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_WORDS_LITTLEENDIAN`

Peak Optimization Flags

C benchmarks:

433.milc: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -xpagesize=2M`

470.lbm: `-fast -xipo=2 -m64 -xvector=simd -lbsdmalloc`

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

C++ benchmarks:

444.namd: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64 -xpagesize=2M -xunroll=8 -library=stlport4`

447.dealII: `-fast -xipo=2 -m64 -xpagesize=2M -xalias_level=compatible -xdepend -library=no%Cstd -I/data1/stdcxx-4.2.1/include -I/data1/stdcxx-4.2.1/build/include -xvector -xprefetch -L/data1/stdcxx-4.2.1/build/lib -R/data1/stdcxx-4.2.1/build/lib -lstd8D`

450.soplex: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -xpagesize=2M -xrestrict -xalias_level=simple`

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Peak Optimization Flags (Continued)

450.soplex (continued):
-xprefetch=no%auto -xdepend -library=stlport4 -xvector=simd

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xalias_level=compatible -library=stlport4

Fortran benchmarks:

410.bwaves: -fast -xipo=2 -m64 -xpagesize=2M

416.gamess: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xunroll=1 -qoption iropt -Ainline:cp=19
-qoption iropt -Ainline:rs=50 -qoption iropt -Ainline:irs=30

434.zeusmp: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xvector=simd

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

459.GemsFDTD: -fast -xipo=2 -m64 -xpagesize=2M -xvector=simd

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -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)
-xipo=2 -m64 -xpagesize=2M -fsimple=2
-Qoption ube -fsimple=3

436.cactusADM: -fast(cc) -fast(f90) -xipo=2 -m64 -xpagesize=2M
-xvector=simd

454.calculix: Same as 436.cactusADM

481.wrf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -m64 -xvector=simd

Peak Other Flags

C benchmarks:
`-V -# -xjobs=16`

C++ benchmarks:
`-verbose=diags,version -xjobs=16`

Fortran benchmarks:
`-V -v -xjobs=16`

Benchmarks using both Fortran and C:
`-V -# -xjobs=16 -v`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.xml