SPEC® CFP2006 Result

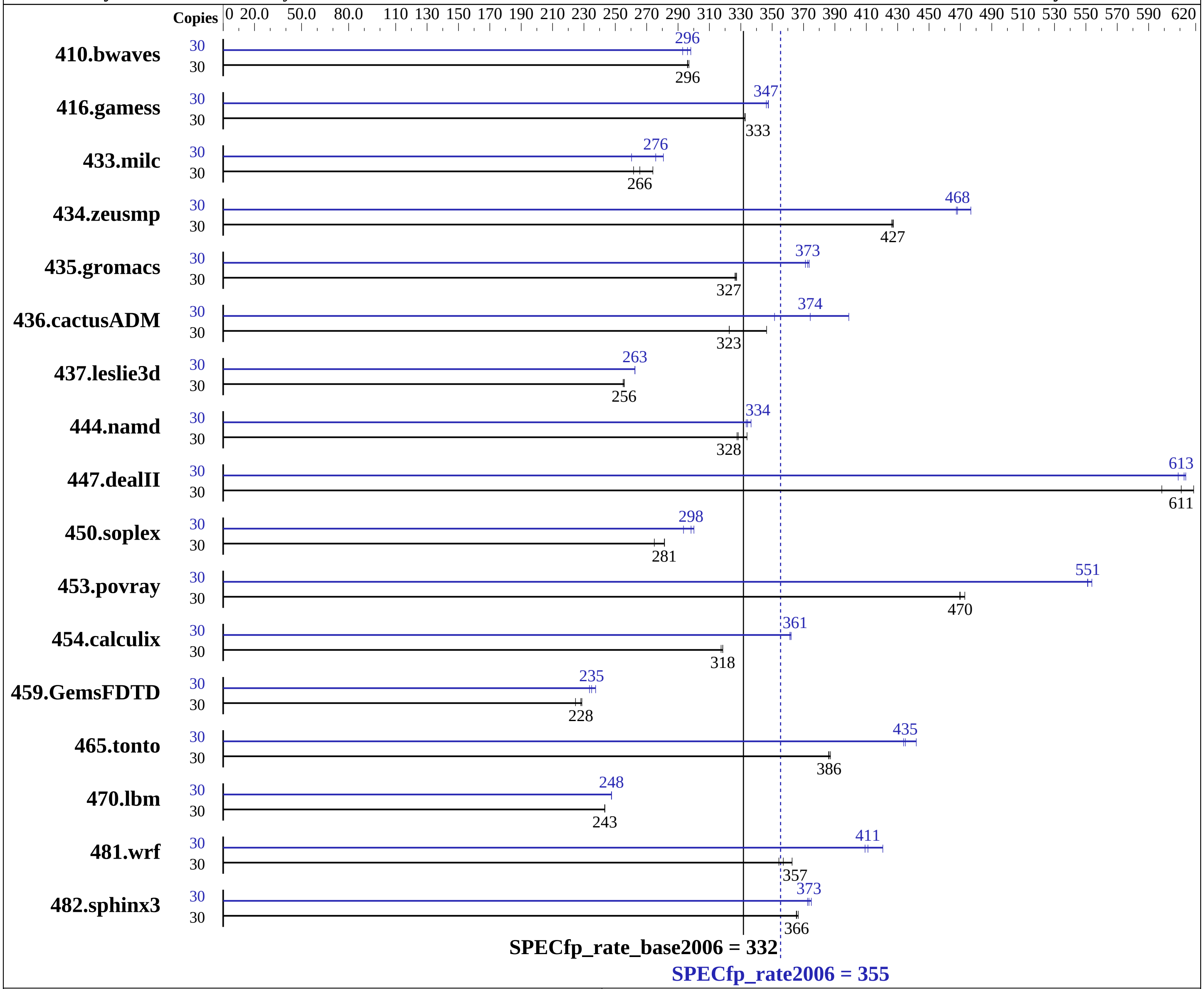
Sun Microsystems

Sun Blade X6275 (Intel Xeon X5570 2.93GHz)

SPECfp®_rate2006 = 355

SPECfp_rate_base2006 = 332

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:	16 cores, 4 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 2 Sun Blade X6275 Nodes
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 (backend build 20090309)
Auto Parallel:	No
File System:	NFSv3 (See additional details below)
System State:	Default
Base Pointers:	64-bit

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (2 x 6 x 4 GB DDR3-1333)
Disk Subsystem: 48 x SATA 250 GB 7200 RPM via NFS for SPEC CPU2006
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: MicroQuill SmartHeap Library 9.01 for x64
Apache C++ Standard Library V4.2.1

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	30	1377	296	1373	297	**1377**	**296**	30	**1377**	**296**	1368	298	1392	293
416.gamess	30	1765	333	1766	333	**1765**	**333**	30	**1690**	**347**	1696	346	1690	348
433.milc	30	1005	274	1053	262	**1037**	**266**	30	981	281	**999**	**276**	1058	260
434.zeusmp	30	639	427	**640**	**427**	641	426	30	573	477	584	467	**583**	**468**
435.gromacs	30	656	326	**655**	**327**	654	327	30	577	371	**575**	**373**	573	374
436.cactusADM	30	1035	346	1111	323	**1111**	**323**	30	1020	352	**958**	**374**	899	399
437.leslie3d	30	1106	255	**1103**	**256**	1103	256	30	1074	263	**1074**	**263**	1074	263
444.namd	30	720	334	**733**	**328**	734	328	30	**720**	**334**	715	337	721	333
447.dealII	30	574	598	**562**	**611**	555	619	30	**560**	**613**	564	609	559	614
450.soplex	30	910	275	**890**	**281**	889	281	30	853	293	**839**	**298**	834	300
453.povray	30	**340**	**470**	340	470	338	473	30	**290**	**551**	288	554	290	551
454.calculix	30	780	317	777	319	**777**	**318**	30	685	361	684	362	**685**	**361**
459.GemsFDTD	30	1417	225	1392	229	**1396**	**228**	30	1363	234	1340	237	**1355**	**235**
465.tonto	30	765	386	762	387	**764**	**386**	30	**679**	**435**	680	434	668	442
470.lbm	30	**1694**	**243**	1694	243	1695	243	30	1665	248	1665	248	**1665**	**248**
481.wrf	30	924	363	**938**	**357**	946	354	30	819	409	797	421	**815**	**411**
482.sphinx3	30	**1599**	**366**	1600	365	1595	367	30	1569	373	**1566**	**373**	1559	375

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 submit.pl to
distribute jobs across the two nodes in this blade and to bind (using
'pbind" mechanism), 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
```

Platform Notes

```
Default BIOS settings used except:
Hyper-Threading Technology set to Enabled,
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.

 48 x 250GB SATA 7200 RPM, serves the client over Gigabit
 NFS for file system: NFS server, Sun Fire X4540 equipped with
 ethternet connection.
```

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

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Base Portability Flags (Continued)

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/ctmp0/gnana/stdcxx-4.2.1/include
-I/ctmp0/gnana/stdcxx-4.2.1/build/include
-L/ctmp0/gnana/stdcxx-4.2.1/build/lib
-R/ctmp0/gnana/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

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`
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/ctmp0/gnana/stdcxx-4.2.1/include -I/ctmp0/gnana/stdcxx-4.2.1/build/include -xvector -xprefetch -L/ctmp0/gnana/stdcxx-4.2.1/build/lib -R/ctmp0/gnana/stdcxx-4.2.1/build/lib -lstd8D`

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Peak Optimization Flags (Continued)

450.soplex: -fast -xipo=2 -xpagesize=2M -xrestrict -xalias_level=simple -xvector=simd -library=stlport4

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: -fast -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

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Peak Other Flags (Continued)

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 files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.html
http://www.spec.org/cpu2006/flags/Sun-X6275.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.xml
http://www.spec.org/cpu2006/flags/Sun-X6275.xml

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 02:04:25 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 April 2009.