SPEC® CFP2006 Result
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Sun Microsystems

Sun Blade X6275 (Intel Xeon X5570 2.93GHz)

$SPECfp^{®}2006 =$ 50.8

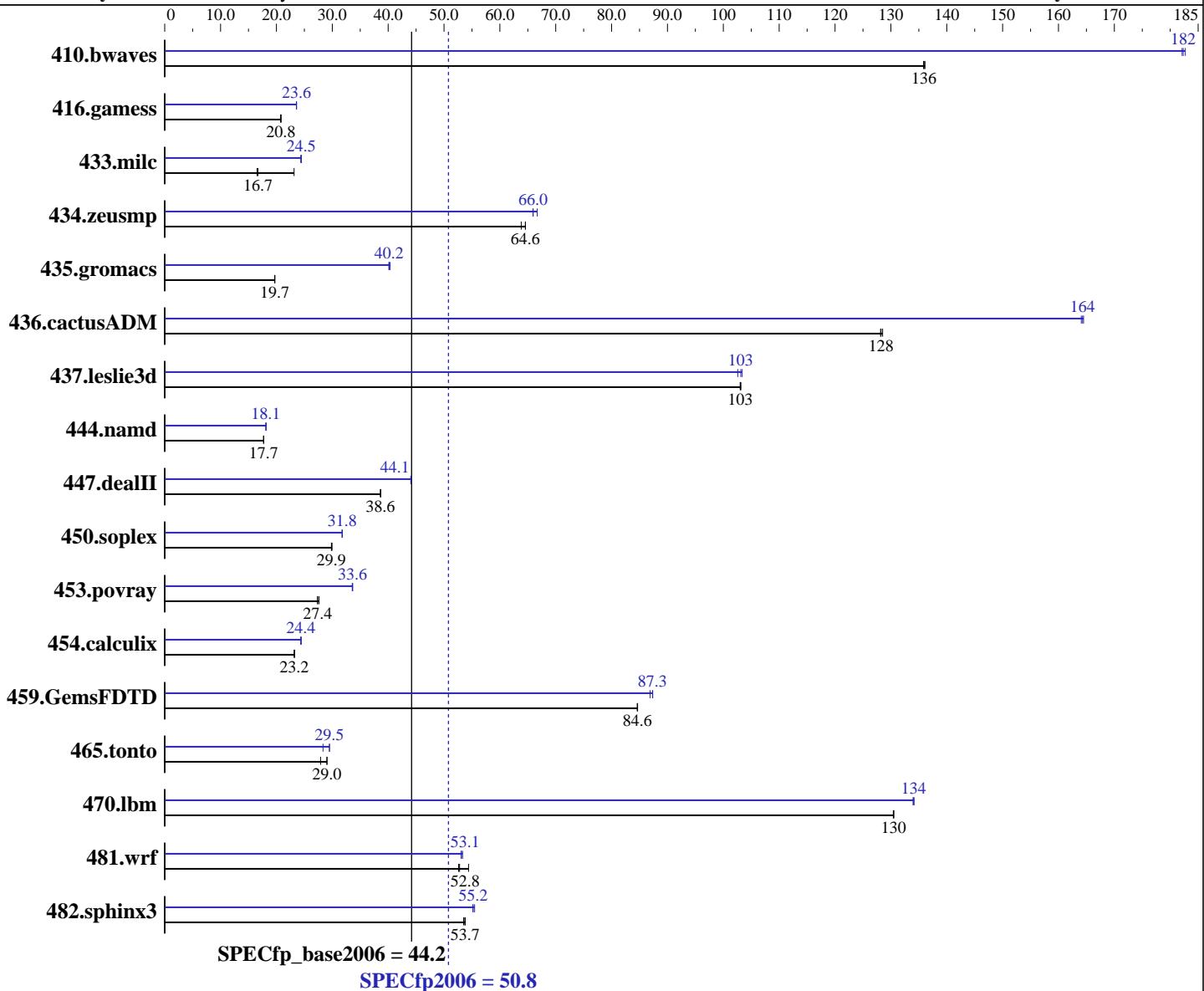$SPECfp\_base2006 =$ 44.2

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Jun-2009
Hardware Availability: Apr-2009
Software Availability: Jun-2009

Benchmark	base	peak
410.bwaves	136	182
416.gamess	20.8	23.6
433.milc	16.7	24.5
434.zeusmp	64.6	66.0
435.gromacs	19.7	40.2
436.cactusADM	128	164
437.leslie3d	103	103
444.namd	17.7	18.1
447.dealII	38.6	44.1
450.soplex	29.9	31.8
453.povray	27.4	33.6
454.calculix	23.2	24.4
459.GemsFDTD	84.6	87.3
465.tonto	29.0	29.5
470.lbm	130	134
481.wrf	52.8	53.1
482.sphinx3	53.7	55.2

SPECfp_base2006 = 44.2
SPECfp2006 = 50.8

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

Software
Operating System: OpenSolaris 2009.06
Compiler: Sun Studio 12 Update 1
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:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6 x 4 GB DDR3-1333)
Disk Subsystem:	1 x 24 GB, SAS, Sun FlashDisk
Other Hardware:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	100	136	99.9	136	**100**	**136**	74.6	182	74.4	183	**74.5**	**182**
416.gamess	943	20.8	941	20.8	**941**	**20.8**	**830**	**23.6**	830	23.6	830	23.6
433.milc	**550**	**16.7**	396	23.2	556	16.5	**375**	**24.5**	375	24.5	377	24.4
434.zeusmp	**141**	**64.6**	141	64.6	143	63.8	136	66.7	138	65.9	**138**	**66.0**
435.gromacs	**362**	**19.7**	362	19.7	362	19.7	178	40.1	177	40.4	**178**	**40.2**
436.cactusADM	93.0	129	**93.2**	**128**	93.2	128	72.6	164	72.8	164	**72.7**	**164**
437.leslie3d	91.1	103	91.2	103	**91.2**	**103**	90.9	103	91.6	103	**91.2**	**103**
444.namd	453	17.7	453	17.7	**453**	**17.7**	442	18.1	443	18.1	**442**	**18.1**
447.dealII	296	38.7	**296**	**38.6**	296	38.6	260	44.1	**259**	**44.1**	259	44.1
450.soplex	278	30.0	279	29.8	**279**	**29.9**	263	31.7	262	31.8	**262**	**31.8**
453.povray	195	27.3	193	27.6	**194**	**27.4**	158	33.6	158	33.6	**158**	**33.6**
454.calculix	355	23.2	355	23.2	**355**	**23.2**	**338**	**24.4**	339	24.4	338	24.4
459.GemsFDTD	125	84.7	**125**	**84.6**	125	84.6	122	86.9	**121**	**87.3**	121	87.4
465.tonto	353	27.9	339	29.1	**339**	**29.0**	334	29.5	**334**	**29.5**	347	28.3
470.lbm	**105**	**130**	105	131	105	130	102	134	**102**	**134**	103	134
481.wrf	205	54.4	212	52.6	**212**	**52.8**	209	53.3	210	53.1	**210**	**53.1**
482.sphinx3	364	53.5	362	53.8	**363**	**53.7**	353	55.2	**353**	**55.2**	351	55.5

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
```

Operating System Notes

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

/etc/system parameters
    tune_t_fsflushr=10
    autoup=900
```

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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

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "8"
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
   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
```

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Base Portability Flags (Continued)

```
    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 -xvector=simd -xautopar
```

C++ benchmarks:
```
    -fast -xipo=2 -m64 -xvector=simd -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 -xvector=simd -xautopar
```

Benchmarks using both Fortran and C:
```
    -fast(cc) -xipo=2 -m64 -xvector=simd -xautopar -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
```

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Peak Compiler Invocation (Continued)

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 -xautopar -xreduction`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap_mt64`
`-lmvec`

482.sphinx3: `-fast -xipo=2 -m64 -xpagesize=2M -xvector=simd`
`-xprefetch=no%auto -xautopar -xreduction`

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=1 -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`
`-L/data1/stdcxx-4.2.1/build/lib`
`-R/data1/stdcxx-4.2.1/build/lib -lstd8D`

450.soplex: `-fast -xipo=2 -xpagesize=2M -xrestrict`
`-xalias_level=simple -xprefetch=no%auto -xdepend`
`-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`

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Peak Optimization Flags (Continued)

Fortran benchmarks:

```
    410.bwaves: -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
                -xpagesize=2M -xprefetch=no%auto -xautopar -xreduction

    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 -xipo=2 -m64 -xvector=simd -xautopar -xreduction

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

    459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
                -xpagesize=2M -xvector=simd -xautopar -xreduction

    465.tonto: -fast -xipo=2 -m64 -xpagesize=2M -xautopar -stackvar
                -xreduction -xprefetch=no%auto -xvector=lib -xalias
                -xdepend
```

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 -xprefetch=no%auto -xautopar
                -xreduction

    436.cactusADM: -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
                -xipo=2 -xaddr32=yes -m64 -xvector=simd -xautopar
                -W2,-Aparallel:nthreads=16
                -Qoption iropt -Aparallel:nthreads=16

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

    481.wrf: -xprofile=collect:./feedback(pass 1)
                -xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
                -xipo=2 -m64 -xpagesize=2M -xvector=lib,simd
                -xprefetch=no%auto -xautopar -xreduction
```

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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.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.xml

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