SPEC® CFP2006 Result

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Oracle Corporation

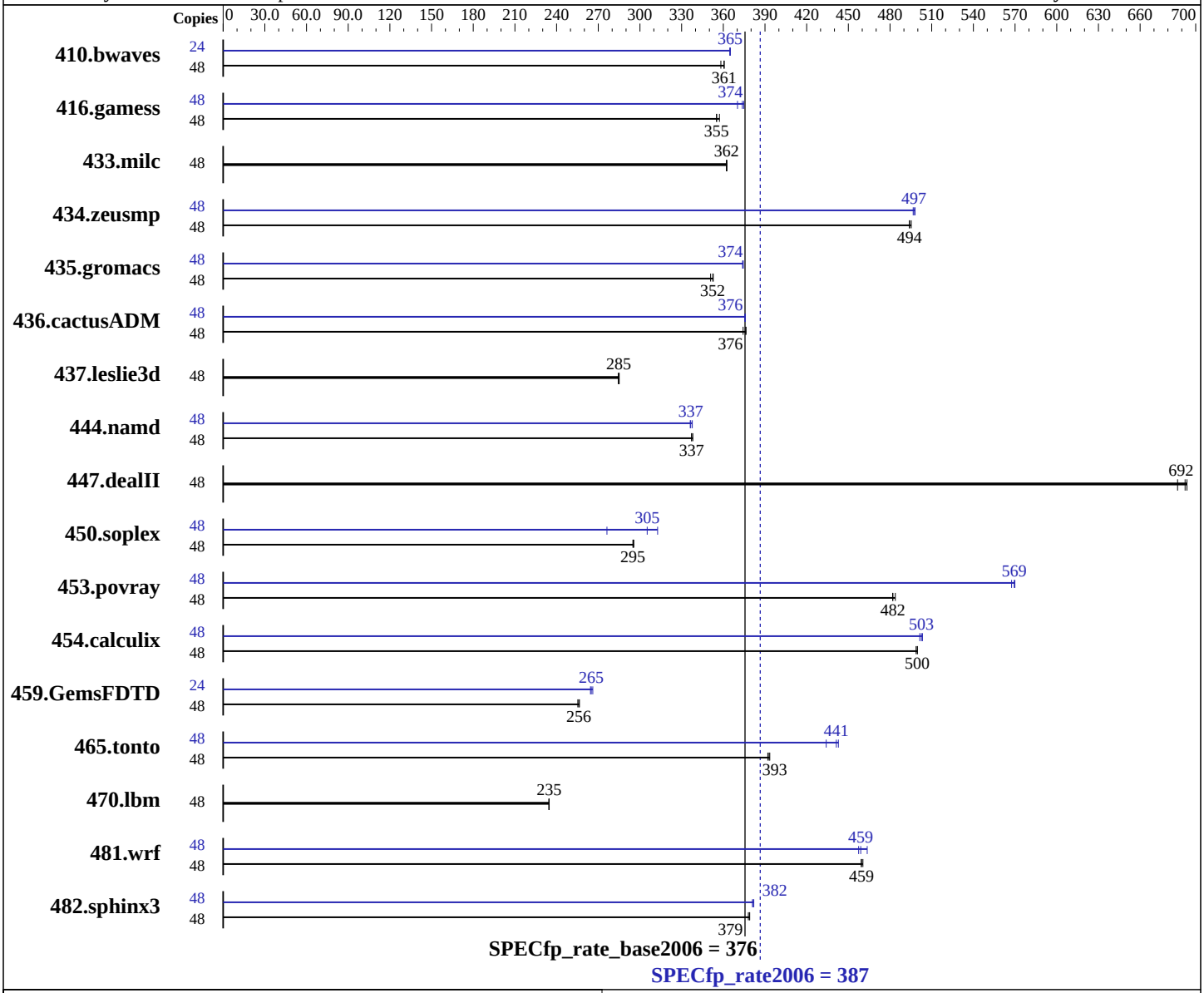
Sun Fire X4470 (Intel Xeon E7530 1.87 GHz)

SPECfp®_rate2006 = 387

SPECfp_rate_base2006 = 376

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

Test date: Nov-2010
Hardware Availability: Jun-2010
Software Availability: Jun-2010



Hardware

CPU Name:	Intel Xeon E7530
CPU Characteristics:	Intel Turbo Boost Technology up to 2.13 GHz
CPU MHz:	1867
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1-4 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 9/10
Compiler:	Oracle Solaris Studio Express 6/10
Auto Parallel:	No
File System:	ufs
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: 256 GB (64 x 4 GB 2Rx4 PC3-10600R-9, ECC, see add'l detail in notes)
Disk Subsystem: 1 x 500 GB, 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	48	1821	358	**1809**	**361**	1809	361	24	**894**	**365**	894	365	893	365
416.gamess	48	2631	357	2646	355	**2646**	**355**	48	**2515**	**374**	2539	370	2508	375
433.milc	48	1216	362	1215	363	**1216**	**362**	48	1216	362	1215	363	**1216**	**362**
434.zeusmp	48	**884**	**494**	882	495	884	494	48	879	497	877	498	**879**	**497**
435.gromacs	48	971	353	977	351	**972**	**352**	48	916	374	917	374	**916**	**374**
436.cactusADM	48	1533	374	**1525**	**376**	1524	376	48	1527	376	1526	376	**1527**	**376**
437.leslie3d	48	**1584**	**285**	1583	285	1586	284	48	**1584**	**285**	1583	285	1586	284
444.namd	48	1139	338	**1142**	**337**	1142	337	48	1145	336	1140	338	**1144**	**337**
447.dealII	48	792	694	**793**	**692**	799	687	48	792	694	**793**	**692**	799	687
450.soplex	48	1357	295	**1357**	**295**	1354	296	48	1449	276	1280	313	**1312**	**305**
453.povray	48	**530**	**482**	528	484	530	482	48	450	567	**448**	**569**	448	570
454.calculix	48	793	500	**793**	**500**	794	499	48	790	501	**788**	**503**	787	503
459.GemsFDTD	48	1986	256	**1990**	**256**	1995	255	24	963	264	**961**	**265**	957	266
465.tonto	48	1200	393	**1202**	**393**	1205	392	48	**1070**	**441**	1067	443	1088	434
470.lbm	48	2814	234	2810	235	**2811**	**235**	48	2814	234	2810	235	**2811**	**235**
481.wrf	48	1167	459	**1167**	**459**	1164	460	48	1157	464	**1168**	**459**	1172	457
482.sphinx3	48	2468	379	2475	378	**2470**	**379**	48	2456	381	**2452**	**382**	2449	382

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
   lpg_alloc_prefer=1
```

Platform Notes

```
  The system automatically configures the memory to run at 978 MHz.
  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`
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/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=48

C++ benchmarks:
-verbose=diags,version -xjobs=48

Fortran benchmarks:
-V -v -xjobs=48

Benchmarks using both Fortran and C:
-V -# -xjobs=48 -v

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Portability Flags

433.milc: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
437.leslie3d: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -fast -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 -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 -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 -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 -xipo=2 -m64
-xpagesize=2M

416.gamess: -fast -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 -xipo=2 -m64
-xvector=lib -xalias -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 -Qoption ube -fsimple=3

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

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

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

Peak Other Flags

C benchmarks:
-V -# -xjobs=48

C++ benchmarks:
-verbose=diags,version -xjobs=48

Continued on next page

Peak Other Flags (Continued)

Fortran benchmarks:
```
-V -v -xjobs=48
```

Benchmarks using both Fortran and C:
```
-V -# -xjobs=48 -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_64.20100901.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.20100901.xml

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