



SPEC[®] CFP2006 Result

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Oracle Corporation

SPECfp[®]_rate2006 = 250

Sun Fire X4270 M2 (Intel Xeon X5680 3.33GHz)

SPECfp_rate_base2006 = 245

CPU2006 license: 6

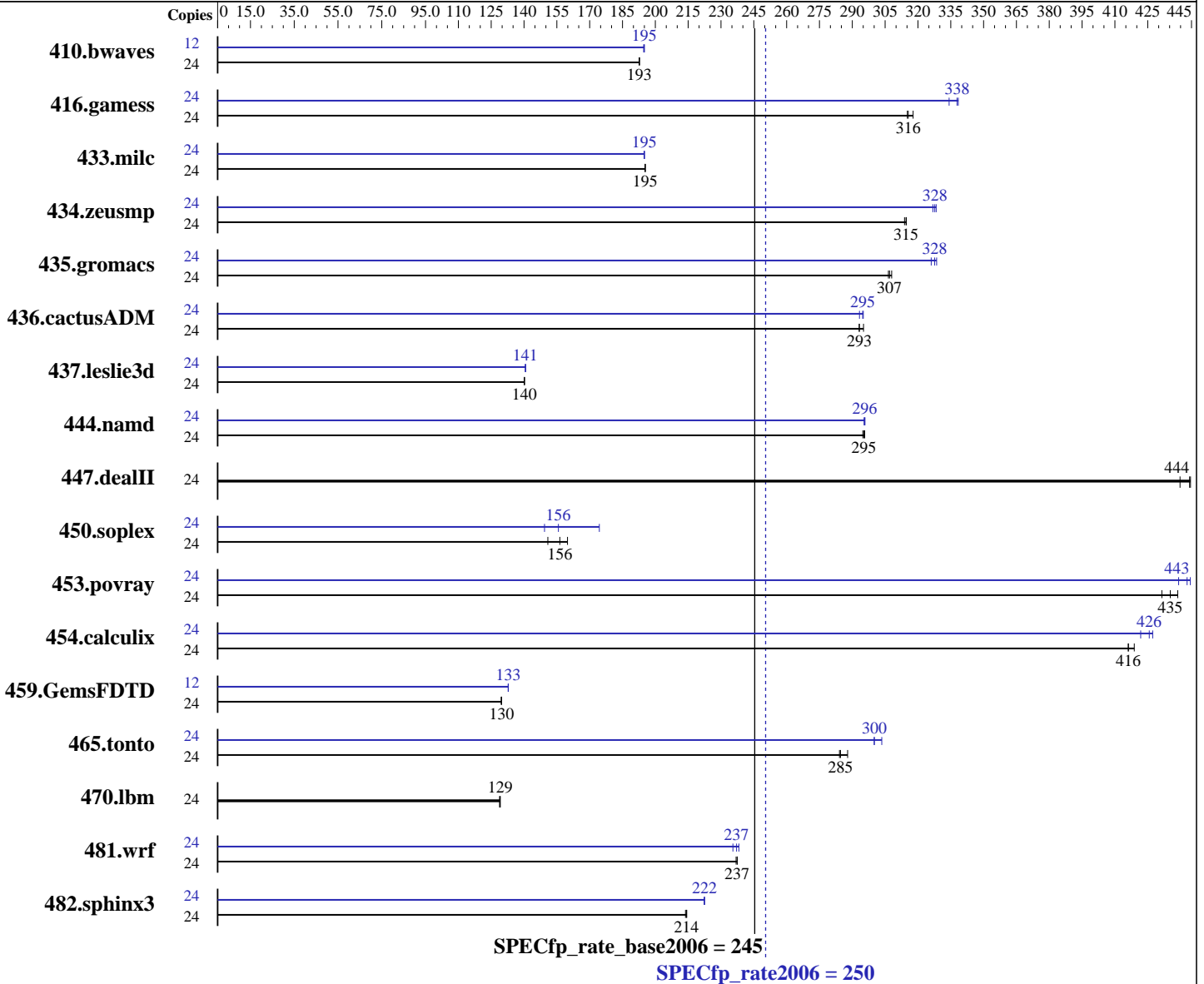
Test date: Aug-2010

Test sponsor: Oracle Corporation

Hardware Availability: Aug-2010

Tested by: Oracle Corporation

Software Availability: Jun-2010



Hardware

CPU Name: Intel Xeon X5680
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3333
 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: 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: 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 | 1692 | 193 | 1692 | 193 | 1693 | 193 | 12 | 838 | 195 | 836 | 195 | 837 | 195 |
| 416.gamess | 24 | 1489 | 316 | 1479 | 318 | 1491 | 315 | 24 | 1389 | 338 | 1391 | 338 | 1406 | 334 |
| 433.milc | 24 | 1128 | 195 | 1128 | 195 | 1128 | 195 | 24 | 1130 | 195 | 1131 | 195 | 1130 | 195 |
| 434.zeusmp | 24 | 694 | 315 | 696 | 314 | 694 | 315 | 24 | 665 | 328 | 668 | 327 | 666 | 328 |
| 435.gromacs | 24 | 556 | 308 | 558 | 307 | 559 | 307 | 24 | 523 | 328 | 526 | 326 | 522 | 329 |
| 436.cactusADM | 24 | 978 | 293 | 978 | 293 | 972 | 295 | 24 | 973 | 295 | 972 | 295 | 978 | 293 |
| 437.leslie3d | 24 | 1609 | 140 | 1610 | 140 | 1609 | 140 | 24 | 1604 | 141 | 1603 | 141 | 1604 | 141 |
| 444.namd | 24 | 652 | 295 | 651 | 296 | 653 | 295 | 24 | 652 | 295 | 651 | 296 | 651 | 296 |
| 447.dealII | 24 | 618 | 445 | 624 | 440 | 618 | 444 | 24 | 618 | 445 | 624 | 440 | 618 | 444 |
| 450.soplex | 24 | 1252 | 160 | 1280 | 156 | 1327 | 151 | 24 | 1340 | 149 | 1285 | 156 | 1148 | 174 |
| 453.povray | 24 | 296 | 431 | 291 | 439 | 293 | 435 | 24 | 288 | 443 | 287 | 444 | 291 | 439 |
| 454.calculix | 24 | 476 | 416 | 473 | 419 | 476 | 416 | 24 | 465 | 426 | 463 | 427 | 469 | 422 |
| 459.GemsFDTD | 24 | 1962 | 130 | 1962 | 130 | 1966 | 130 | 12 | 959 | 133 | 959 | 133 | 959 | 133 |
| 465.tonto | 24 | 831 | 284 | 820 | 288 | 830 | 285 | 24 | 778 | 303 | 787 | 300 | 787 | 300 |
| 470.lbm | 24 | 2554 | 129 | 2554 | 129 | 2560 | 129 | 24 | 2554 | 129 | 2554 | 129 | 2560 | 129 |
| 481.wrf | 24 | 1132 | 237 | 1129 | 237 | 1129 | 237 | 24 | 1126 | 238 | 1139 | 235 | 1131 | 237 |
| 482.sphinx3 | 24 | 2182 | 214 | 2188 | 214 | 2184 | 214 | 24 | 2104 | 222 | 2102 | 223 | 2103 | 222 |

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.



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Operating System Notes

ulimit -s 131072 (shell): increases stack

/etc/system parameters

tune_t_fsflushr=10

autoup=900

lpg_alloc_prefer=1

Platform Notes

Default BIOS settings used except:

Hardware Prefetch : Enabled

Adjacent Cache Line Prefetch : Enabled

Data Reuse Optimization : Disabled

Intel C-STATE technology : Disabled

General Notes

Environment variables set by runspec before the start of the run:

SUNW_MP_PROCBIND = "TRUE"

SUNW_MP_THR_IDLE = "SPIN"

447.dealIII (peak): "apache_stdccx4_2_1" src.alt was used.

447.dealIII (base): "apache_stdccx4_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

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Base Portability Flags (Continued)

```
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
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=24
```

C++ benchmarks:

```
-verbose=diags,version -xjobs=24
```

Fortran benchmarks:

```
-V -v -xjobs=24
```

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Base Other Flags (Continued)

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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: -fast -xipo=2 -m64 -xpagesize=2M -xalias_level=std

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

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Peak Optimization Flags (Continued)

```
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
```

```
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: -fast -xipo=2 -m64 -Qoption ube -xprefetch_mult=2
```

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
```



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Peak 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

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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