# SPEC® CFP2006 Result



## Oracle Corporation

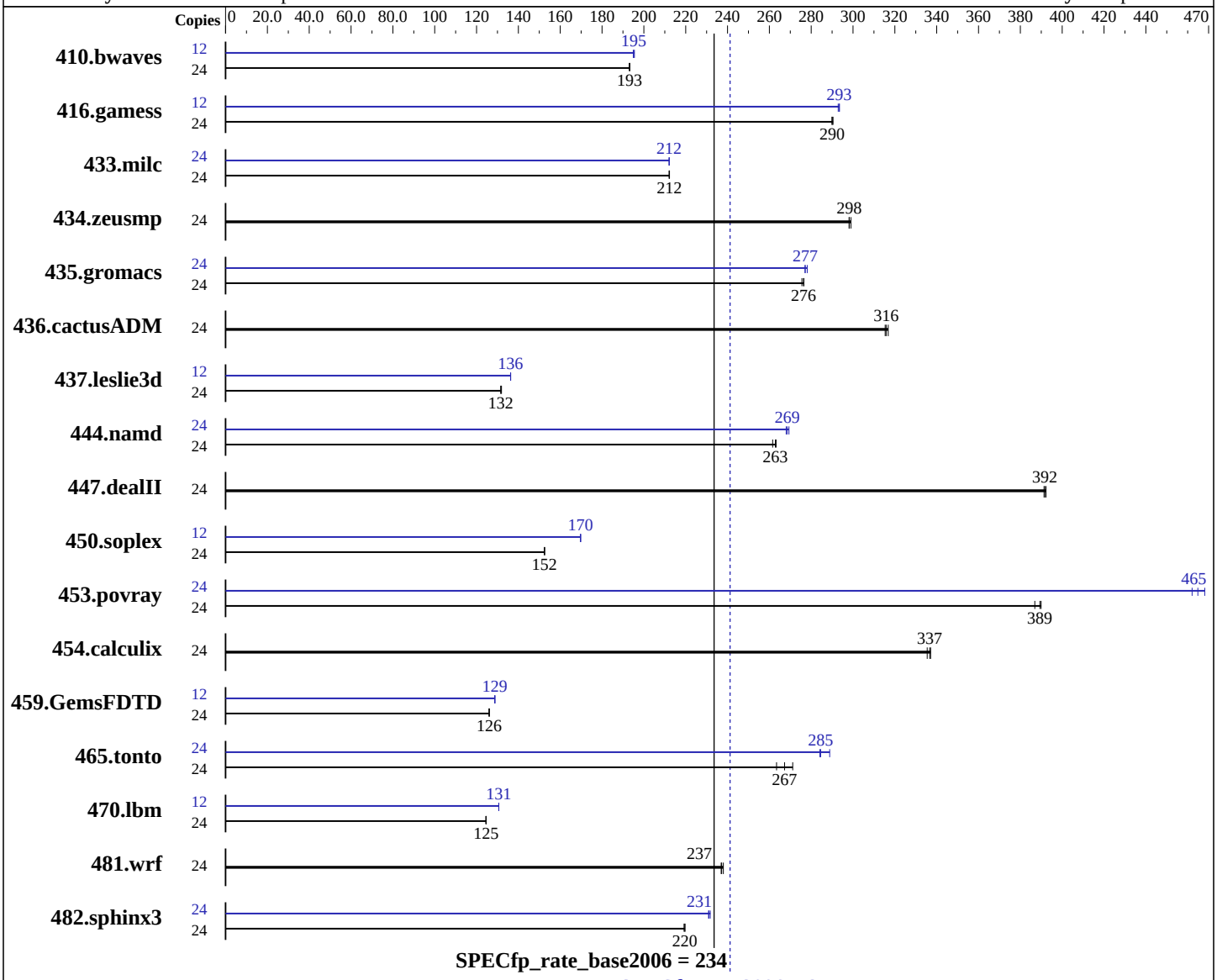
Sun Blade X6275 M2 Server Module (Intel Xeon X5670 2.93 GHz)

SPECfp®_rate2006 = 241

SPECfp_rate_base2006 = 234

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

**Test date:** Oct-2010
**Hardware Availability:** Dec-2010
**Software Availability:** Apr-2010




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5670 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.33 GHz |
| CPU MHz: | 2933 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 or 2 chips per Sun Blade X6275 M2 node |
| 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 Enterprise Linux Server release 5.5 kernel 2.6.18-194.el5 |
| Compiler: | Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064 |
| Auto Parallel: | No |
| File System: | NFSv4 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: Sun Storage 7410 System via NFS (See additional details below)
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 24 | 1687 | 193 | **1688** | **193** | 1690 | 193 | 12 | 837 | 195 | 834 | 195 | **835** | **195** |
| 416.gamess | 24 | 1621 | 290 | 1618 | 290 | **1620** | **290** | 12 | 802 | 293 | **801** | **293** | 800 | 294 |
| 433.milc | 24 | **1038** | **212** | 1039 | 212 | 1038 | 212 | 24 | 1039 | 212 | 1039 | 212 | **1039** | **212** |
| 434.zeusmp | 24 | **732** | **298** | 733 | 298 | 730 | 299 | 24 | **732** | **298** | 733 | 298 | 730 | 299 |
| 435.gromacs | 24 | **620** | **276** | 622 | 276 | 620 | 277 | 24 | **618** | **277** | 619 | 277 | 616 | 278 |
| 436.cactusADM | 24 | **908** | **316** | 905 | 317 | 909 | 315 | 24 | **908** | **316** | 905 | 317 | 909 | 315 |
| 437.leslie3d | 24 | **1714** | **132** | 1710 | 132 | 1714 | 132 | 12 | 828 | 136 | **828** | **136** | 827 | 136 |
| 444.namd | 24 | 736 | 262 | **732** | **263** | 731 | 263 | 24 | **717** | **269** | 715 | 269 | 718 | 268 |
| 447.dealII | 24 | 700 | 392 | 702 | 391 | **701** | **392** | 24 | 700 | 392 | 702 | 391 | **701** | **392** |
| 450.soplex | 24 | 1312 | 153 | **1313** | **152** | 1313 | 152 | 12 | 590 | 170 | **590** | **170** | 590 | 170 |
| 453.povray | 24 | **328** | **389** | 330 | 387 | 327 | 390 | 24 | **275** | **465** | 273 | 468 | 276 | 462 |
| 454.calculix | 24 | 587 | 337 | **588** | **337** | 590 | 335 | 24 | 587 | 337 | **588** | **337** | 590 | 335 |
| 459.GemsFDTD | 24 | 2022 | 126 | **2020** | **126** | 2019 | 126 | 12 | 988 | 129 | 989 | 129 | **989** | **129** |
| 465.tonto | 24 | 871 | 271 | **884** | **267** | 896 | 263 | 24 | 818 | 289 | **830** | **285** | 831 | 284 |
| 470.lbm | 24 | 2646 | 125 | **2647** | **125** | 2650 | 124 | 12 | 1262 | 131 | 1262 | 131 | **1262** | **131** |
| 481.wrf | 24 | 1126 | 238 | 1131 | 237 | **1130** | **237** | 24 | 1126 | 238 | 1131 | 237 | **1130** | **237** |
| 482.sphinx3 | 24 | 2130 | 220 | **2130** | **220** | 2134 | 219 | 24 | 2018 | 232 | **2024** | **231** | 2026 | 231 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

```
The config file option 'submit' was used.
 numactl was used to bind copies to the cores
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

## Platform Notes

```
Load Default BIOS Settings and then change the following
  Data Reuse Optimization Disabled
  Hardware Prefetch Enabled
```

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## Platform Notes (Continued)

```
    Adjacent Cache Line Prefetch Enabled
    L1 Data Prefetch Enabled

  Storage Configuration for Disk Subsystem:
  Sun Storage 7410 with 7200 RPM Disks under RAID-1 configuration
  mounted over 10GBE network interface.
```

## Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

## 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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

## Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

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## Base Optimization Flags (Continued)

C++ benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## Peak 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 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

# Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -fno-alias -opt-prefetch

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

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## Peak Optimization Flags (Continued)

435.gromacs: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2) `-opt-prefetch -auto-ilp32`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-pathfix-smartheap.20101027.html
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-pathfix-smartheap.20101027.xml
http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.xml



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

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