# SPEC® CFP2006 Result



## Cisco Systems

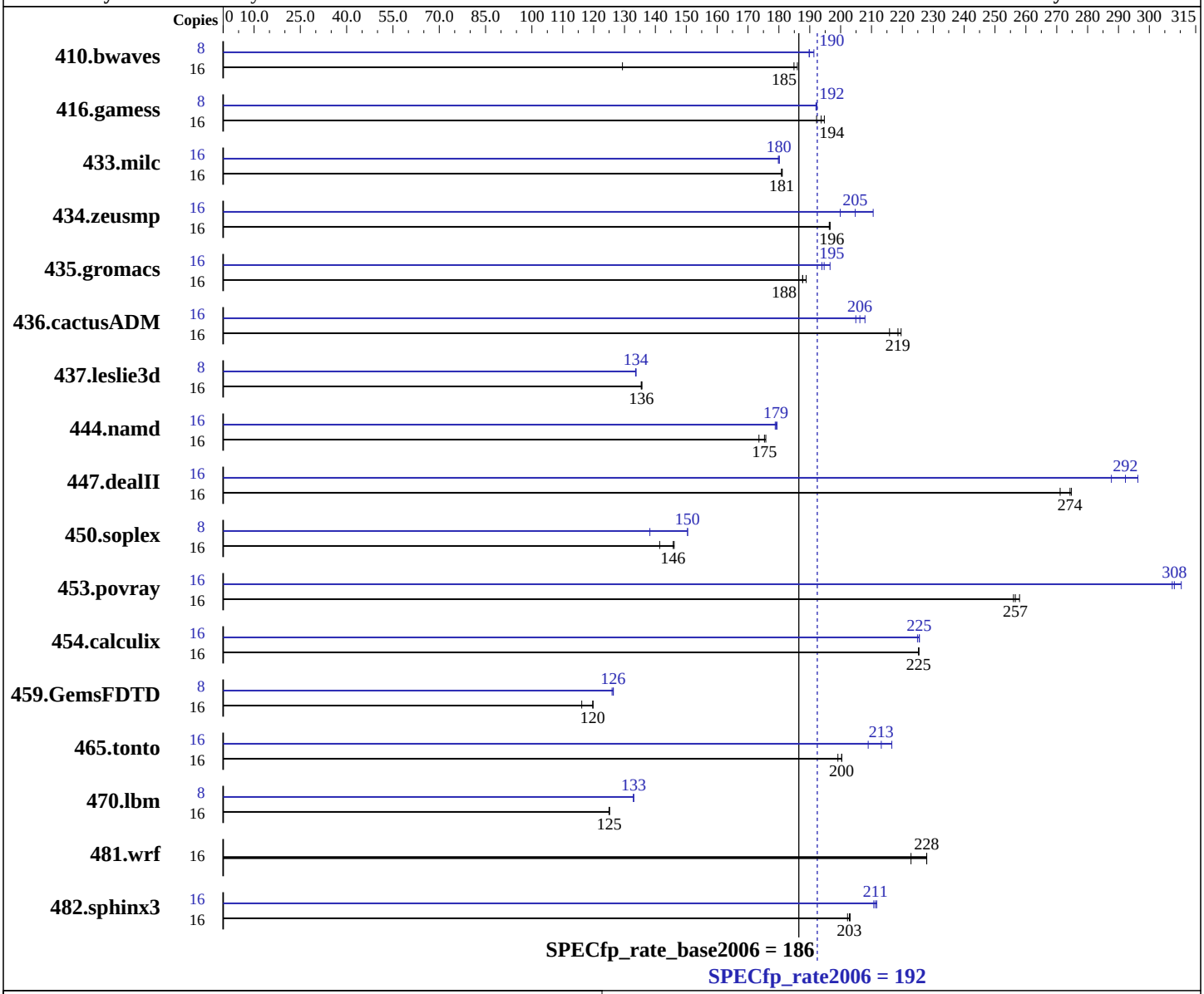
## UCS C200 M1 (Intel Xeon X5570)

**SPECfp®_rate2006 = 192**

**SPECfp_rate_base2006 = 186**

**CPU2006 license:** 9019
**Test sponsor:** Cisco Systems
**Tested by:** Cisco Systems

**Test date:** Jan-2010
**Hardware Availability:** Oct-2009
**Software Availability:** Mar-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: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 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: | SuSe Linux Enterprise Server 11 (x86_64), Kernel 2.6.27-15-2-default, RC4 |
| Compiler: | Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080 |
| Auto Parallel: | No |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 * 4GB DDR3-1333 MHz)
Disk Subsystem: 73 GB SATA, 15kRPM
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 | 16 | 1681 | 129 | 1169 | 186 | **1176** | **185** | 8 | **572** | **190** | 568 | 191 | 573 | 190 |
| 416.gamess | 16 | **1617** | **194** | 1630 | 192 | 1609 | 195 | 8 | 814 | 192 | 816 | 192 | **815** | **192** |
| 433.milc | 16 | 812 | 181 | **812** | **181** | 811 | 181 | 16 | 817 | 180 | **816** | **180** | 815 | 180 |
| 434.zeusmp | 16 | 742 | 196 | **741** | **196** | 741 | 197 | 16 | **711** | **205** | 728 | 200 | 692 | 211 |
| 435.gromacs | 16 | 605 | 189 | 609 | 188 | **609** | **188** | 16 | 581 | 197 | 589 | 194 | **587** | **195** |
| 436.cactusADM | 16 | 871 | 220 | 886 | 216 | **875** | **219** | 16 | 933 | 205 | **927** | **206** | 920 | 208 |
| 437.leslie3d | 16 | 1111 | 135 | **1110** | **136** | 1109 | 136 | 8 | **563** | **134** | 563 | 134 | 562 | 134 |
| 444.namd | 16 | 739 | 174 | **732** | **175** | 730 | 176 | 16 | **717** | **179** | 715 | 179 | 718 | 179 |
| 447.dealII | 16 | 666 | 275 | 675 | 271 | **667** | **274** | 16 | 618 | 296 | **626** | **292** | 636 | 288 |
| 450.soplex | 16 | 944 | 141 | **915** | **146** | 913 | 146 | 8 | 483 | 138 | **444** | **150** | 444 | 150 |
| 453.povray | 16 | **332** | **257** | 330 | 258 | 333 | 256 | 16 | 277 | 307 | 274 | 310 | **276** | **308** |
| 454.calculix | 16 | **586** | **225** | 586 | 225 | 586 | 225 | 16 | **586** | **225** | 585 | 226 | 587 | 225 |
| 459.GemsFDTD | 16 | 1462 | 116 | 1417 | 120 | **1418** | **120** | 8 | 674 | 126 | 672 | 126 | **672** | **126** |
| 465.tonto | 16 | **786** | **200** | 786 | 200 | 791 | 199 | 16 | 727 | 217 | 754 | 209 | **739** | **213** |
| 470.lbm | 16 | 1759 | 125 | **1757** | **125** | 1757 | 125 | 8 | 827 | 133 | 827 | 133 | **827** | **133** |
| 481.wrf | 16 | **784** | **228** | 784 | 228 | 802 | 223 | 16 | **784** | **228** | 784 | 228 | 802 | 223 |
| 482.sphinx3 | 16 | 1542 | 202 | **1537** | **203** | 1536 | 203 | 16 | 1480 | 211 | **1476** | **211** | 1473 | 212 |

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
```

## Base Compiler Invocation

C benchmarks:

```
icc
```

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## Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

## 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

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

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
icpc

450.soplex: icpc -m32

Fortran benchmarks (except as noted below):
ifort

437.leslie3d: ifort -m32

Benchmarks using both Fortran and C:
icc ifort

## 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
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

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32

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## Peak Optimization Flags (Continued)

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: -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 -ansi-alias -scalar-rep-

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: -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)

437.leslie3d: -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 -opt-prefetch

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 -opt-prefetch

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

Benchmarks using both Fortran and C:

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

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## Peak Optimization Flags (Continued)

436.cactusADM: `-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 -opt-prefetch -auto-ilp32`

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revH.20100317.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revH.20100317.xml`



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

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