



# SPEC® CFP2006 Result

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## Cisco Systems

SPECfp®\_rate2006 = 274

Cisco UCS B200 M2 (Intel Xeon X5690, 3.46 GHz)

SPECfp\_rate\_base2006 = 266

CPU2006 license: 9019

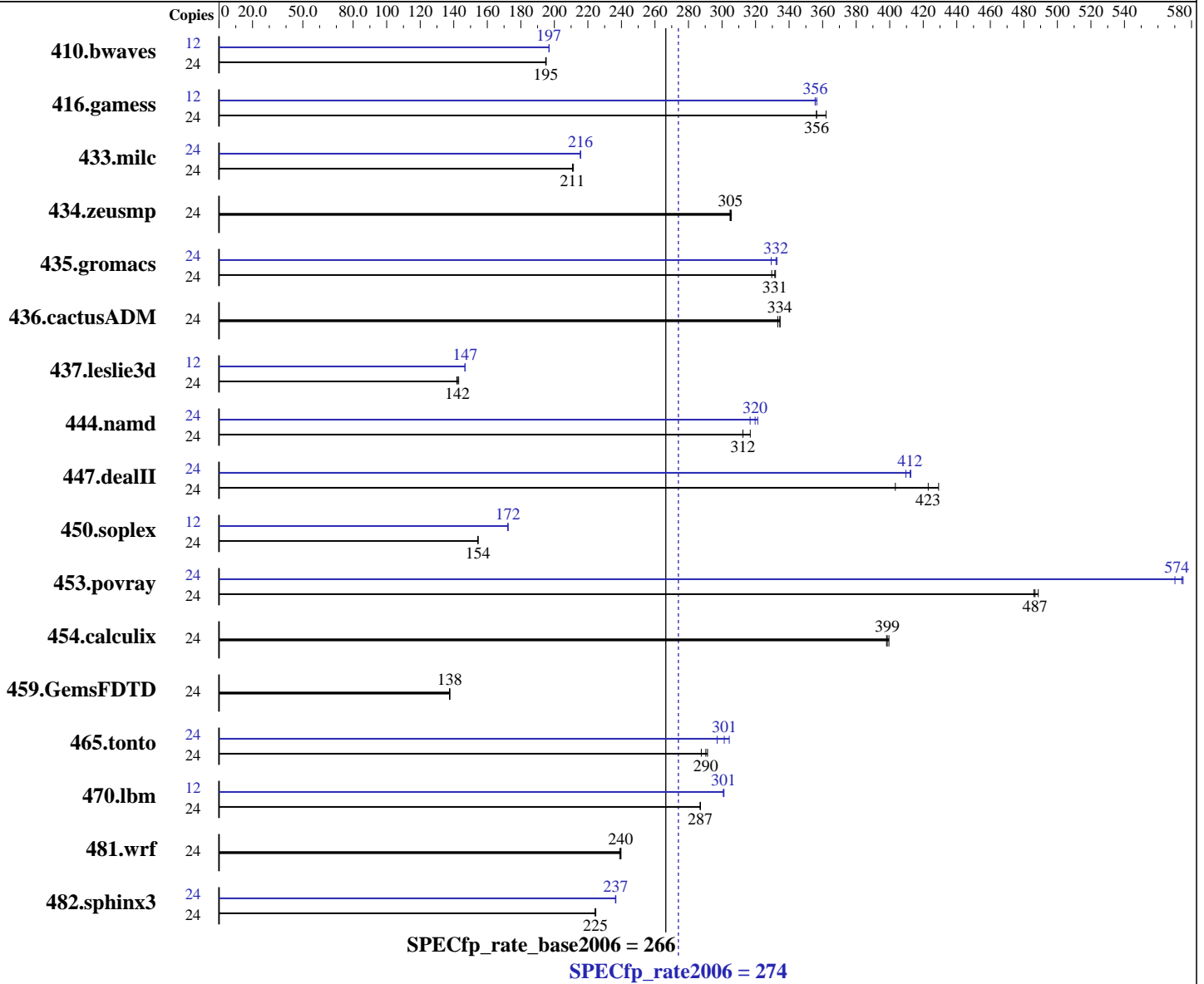
Test date: Feb-2011

Test sponsor: Cisco Systems

Hardware Availability: Mar-2011

Tested by: Cisco Systems

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon X5690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz  
 CPU MHz: 3467  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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) with SP1, Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12 x 4 GB 2Rx4 PC3L-10600R-9, ECC)  
Disk Subsystem: 73 GB SAS, 15K RPM  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: Binaries compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5

## Results Table

| Benchmark     | Base   |                    |                   |                    |                   |                    |                   |        | Peak              |                   |                    |                   |                   |                   |  |  |
|---------------|--------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|--|--|
|               | Copies | Seconds            | Ratio             | Seconds            | Ratio             | Seconds            | Ratio             | Copies | Seconds           | Ratio             | Seconds            | Ratio             | Seconds           | Ratio             |  |  |
| 410.bwaves    | 24     | 1671               | 195               | <b><u>1673</u></b> | <b><u>195</u></b> | 1674               | 195               | 12     | 828               | 197               | 829                | 197               | <b><u>828</u></b> | <b><u>197</u></b> |  |  |
| 416.gamess    | 24     | 1298               | 362               | 1319               | 356               | <b><u>1318</u></b> | <b><u>356</u></b> | 12     | 661               | 356               | <b><u>661</u></b>  | <b><u>356</u></b> | 659               | 357               |  |  |
| 433.milc      | 24     | 1042               | 211               | 1045               | 211               | <b><u>1045</u></b> | <b><u>211</u></b> | 24     | 1022              | 216               | <b><u>1022</u></b> | <b><u>216</u></b> | 1022              | 216               |  |  |
| 434.zeusmp    | 24     | 715                | 306               | <b><u>716</u></b>  | <b><u>305</u></b> | 717                | 305               | 24     | 715               | 306               | <b><u>716</u></b>  | <b><u>305</u></b> | 717               | 305               |  |  |
| 435.gromacs   | 24     | <b><u>517</u></b>  | <b><u>331</u></b> | 520                | 330               | 516                | 332               | 24     | <b><u>516</u></b> | <b><u>332</u></b> | 520                | 329               | 515               | 333               |  |  |
| 436.cactusADM | 24     | 857                | 335               | 861                | 333               | <b><u>857</u></b>  | <b><u>334</u></b> | 24     | 857               | 335               | 861                | 333               | <b><u>857</u></b> | <b><u>334</u></b> |  |  |
| 437.leslie3d  | 24     | 1578               | 143               | <b><u>1586</u></b> | <b><u>142</u></b> | 1590               | 142               | 12     | <b><u>769</u></b> | <b><u>147</u></b> | 768                | 147               | 769               | 147               |  |  |
| 444.namd      | 24     | <b><u>616</u></b>  | <b><u>312</u></b> | 607                | 317               | 616                | 312               | 24     | 599               | 321               | 608                | 317               | <b><u>602</u></b> | <b><u>320</u></b> |  |  |
| 447.dealII    | 24     | 640                | 429               | 681                | 403               | <b><u>649</u></b>  | <b><u>423</u></b> | 24     | <b><u>666</u></b> | <b><u>412</u></b> | 670                | 410               | 665               | 413               |  |  |
| 450.soplex    | 24     | 1296               | 154               | 1296               | 154               | <b><u>1296</u></b> | <b><u>154</u></b> | 12     | 580               | 172               | <b><u>581</u></b>  | <b><u>172</u></b> | 581               | 172               |  |  |
| 453.povray    | 24     | 261                | 489               | <b><u>262</u></b>  | <b><u>487</u></b> | 263                | 486               | 24     | 222               | 575               | <b><u>222</u></b>  | <b><u>574</u></b> | 224               | 570               |  |  |
| 454.calculix  | 24     | <b><u>497</u></b>  | <b><u>399</u></b> | 497                | 398               | 496                | 400               | 24     | <b><u>497</u></b> | <b><u>399</u></b> | 497                | 398               | 496               | 400               |  |  |
| 459.GemsFDTD  | 24     | 1850               | 138               | <b><u>1850</u></b> | <b><u>138</u></b> | 1852               | 138               | 24     | 1850              | 138               | <b><u>1850</u></b> | <b><u>138</u></b> | 1852              | 138               |  |  |
| 465.tonto     | 24     | 811                | 291               | 821                | 288               | <b><u>813</u></b>  | <b><u>290</u></b> | 24     | <b><u>784</u></b> | <b><u>301</u></b> | 776                | 304               | 795               | 297               |  |  |
| 470.lbm       | 24     | 1148               | 287               | <b><u>1149</u></b> | <b><u>287</u></b> | 1149               | 287               | 12     | 547               | 301               | <b><u>548</u></b>  | <b><u>301</u></b> | 548               | 301               |  |  |
| 481.wrf       | 24     | 1118               | 240               | <b><u>1119</u></b> | <b><u>240</u></b> | 1122               | 239               | 24     | 1118              | 240               | <b><u>1119</u></b> | <b><u>240</u></b> | 1122              | 239               |  |  |
| 482.sphinx3   | 24     | <b><u>2083</u></b> | <b><u>225</u></b> | 2086               | 224               | 2081               | 225               | 24     | 1978              | 236               | <b><u>1978</u></b> | <b><u>237</u></b> | 1976              | 237               |  |  |

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  
Large pages were not enabled for this run

## Platform Notes

BIOS Configuration : Data Reuse Optimization = Disabled



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## 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 -ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias



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## 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) -prof-use(pass 2) -static -auto-ilp32

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

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## Peak Optimization Flags (Continued)

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

### C++ benchmarks:

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

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

### 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) -prof-use(pass 2) -opt-prefetch  
-static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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## Peak Optimization Flags (Continued)

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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Platform-Settings.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Platform-Settings.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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