



# SPEC® CFP2006 Result

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## Supermicro

SPECfp®2006 = 32.7

Motherboard X8SIL (Intel Xeon X3440, 2.53 GHz)

SPECfp\_base2006 = 28.7

CPU2006 license: 001176

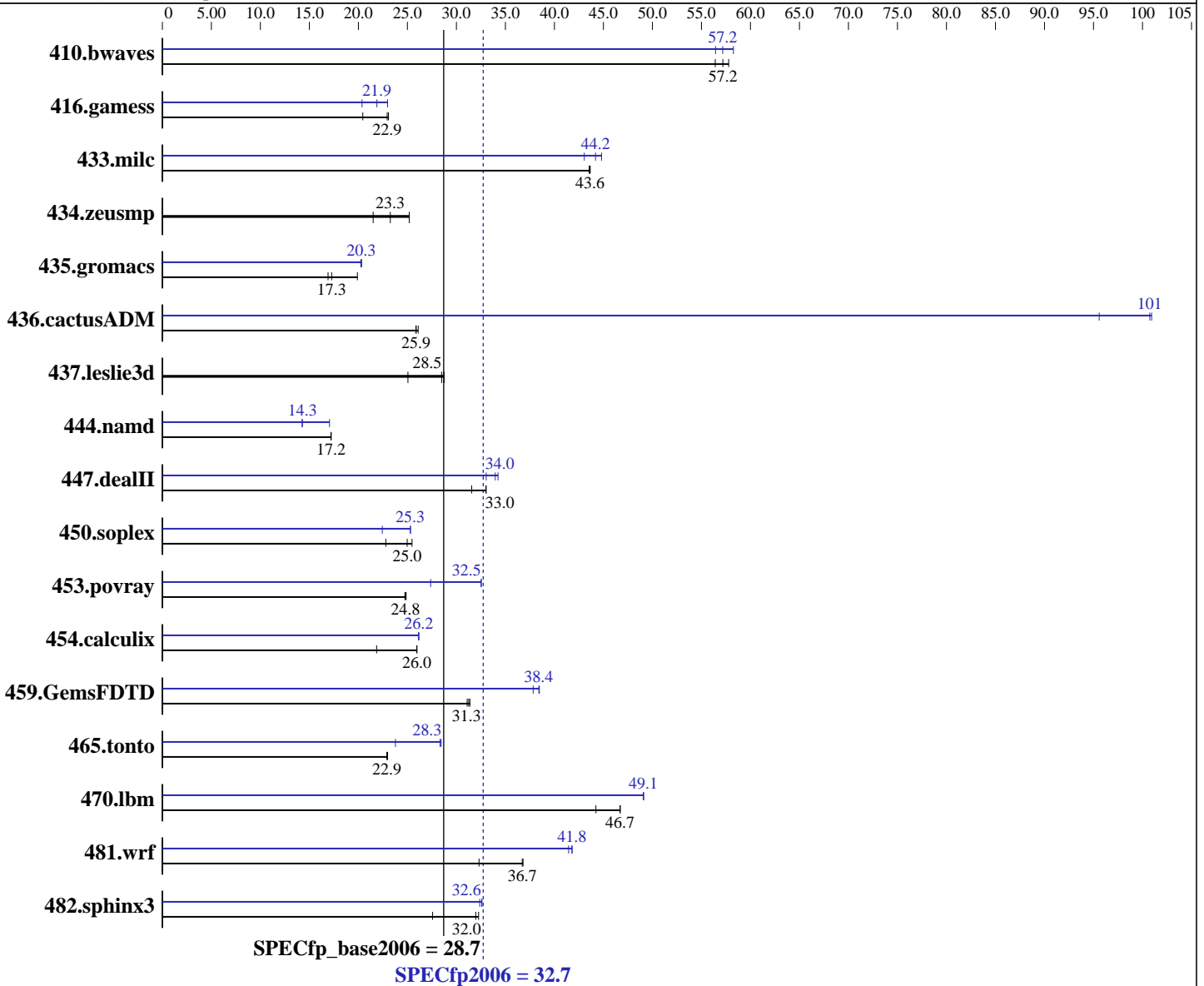
Test date: May-2011

Test sponsor: Supermicro

Hardware Availability: Jan-2010

Tested by: Supermicro

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X3440  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2533  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 chip  
 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 2.6.27.19-5-default  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1  
 Build 20091130 Package ID: l\_cproc\_p\_11.1.064, l\_cprof\_p\_11.1.064  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 16 GB (4 x 4 GB 2Rx8 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 160 GB SATA II, 7200 RPM  
 Other Hardware: None

Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

| Benchmark     | Base              |                    |                   |                    |                   |                    | Peak              |                    |                   |                    |                   |                    |
|---------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|
|               | Seconds           | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              |
| 410.bwaves    | 235               | 57.8               | 241               | 56.4               | <b><u>238</u></b> | <b><u>57.2</u></b> | 233               | 58.3               | 241               | 56.4               | <b><u>238</u></b> | <b><u>57.2</u></b> |
| 416.gamess    | <b><u>854</u></b> | <b><u>22.9</u></b> | 957               | 20.5               | 849               | 23.1               | <b><u>895</u></b> | <b><u>21.9</u></b> | 852               | 23.0               | 961               | 20.4               |
| 433.milc      | 210               | 43.6               | 211               | 43.5               | <b><u>210</u></b> | <b><u>43.6</u></b> | 205               | 44.8               | 213               | 43.0               | <b><u>208</u></b> | <b><u>44.2</u></b> |
| 434.zeusmp    | <b><u>391</u></b> | <b><u>23.3</u></b> | 361               | 25.2               | 423               | 21.5               | <b><u>391</u></b> | <b><u>23.3</u></b> | 361               | 25.2               | 423               | 21.5               |
| 435.gromacs   | 422               | 16.9               | <b><u>413</u></b> | <b><u>17.3</u></b> | 359               | 19.9               | 351               | 20.3               | <b><u>352</u></b> | <b><u>20.3</u></b> | 353               | 20.2               |
| 436.cactusADM | 458               | 26.1               | <b><u>462</u></b> | <b><u>25.9</u></b> | 462               | 25.9               | 125               | 95.6               | <b><u>119</u></b> | <b><u>101</u></b>  | 118               | 101                |
| 437.leslie3d  | <b><u>330</u></b> | <b><u>28.5</u></b> | 375               | 25.1               | 327               | 28.7               | <b><u>330</u></b> | <b><u>28.5</u></b> | 375               | 25.1               | 327               | 28.7               |
| 444.namd      | 465               | 17.2               | 466               | 17.2               | <b><u>466</u></b> | <b><u>17.2</u></b> | <b><u>561</u></b> | <b><u>14.3</u></b> | 470               | 17.1               | 563               | 14.3               |
| 447.dealII    | 362               | 31.6               | 346               | 33.0               | <b><u>346</u></b> | <b><u>33.0</u></b> | <b><u>337</u></b> | <b><u>34.0</u></b> | 334               | 34.2               | 346               | 33.0               |
| 450.soplex    | 327               | 25.5               | 366               | 22.8               | <b><u>334</u></b> | <b><u>25.0</u></b> | <b><u>330</u></b> | <b><u>25.3</u></b> | 372               | 22.4               | 329               | 25.3               |
| 453.povray    | 215               | 24.7               | <b><u>214</u></b> | <b><u>24.8</u></b> | 214               | 24.9               | 163               | 32.5               | <b><u>164</u></b> | <b><u>32.5</u></b> | 194               | 27.4               |
| 454.calculix  | 318               | 26.0               | <b><u>318</u></b> | <b><u>26.0</u></b> | 377               | 21.9               | 315               | 26.2               | 315               | 26.2               | <b><u>315</u></b> | <b><u>26.2</u></b> |
| 459.GemsFDTD  | 338               | 31.4               | <b><u>339</u></b> | <b><u>31.3</u></b> | 341               | 31.1               | <b><u>276</u></b> | <b><u>38.4</u></b> | 280               | 37.8               | 276               | 38.5               |
| 465.tonto     | <b><u>429</u></b> | <b><u>22.9</u></b> | 429               | 22.9               | 428               | 23.0               | <b><u>347</u></b> | <b><u>28.3</u></b> | 414               | 23.8               | 346               | 28.4               |
| 470.lbm       | 311               | 44.2               | <b><u>294</u></b> | <b><u>46.7</u></b> | 294               | 46.7               | 280               | 49.1               | 280               | 49.1               | <b><u>280</u></b> | <b><u>49.1</u></b> |
| 481.wrf       | 346               | 32.3               | <b><u>304</u></b> | <b><u>36.7</u></b> | 304               | 36.8               | 270               | 41.4               | 267               | 41.8               | <b><u>267</u></b> | <b><u>41.8</u></b> |
| 482.sphinx3   | <b><u>610</u></b> | <b><u>32.0</u></b> | 604               | 32.3               | 707               | 27.6               | <b><u>602</u></b> | <b><u>32.4</u></b> | 598               | 32.6               | <b><u>598</u></b> | <b><u>32.6</u></b> |

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 stack size to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M



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CPU2006 license: 001176  
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Test date: May-2011  
Hardware Availability: Jan-2010  
Software Availability: Jan-2010

## Platform Notes

Fan speed set to Full Speed in BIOS Setup.  
As tested, the system used a Supermicro CSE-111T-560CB chassis.  
The system includes a PWS-562-1H power supply, SNK-P0046P heatsink,  
and 3 FAN-0106L4 cooling fans.

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

## 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.deallI: -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



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## Base Optimization Flags

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

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

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

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

## Peak Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64

Fortran benchmarks:  
ifort -m64

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

## Peak Portability Flags

Same as Base Portability Flags

## 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)  
-ansi-alias

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)  
-ansi-alias -parallel -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32  
-unroll2

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Tested by: Supermicro

Software Availability: Jan-2010

## Peak Optimization Flags (Continued)

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.dealIII: -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- -auto-ilp32

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 -auto-ilp32

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: basepeak = yes

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 -parallel

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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

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

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 -parallel -auto-ilp32

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

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## Peak Optimization Flags (Continued)

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.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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