



# SPEC® CFP2006 Result

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## Supermicro

SPECfp®2006 = 48.3

Motherboard X8DAE (Intel Xeon X5677, 3.46 GHz)

SPECfp\_base2006 = 45.3

CPU2006 license: 001176

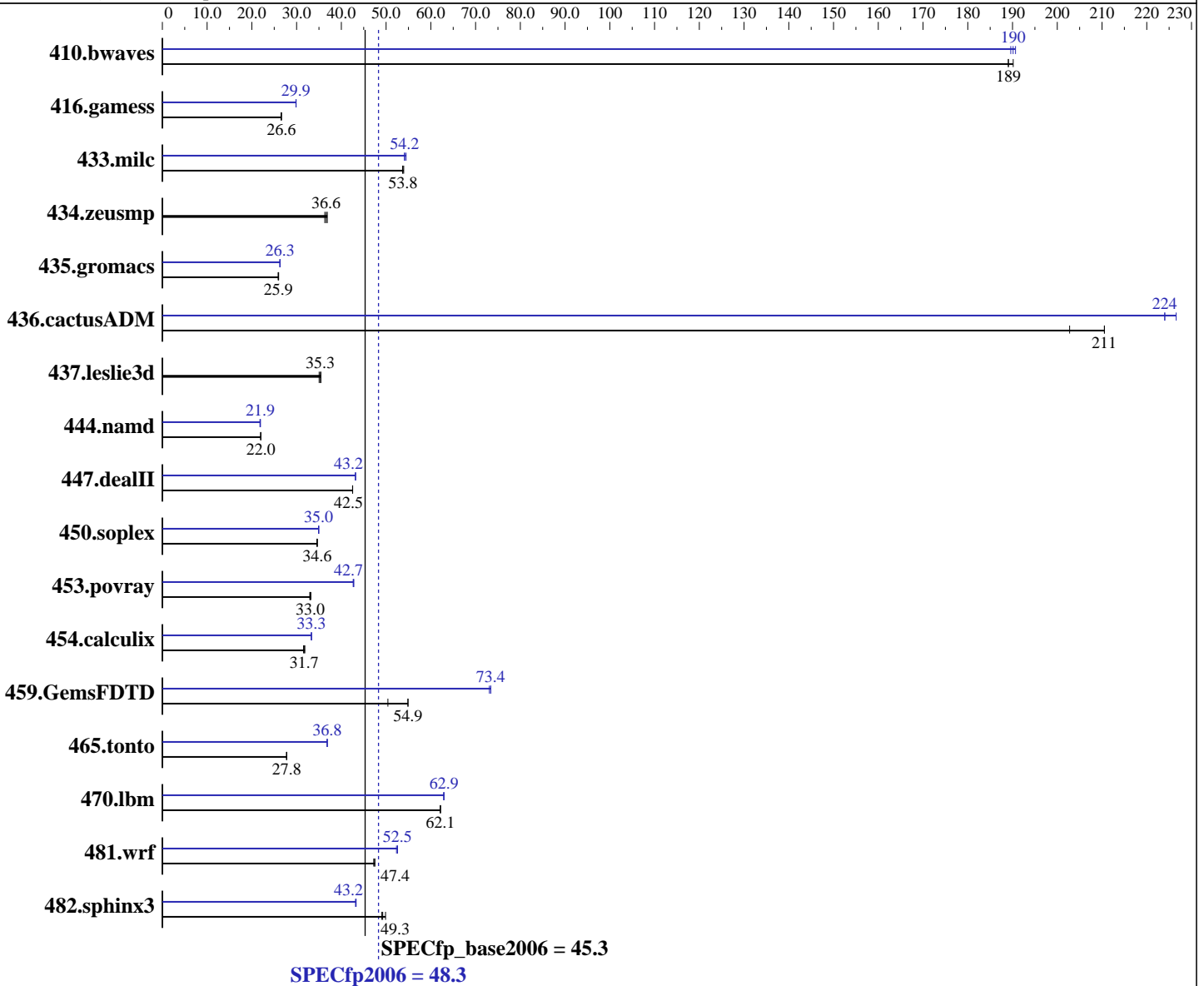
Test date: May-2010

Test sponsor: Supermicro

Hardware Availability: Mar-2010

Tested by: Supermicro

Software Availability: Jan-2010



**Hardware**

CPU Name: Intel Xeon X5677  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz  
 CPU MHz: 3466  
 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 2.6.27.19-5-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: ReiserFS  
 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 DDR3-1333 RDIMM, ECC, CL9)  
 Disk Subsystem: 1 x 1000 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    | <b><u>71.9</u></b> | <b><u>189</u></b>  | 71.5              | 190                | 71.9              | 189                | 71.7              | 190                | 71.3              | 191                | <b><u>71.5</u></b> | <b><u>190</u></b>  |
| 416.gamess    | 736                | 26.6               | 738               | 26.5               | <b><u>736</u></b> | <b><u>26.6</u></b> | 655               | 29.9               | <b><u>656</u></b> | <b><u>29.9</u></b> | 656                | 29.9               |
| 433.milc      | 171                | 53.7               | 170               | 53.9               | <b><u>171</u></b> | <b><u>53.8</u></b> | <b><u>169</u></b> | <b><u>54.2</u></b> | 169               | 54.5               | 170                | 54.1               |
| 434.zeusmp    | 251                | 36.3               | 247               | 36.9               | <b><u>248</u></b> | <b><u>36.6</u></b> | 251               | 36.3               | 247               | 36.9               | <b><u>248</u></b>  | <b><u>36.6</u></b> |
| 435.gromacs   | 275                | 26.0               | 276               | 25.9               | <b><u>275</u></b> | <b><u>25.9</u></b> | 271               | 26.3               | 272               | 26.2               | <b><u>272</u></b>  | <b><u>26.3</u></b> |
| 436.cactusADM | <b><u>56.8</u></b> | <b><u>211</u></b>  | 56.8              | 211                | 58.9              | 203                | 53.3              | 224                | 52.7              | 227                | <b><u>53.3</u></b> | <b><u>224</u></b>  |
| 437.leslie3d  | 265                | 35.4               | <b><u>266</u></b> | <b><u>35.3</u></b> | 268               | 35.0               | 265               | 35.4               | <b><u>266</u></b> | <b><u>35.3</u></b> | 268                | 35.0               |
| 444.namd      | 364                | 22.0               | <b><u>365</u></b> | <b><u>22.0</u></b> | 365               | 22.0               | 368               | 21.8               | <b><u>366</u></b> | <b><u>21.9</u></b> | 366                | 21.9               |
| 447.dealII    | <b><u>269</u></b>  | <b><u>42.5</u></b> | 269               | 42.5               | 269               | 42.5               | <b><u>265</u></b> | <b><u>43.2</u></b> | 265               | 43.2               | 265                | 43.2               |
| 450.soplex    | <b><u>241</u></b>  | <b><u>34.6</u></b> | 242               | 34.5               | 241               | 34.6               | 239               | 34.9               | <b><u>239</u></b> | <b><u>35.0</u></b> | 239                | 35.0               |
| 453.povray    | 160                | 33.2               | <b><u>161</u></b> | <b><u>33.0</u></b> | 161               | 32.9               | 125               | 42.6               | <b><u>125</u></b> | <b><u>42.7</u></b> | 124                | 42.8               |
| 454.calculix  | <b><u>260</u></b>  | <b><u>31.7</u></b> | 261               | 31.6               | 259               | 31.8               | 248               | 33.3               | 248               | 33.3               | <b><u>248</u></b>  | <b><u>33.3</u></b> |
| 459.GemsFDTD  | <b><u>193</u></b>  | <b><u>54.9</u></b> | 193               | 54.9               | 210               | 50.4               | 145               | 73.1               | 145               | 73.4               | <b><u>145</u></b>  | <b><u>73.4</u></b> |
| 465.tonto     | 355                | 27.8               | <b><u>354</u></b> | <b><u>27.8</u></b> | 354               | 27.8               | 267               | 36.8               | 267               | 36.9               | <b><u>267</u></b>  | <b><u>36.8</u></b> |
| 470.lbm       | 221                | 62.1               | <b><u>221</u></b> | <b><u>62.1</u></b> | 221               | 62.2               | <b><u>218</u></b> | <b><u>62.9</u></b> | 219               | 62.9               | 218                | 62.9               |
| 481.wrf       | 235                | 47.5               | <b><u>235</u></b> | <b><u>47.4</u></b> | 236               | 47.2               | 213               | 52.3               | <b><u>213</u></b> | <b><u>52.5</u></b> | 213                | 52.6               |
| 482.sphinx3   | 391                | 49.9               | <b><u>396</u></b> | <b><u>49.3</u></b> | 397               | 49.1               | 451               | 43.2               | <b><u>451</u></b> | <b><u>43.2</u></b> | 450                | 43.3               |

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

## 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

## Platform Notes

Fan speed set to Full Speed in BIOS Setup.  
 As tested, the system used a Supermicro  
 PWS-865-PQ power supply and 2 SNK-P0037 heatsinks, as well as  
 2 FAN-0074L4 and 2 FAN-0077L4 cooling fans.



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## 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.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 -parallel -opt-prefetch

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

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

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -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)  
-parallel -ansi-alias -auto-ilp32`

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

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## Peak Optimization Flags (Continued)

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  
-parallel

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

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>



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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 other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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