



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SPECfp<sup>®</sup>2006 = 45.9

Motherboard X8DTL-3F (Intel Xeon W5590, 3.33GHz)

SPECfp\_base2006 = 42.7

CPU2006 license: 001176

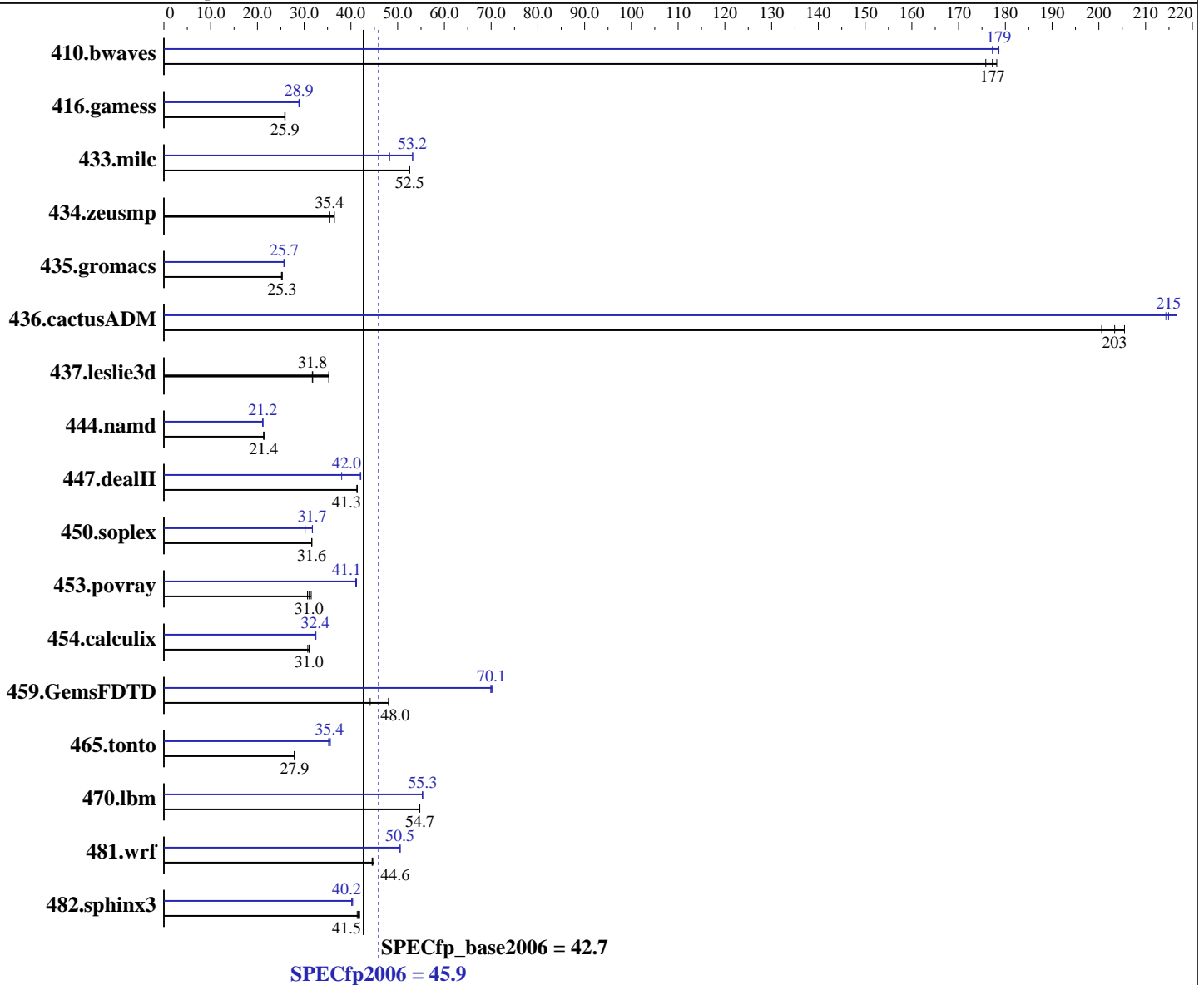
Test date: Apr-2010

Test sponsor: Supermicro

Hardware Availability: Sep-2009

Tested by: Supermicro

Software Availability: Nov-2009



### Hardware

CPU Name: Intel Xeon W5590  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3333  
 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (6 x 4 GB DDR3-1333 RDIMM, ECC, CL9)  
 Disk Subsystem: 1 x 300 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	77.3	176	<b>76.7</b>	<b>177</b>	76.3	178	76.7	177	76.1	179	<b>76.1</b>	<b>179</b>
416.gamess	755	25.9	<b>756</b>	<b>25.9</b>	757	25.9	<b>677</b>	<b>28.9</b>	678	28.9	677	28.9
433.milc	<b>175</b>	<b>52.5</b>	175	52.6	175	52.5	172	53.2	<b>173</b>	<b>53.2</b>	190	48.3
434.zeusmp	250	36.5	<b>257</b>	<b>35.4</b>	257	35.4	250	36.5	<b>257</b>	<b>35.4</b>	257	35.4
435.gromacs	284	25.1	282	25.3	<b>282</b>	<b>25.3</b>	277	25.8	278	25.6	<b>277</b>	<b>25.7</b>
436.cactusADM	<b>58.8</b>	<b>203</b>	58.2	205	59.6	201	55.8	214	<b>55.6</b>	<b>215</b>	55.1	217
437.leslie3d	<b>295</b>	<b>31.8</b>	267	35.3	296	31.7	<b>295</b>	<b>31.8</b>	267	35.3	296	31.7
444.namd	<b>375</b>	<b>21.4</b>	375	21.4	376	21.3	<b>379</b>	<b>21.2</b>	380	21.1	379	21.2
447.dealII	277	41.3	277	41.3	<b>277</b>	<b>41.3</b>	272	42.1	<b>272</b>	<b>42.0</b>	301	38.0
450.soplex	<b>264</b>	<b>31.6</b>	264	31.6	264	31.6	262	31.8	<b>263</b>	<b>31.7</b>	276	30.2
453.povray	173	30.7	169	31.5	<b>171</b>	<b>31.0</b>	<b>129</b>	<b>41.1</b>	129	41.2	130	41.0
454.calculix	<b>266</b>	<b>31.0</b>	265	31.1	268	30.8	254	32.5	<b>254</b>	<b>32.4</b>	255	32.4
459.GemsFDTD	<b>221</b>	<b>48.0</b>	240	44.1	221	48.1	152	69.9	151	70.2	<b>151</b>	<b>70.1</b>
465.tonto	<b>352</b>	<b>27.9</b>	352	27.9	353	27.9	<b>278</b>	<b>35.4</b>	276	35.6	279	35.2
470.lbm	<b>251</b>	<b>54.7</b>	251	54.7	251	54.7	<b>248</b>	<b>55.3</b>	248	55.3	248	55.3
481.wrf	<b>250</b>	<b>44.6</b>	251	44.5	249	44.8	<b>221</b>	<b>50.5</b>	221	50.5	222	50.4
482.sphinx3	<b>469</b>	<b>41.5</b>	471	41.3	466	41.9	485	40.2	483	40.4	<b>484</b>	<b>40.2</b>

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

## Operating System Notes

```
'ulimit -s unlimited' was set for stacksize unlimited
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 COMPUWARE  
 CPS-5611-3A2LF power supply, 2 SNK-P0035AP4 heatsinks,  
 and 1 EVERCOOL EC6025H12S,  
 2 Nidec UltraFlo T92T12MMA7-57 T072 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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