



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SPECfp<sup>®</sup>2006 = 48.6

Motherboard X8DTE-F (Intel Xeon X5677, 3.46 GHz)

SPECfp\_base2006 = 45.6

CPU2006 license: 001176

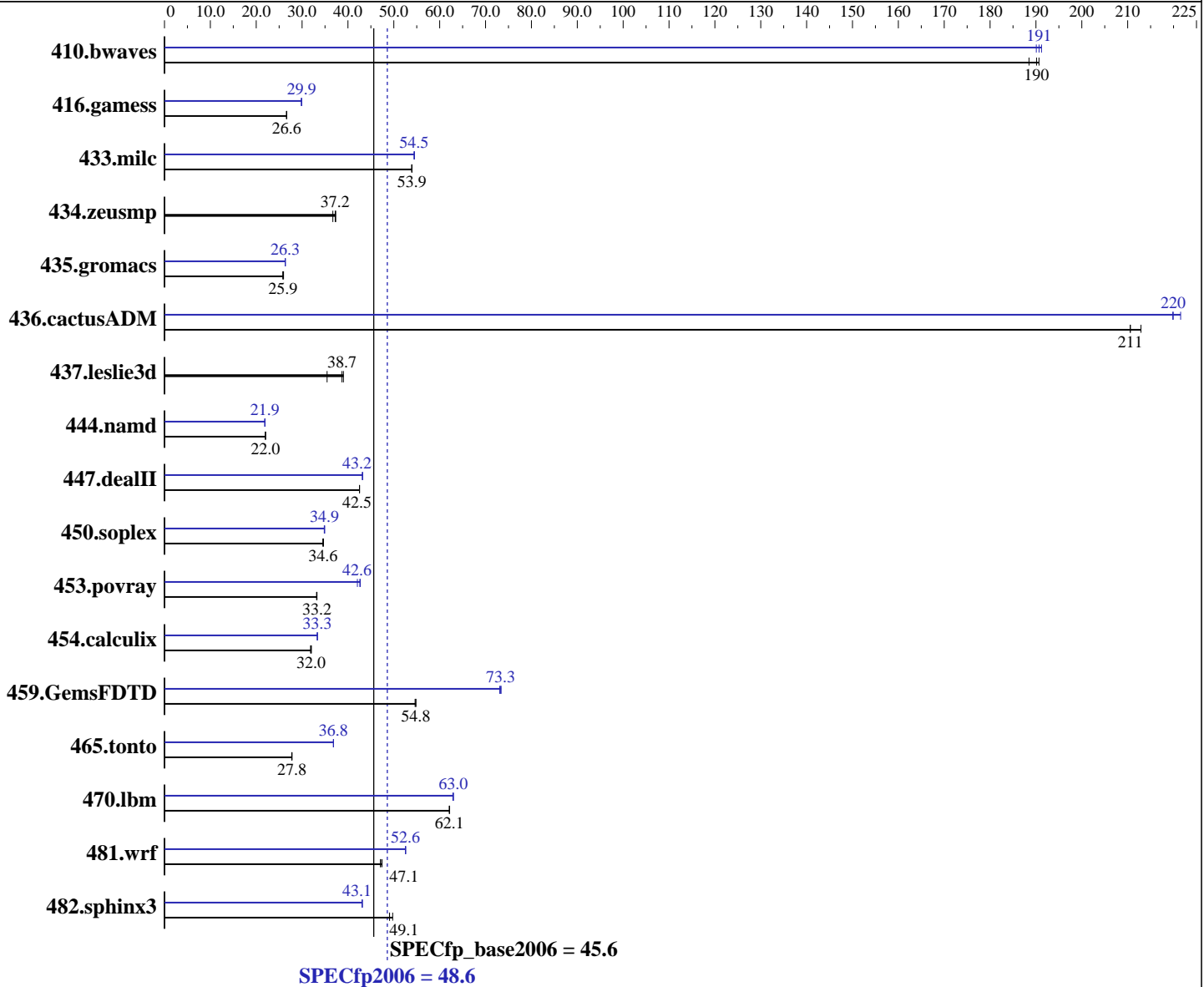
Test date: May-2010

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 500 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	72.1	188	71.3	191	<b><u>71.5</u></b>	<b><u>190</u></b>	<b><u>71.3</u></b>	<b><u>191</u></b>	71.1	191	71.5	190
416.gamess	736	26.6	<b><u>736</u></b>	<b><u>26.6</u></b>	735	26.6	<b><u>655</u></b>	<b><u>29.9</u></b>	656	29.8	655	29.9
433.milc	<b><u>170</u></b>	<b><u>53.9</u></b>	170	54.0	170	53.9	169	54.4	168	54.5	<b><u>169</u></b>	<b><u>54.5</u></b>
434.zeusmp	248	36.7	<b><u>244</u></b>	<b><u>37.2</u></b>	244	37.3	248	36.7	<b><u>244</u></b>	<b><u>37.2</u></b>	244	37.3
435.gromacs	275	26.0	277	25.8	<b><u>276</u></b>	<b><u>25.9</u></b>	<b><u>271</u></b>	<b><u>26.3</u></b>	271	26.4	271	26.3
436.cactusADM	<b><u>56.8</u></b>	<b><u>211</u></b>	56.8	211	56.1	213	53.9	222	54.4	220	<b><u>54.3</u></b>	<b><u>220</u></b>
437.leslie3d	265	35.5	241	39.0	<b><u>243</u></b>	<b><u>38.7</u></b>	265	35.5	241	39.0	<b><u>243</u></b>	<b><u>38.7</u></b>
444.namd	<b><u>364</u></b>	<b><u>22.0</u></b>	364	22.0	365	22.0	367	21.9	<b><u>366</u></b>	<b><u>21.9</u></b>	366	21.9
447.dealII	269	42.5	269	42.5	<b><u>269</u></b>	<b><u>42.5</u></b>	265	43.2	265	43.2	<b><u>265</u></b>	<b><u>43.2</u></b>
450.soplex	<b><u>241</u></b>	<b><u>34.6</u></b>	241	34.7	242	34.5	239	34.8	239	34.9	<b><u>239</u></b>	<b><u>34.9</u></b>
453.povray	160	33.2	<b><u>160</u></b>	<b><u>33.2</u></b>	160	33.2	<b><u>125</u></b>	<b><u>42.6</u></b>	125	42.7	126	42.1
454.calculix	259	31.8	<b><u>258</u></b>	<b><u>32.0</u></b>	258	32.0	248	33.3	<b><u>248</u></b>	<b><u>33.3</u></b>	247	33.3
459.GemsFDTD	194	54.6	194	54.8	<b><u>194</u></b>	<b><u>54.8</u></b>	145	73.1	<b><u>145</u></b>	<b><u>73.3</u></b>	145	73.4
465.tonto	<b><u>354</u></b>	<b><u>27.8</u></b>	354	27.8	355	27.7	267	36.9	267	36.8	<b><u>267</u></b>	<b><u>36.8</u></b>
470.lbm	221	62.2	<b><u>221</u></b>	<b><u>62.1</u></b>	221	62.1	219	62.9	218	63.0	<b><u>218</u></b>	<b><u>63.0</u></b>
481.wrf	<b><u>237</u></b>	<b><u>47.1</u></b>	237	47.1	235	47.4	212	52.6	213	52.5	<b><u>213</u></b>	<b><u>52.6</u></b>
482.sphinx3	<b><u>397</u></b>	<b><u>49.1</u></b>	397	49.1	392	49.8	<b><u>452</u></b>	<b><u>43.1</u></b>	452	43.1	452	43.1

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, 2 SNK-P0038P heatsinks,  
 and 2 FAN-0077L cooling fans.



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Software Availability: Jan-2010

## 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:

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