



# SPEC® CFP2006 Result

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## Supermicro

SPECfp®2006 = 42.8

Motherboard X8DTN+ (Intel Xeon X5650, 2.66 GHz)

SPECfp\_base2006 = 40.2

CPU2006 license: 001176

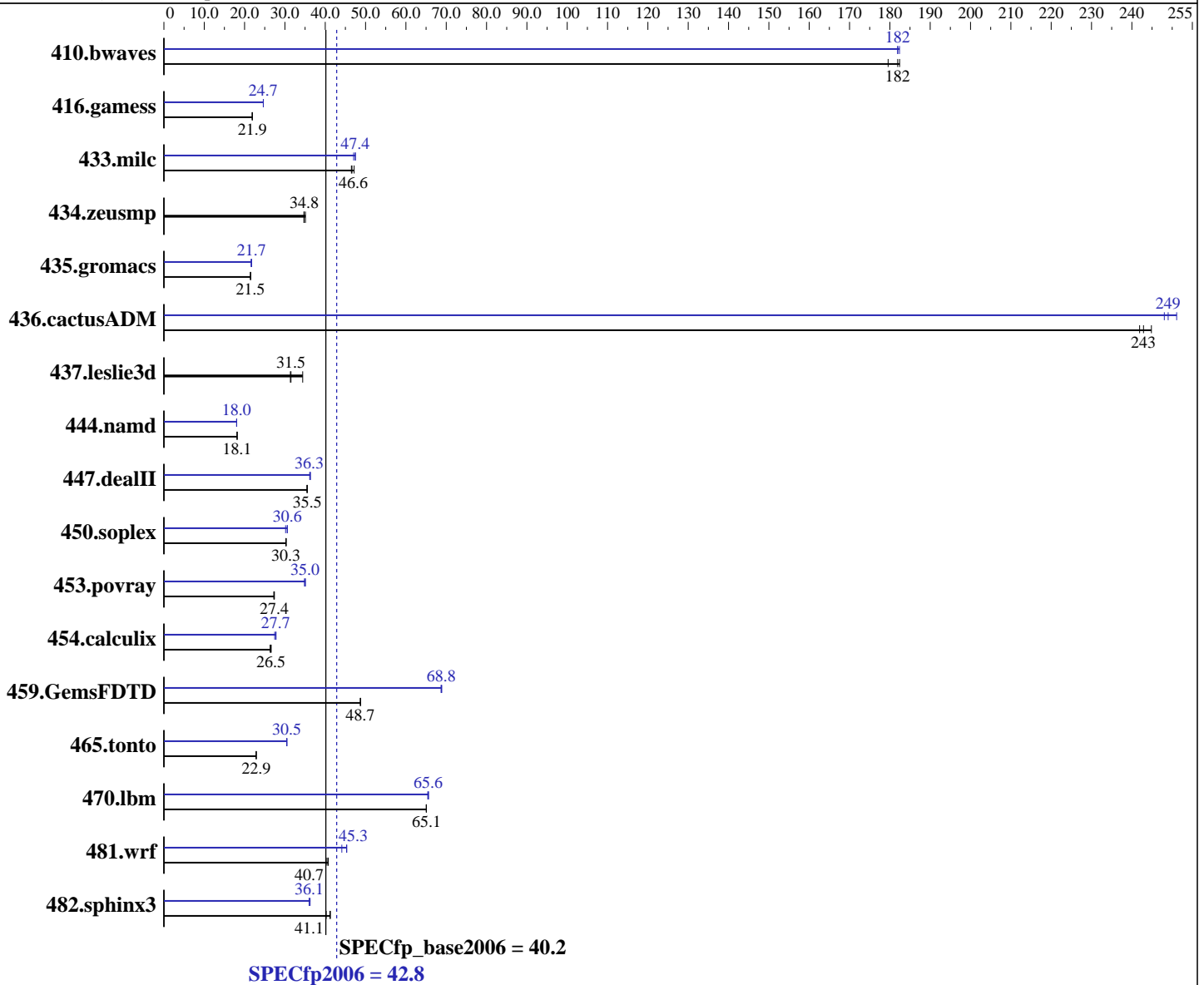
Test date: Mar-2010

Test sponsor: Supermicro

Hardware Availability: Mar-2010

Tested by: Supermicro

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X5650  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.06 GHz  
 CPU MHz: 2666  
 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)  
 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	75.7	180	<b><u>74.7</u></b>	<b><u>182</u></b>	74.5	182	74.5	182	74.7	182	<b><u>74.7</u></b>	<b><u>182</u></b>
416.gamess	894	21.9	893	21.9	<b><u>893</u></b>	<b><u>21.9</u></b>	795	24.6	<b><u>794</u></b>	<b><u>24.7</u></b>	794	24.7
433.milc	195	47.2	<b><u>197</u></b>	<b><u>46.6</u></b>	197	46.5	193	47.5	195	47.0	<b><u>194</u></b>	<b><u>47.4</u></b>
434.zeusmp	<b><u>262</u></b>	<b><u>34.8</u></b>	259	35.1	262	34.7	<b><u>262</u></b>	<b><u>34.8</u></b>	259	35.1	262	34.7
435.gromacs	333	21.5	<b><u>332</u></b>	<b><u>21.5</u></b>	332	21.5	331	21.6	<b><u>328</u></b>	<b><u>21.7</u></b>	328	21.8
436.cactusADM	49.4	242	<b><u>49.2</u></b>	<b><u>243</u></b>	48.8	245	<b><u>48.0</u></b>	<b><u>249</u></b>	47.6	251	48.2	248
437.leslie3d	300	31.4	273	34.4	<b><u>298</u></b>	<b><u>31.5</u></b>	300	31.4	273	34.4	<b><u>298</u></b>	<b><u>31.5</u></b>
444.namd	<b><u>442</u></b>	<b><u>18.1</u></b>	442	18.2	442	18.1	445	18.0	<b><u>445</u></b>	<b><u>18.0</u></b>	445	18.0
447.dealII	<b><u>322</u></b>	<b><u>35.5</u></b>	322	35.6	323	35.4	315	36.3	<b><u>315</u></b>	<b><u>36.3</u></b>	316	36.1
450.soplex	<b><u>275</u></b>	<b><u>30.3</u></b>	276	30.2	275	30.3	276	30.2	272	30.6	<b><u>273</u></b>	<b><u>30.6</u></b>
453.povray	195	27.2	<b><u>194</u></b>	<b><u>27.4</u></b>	194	27.4	<b><u>152</u></b>	<b><u>35.0</u></b>	153	34.8	152	35.1
454.calculix	<b><u>311</u></b>	<b><u>26.5</u></b>	313	26.3	310	26.6	300	27.5	<b><u>298</u></b>	<b><u>27.7</u></b>	297	27.8
459.GemsFDTD	<b><u>218</u></b>	<b><u>48.7</u></b>	218	48.7	218	48.8	154	68.9	<b><u>154</u></b>	<b><u>68.8</u></b>	154	68.7
465.tonto	<b><u>430</u></b>	<b><u>22.9</u></b>	430	22.9	430	22.9	323	30.4	<b><u>323</u></b>	<b><u>30.5</u></b>	322	30.5
470.lbm	211	65.0	<b><u>211</u></b>	<b><u>65.1</u></b>	211	65.1	<b><u>210</u></b>	<b><u>65.6</u></b>	209	65.6	210	65.4
481.wrf	276	40.4	<b><u>274</u></b>	<b><u>40.7</u></b>	274	40.7	253	44.1	<b><u>247</u></b>	<b><u>45.3</u></b>	246	45.3
482.sphinx3	<b><u>474</u></b>	<b><u>41.1</u></b>	484	40.2	472	41.3	541	36.0	<b><u>541</u></b>	<b><u>36.1</u></b>	538	36.3

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

## 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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**CPU2006 license:** 001176

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## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M  
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

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## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

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`

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## Peak Optimization Flags (Continued)

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  
-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



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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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