



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SPECfp<sup>®</sup>2006 = 27.3

Motherboard X8DTE-F (Intel Xeon L5609, 1.86 GHz)

SPECfp\_base2006 = 25.8

CPU2006 license: 001176

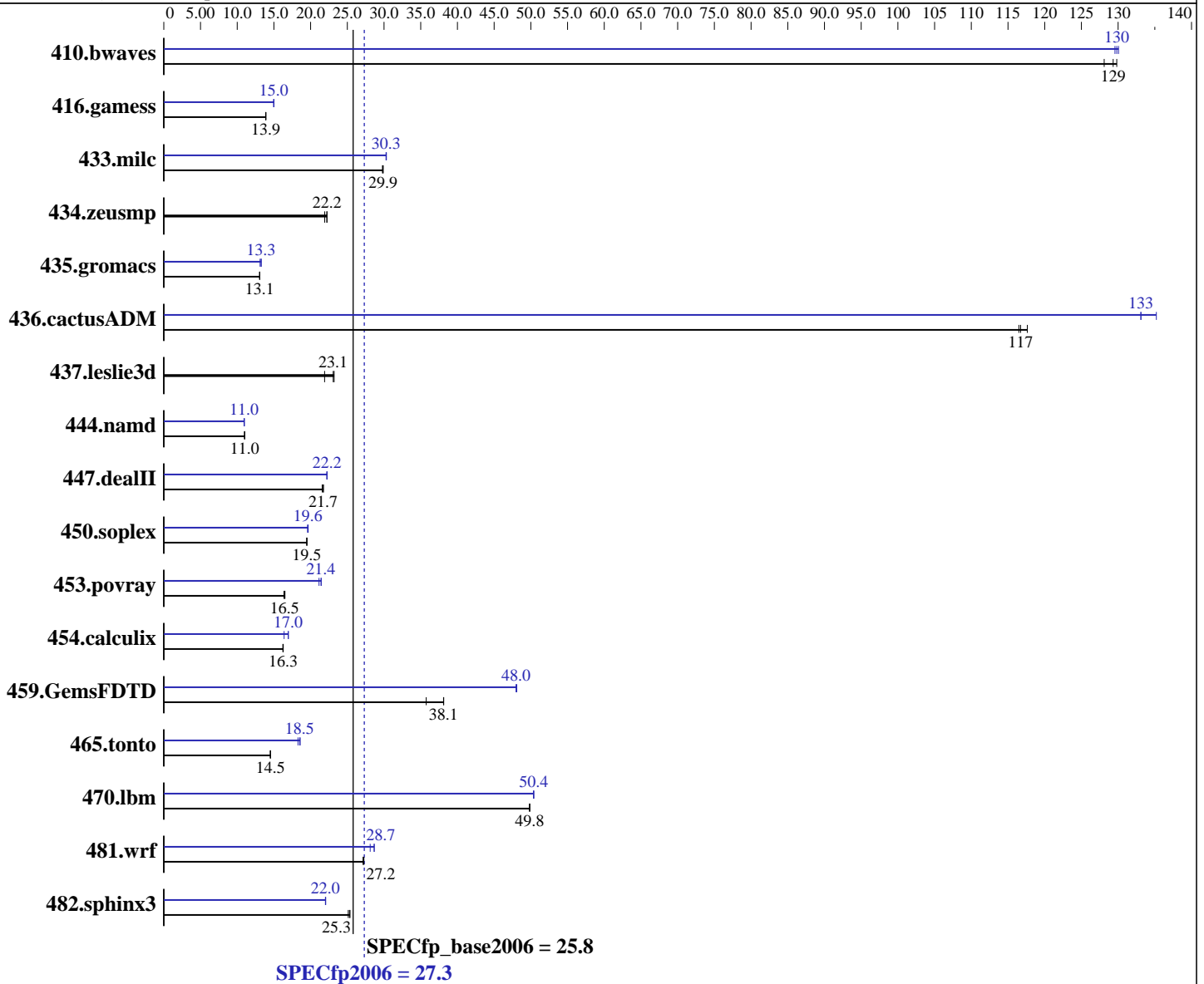
Test date: May-2010

Test sponsor: Supermicro

Hardware Availability: Mar-2010

Tested by: Supermicro

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon L5609  
 CPU Characteristics:  
 CPU MHz: 1866  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 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 DDR3-1066 RDIMM, ECC, CL7)  
 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	106	128	<b>105</b>	<b>129</b>	105	130	<b>105</b>	<b>130</b>	104	130	105	130
416.gamess	1411	13.9	<b>1410</b>	<b>13.9</b>	1407	13.9	1304	15.0	<b>1307</b>	<b>15.0</b>	1308	15.0
433.milc	308	29.8	<b>307</b>	<b>29.9</b>	307	29.9	<b>303</b>	<b>30.3</b>	303	30.3	303	30.3
434.zeusmp	<b>410</b>	<b>22.2</b>	410	22.2	415	21.9	<b>410</b>	<b>22.2</b>	410	22.2	415	21.9
435.gromacs	547	13.0	546	13.1	<b>547</b>	<b>13.1</b>	<b>539</b>	<b>13.3</b>	544	13.1	538	13.3
436.cactusADM	<b>102</b>	<b>117</b>	103	116	102	118	88.4	135	89.8	133	<b>89.8</b>	<b>133</b>
437.leslie3d	405	23.2	429	21.9	<b>407</b>	<b>23.1</b>	405	23.2	429	21.9	<b>407</b>	<b>23.1</b>
444.namd	728	11.0	729	11.0	<b>728</b>	<b>11.0</b>	732	11.0	<b>732</b>	<b>11.0</b>	732	11.0
447.dealII	526	21.7	<b>527</b>	<b>21.7</b>	530	21.6	514	22.2	<b>515</b>	<b>22.2</b>	515	22.2
450.soplex	428	19.5	<b>428</b>	<b>19.5</b>	428	19.5	<b>425</b>	<b>19.6</b>	424	19.7	426	19.6
453.povray	322	16.5	<b>323</b>	<b>16.5</b>	325	16.4	<b>248</b>	<b>21.4</b>	252	21.1	248	21.4
454.calculix	<b>508</b>	<b>16.3</b>	507	16.3	509	16.2	503	16.4	<b>486</b>	<b>17.0</b>	486	17.0
459.GemsFDTD	278	38.1	<b>278</b>	<b>38.1</b>	297	35.7	221	48.0	221	48.1	<b>221</b>	<b>48.0</b>
465.tonto	678	14.5	<b>678</b>	<b>14.5</b>	677	14.5	530	18.6	<b>532</b>	<b>18.5</b>	538	18.3
470.lbm	276	49.8	<b>276</b>	<b>49.8</b>	276	49.9	<b>273</b>	<b>50.4</b>	273	50.4	273	50.4
481.wrf	410	27.3	<b>411</b>	<b>27.2</b>	411	27.2	<b>390</b>	<b>28.7</b>	390	28.7	397	28.1
482.sphinx3	776	25.1	768	25.4	<b>771</b>	<b>25.3</b>	885	22.0	884	22.1	<b>885</b>	<b>22.0</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 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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## 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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