



# SPEC® CFP2006 Result

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## Intel Corporation

Supermicro SuperServer 6026T-NTR+ (Intel Xeon E5502, 1.86 GHz)

SPECfp®2006 = 23.1

SPECfp\_base2006 = 21.9

CPU2006 license: 13

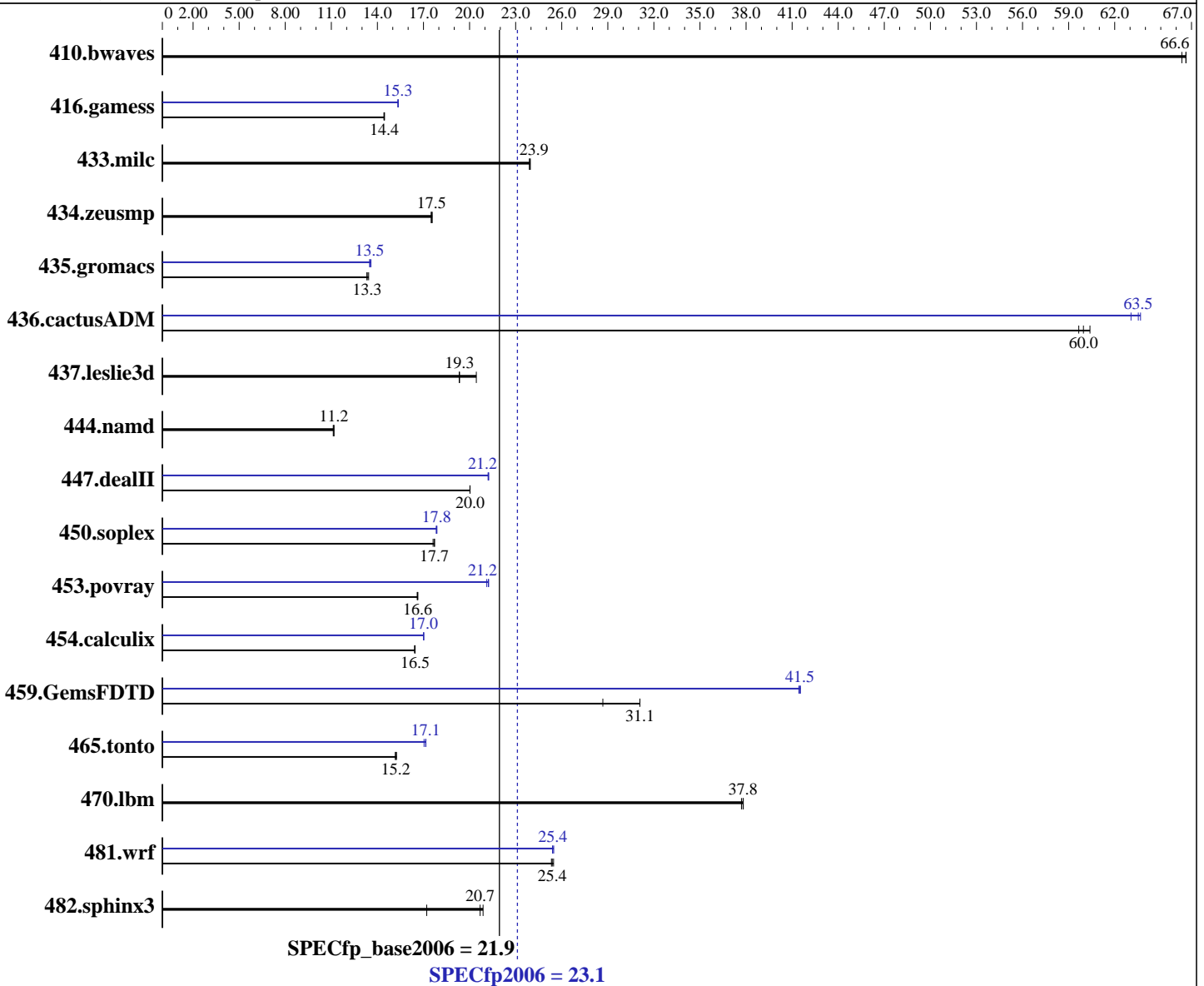
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Mar-2009

Hardware Availability: Mar-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5502  
 CPU Characteristics:  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 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 SLES10 SP2, Kernel 2.6.16.60-0.34-smp for x86\_64  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l\_cproc\_p\_11.0.080, l\_cprof\_p\_11.0.080  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

Continued on next page



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L3 Cache: 4 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (12 x 2GB DDR3-1066, CL7)  
Disk Subsystem: 1 x 150 GB SATA, 10000RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	205	66.4	204	66.6	<b>204</b>	<b>66.6</b>	205	66.4	204	66.6	<b>204</b>	<b>66.6</b>
416.gamess	1354	14.5	1357	14.4	<b>1355</b>	<b>14.4</b>	1275	15.4	1277	15.3	<b>1276</b>	<b>15.3</b>
433.milc	383	24.0	384	23.9	<b>384</b>	<b>23.9</b>	383	24.0	384	23.9	<b>384</b>	<b>23.9</b>
434.zeusmp	<b>519</b>	<b>17.5</b>	520	17.5	518	17.6	<b>519</b>	<b>17.5</b>	520	17.5	518	17.6
435.gromacs	532	13.4	536	13.3	<b>535</b>	<b>13.3</b>	526	13.6	529	13.5	<b>529</b>	<b>13.5</b>
436.cactusADM	198	60.4	<b>199</b>	<b>60.0</b>	200	59.7	<b>188</b>	<b>63.5</b>	188	63.7	189	63.1
437.leslie3d	486	19.3	<b>486</b>	<b>19.3</b>	460	20.4	486	19.3	<b>486</b>	<b>19.3</b>	460	20.4
444.namd	721	11.1	718	11.2	<b>719</b>	<b>11.2</b>	721	11.1	718	11.2	<b>719</b>	<b>11.2</b>
447.dealII	<b>571</b>	<b>20.0</b>	571	20.0	571	20.0	539	21.2	<b>539</b>	<b>21.2</b>	538	21.3
450.soplex	<b>471</b>	<b>17.7</b>	471	17.7	473	17.6	468	17.8	<b>467</b>	<b>17.8</b>	467	17.9
453.povray	<b>320</b>	<b>16.6</b>	320	16.6	321	16.6	250	21.2	252	21.1	<b>251</b>	<b>21.2</b>
454.calculix	503	16.4	501	16.5	<b>501</b>	<b>16.5</b>	485	17.0	<b>485</b>	<b>17.0</b>	485	17.0
459.GemsFDTD	370	28.7	<b>341</b>	<b>31.1</b>	341	31.1	256	41.4	255	41.5	<b>256</b>	<b>41.5</b>
465.tonto	649	15.2	645	15.2	<b>648</b>	<b>15.2</b>	573	17.2	578	17.0	<b>574</b>	<b>17.1</b>
470.lbm	363	37.8	<b>363</b>	<b>37.8</b>	364	37.7	363	37.8	<b>363</b>	<b>37.8</b>	364	37.7
481.wrf	<b>440</b>	<b>25.4</b>	441	25.3	439	25.5	438	25.5	440	25.4	<b>439</b>	<b>25.4</b>
482.sphinx3	<b>942</b>	<b>20.7</b>	1132	17.2	933	20.9	<b>942</b>	<b>20.7</b>	1132	17.2	933	20.9

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

## General Notes

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

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

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## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## 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

Benchmarks using both Fortran and C:

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

## Peak Compiler Invocation

C benchmarks:

icc

Continued on next page



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## Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Peak 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  
 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

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -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- -opt-prefetch

Continued on next page



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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

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: basepeak = yes

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)  
-unroll4 -auto

### 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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.04.html>



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You can also download the XML flags source by saving the following link:

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