



# SPEC® CFP2006 Result

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## Supermicro

(Test Sponsor: Intel Corporation)

Supermicro SuperServer 6026T-NTR+ (Intel Xeon E5640, 2.66 GHz)

SPECfp®2006 = 39.4

SPECfp\_base2006 = 36.8

CPU2006 license: 13

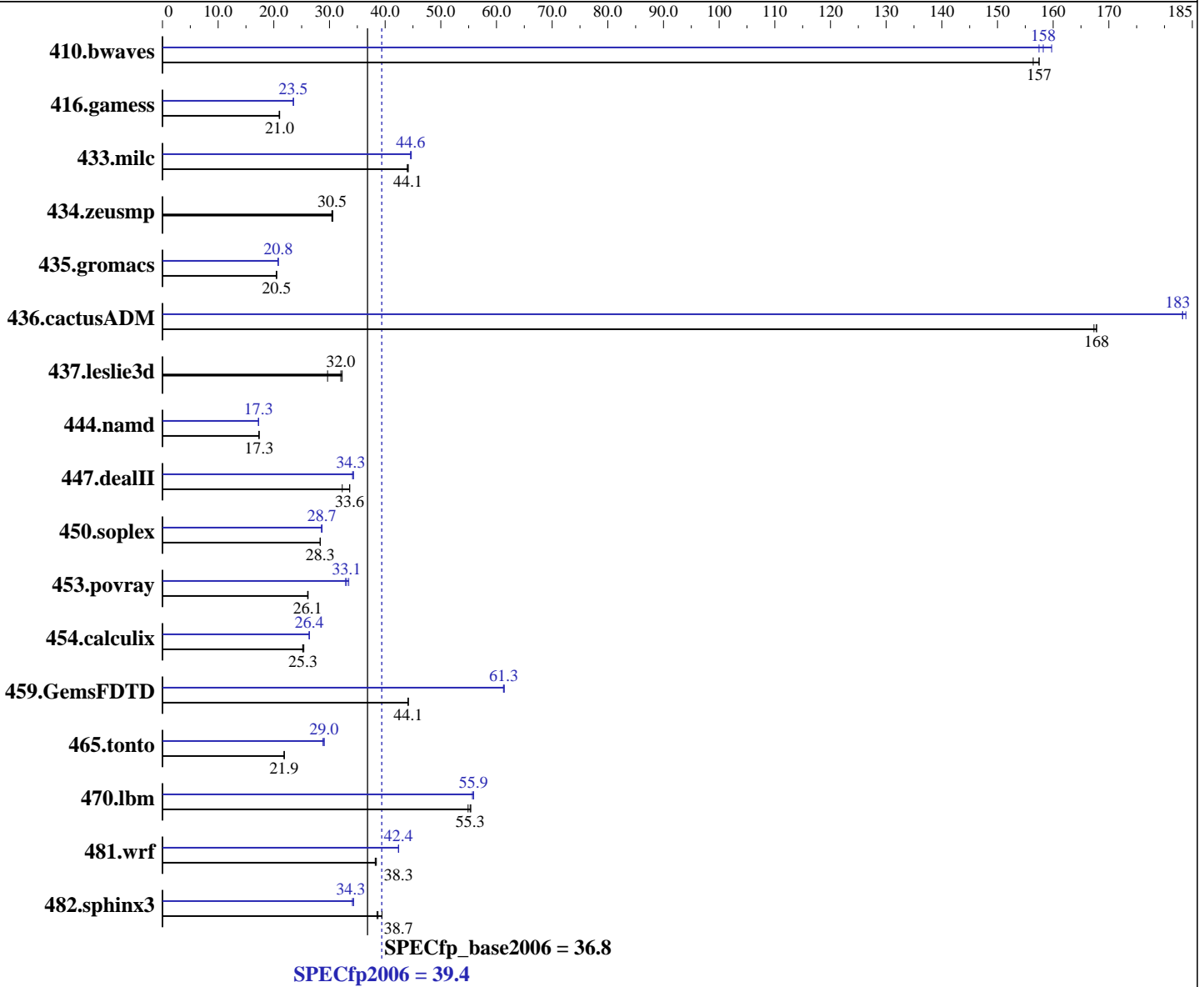
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5640  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2666  
 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 SLES11  
 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: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12 x 4GB 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	<b><u>86.3</u></b>	<b><u>157</u></b>	86.3	157	86.9	156	86.3	157	85.1	160	<b><u>85.9</u></b>	<b><u>158</u></b>
416.gamess	<b><u>930</u></b>	<b><u>21.0</u></b>	930	21.0	934	21.0	833	23.5	832	23.5	<b><u>832</u></b>	<b><u>23.5</u></b>
433.milc	209	44.0	208	44.1	<b><u>208</u></b>	<b><u>44.1</u></b>	<b><u>206</u></b>	<b><u>44.6</u></b>	205	44.7	206	44.6
434.zeusmp	299	30.4	297	30.6	<b><u>298</u></b>	<b><u>30.5</u></b>	299	30.4	297	30.6	<b><u>298</u></b>	<b><u>30.5</u></b>
435.gromacs	349	20.4	348	20.5	<b><u>348</u></b>	<b><u>20.5</u></b>	344	20.8	343	20.8	<b><u>343</u></b>	<b><u>20.8</u></b>
436.cactusADM	71.2	168	<b><u>71.2</u></b>	<b><u>168</u></b>	71.4	167	65.2	183	65.0	184	<b><u>65.2</u></b>	<b><u>183</u></b>
437.leslie3d	317	29.7	291	32.3	<b><u>293</u></b>	<b><u>32.0</u></b>	317	29.7	291	32.3	<b><u>293</u></b>	<b><u>32.0</u></b>
444.namd	<b><u>462</u></b>	<b><u>17.3</u></b>	463	17.3	462	17.4	465	17.3	<b><u>465</u></b>	<b><u>17.3</u></b>	465	17.2
447.dealII	<b><u>340</u></b>	<b><u>33.6</u></b>	340	33.6	354	32.3	<b><u>334</u></b>	<b><u>34.3</u></b>	335	34.1	333	34.3
450.soplex	294	28.3	294	28.4	<b><u>294</u></b>	<b><u>28.3</u></b>	<b><u>291</u></b>	<b><u>28.7</u></b>	291	28.7	292	28.5
453.povray	204	26.1	<b><u>204</u></b>	<b><u>26.1</u></b>	203	26.2	159	33.5	<b><u>161</u></b>	<b><u>33.1</u></b>	162	32.9
454.calculix	<b><u>327</u></b>	<b><u>25.3</u></b>	325	25.4	328	25.2	<b><u>313</u></b>	<b><u>26.4</u></b>	313	26.4	313	26.4
459.GemsFDTD	<b><u>240</u></b>	<b><u>44.1</u></b>	240	44.2	241	44.1	173	61.3	<b><u>173</u></b>	<b><u>61.3</u></b>	173	61.4
465.tonto	450	21.9	<b><u>450</u></b>	<b><u>21.9</u></b>	450	21.8	<b><u>339</u></b>	<b><u>29.0</u></b>	341	28.8	339	29.0
470.lbm	248	55.4	<b><u>249</u></b>	<b><u>55.3</u></b>	250	54.9	<b><u>246</u></b>	<b><u>55.9</u></b>	247	55.7	246	55.9
481.wrf	292	38.2	291	38.4	<b><u>292</u></b>	<b><u>38.3</u></b>	<b><u>263</u></b>	<b><u>42.4</u></b>	263	42.4	263	42.4
482.sphinx3	<b><u>503</u></b>	<b><u>38.7</u></b>	494	39.4	506	38.5	568	34.3	571	34.1	<b><u>568</u></b>	<b><u>34.3</u></b>

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  
Bios settings:  
LRU hint: Disabled  
Fan Speed: Full speed

## Base Compiler Invocation

C benchmarks:  
icc -m64

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## Base Compiler Invocation (Continued)

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

Benchmarks using both Fortran and C:

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



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## 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.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- -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

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## Peak Optimization Flags (Continued)

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-alloc -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-revG.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revG.xml>



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