



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

(Test Sponsor: Intel Corporation)

Supermicro SuperServer 6026T-NTR+ (Intel Xeon X5650, 2.66 GHz)

SPECfp<sup>®</sup>\_rate2006 = 237

SPECfp\_rate\_base2006 = 229

CPU2006 license: 13

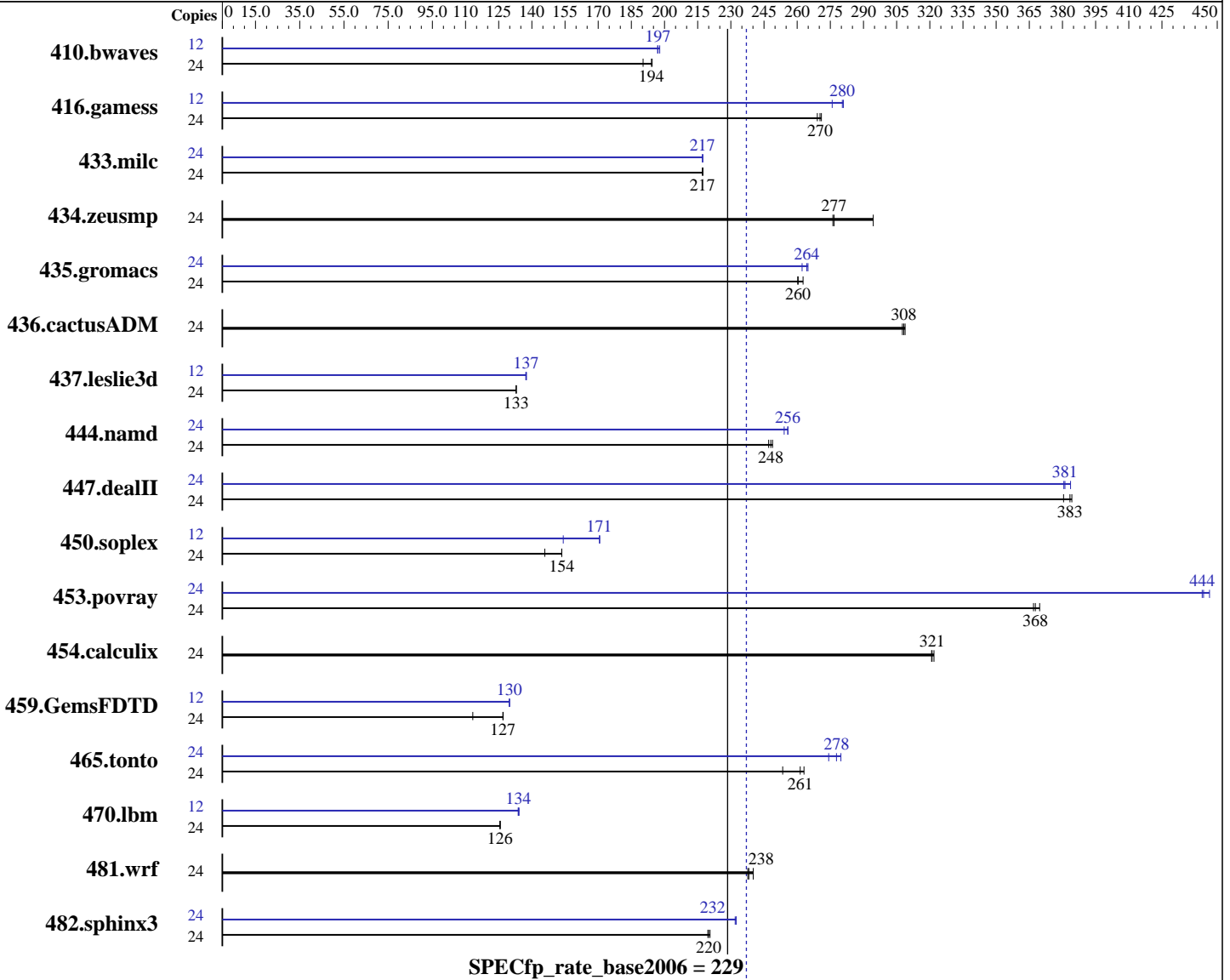
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon 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

Continued on next page

### 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: No  
 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 DDR3-1333, CL9)  
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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1714	190	1678	194	<u>1681</u>	<u>194</u>	12	828	197	824	198	<u>827</u>	<u>197</u>
416.gamess	24	1734	271	<u>1738</u>	<u>270</u>	1746	269	12	852	276	836	281	<u>838</u>	<u>280</u>
433.milc	24	1014	217	<u>1014</u>	<u>217</u>	1015	217	24	1014	217	<u>1014</u>	<u>217</u>	1014	217
434.zeusmp	24	<u>789</u>	<u>277</u>	742	294	791	276	24	<u>789</u>	<u>277</u>	742	294	791	276
435.gromacs	24	652	263	658	260	<u>658</u>	<u>260</u>	24	647	265	653	262	<u>648</u>	<u>264</u>
436.cactusADM	24	932	308	929	309	<u>930</u>	<u>308</u>	24	932	308	929	309	<u>930</u>	<u>308</u>
437.leslie3d	24	1698	133	<u>1697</u>	<u>133</u>	1697	133	12	820	138	<u>821</u>	<u>137</u>	822	137
444.namd	24	773	249	779	247	<u>776</u>	<u>248</u>	24	757	254	<u>753</u>	<u>256</u>	752	256
447.dealII	24	722	380	715	384	<u>716</u>	<u>383</u>	24	716	384	<u>720</u>	<u>381</u>	721	381
450.soplex	24	1372	146	<u>1304</u>	<u>154</u>	1304	154	12	649	154	586	171	<u>587</u>	<u>171</u>
453.povray	24	348	367	<u>347</u>	<u>368</u>	345	370	24	<u>288</u>	<u>444</u>	286	447	288	443
454.calculix	24	615	322	617	321	<u>617</u>	<u>321</u>	24	615	322	617	321	<u>617</u>	<u>321</u>
459.GemsFDTD	24	2248	113	<u>2007</u>	<u>127</u>	2004	127	12	<u>981</u>	<u>130</u>	981	130	980	130
465.tonto	24	932	253	898	263	<u>904</u>	<u>261</u>	24	<u>850</u>	<u>278</u>	844	280	861	274
470.lbm	24	<u>2625</u>	<u>126</u>	2623	126	2627	126	12	1228	134	1232	134	<u>1231</u>	<u>134</u>
481.wrf	24	1116	240	1128	238	<u>1126</u>	<u>238</u>	24	1116	240	1128	238	<u>1126</u>	<u>238</u>
482.sphinx3	24	<u>2127</u>	<u>220</u>	2130	220	2120	221	24	2017	232	<u>2013</u>	<u>232</u>	2013	232

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

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## General Notes

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



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## 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

### C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

### Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

### Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## 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

## 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)  
 -fno-alias -opt-prefetch

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)  
 -opt-malloc-options=3 -ansi-alias -auto-ilp32

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## Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -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-

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

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: -xSSE4.2 -ipo -O3 -no-prec-div -static

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

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 -inline-calloc -opt-malloc-options=3

### 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: basepeak = yes

454.calculix: basepeak = yes

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## Peak Optimization Flags (Continued)

481.wrf: basepeak = yes

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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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