



# SPEC® CFP2006 Result

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## Intel Corporation

Supermicro SuperServer 6026T-NTR+ (Intel Xeon X5560, 2.80 GHz)

**SPECfp<sup>®</sup>\_rate2006 = 194**

**SPECfp\_rate\_base2006 = 187**

CPU2006 license: 13

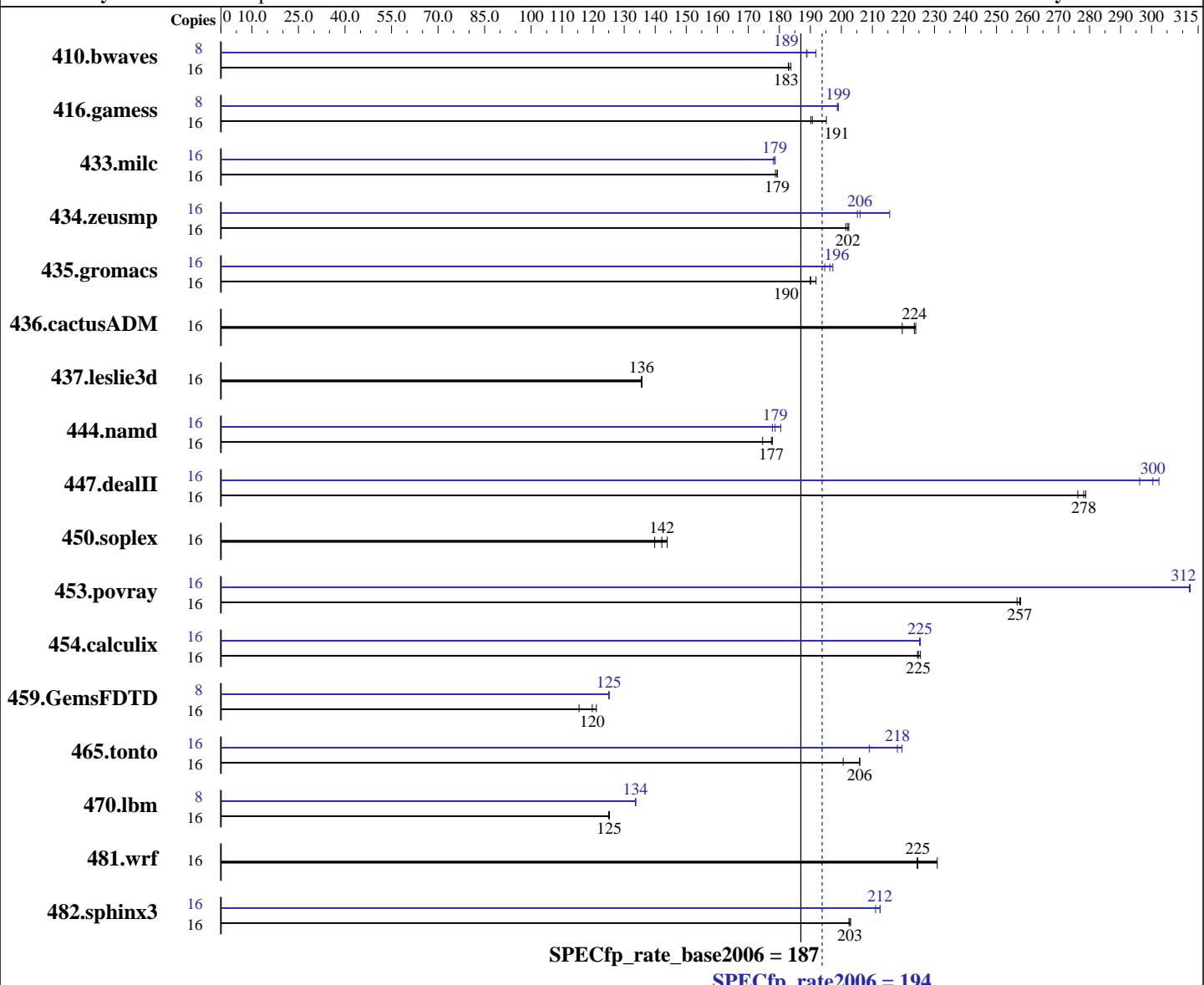
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Mar-2009

Hardware Availability: Mar-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon X5560  
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
CPU MHz: 2800  
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

### 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: No  
File System: ReiserFS  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (6 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	16	1189	183	<u>1188</u>	<u>183</u>	1183	184	8	576	189	<u>575</u>	<u>189</u>	567	192
416.gamess	16	<b>1643</b>	<b>191</b>	1648	190	1605	195	8	<b>787</b>	<b>199</b>	788	199	<b>787</b>	<b>199</b>
433.milc	16	822	179	819	179	<b>819</b>	<b>179</b>	16	<b>823</b>	<b>179</b>	825	178	822	179
434.zeusmp	16	719	202	<b>720</b>	<b>202</b>	723	201	16	675	216	710	205	<b>707</b>	<b>206</b>
435.gromacs	16	<b>601</b>	<b>190</b>	595	192	601	190	16	<b>582</b>	<b>196</b>	579	197	587	195
436.cactusADM	16	<b>855</b>	<b>224</b>	854	224	871	220	16	<b>855</b>	<b>224</b>	854	224	871	220
437.leslie3d	16	1110	136	1108	136	<b>1109</b>	<b>136</b>	16	1110	136	1108	136	<b>1109</b>	<b>136</b>
444.namd	16	<b>723</b>	<b>177</b>	722	178	735	175	16	<b>718</b>	<b>179</b>	711	180	722	178
447.dealII	16	657	279	<b>658</b>	<b>278</b>	663	276	16	<b>609</b>	<b>300</b>	618	296	605	302
450.soplex	16	954	140	<b>939</b>	<b>142</b>	928	144	16	954	140	<b>939</b>	<b>142</b>	928	144
453.povray	16	332	257	<b>331</b>	<b>257</b>	330	258	16	<b>273</b>	<b>312</b>	272	312	273	312
454.calculix	16	585	225	<b>587</b>	<b>225</b>	588	225	16	585	225	<b>586</b>	<b>225</b>	586	225
459.GemsFDTD	16	1470	115	<b>1418</b>	<b>120</b>	1403	121	8	679	125	678	125	<b>679</b>	<b>125</b>
465.tonto	16	<b>765</b>	<b>206</b>	764	206	785	201	16	717	220	753	209	<b>722</b>	<b>218</b>
470.lbm	16	1756	125	1759	125	<b>1756</b>	<b>125</b>	8	<b>822</b>	<b>134</b>	822	134	823	134
481.wrf	16	774	231	796	224	<b>796</b>	<b>225</b>	16	774	231	796	224	<b>796</b>	<b>225</b>
482.sphinx3	16	1536	203	1540	202	<b>1538</b>	<b>203</b>	16	1478	211	<b>1468</b>	<b>212</b>	1467	213

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

## 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

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

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

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## Peak Compiler Invocation (Continued)

482.sphinx3: `icc -m32`

C++ benchmarks:  
`icpc`

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`  
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`

## 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`  
470.lbm: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`  
  `-auto-ilp32`  
482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

C++ benchmarks:

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## Peak Optimization Flags (Continued)

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)  
-unroll12 -ansi-alias -scalar-rep-

450.soplex: basepeak = yes

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)  
-unroll14 -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)  
-unroll12 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -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)

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)  
-unroll12 -Ob0 -opt-prefetch

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)  
-unroll14 -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: basepeak = yes

454.calculix: -xsse4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes



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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-ic11.0-fp-linux64-revA.20090710.04.html>

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