



# SPEC® CFP2006 Result

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## Supermicro

SuperServer 6017TR-TQF (X9DRT-IBQF,  
Intel Xeon E5-2660, 2.20 GHz)

SPECfp®2006 = **80.1**

SPECfp\_base2006 = **77.4**

CPU2006 license: 001176

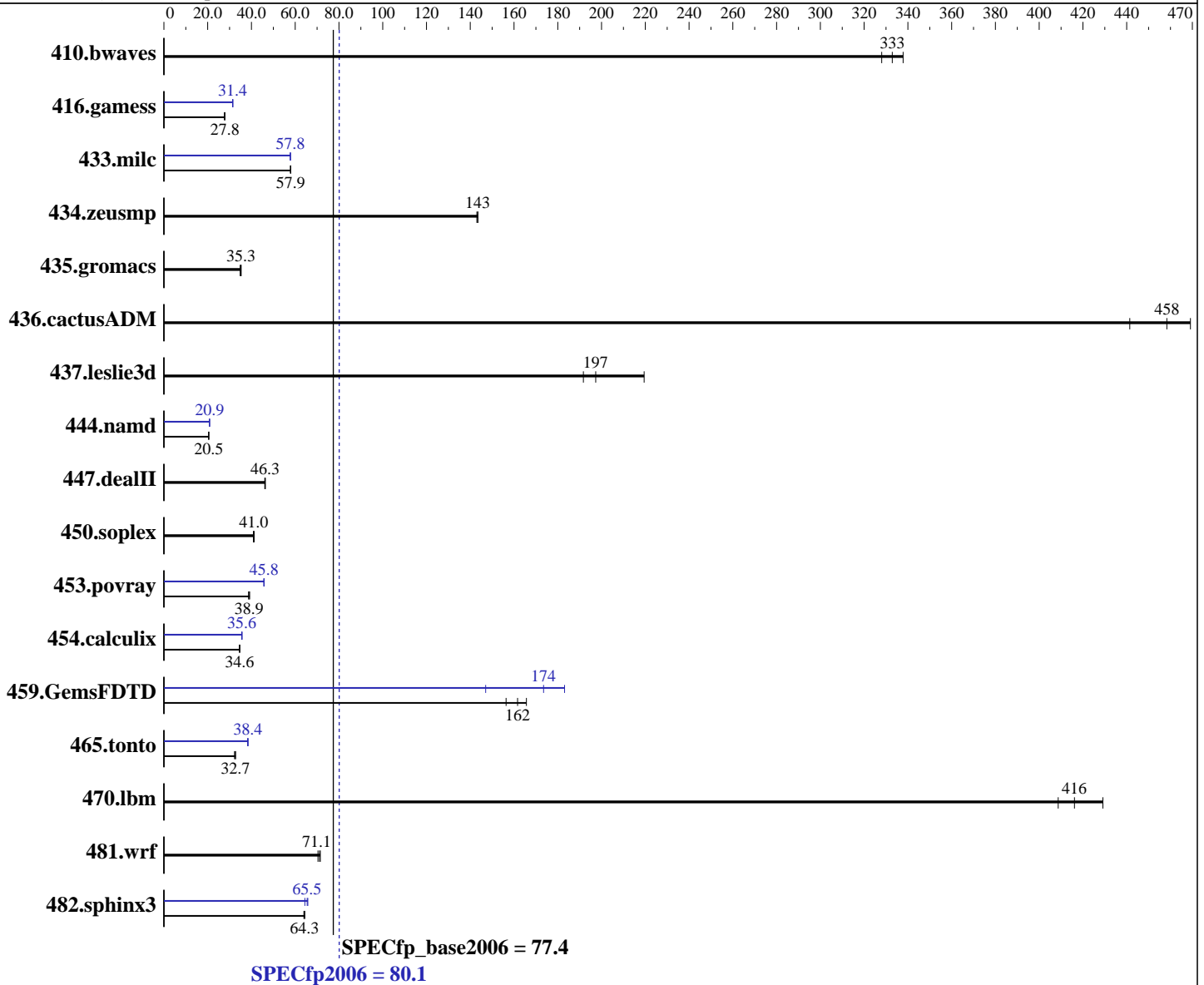
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2013

Hardware Availability: Mar-2012

Software Availability: Oct-2012



### Hardware

CPU Name: Intel Xeon E5-2660  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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: Red Hat Enterprise Linux Server Release 6.2,  
Kernel 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 13.0.0.133 of Intel C++ Studio XE  
for Linux;  
Fortran: Version 13.0.0.133 of Intel Fortran  
Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)

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L3 Cache: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 1 x 1 TB 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	40.2	338	41.4	328	<b>40.8</b>	<b>333</b>	40.2	338	41.4	328	<b>40.8</b>	<b>333</b>
416.gamess	704	27.8	708	27.7	<b>704</b>	<b>27.8</b>	<b>623</b>	<b>31.4</b>	621	31.5	624	31.4
433.milc	158	58.0	<b>159</b>	<b>57.9</b>	159	57.8	<b>159</b>	<b>57.8</b>	159	57.8	159	57.8
434.zeusmp	<b>63.4</b>	<b>143</b>	63.6	143	63.4	143	<b>63.4</b>	<b>143</b>	63.6	143	63.4	143
435.gromacs	<b>203</b>	<b>35.3</b>	205	34.8	203	35.3	<b>203</b>	<b>35.3</b>	205	34.8	203	35.3
436.cactusADM	<b>26.1</b>	<b>458</b>	25.5	469	27.1	441	<b>26.1</b>	<b>458</b>	25.5	469	27.1	441
437.leslie3d	49.0	192	42.8	219	<b>47.6</b>	<b>197</b>	49.0	192	42.8	219	<b>47.6</b>	<b>197</b>
444.namd	<b>392</b>	<b>20.5</b>	391	20.5	392	20.5	<b>385</b>	<b>20.9</b>	384	20.9	385	20.8
447.dealII	247	46.3	<b>247</b>	<b>46.3</b>	248	46.1	247	46.3	<b>247</b>	<b>46.3</b>	248	46.1
450.soplex	204	40.9	202	41.3	<b>203</b>	<b>41.0</b>	204	40.9	202	41.3	<b>203</b>	<b>41.0</b>
453.povray	136	39.2	<b>137</b>	<b>38.9</b>	138	38.7	117	45.6	<b>116</b>	<b>45.8</b>	116	45.8
454.calculix	239	34.6	<b>239</b>	<b>34.6</b>	238	34.7	231	35.7	<b>232</b>	<b>35.6</b>	232	35.6
459.GemsFDTD	<b>65.6</b>	<b>162</b>	67.9	156	64.0	166	<b>61.1</b>	<b>174</b>	57.9	183	72.2	147
465.tonto	305	32.3	<b>301</b>	<b>32.7</b>	301	32.7	<b>256</b>	<b>38.4</b>	257	38.3	256	38.4
470.lbm	33.6	409	32.0	429	<b>33.0</b>	<b>416</b>	33.6	409	32.0	429	<b>33.0</b>	<b>416</b>
481.wrf	<b>157</b>	<b>71.1</b>	156	71.5	159	70.4	<b>157</b>	<b>71.1</b>	156	71.5	159	70.4
482.sphinx3	<b>303</b>	<b>64.3</b>	305	64.0	303	64.3	296	65.8	<b>298</b>	<b>65.5</b>	303	64.4

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

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"  
OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB  
memory using RHEL5.5

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>



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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.lelie3d: -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:  
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:  
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:  
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:  
-xAVX -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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

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## Peak Optimization Flags (Continued)

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.html>

<http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.xml>

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

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