



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SuperServer 6017TR-TQF (X9DRT-IBQF,  
Intel Xeon E5-2690, 2.90 GHz)

SPECfp<sup>®</sup>2006 = 94.5

SPECfp\_base2006 = 90.7

CPU2006 license: 001176

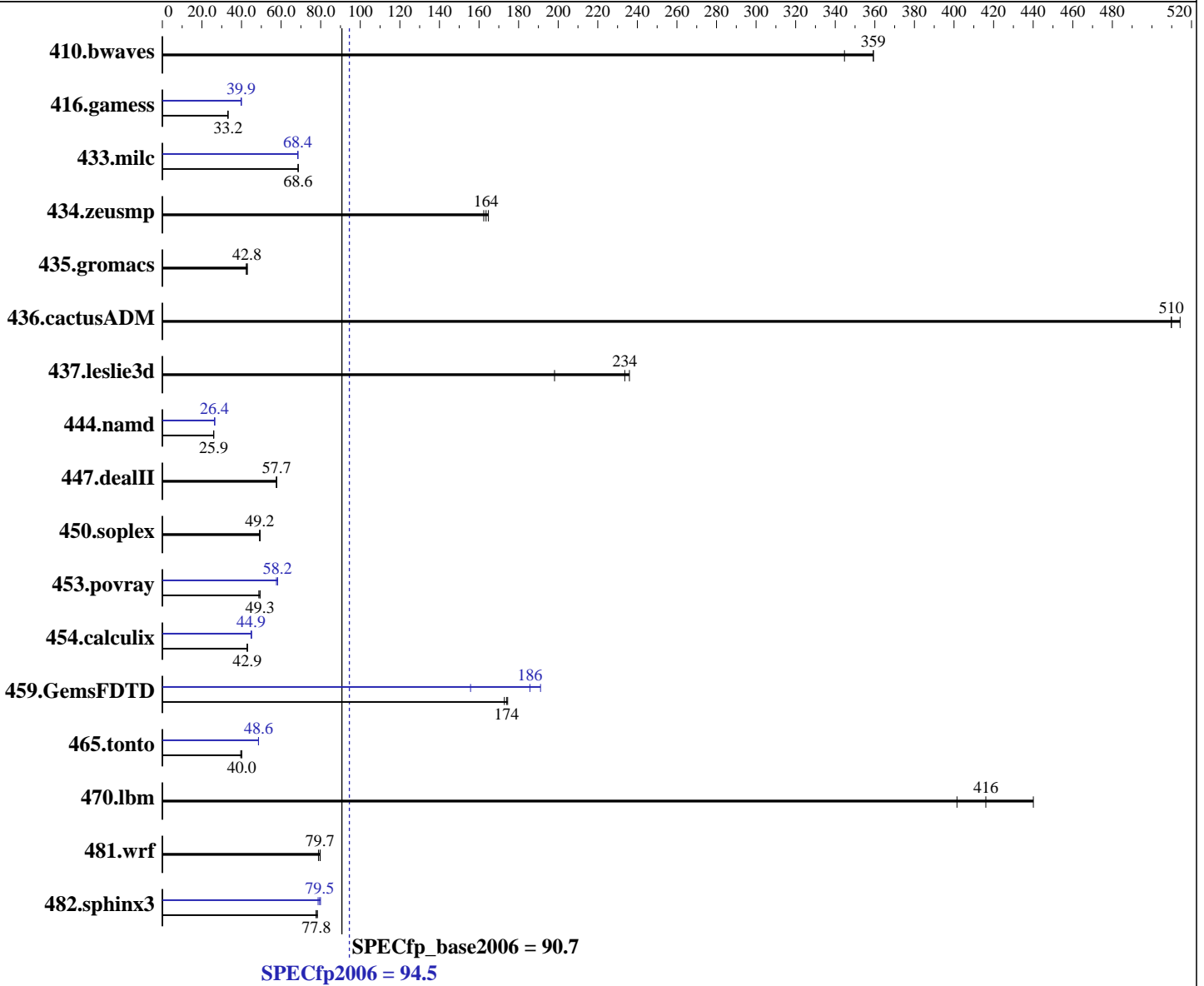
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2013

Hardware Availability: Mar-2012

Software Availability: Oct-2012



**Hardware**

CPU Name: Intel Xeon E5-2690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2900  
 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	37.8	359	<b>37.8</b>	<b>359</b>	39.4	345	37.8	359	<b>37.8</b>	<b>359</b>	39.4	345
416.gamess	<b>590</b>	<b>33.2</b>	593	33.0	589	33.2	491	39.9	<b>491</b>	<b>39.9</b>	492	39.8
433.milc	134	68.6	<b>134</b>	<b>68.6</b>	134	68.7	134	68.4	<b>134</b>	<b>68.4</b>	134	68.5
434.zeusmp	<b>55.6</b>	<b>164</b>	56.0	162	55.2	165	<b>55.6</b>	<b>164</b>	56.0	162	55.2	165
435.gromacs	166	42.9	169	42.4	<b>167</b>	<b>42.8</b>	166	42.9	169	42.4	<b>167</b>	<b>42.8</b>
436.cactusADM	23.4	510	<b>23.4</b>	<b>510</b>	23.2	514	23.4	510	<b>23.4</b>	<b>510</b>	23.2	514
437.leslie3d	<b>40.2</b>	<b>234</b>	39.8	236	47.4	198	<b>40.2</b>	<b>234</b>	39.8	236	47.4	198
444.namd	<b>309</b>	<b>25.9</b>	309	25.9	309	25.9	<b>304</b>	<b>26.4</b>	304	26.4	304	26.4
447.dealII	199	57.6	<b>198</b>	<b>57.7</b>	198	57.8	199	57.6	<b>198</b>	<b>57.7</b>	198	57.8
450.soplex	170	49.1	169	49.4	<b>170</b>	<b>49.2</b>	170	49.1	169	49.4	<b>170</b>	<b>49.2</b>
453.povray	108	49.3	<b>108</b>	<b>49.3</b>	109	48.7	91.3	58.2	92.3	57.6	<b>91.4</b>	<b>58.2</b>
454.calculix	<b>192</b>	<b>42.9</b>	192	43.0	192	42.9	<b>184</b>	<b>44.9</b>	183	45.1	184	44.9
459.GemsFDTD	<b>61.0</b>	<b>174</b>	60.8	174	61.4	173	68.1	156	<b>57.1</b>	<b>186</b>	55.5	191
465.tonto	<b>246</b>	<b>40.0</b>	245	40.1	249	39.6	202	48.6	203	48.5	<b>202</b>	<b>48.6</b>
470.lbm	34.2	401	<b>33.0</b>	<b>416</b>	31.2	440	34.2	401	<b>33.0</b>	<b>416</b>	31.2	440
481.wrf	<b>140</b>	<b>79.7</b>	140	79.8	142	78.9	<b>140</b>	<b>79.7</b>	140	79.8	142	78.9
482.sphinx3	<b>250</b>	<b>77.8</b>	249	78.4	251	77.7	<b>245</b>	<b>79.5</b>	248	78.7	244	79.9

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.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:

-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  
-ansi-alias



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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>

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

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 16:13:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 26 July 2013.