



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SuperServer 2027GR-TRTH2+  
(X9DRG-HF+ii , Intel Xeon E5-2697 v2, 2.70 GHz)

SPECfp<sup>®</sup>2006 = 104

SPECfp\_base2006 = 99.1

CPU2006 license: 001176

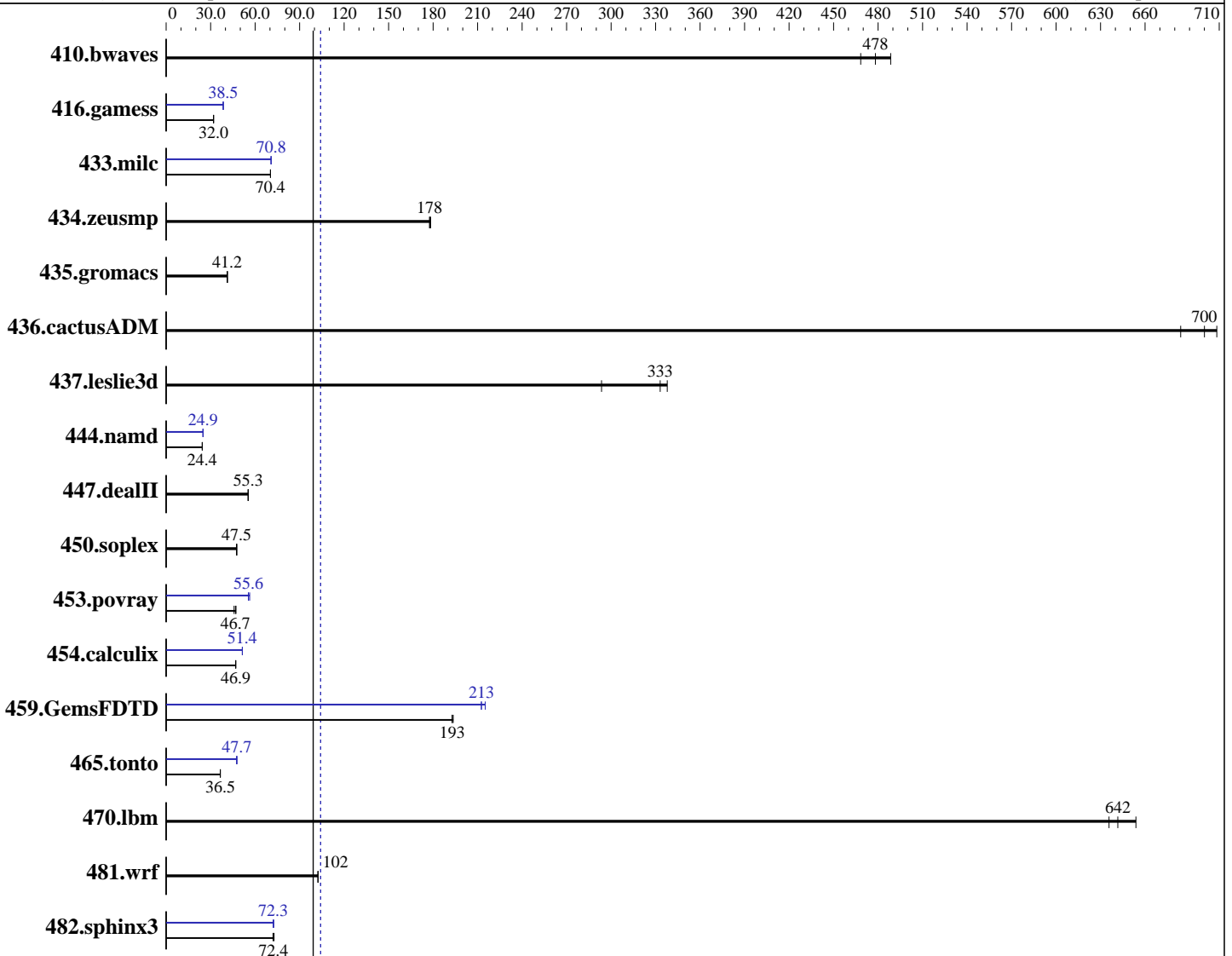
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-2013

Hardware Availability: Oct-2013

Software Availability: Sep-2013



SPECfp\_base2006 = 99.1  
SPECfp2006 = 104

### Hardware

CPU Name: Intel Xeon E5-2697 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip  
 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 6.4, Kernel 2.6.32-358.23.2.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;  
 Fortran: Version 14.0.0.080 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: 30 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)  
Disk Subsystem: 2 x 400 GB SATA III, RAID 0, SSD  
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	29.0	468	27.8	489	<b><u>28.4</u></b>	<b><u>478</u></b>	29.0	468	27.8	489	<b><u>28.4</u></b>	<b><u>478</u></b>
416.gamess	613	31.9	<b><u>612</u></b>	<b><u>32.0</u></b>	612	32.0	509	38.5	508	38.5	<b><u>508</u></b>	<b><u>38.5</u></b>
433.milc	<b><u>130</u></b>	<b><u>70.4</u></b>	130	70.4	131	70.3	130	70.8	130	70.7	<b><u>130</u></b>	<b><u>70.8</u></b>
434.zeusmp	51.0	178	51.2	178	<b><u>51.2</u></b>	<b><u>178</u></b>	51.0	178	51.2	178	<b><u>51.2</u></b>	<b><u>178</u></b>
435.gromacs	173	41.3	<b><u>173</u></b>	<b><u>41.2</u></b>	173	41.2	173	41.3	<b><u>173</u></b>	<b><u>41.2</u></b>	173	41.2
436.cactusADM	17.5	684	<b><u>17.1</u></b>	<b><u>700</u></b>	16.9	708	17.5	684	<b><u>17.1</u></b>	<b><u>700</u></b>	16.9	708
437.leslie3d	<b><u>28.2</u></b>	<b><u>333</u></b>	27.8	338	32.0	294	<b><u>28.2</u></b>	<b><u>333</u></b>	27.8	338	32.0	294
444.namd	329	24.4	329	24.4	<b><u>329</u></b>	<b><u>24.4</u></b>	322	24.9	<b><u>322</u></b>	<b><u>24.9</u></b>	323	24.9
447.dealII	<b><u>207</u></b>	<b><u>55.3</u></b>	207	55.3	207	55.3	<b><u>207</u></b>	<b><u>55.3</u></b>	207	55.3	207	55.3
450.soplex	<b><u>176</u></b>	<b><u>47.5</u></b>	176	47.5	175	47.7	<b><u>176</u></b>	<b><u>47.5</u></b>	176	47.5	175	47.7
453.povray	113	47.1	116	45.8	<b><u>114</u></b>	<b><u>46.7</u></b>	96.0	55.4	94.4	56.3	<b><u>95.7</u></b>	<b><u>55.6</u></b>
454.calculix	176	46.9	176	46.9	<b><u>176</u></b>	<b><u>46.9</u></b>	160	51.4	161	51.4	<b><u>161</u></b>	<b><u>51.4</u></b>
459.GemsFDTD	<b><u>55.0</u></b>	<b><u>193</u></b>	55.0	193	54.8	194	49.3	215	49.9	213	<b><u>49.9</u></b>	<b><u>213</u></b>
465.tonto	270	36.5	<b><u>270</u></b>	<b><u>36.5</u></b>	269	36.5	207	47.5	<b><u>206</u></b>	<b><u>47.7</u></b>	206	47.7
470.lbm	21.6	636	21.0	654	<b><u>21.4</u></b>	<b><u>642</u></b>	21.6	636	21.0	654	<b><u>21.4</u></b>	<b><u>642</u></b>
481.wrf	109	102	<b><u>109</u></b>	<b><u>102</u></b>	109	102	109	102	<b><u>109</u></b>	<b><u>102</u></b>	109	102
482.sphinx3	<b><u>269</u></b>	<b><u>72.4</u></b>	268	72.8	270	72.1	269	72.5	270	72.2	<b><u>270</u></b>	<b><u>72.3</u></b>

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:

KMP\_AFFINITY = "granularity=fine,compact,0,1"

LD\_LIBRARY\_PATH = "/home/cpu/libs/32:/home/cpu/libs/64:/home/cpu/sh"

OMP\_NUM\_THREADS = "24"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

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

runspec command invoked through numactl i.e.:

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### General Notes (Continued)

numactl --interleave=all runspec <etc>

### 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 -parallel -opt-prefetch -ansi-alias

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

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

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

## 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) -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`

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## Peak Optimization Flags (Continued)

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

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-

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/Intel-ic14.0-official-linux64.20140128.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<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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