



# SPEC® CFP2006 Result

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## Supermicro

Supermicro SuperServer 1027R-WRF4+  
(X9DRW-3LN4F+, Intel Xeon E5-2670 v2)

SPECfp®2006 = 101

SPECfp\_base2006 = 96.1

CPU2006 license: 001176

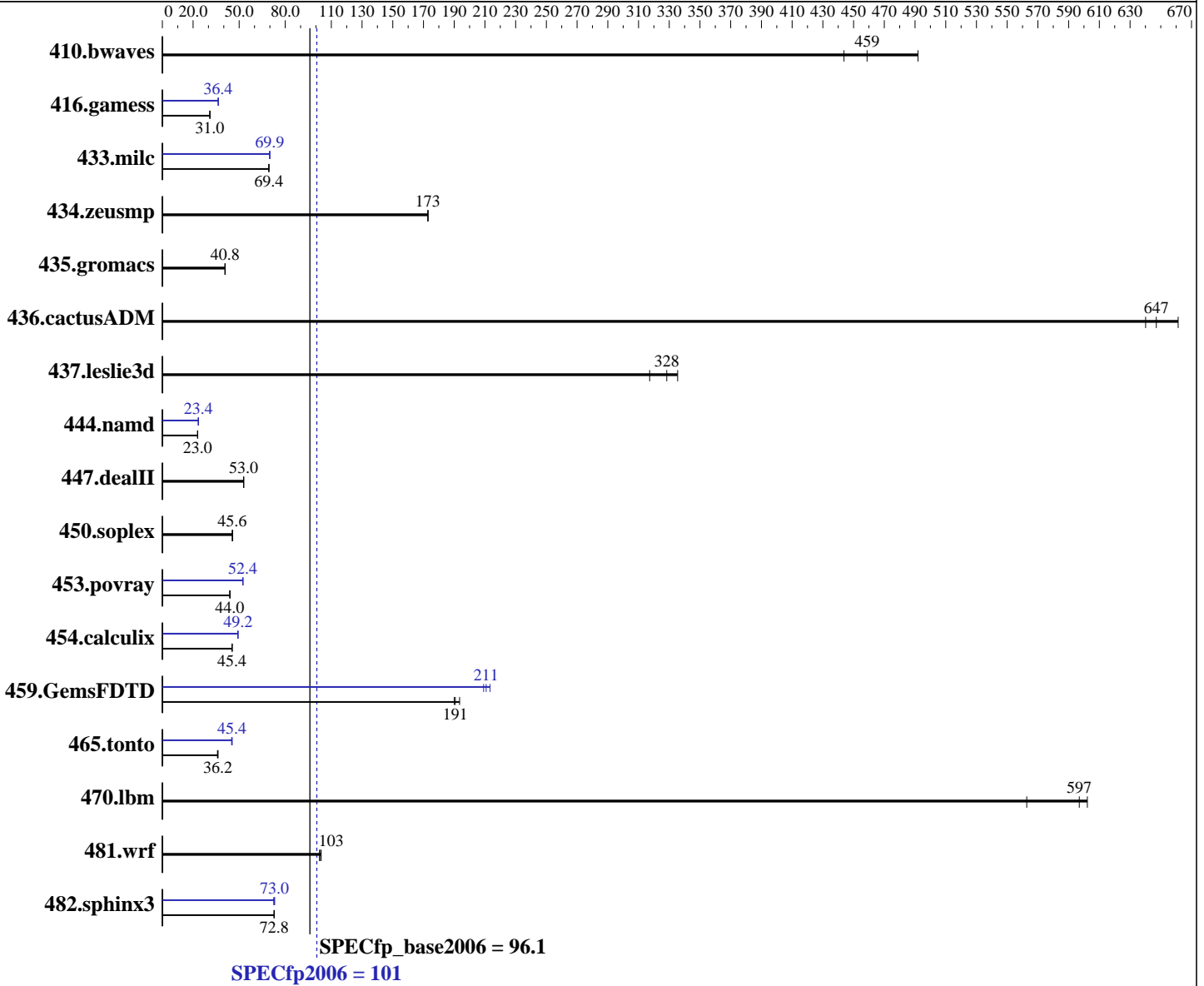
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2014

Hardware Availability: Oct-2013

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2670 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 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: 25 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)  
Disk Subsystem: 1 x 500 GB 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	27.6	492	<b><u>29.6</u></b>	<b><u>459</u></b>	30.6	444	27.6	492	<b><u>29.6</u></b>	<b><u>459</u></b>	30.6	444
416.gamess	<b><u>632</u></b>	<b><u>31.0</u></b>	632	31.0	634	30.9	538	36.4	538	36.4	<b><u>538</u></b>	<b><u>36.4</u></b>
433.milc	132	69.4	<b><u>132</u></b>	<b><u>69.4</u></b>	133	69.3	<b><u>131</u></b>	<b><u>69.9</u></b>	131	70.0	131	69.9
434.zeusmp	52.6	173	<b><u>52.6</u></b>	<b><u>173</u></b>	52.6	173	52.6	173	<b><u>52.6</u></b>	<b><u>173</u></b>	52.6	173
435.gromacs	<b><u>175</u></b>	<b><u>40.8</u></b>	175	40.9	175	40.8	<b><u>175</u></b>	<b><u>40.8</u></b>	175	40.9	175	40.8
436.cactusADM	<b><u>18.5</u></b>	<b><u>647</u></b>	18.1	661	18.7	640	<b><u>18.5</u></b>	<b><u>647</u></b>	18.1	661	18.7	640
437.leslie3d	28.0	335	<b><u>28.6</u></b>	<b><u>328</u></b>	29.6	317	28.0	335	<b><u>28.6</u></b>	<b><u>328</u></b>	29.6	317
444.namd	<b><u>349</u></b>	<b><u>23.0</u></b>	349	23.0	350	22.9	<b><u>342</u></b>	<b><u>23.4</u></b>	342	23.4	342	23.4
447.dealII	216	52.9	216	53.0	<b><u>216</u></b>	<b><u>53.0</u></b>	216	52.9	216	53.0	<b><u>216</u></b>	<b><u>53.0</u></b>
450.soplex	183	45.5	<b><u>183</u></b>	<b><u>45.6</u></b>	182	45.8	183	45.5	<b><u>183</u></b>	<b><u>45.6</u></b>	182	45.8
453.povray	121	44.1	<b><u>121</u></b>	<b><u>44.0</u></b>	121	43.9	102	52.4	101	52.5	<b><u>101</u></b>	<b><u>52.4</u></b>
454.calculix	<b><u>182</u></b>	<b><u>45.4</u></b>	182	45.4	182	45.4	168	49.2	168	49.2	<b><u>168</u></b>	<b><u>49.2</u></b>
459.GemsFDTD	<b><u>55.6</u></b>	<b><u>191</u></b>	54.8	194	55.8	190	49.7	213	<b><u>50.3</u></b>	<b><u>211</u></b>	50.7	209
465.tonto	<b><u>272</u></b>	<b><u>36.2</u></b>	274	35.9	272	36.2	217	45.4	<b><u>217</u></b>	<b><u>45.4</u></b>	218	45.1
470.lbm	<b><u>23.0</u></b>	<b><u>597</u></b>	22.8	602	24.4	563	<b><u>23.0</u></b>	<b><u>597</u></b>	22.8	602	24.4	563
481.wrf	<b><u>108</u></b>	<b><u>103</u></b>	109	102	108	103	<b><u>108</u></b>	<b><u>103</u></b>	109	102	108	103
482.sphinx3	268	72.7	267	72.9	<b><u>268</u></b>	<b><u>72.8</u></b>	267	73.1	269	72.5	<b><u>267</u></b>	<b><u>73.0</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"

## Platform Notes

BIOS Configuration:  
Disable Hyper-threading

## General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,compact,0,1"  
LD\_LIBRARY\_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"  
OMP\_NUM\_THREADS = "20"

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## General Notes (Continued)

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.:  
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.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 -parallel -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch

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

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## Peak Optimization Flags (Continued)

447.dealII: 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

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-revD.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-revD.xml>



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