



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SuperServer 6028R-WTR  
(X10DRW-iT , Intel Xeon E5-2667 v3)

SPECfp<sup>®</sup>2006 = 117

SPECfp\_base2006 = 113

CPU2006 license: 001176

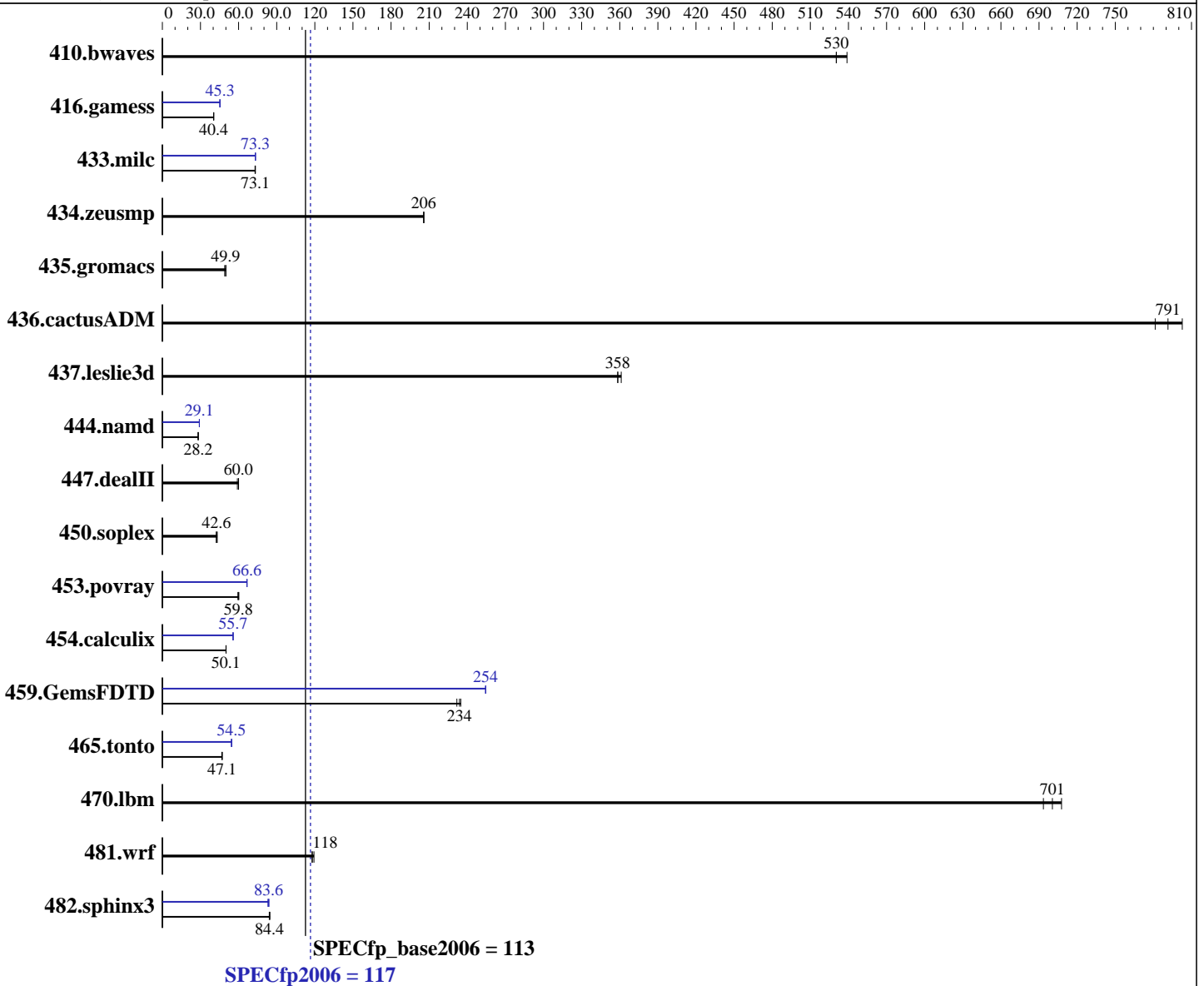
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Aug-2014

Hardware Availability: Sep-2014

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2667 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3200  
 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 6.5, Kernel 2.6.32-431.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: 20 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
Disk Subsystem: 1 x 400 GB SATA III 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	25.2	539	<u>25.6</u>	<u>530</u>	25.6	530	25.2	539	<u>25.6</u>	<u>530</u>	25.6	530
416.gamess	484	40.4	<u>485</u>	<u>40.4</u>	485	40.4	<u>432</u>	<u>45.3</u>	432	45.4	433	45.2
433.milc	<u>126</u>	<u>73.1</u>	126	72.9	125	73.2	125	73.3	126	73.1	<u>125</u>	<u>73.3</u>
434.zeusmp	<u>44.2</u>	<u>206</u>	44.2	206	44.2	206	<u>44.2</u>	<u>206</u>	44.2	206	44.2	206
435.gromacs	146	49.1	143	50.0	<u>143</u>	<u>49.9</u>	146	49.1	143	50.0	<u>143</u>	<u>49.9</u>
436.cactusADM	15.3	781	14.9	803	<u>15.1</u>	<u>791</u>	15.3	781	14.9	803	<u>15.1</u>	<u>791</u>
437.leslie3d	26.0	361	<u>26.2</u>	<u>358</u>	26.2	358	26.0	361	<u>26.2</u>	<u>358</u>	26.2	358
444.namd	<u>284</u>	<u>28.2</u>	284	28.2	284	28.2	275	29.1	<u>275</u>	<u>29.1</u>	275	29.1
447.dealII	194	59.0	<u>191</u>	<u>60.0</u>	191	60.0	194	59.0	<u>191</u>	<u>60.0</u>	191	60.0
450.soplex	193	43.2	<u>196</u>	<u>42.6</u>	197	42.4	193	43.2	<u>196</u>	<u>42.6</u>	197	42.4
453.povray	88.3	60.2	89.5	59.5	<u>88.9</u>	<u>59.8</u>	79.7	66.7	80.0	66.5	<u>79.9</u>	<u>66.6</u>
454.calculix	164	50.2	<u>165</u>	<u>50.1</u>	165	50.1	148	55.8	<u>148</u>	<u>55.7</u>	149	55.5
459.GemsFDTD	45.2	235	<u>45.4</u>	<u>234</u>	45.8	232	41.7	254	<u>41.7</u>	<u>254</u>	41.7	254
465.tonto	<u>209</u>	<u>47.1</u>	209	47.1	210	46.8	181	54.3	<u>181</u>	<u>54.5</u>	180	54.6
470.lbm	19.4	708	<u>19.6</u>	<u>701</u>	19.8	693	19.4	708	<u>19.6</u>	<u>701</u>	19.8	693
481.wrf	94.8	118	<u>94.6</u>	<u>118</u>	93.6	119	94.8	118	<u>94.6</u>	<u>118</u>	93.6	119
482.sphinx3	<u>231</u>	<u>84.4</u>	232	84.1	230	84.6	235	83.1	<u>233</u>	<u>83.6</u>	232	83.9

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"

## Platform Notes

BIOS Settings:  
Early Snoop = Disabled  
Enforce POR = Disabled  
Hyper-Threading (ALL) = Enabled  
Memory Frequency = 2133



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**Test date:** Aug-2014  
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## General Notes

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

```
KMP_AFFINITY = "granularity=fine,compact,1,0"
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 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.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.deallI: -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
```



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## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -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-revE.html>



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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-revE.xml>

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