



# SPEC<sup>®</sup> CFP2006 Result

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## Supermicro

SuperServer 7047R-TXRF (X9DRX+-F, Intel Xeon E5-2680)

SPECfp<sup>®</sup>2006 = 85.7

SPECfp\_base2006 = 81.1

CPU2006 license: 001176

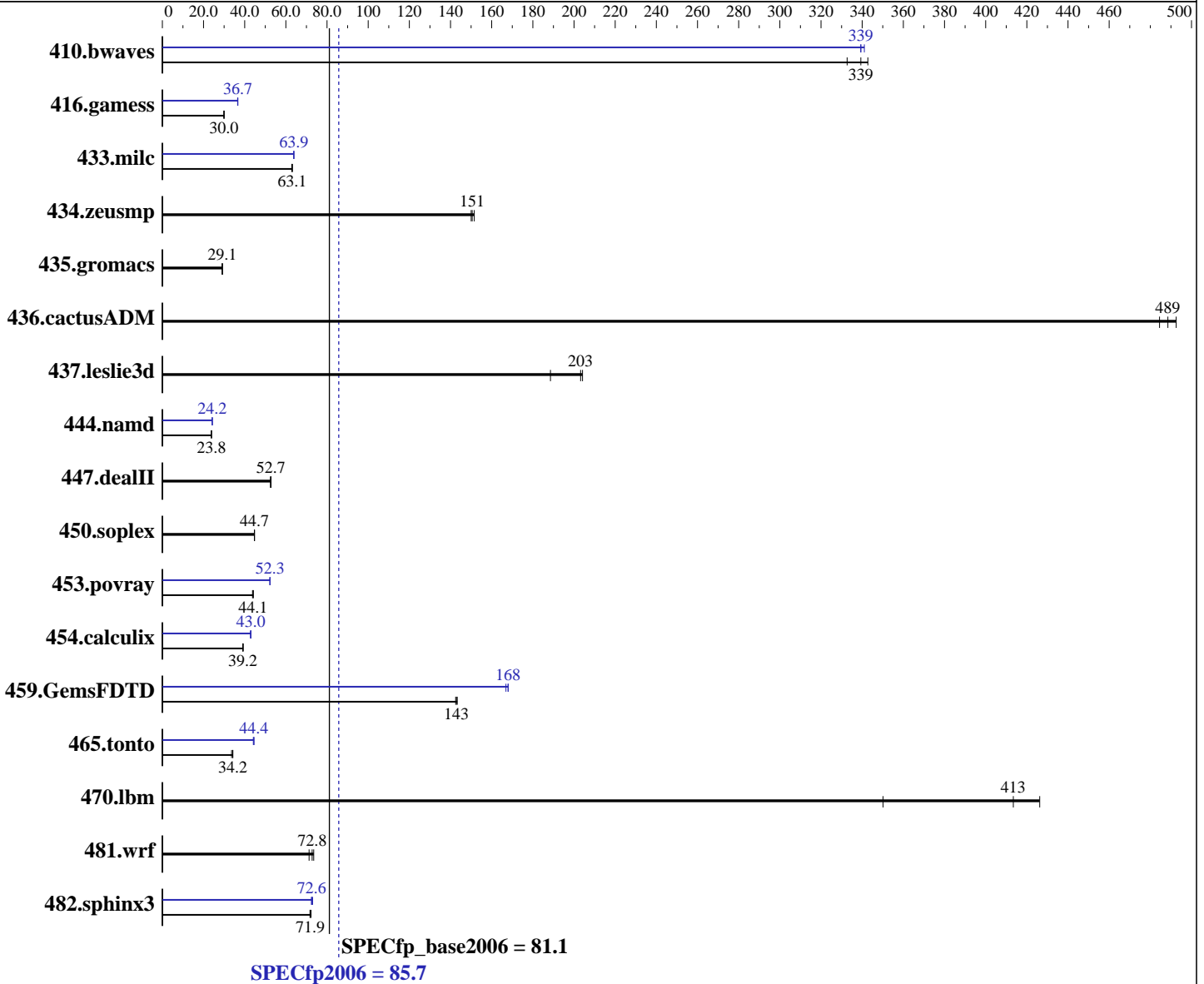
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 2700  
 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 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext3  
 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 1Rx4 PC3-12800R-11, ECC)  
Disk Subsystem: 1 x 2 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	39.6	343	40.8	333	<b>40.0</b>	<b>339</b>	40.1	339	39.8	341	<b>40.0</b>	<b>339</b>
416.gamess	<b>654</b>	<b>30.0</b>	652	30.0	655	29.9	536	36.6	<b>534</b>	<b>36.7</b>	534	36.7
433.milc	<b>145</b>	<b>63.1</b>	146	62.9	145	63.1	144	63.9	144	63.9	<b>144</b>	<b>63.9</b>
434.zeusmp	<b>60.5</b>	<b>151</b>	60.1	152	60.7	150	<b>60.5</b>	<b>151</b>	60.1	152	60.7	150
435.gromacs	245	29.2	<b>245</b>	<b>29.1</b>	246	29.0	<b>245</b>	<b>29.2</b>	<b>245</b>	<b>29.1</b>	246	29.0
436.cactusADM	<b>24.5</b>	<b>489</b>	24.7	484	24.3	493	<b>24.5</b>	<b>489</b>	24.7	484	24.3	493
437.leslie3d	46.0	204	<b>46.3</b>	<b>203</b>	49.9	189	46.0	204	<b>46.3</b>	<b>203</b>	49.9	189
444.namd	336	23.8	<b>337</b>	<b>23.8</b>	337	23.8	<b>331</b>	<b>24.2</b>	331	24.2	331	24.2
447.dealII	218	52.5	217	52.8	<b>217</b>	<b>52.7</b>	218	52.5	217	52.8	<b>217</b>	<b>52.7</b>
450.soplex	187	44.7	<b>187</b>	<b>44.7</b>	186	44.8	187	44.7	<b>187</b>	<b>44.7</b>	186	44.8
453.povray	<b>121</b>	<b>44.1</b>	120	44.2	121	43.8	<b>102</b>	<b>52.3</b>	102	52.3	102	52.2
454.calculix	211	39.0	<b>211</b>	<b>39.2</b>	210	39.3	193	42.8	<b>192</b>	<b>43.0</b>	192	43.1
459.GemsFDTD	74.5	142	<b>74.3</b>	<b>143</b>	74.1	143	63.6	167	63.2	168	<b>63.2</b>	<b>168</b>
465.tonto	<b>288</b>	<b>34.2</b>	293	33.6	287	34.2	223	44.2	<b>221</b>	<b>44.4</b>	221	44.5
470.lbm	32.2	426	39.2	350	<b>33.2</b>	<b>413</b>	32.2	426	39.2	350	<b>33.2</b>	<b>413</b>
481.wrf	157	71.3	<b>153</b>	<b>72.8</b>	152	73.5	157	71.3	<b>153</b>	<b>72.8</b>	152	73.5
482.sphinx3	270	72.3	<b>271</b>	<b>71.9</b>	272	71.7	267	73.0	269	72.4	<b>269</b>	<b>72.6</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,scatter"  
LD\_LIBRARY\_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"  
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



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

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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 file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

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

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