



# SPEC® CFP2006 Result

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## Supermicro

SuperWorkstation 7047GR-TRF (X9DRG-QF, Intel Xeon E5-2630L)

SPECfp®2006 = 64.4

SPECfp\_base2006 = 61.2

CPU2006 license: 001176

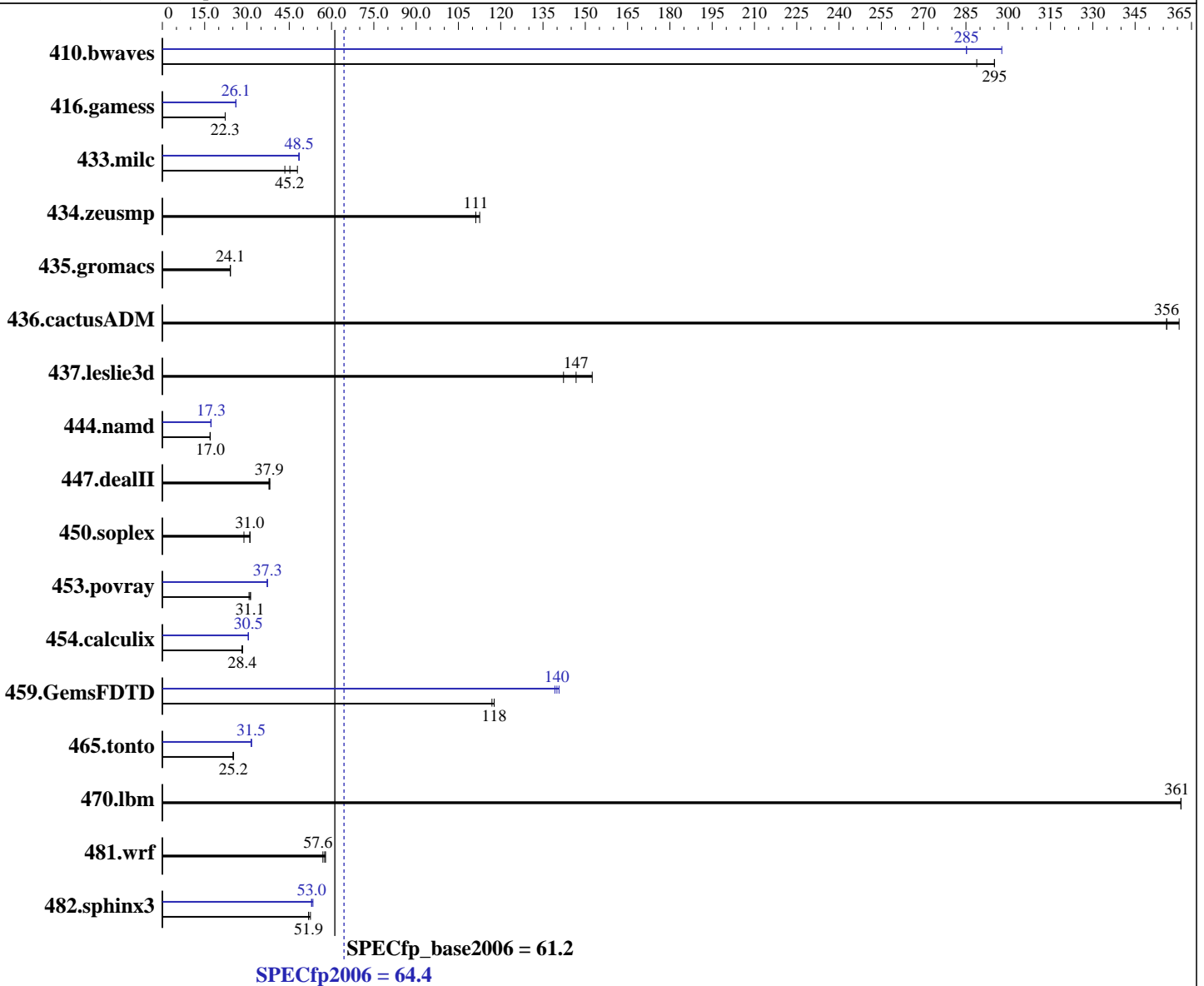
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2630L  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: ext4  
 System State: Run level 3 (multi-user)

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L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz and CL9)  
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	47.1	289	<b>46.1</b>	<b>295</b>	46.0	295	<b>47.7</b>	<b>285</b>	47.7	285	45.6	298
416.gamess	878	22.3	<b>878</b>	<b>22.3</b>	879	22.3	750	26.1	<b>750</b>	<b>26.1</b>	751	26.1
433.milc	211	43.4	<b>203</b>	<b>45.2</b>	192	47.9	189	48.5	<b>189</b>	<b>48.5</b>	190	48.4
434.zeusmp	80.9	113	<b>81.9</b>	<b>111</b>	81.9	111	80.9	113	<b>81.9</b>	<b>111</b>	81.9	111
435.gromacs	<b>296</b>	<b>24.1</b>	296	24.1	296	24.1	<b>296</b>	<b>24.1</b>	296	24.1	296	24.1
436.cactusADM	<b>33.5</b>	<b>356</b>	33.1	361	33.6	356	<b>33.5</b>	<b>356</b>	33.1	361	33.6	356
437.leslie3d	66.1	142	61.7	152	<b>64.1</b>	<b>147</b>	66.1	142	61.7	152	<b>64.1</b>	<b>147</b>
444.namd	<b>472</b>	<b>17.0</b>	475	16.9	472	17.0	464	17.3	<b>464</b>	<b>17.3</b>	467	17.2
447.dealII	302	37.9	<b>302</b>	<b>37.9</b>	300	38.1	302	37.9	<b>302</b>	<b>37.9</b>	300	38.1
450.soplex	<b>269</b>	<b>31.0</b>	288	28.9	268	31.1	<b>269</b>	<b>31.0</b>	288	28.9	268	31.1
453.povray	<b>171</b>	<b>31.1</b>	170	31.3	173	30.7	<b>143</b>	<b>37.3</b>	143	37.3	143	37.1
454.calculix	290	28.4	292	28.2	<b>291</b>	<b>28.4</b>	271	30.5	270	30.5	<b>271</b>	<b>30.5</b>
459.GemsFDTD	90.8	117	<b>90.2</b>	<b>118</b>	90.1	118	<b>75.8</b>	<b>140</b>	75.4	141	76.2	139
465.tonto	389	25.3	<b>390</b>	<b>25.2</b>	393	25.0	311	31.7	<b>312</b>	<b>31.5</b>	313	31.5
470.lbm	38.0	361	<b>38.0</b>	<b>361</b>	38.0	361	38.0	361	<b>38.0</b>	<b>361</b>	38.0	361
481.wrf	196	56.9	<b>194</b>	<b>57.6</b>	193	57.9	196	56.9	<b>194</b>	<b>57.6</b>	193	57.9
482.sphinx3	<b>375</b>	<b>51.9</b>	371	52.5	376	51.8	<b>368</b>	<b>53.0</b>	365	53.4	368	52.9

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"  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"  
OMP\_NUM\_THREADS = "12"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5



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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: -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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