



# SPEC® CFP2006 Result

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## Supermicro

Supermicro SuperServer 7047R-72RFT  
(X9DRH-7TF, Intel Xeon E5-2697 v2)

SPECfp®2006 = 104

SPECfp\_base2006 = 98.8

CPU2006 license: 001176

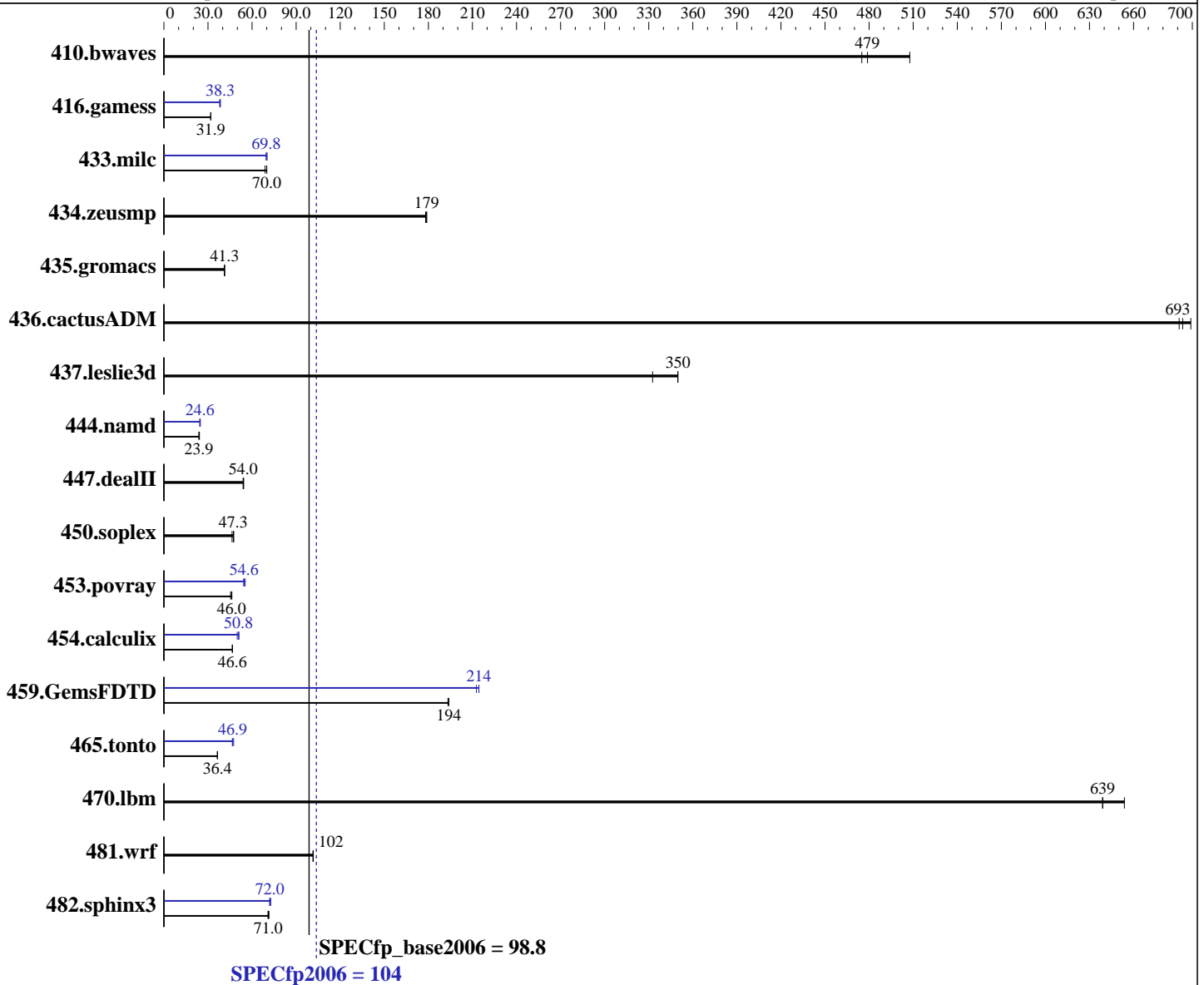
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Oct-2013

Software Availability: Sep-2013



### 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 2.6.32-358.18.1.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: 1 x 1000 GB SATA III, 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	<b><u>28.4</u></b>	<b><u>479</u></b>	28.6	475	26.8	508	<b><u>28.4</u></b>	<b><u>479</u></b>	28.6	475	26.8	508
416.gamess	613	31.9	614	31.9	<b><u>614</u></b>	<b><u>31.9</u></b>	<b><u>511</u></b>	<b><u>38.3</u></b>	510	38.4	516	37.9
433.milc	133	68.8	131	70.0	<b><u>131</u></b>	<b><u>70.0</u></b>	132	69.6	131	70.3	<b><u>132</u></b>	<b><u>69.8</u></b>
434.zeusmp	51.1	178	50.9	179	<b><u>50.9</u></b>	<b><u>179</u></b>	51.1	178	50.9	179	<b><u>50.9</u></b>	<b><u>179</u></b>
435.gromacs	174	41.1	173	41.3	<b><u>173</u></b>	<b><u>41.3</u></b>	174	41.1	173	41.3	<b><u>173</u></b>	<b><u>41.3</u></b>
436.cactusADM	17.1	699	17.3	691	<b><u>17.2</u></b>	<b><u>693</u></b>	17.1	699	17.3	691	<b><u>17.2</u></b>	<b><u>693</u></b>
437.leslie3d	28.3	333	26.9	350	<b><u>26.9</u></b>	<b><u>350</u></b>	28.3	333	26.9	350	<b><u>26.9</u></b>	<b><u>350</u></b>
444.namd	332	24.2	<b><u>336</u></b>	<b><u>23.9</u></b>	336	23.8	329	24.4	324	24.8	<b><u>326</u></b>	<b><u>24.6</u></b>
447.dealII	<b><u>212</u></b>	<b><u>54.0</u></b>	211	54.3	212	53.9	<b><u>212</u></b>	<b><u>54.0</u></b>	211	54.3	212	53.9
450.soplex	180	46.4	<b><u>176</u></b>	<b><u>47.3</u></b>	175	47.5	180	46.4	<b><u>176</u></b>	<b><u>47.3</u></b>	175	47.5
453.povray	117	45.4	<b><u>116</u></b>	<b><u>46.0</u></b>	115	46.3	<b><u>97.4</u></b>	<b><u>54.6</u></b>	98.0	54.3	96.1	55.3
454.calculix	177	46.6	<b><u>177</u></b>	<b><u>46.6</u></b>	177	46.7	165	49.9	161	51.1	<b><u>162</u></b>	<b><u>50.8</u></b>
459.GemsFDTD	54.9	193	54.7	194	<b><u>54.7</u></b>	<b><u>194</u></b>	49.9	213	<b><u>49.5</u></b>	<b><u>214</u></b>	49.5	214
465.tonto	270	36.5	270	36.4	<b><u>270</u></b>	<b><u>36.4</u></b>	<b><u>210</u></b>	<b><u>46.9</u></b>	211	46.6	207	47.5
470.lbm	21.0	654	<b><u>21.5</u></b>	<b><u>639</u></b>	21.5	639	21.0	654	<b><u>21.5</u></b>	<b><u>639</u></b>	21.5	639
481.wrf	<b><u>110</u></b>	<b><u>102</u></b>	110	102	110	102	<b><u>110</u></b>	<b><u>102</u></b>	110	102	110	102
482.sphinx3	275	70.8	273	71.5	<b><u>274</u></b>	<b><u>71.0</u></b>	268	72.7	<b><u>271</u></b>	<b><u>72.0</u></b>	271	72.0

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

Sysinfo program /root/cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on 185-211.jnet Sat Oct 26 05:58:43 2013

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo  
model name : Intel(R) Xeon(R) CPU E5-2697 v2 @ 2.70GHz  
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**CPU2006 license:** 001176

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**Tested by:** Supermicro

**Test date:** Oct-2013

**Hardware Availability:** Oct-2013

**Software Availability:** Sep-2013

### Platform Notes (Continued)

```

2 "physical id"s (chips)
24 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
cpu cores : 12
siblings  : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB

```

```

From /proc/meminfo
MemTotal:      132121952 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsc_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux 185-211.jnet 2.6.32-358.18.1.el6.x86_64 #1 SMP Fri Aug 2 17:04:38 EDT
2013 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Oct 24 18:07

```

SPEC is set to: /root/cpu2006
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda3        ext4      385G      288G   78G  79% /

```

```

Additional information from dmidecode:
BIOS American Megatrends Inc. 3.0a 09/26/2013
Memory:
16x 8 GB
14x Hynix Semiconducto HMT41GR7AFR8C 8 GB 1866 MHz 2 rank
2x Hynix Semiconductor HMT41GR7AFR8C- 8 GB 1866 MHz 2 rank

```

(End of data from sysinfo program)

### General Notes

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

```

KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/root/cpu2006/libs/32:/root/cpu2006/libs/64:/root/cpu2006/sh"
OMP_NUM_THREADS = "24"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

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### General Notes (Continued)

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>  
disabled hyper-threading in OS using CPU hotplugging

### 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/Supermicro-Platform-Settings-V1.2-revB.20130719.html>  
<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

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

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.xml>  
<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>



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

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