



SPEC[®] CFP2006 Result

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Supermicro

SuperServer 6018R-MT
(X10DRL-i , Intel Xeon E5-2643 v3)

SPECfp[®]2006 = 111

SPECfp_base2006 = 107

CPU2006 license: 001176

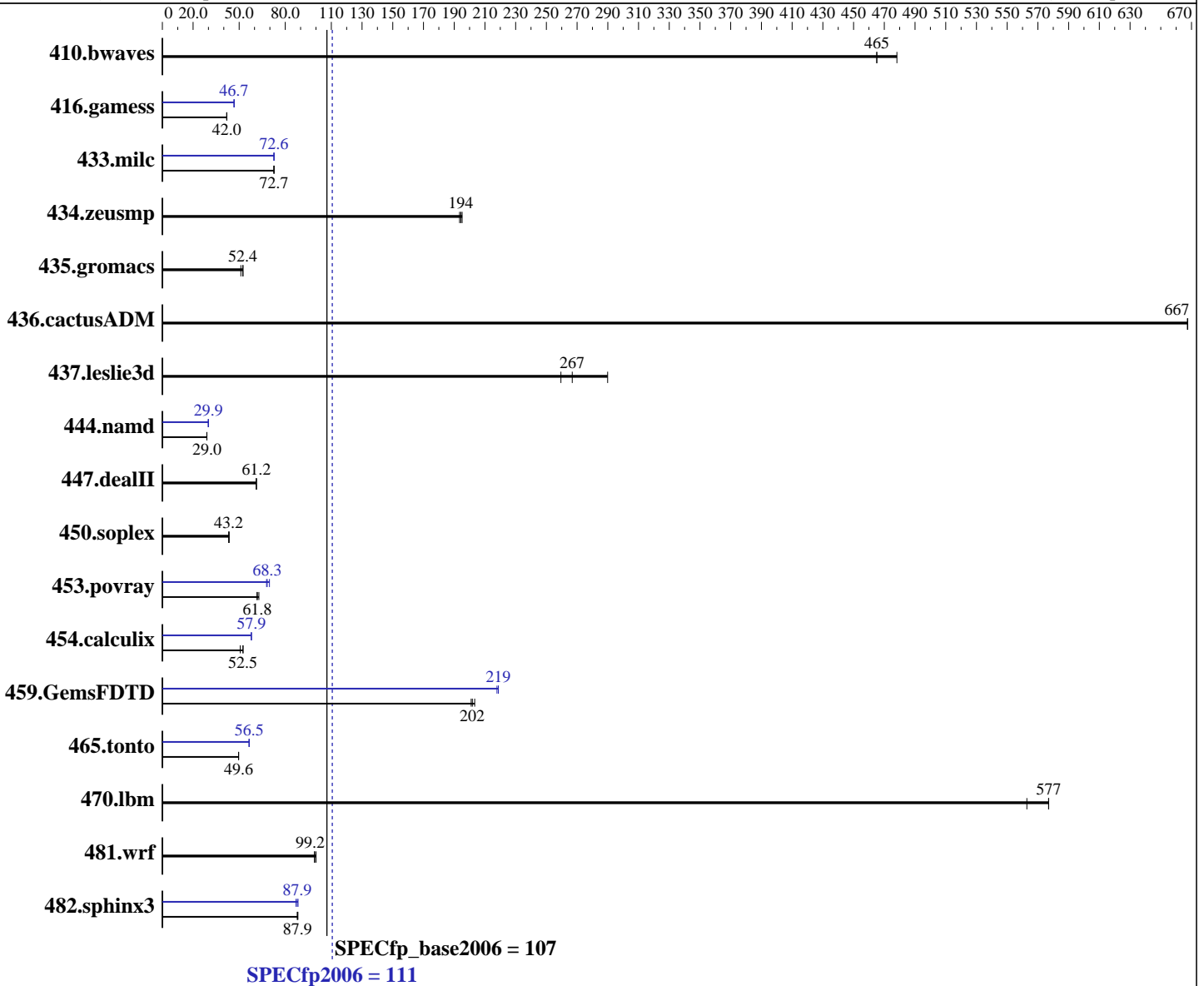
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2014

Hardware Availability: Nov-2014

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2643 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3400
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.4, Kernel 2.6.32-431.17.1.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)

Continued on next page



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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 500 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	<u>29.2</u>	465	28.4	478	29.2	465	<u>29.2</u>	465	28.4	478	29.2	465
416.gamess	467	<u>42.0</u>	467	41.9	466	42.0	419	46.7	419	46.7	<u>419</u>	46.7
433.milc	126	72.7	126	<u>72.7</u>	126	72.7	126	72.6	126	72.8	<u>126</u>	72.6
434.zeusmp	47.0	194	46.8	<u>194</u>	46.6	195	47.0	194	46.8	<u>194</u>	46.6	195
435.gromacs	140	51.1	136	52.5	136	<u>52.4</u>	140	51.1	136	52.5	136	<u>52.4</u>
436.cactusADM	17.9	667	<u>17.9</u>	667	17.9	667	17.9	667	<u>17.9</u>	667	17.9	667
437.leslie3d	32.4	290	35.2	<u>267</u>	36.2	259	32.4	290	35.2	<u>267</u>	36.2	259
444.namd	277	28.9	276	29.0	276	<u>29.0</u>	268	29.9	268	30.0	268	<u>29.9</u>
447.dealII	187	61.2	187	<u>61.2</u>	187	61.1	187	61.2	187	<u>61.2</u>	187	61.1
450.soplex	193	<u>43.2</u>	192	43.5	193	43.2	193	<u>43.2</u>	192	43.5	193	43.2
453.povray	86.4	61.6	86.0	<u>61.8</u>	84.6	62.8	78.4	67.8	76.3	69.7	77.9	<u>68.3</u>
454.calculix	157	52.5	163	50.7	157	<u>52.5</u>	142	58.0	142	<u>57.9</u>	142	57.9
459.GemsFDTD	52.2	203	52.6	<u>202</u>	52.8	201	48.7	218	48.5	219	48.5	<u>219</u>
465.tonto	198	49.7	198	<u>49.6</u>	198	49.6	174	56.5	174	<u>56.5</u>	174	56.6
470.lbm	23.8	577	23.8	<u>577</u>	24.4	563	23.8	577	23.8	<u>577</u>	24.4	563
481.wrf	113	<u>99.2</u>	112	100	113	99.0	113	<u>99.2</u>	112	100	113	99.0
482.sphinx3	222	<u>87.9</u>	222	87.9	221	88.3	221	88.3	224	87.0	222	<u>87.9</u>

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:
Enforce POR = Disable
Memory Frequency = 2133
Hyper-Threading (ALL) = Disable

Memory Configuration:

DMI info is not displayed correctly. There are only 8x 16GB Samsung memory modules installed in the system
Sysinfo program /root/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191
running on 23-125.hnet Mon Dec 15 16:49:46 2014

Continued on next page



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Platform Notes (Continued)

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 E5-2643 v3 @ 3.40GHz
 2 "physical id"s (chips)
 12 "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 : 6
siblings   : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 20480 KB
```

From /proc/meminfo

```
MemTotal:      132051560 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

/usr/bin/lsb_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 23-125.hnet 2.6.32-431.17.1.el6.x86_64 #1 SMP Fri Apr 11 17:27:00 EDT
2014 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Dec 15 11:47

SPEC is set to: /root/cpu2006

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3        ext4      260G  11G  236G   5% /
```

Additional information from dmidecode:

BIOS American Megatrends Inc. 1.0a 08/01/2014

Memory:

8x 16 GB

8x Samsung (date:14/16) M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

(End of data from sysinfo program)



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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 = "12"
```

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

Continued on next page



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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-revD.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-revD.xml>

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For other inquiries, please contact webmaster@spec.org.

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