SPEC® CFP2006 Result

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Supermicro

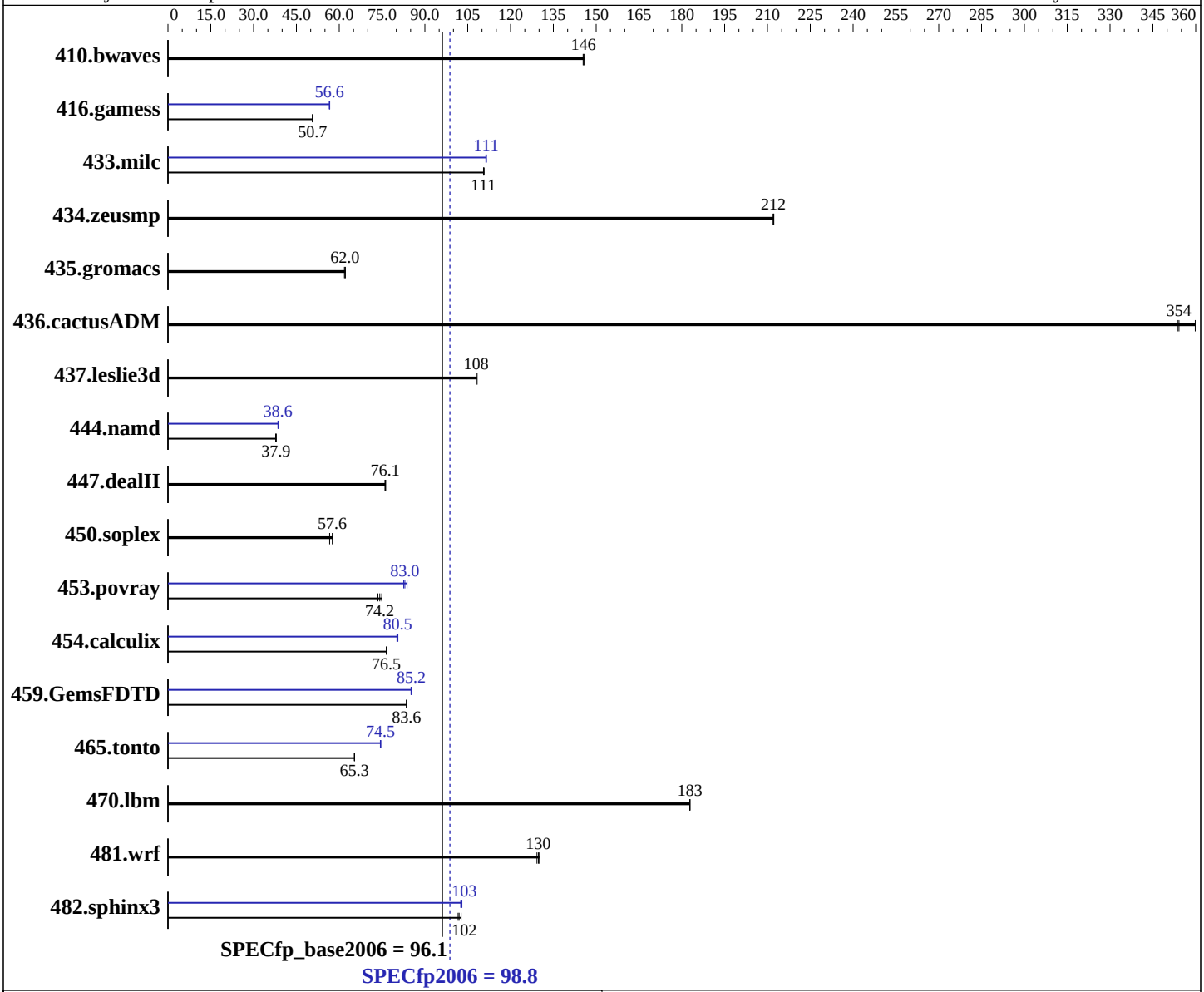
SuperServer 5029S-TN2
(X11SSV-Q , Intel Core i7-6700)

SPECfp®2006 = 98.8

SPECfp_base2006 = 96.1

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Nov-2015
Hardware Availability: Sep-2015
Software Availability: Oct-2014



Hardware

CPU Name:	Intel Core i7-6700
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3400
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
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 7.1, Kernel 3.10.0-229.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (2 x 8 GB 2Rx8 PC4-2133P-U)
Disk Subsystem: 1 x 750 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	93.4	145	93.2	146	**93.3**	**146**	93.4	145	93.2	146	**93.3**	**146**
416.gamess	386	50.7	387	50.6	**386**	**50.7**	346	56.5	**346**	**56.6**	346	56.7
433.milc	83.1	111	**83.0**	**111**	82.9	111	82.4	111	82.3	112	**82.3**	**111**
434.zeusmp	**42.9**	**212**	42.9	212	42.9	212	**42.9**	**212**	42.9	212	42.9	212
435.gromacs	115	62.1	116	61.8	**115**	**62.0**	115	62.1	116	61.8	**115**	**62.0**
436.cactusADM	33.2	360	33.8	354	**33.7**	**354**	33.2	360	33.8	354	**33.7**	**354**
437.leslie3d	86.8	108	**87.0**	**108**	87.1	108	86.8	108	**87.0**	**108**	87.1	108
444.namd	211	37.9	213	37.7	**212**	**37.9**	208	38.5	208	38.6	**208**	**38.6**
447.dealII	**150**	**76.1**	150	76.0	150	76.3	**150**	**76.1**	150	76.0	150	76.3
450.soplex	**145**	**57.6**	144	57.8	147	56.6	**145**	**57.6**	144	57.8	147	56.6
453.povray	71.0	74.9	**71.7**	**74.2**	72.3	73.5	63.5	83.8	**64.1**	**83.0**	64.4	82.6
454.calculix	108	76.6	108	76.5	**108**	**76.5**	**102**	**80.5**	102	80.6	103	80.2
459.GemsFDTD	**127**	**83.6**	127	83.6	127	83.5	125	85.1	125	85.2	**125**	**85.2**
465.tonto	151	65.3	**151**	**65.3**	151	65.3	**132**	**74.5**	132	74.6	132	74.4
470.lbm	**75.2**	**183**	75.1	183	75.2	183	**75.2**	**183**	75.1	183	75.2	183
481.wrf	85.8	130	**86.1**	**130**	86.4	129	85.8	130	**86.1**	**130**	86.4	129
482.sphinx3	192	102	190	103	**191**	**102**	189	103	190	103	**190**	**103**

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 /home/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Sat Nov 14 16:13:42 2015

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) Core(TM) i7-6700 CPU @ 3.40GHz
```

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Platform Notes (Continued)

```
        1 "physical id"s (chips)
        8 "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 : 4
        siblings  : 8
        physical 0: cores 0 1 2 3
     cache size : 8192 KB

  From /proc/meminfo
     MemTotal:       16034596 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Server"
        VERSION="7.1 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.1"
        PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
     redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
     system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

  uname -a:
     Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38
     EST 2015 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Nov 14 16:08

  SPEC is set to: /home/cpu2006
     Filesystem            Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-home xfs   216G   31G  186G  15% /home
  Additional information from dmidecode:

     Warning: Use caution when you interpret this section. The 'dmidecode' program
     reads system data which is "intended to allow hardware to be accurately
     determined", but the intent may not be met, as there are frequent changes to
     hardware, firmware, and the "DMTF SMBIOS" standard.

    BIOS American Megatrends Inc. 1.0a 11/03/2015
    Memory:
     2x Samsung M471A1G43DB0-CPB 8 GB 2 rank 2133 MHz

  (End of data from sysinfo program)
```

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 = "4"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

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:
-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.dealII: 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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.xml

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