SPEC® CFP2006 Result

Supermicro

$SPECfp®\_rate2006 =$ 195

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

$SPECfp\_rate\_base2006 =$ 189

Benchmark	Copies	Result
410.bwaves	8	140
416.gamess	8	234
416.gamess	8	224
433.milc	8	144
433.milc	8	144
434.zeusmp	8	239
435.gromacs	8	285
435.gromacs	8	274
436.cactusADM	8	253
437.leslie3d	4	105
437.leslie3d	8	95.4
444.namd	8	181
444.namd	8	179
447.dealII	8	341
450.soplex	4	121
450.soplex	8	104
453.povray	8	346
453.povray	8	310
454.calculix	8	345
459.GemsFDTD	8	79.7
465.tonto	8	228
465.tonto	8	212
470.lbm	8	187
481.wrf	8	172
481.wrf	8	170
482.sphinx3	8	190
482.sphinx3	8	191

SPECfp_rate_base2006 = 189

SPECfp_rate2006 = 195

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

Continued on next page

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: No

File System: xfs

System State: Run level 3 (multi-user)

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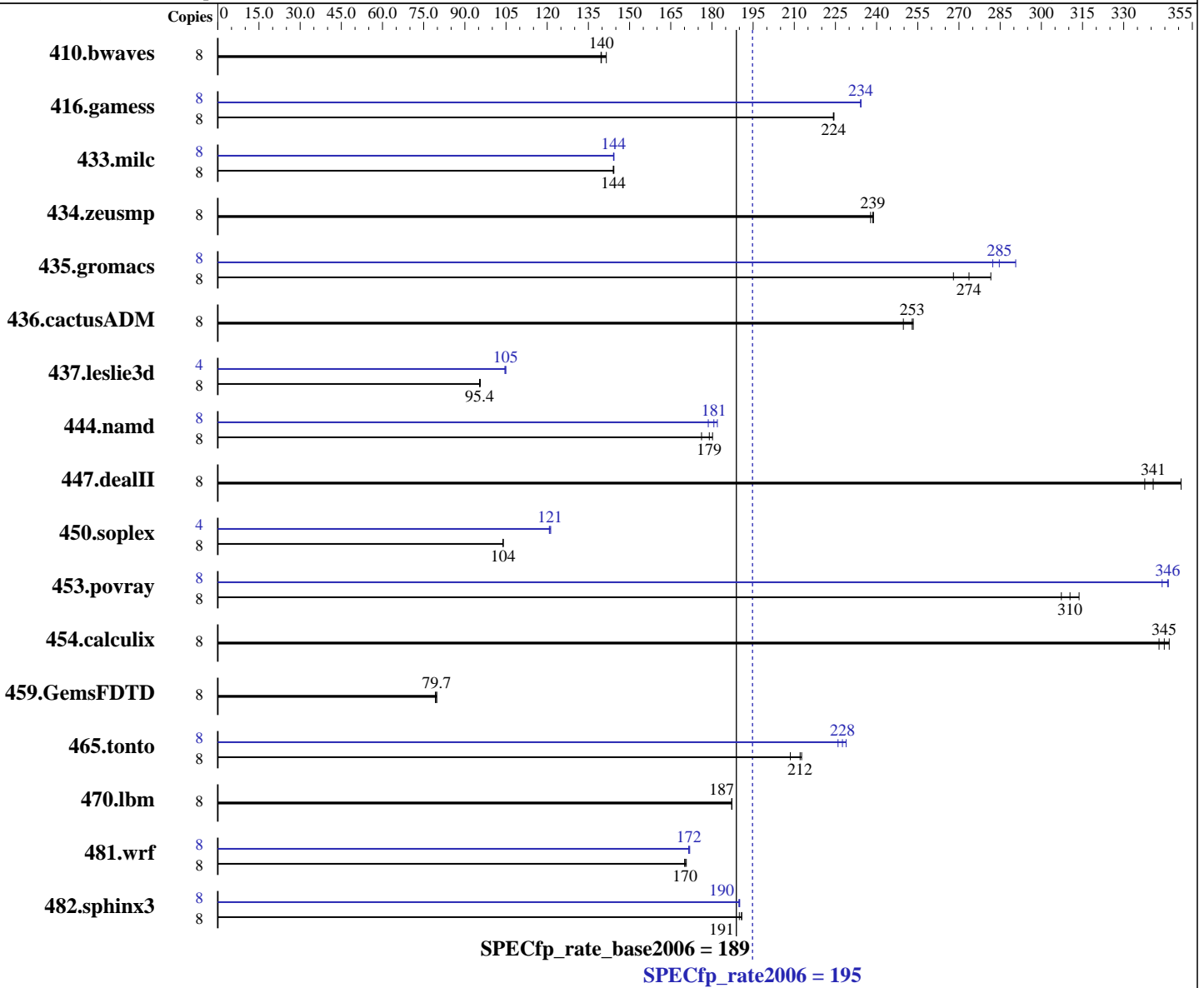|	
CPU2006 license: 001176	**Test date:** Nov-2015
Test sponsor: Supermicro	**Hardware Availability:** Sep-2015
Tested by: Supermicro	**Software Availability:** Oct-2014

L3 Cache:	8 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	16 GB (2 x 8 GB 2Rx8 PC4-2133P-U)	Other Software:	None
Disk Subsystem:	1 x 750 GB SATA III, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	768	142	**778**	**140**	779	140	8	768	142	**778**	**140**	779	140
416.gamess	8	699	224	698	224	**698**	**224**	8	**669**	**234**	669	234	669	234
433.milc	8	509	144	**510**	**144**	510	144	8	509	144	**509**	**144**	509	144
434.zeusmp	8	**305**	**239**	306	238	305	239	8	**305**	**239**	306	238	305	239
435.gromacs	8	203	282	**209**	**274**	213	268	8	**201**	**285**	197	291	202	282
436.cactusADM	8	**378**	**253**	377	253	383	250	8	**378**	**253**	377	253	383	250
437.leslie3d	8	786	95.6	**788**	**95.4**	788	95.4	4	358	105	**359**	**105**	360	105
444.namd	8	356	180	364	176	**358**	**179**	8	353	182	**355**	**181**	359	179
447.dealII	8	271	338	261	351	**269**	**341**	8	271	338	261	351	**269**	**341**
450.soplex	8	642	104	641	104	**642**	**104**	4	276	121	275	121	**276**	**121**
453.povray	8	136	314	**137**	**310**	139	307	8	**123**	**346**	123	346	124	344
454.calculix	8	190	347	192	343	**191**	**345**	8	190	347	192	343	**191**	**345**
459.GemsFDTD	8	1071	79.3	1064	79.7	**1065**	**79.7**	8	1071	79.3	1064	79.7	**1065**	**79.7**
465.tonto	8	370	213	377	209	**371**	**212**	8	344	229	348	226	**346**	**228**
470.lbm	8	587	187	**587**	**187**	587	187	8	587	187	**587**	**187**	587	187
481.wrf	8	524	171	525	170	**525**	**170**	8	520	172	**521**	**172**	521	172
482.sphinx3	8	**817**	**191**	817	191	821	190	8	821	190	820	190	**821**	**190**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

    The taskset mechanism was used to bind copies to processors. The config file option 'submit'
    was used to generate taskset commands to bind each copy to a specific processor.
    For details, please see the config file.

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 Sun Nov 15 04:10:31 2015

Supermicro

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CPU2006 license: 001176
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Tested by: Supermicro

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

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) Core(TM) i7-6700 CPU @ 3.40GHz
       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   34G  183G  16% /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.
```

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Hardware Availability: Sep-2015
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Platform Notes (Continued)

```
   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:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

 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
```

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Base Portability Flags (Continued)

```
   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 -opt-prefetch -auto-p32
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```

```
 450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

Peak Portability Flags

```
 410.bwaves: -DSPEC_CPU_LP64
 416.gamess: -DSPEC_CPU_LP64
   433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
```

Supermicro

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Test sponsor:	Supermicro	**Hardware Availability:**	Sep-2015
Tested by:	Supermicro	**Software Availability:**	Oct-2014

Peak Portability Flags (Continued)

```
   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
    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
```

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

      470.lbm: basepeak = yes

   482.sphinx3: -xCORE-AVX2 -prof-gen(pass 1) -ipo -O3 -no-prec-div
               -prof-use(pass 2) -unroll2
```

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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -opt-malloc-options=3

    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-
```

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Test sponsor:	Supermicro	**Hardware Availability:**	Sep-2015
Tested by:	Supermicro	**Software Availability:**	Oct-2014

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

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) -unroll4
-auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

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

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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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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