SPEC® CFP2006 Result
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Supermicro

SuperServer 5019S-WR
(X11SSW-F , Intel Xeon E3-1245 v5)

$SPECfp^{®}2006 = $ 96.0
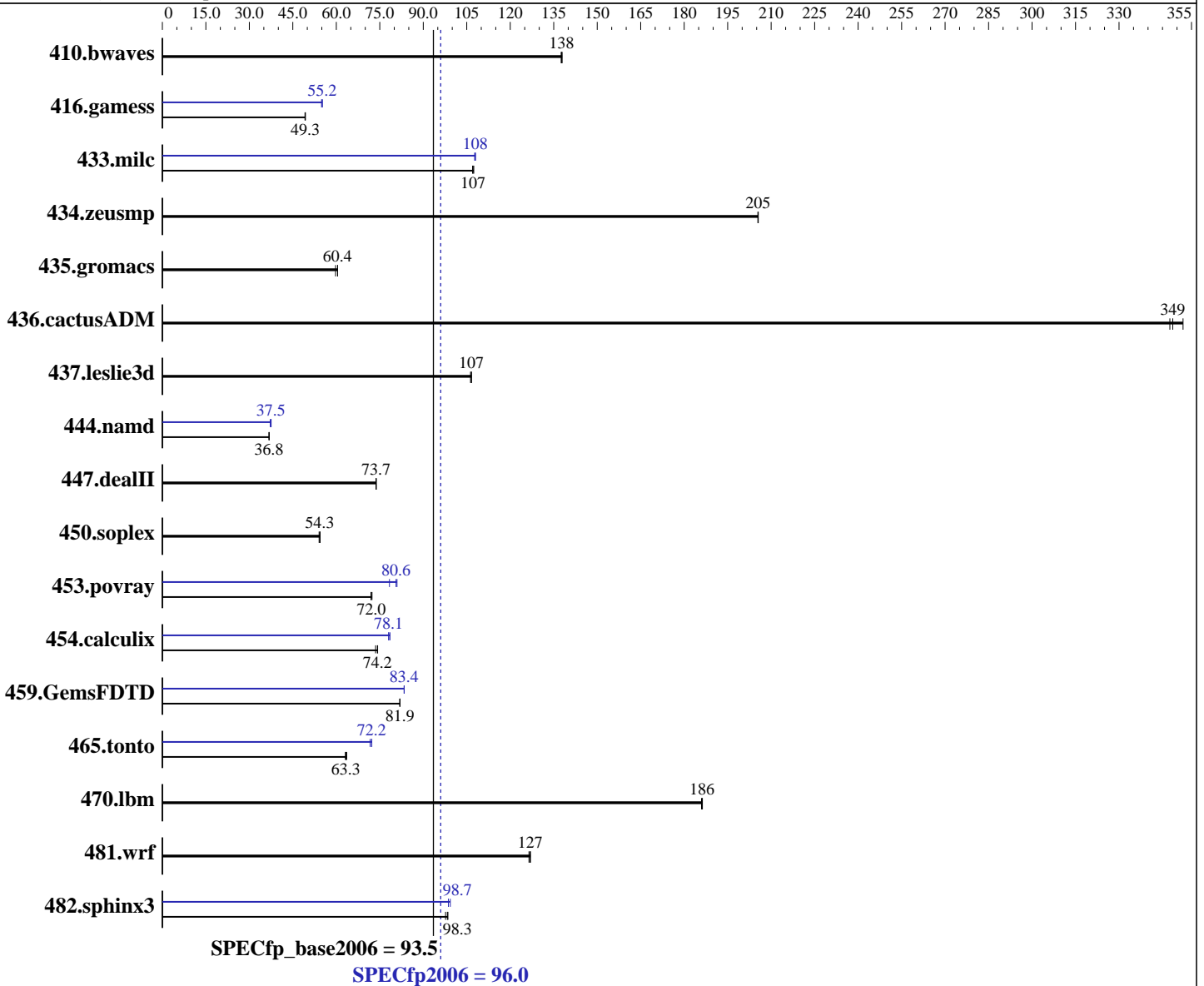
$SPECfp_base2006 = $ 93.5

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

Test date: Dec-2015
Hardware Availability: Oct-2015
Software Availability: Mar-2015

Benchmark	Result
410.bwaves	138
416.gamess	55.2 / 49.3
433.milc	108 / 107
434.zeusmp	205
435.gromacs	60.4
436.cactusADM	349
437.leslie3d	107
444.namd	37.5 / 36.8
447.dealII	73.7
450.soplex	54.3
453.povray	80.6 / 72.0
454.calculix	78.1 / 74.2
459.GemsFDTD	83.4 / 81.9
465.tonto	72.2 / 63.3
470.lbm	186
481.wrf	127
482.sphinx3	98.7 / 98.3

SPECfp_base2006 = 93.5
SPECfp2006 = 96.0

Hardware

CPU Name:	Intel Xeon E3-1245 v5
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3500
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:	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	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)	Other Software:	None
Disk Subsystem:	1 x 1000 GB SATA III, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	98.8	138	**98.7**	**138**	98.5	138	98.8	138	**98.7**	**138**	98.5	138
416.gamess	397	49.3	**397**	**49.3**	398	49.2	355	55.2	**355**	**55.2**	357	54.9
433.milc	85.8	107	85.5	107	**85.6**	**107**	85.0	108	85.2	108	**85.1**	**108**
434.zeusmp	**44.3**	**205**	44.3	206	44.3	205	**44.3**	**205**	44.3	206	44.3	205
435.gromacs	118	60.5	119	59.8	**118**	**60.4**	118	60.5	119	59.8	**118**	**60.4**
436.cactusADM	33.9	352	**34.3**	**349**	34.4	348	33.9	352	**34.3**	**349**	34.4	348
437.leslie3d	88.4	106	88.1	107	**88.2**	**107**	88.4	106	88.1	107	**88.2**	**107**
444.namd	218	36.9	**218**	**36.8**	218	36.8	214	37.5	216	37.2	**214**	**37.5**
447.dealII	155	73.7	155	73.8	**155**	**73.7**	155	73.7	155	73.8	**155**	**73.7**
450.soplex	153	54.4	154	54.1	**154**	**54.3**	153	54.4	154	54.1	**154**	**54.3**
453.povray	**73.8**	**72.0**	73.6	72.3	73.9	72.0	67.9	78.3	**66.0**	**80.6**	65.7	80.9
454.calculix	111	74.3	**111**	**74.2**	112	73.6	105	78.5	106	78.1	**106**	**78.1**
459.GemsFDTD	129	82.0	**130**	**81.9**	130	81.9	127	83.4	**127**	**83.4**	127	83.4
465.tonto	155	63.6	156	63.1	**155**	**63.3**	**136**	**72.2**	137	71.7	136	72.2
470.lbm	73.9	186	**73.8**	**186**	73.8	186	73.9	186	**73.8**	**186**	73.8	186
481.wrf	88.0	127	88.3	126	**88.0**	**127**	88.0	127	88.3	126	**88.0**	**127**
482.sphinx3	198	98.5	**198**	**98.3**	200	97.7	198	98.7	196	99.3	**198**	**98.7**

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 Tue Dec 22 19:48:42 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) Xeon(R) CPU E3-1245 v5 @ 3.50GHz
```

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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:       65755200 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 Dec 22 19:46

SPEC is set to: /home/cpu2006
   Filesystem              Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   865G  170G  696G  20% /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. 1.0 11/03/2015
  Memory:
  4x Samsung M391A2K43BB1-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
```

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CPU2006 license: 001176		**Test date:**	Dec-2015
Test sponsor:	Supermicro	**Hardware Availability:**	Oct-2015
Tested by:	Supermicro	**Software Availability:**	Mar-2015

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
```

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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
```

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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

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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

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

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