SPEC® CFP2006 Result

Supermicro

SuperServer SYS-7047R-TRF
(X9DRi-F, Intel Xeon E5-2670 v2)

$SPECfp^{®}2006 =$ 101

$SPECfp\_base2006 =$ 96.3

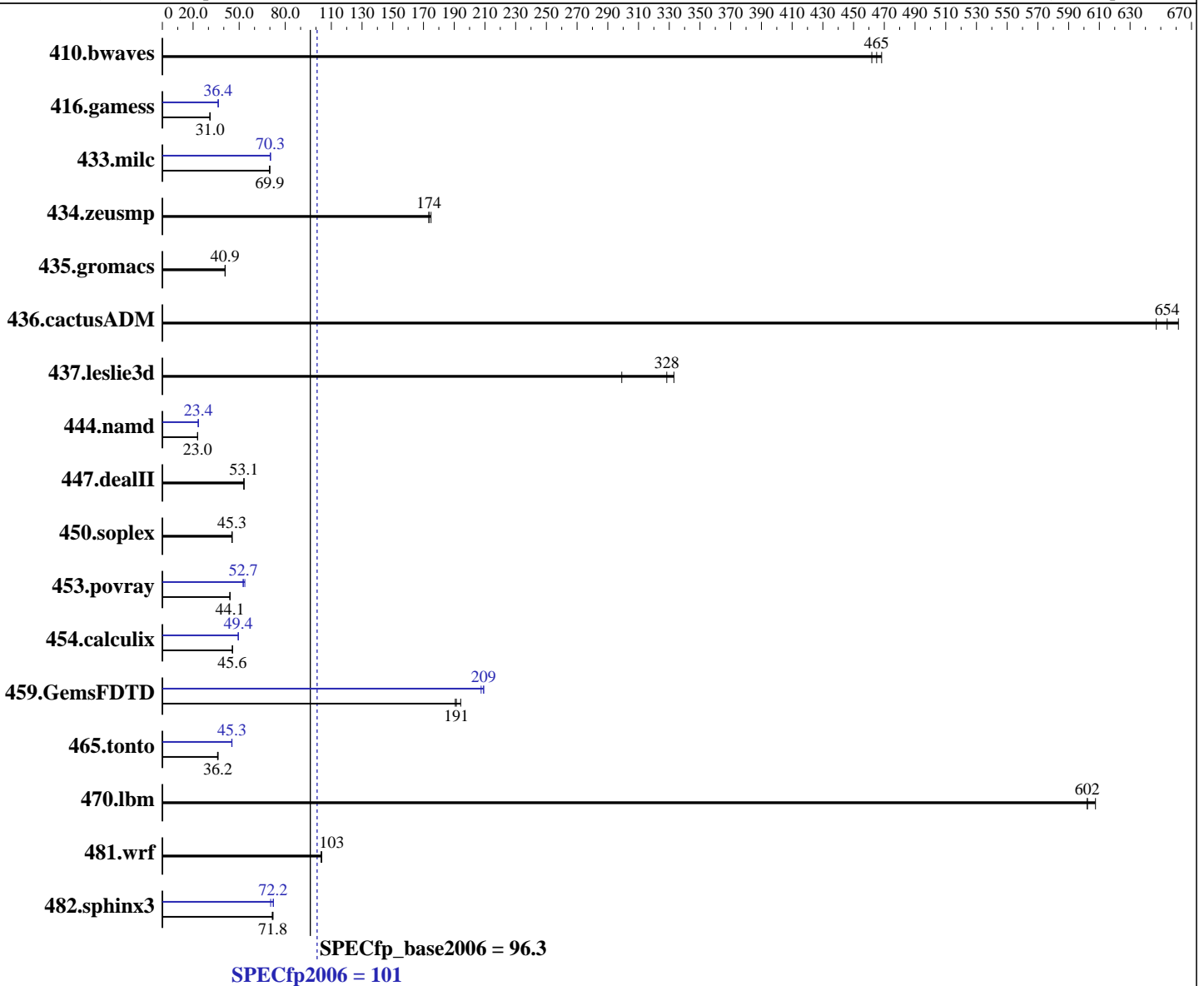**CPU2006 license:** 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Oct-2013
Hardware Availability: Oct-2013
Software Availability: Sep-2013

Benchmark	Result
410.bwaves	465
416.gamess	36.4 / 31.0
433.milc	70.3 / 69.9
434.zeusmp	174
435.gromacs	40.9
436.cactusADM	654
437.leslie3d	328
444.namd	23.4 / 23.0
447.dealII	53.1
450.soplex	45.3
453.povray	52.7 / 44.1
454.calculix	49.4 / 45.6
459.GemsFDTD	209 / 191
465.tonto	45.3 / 36.2
470.lbm	602
481.wrf	103
482.sphinx3	72.2 / 71.8

SPECfp_base2006 = 96.3
SPECfp2006 = 101

Hardware

CPU Name:	Intel Xeon E5-2670 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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 2.6.32-358.18.1.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:	25 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)	Other Software:	None
Disk Subsystem:	1 x 500 GB SATA, 5400 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	29.4	462	29.0	468	**29.2**	**465**	29.4	462	29.0	468	**29.2**	**465**
416.gamess	632	31.0	**632**	**31.0**	631	31.0	**538**	**36.4**	538	36.4	539	36.3
433.milc	131	69.8	131	69.9	**131**	**69.9**	130	70.4	131	70.3	**131**	**70.3**
434.zeusmp	52.4	174	52.0	175	**52.4**	**174**	52.4	174	52.0	175	**52.4**	**174**
435.gromacs	175	40.8	**175**	**40.9**	175	40.9	175	40.8	**175**	**40.9**	175	40.9
436.cactusADM	**18.3**	**654**	18.1	661	18.5	647	**18.3**	**654**	18.1	661	18.5	647
437.leslie3d	28.2	333	31.4	299	**28.6**	**328**	28.2	333	31.4	299	**28.6**	**328**
444.namd	349	23.0	349	23.0	**349**	**23.0**	343	23.4	**343**	**23.4**	343	23.4
447.dealII	**215**	**53.1**	215	53.1	215	53.1	**215**	**53.1**	215	53.1	215	53.1
450.soplex	183	45.5	**184**	**45.3**	184	45.3	183	45.5	**184**	**45.3**	184	45.3
453.povray	**121**	**44.1**	121	44.1	121	43.9	101	52.6	**101**	**52.7**	99.1	53.7
454.calculix	181	45.6	181	45.7	**181**	**45.6**	167	49.4	**167**	**49.4**	167	49.4
459.GemsFDTD	54.6	194	55.6	191	**55.4**	**191**	51.1	208	**50.7**	**209**	50.7	209
465.tonto	**272**	**36.2**	274	35.9	271	36.3	218	45.2	**217**	**45.3**	217	45.3
470.lbm	**22.8**	**602**	22.6	607	22.8	602	**22.8**	**602**	22.6	607	22.8	602
481.wrf	**108**	**103**	108	104	108	103	**108**	**103**	108	104	108	103
482.sphinx3	**271**	**71.8**	272	71.5	270	72.1	269	72.3	**270**	**72.2**	276	70.5

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

    Hyper-threading disabled in BIOS Setup.

General Notes

    Environment variables set by runspec before the start of the run:
    KMP_AFFINITY = "granularity=fine,compact,0,1"
    LD_LIBRARY_PATH = "/home/cpu/libs/32:/home/cpu/libs/64:/home/cpu/sh"
    OMP_NUM_THREADS = "20"

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General Notes (Continued)

```
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.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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Test date: Oct-2013

Hardware Availability: Oct-2013

Software Availability: Sep-2013

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

Tested with SPEC CPU2006 v1.2.
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