SPEC® CFP2006 Result
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Supermicro

$SPECfp^{®}2006 =$ 71.4

SuperWorkstation 7047A-T (X9DAI, Intel E5-2650)

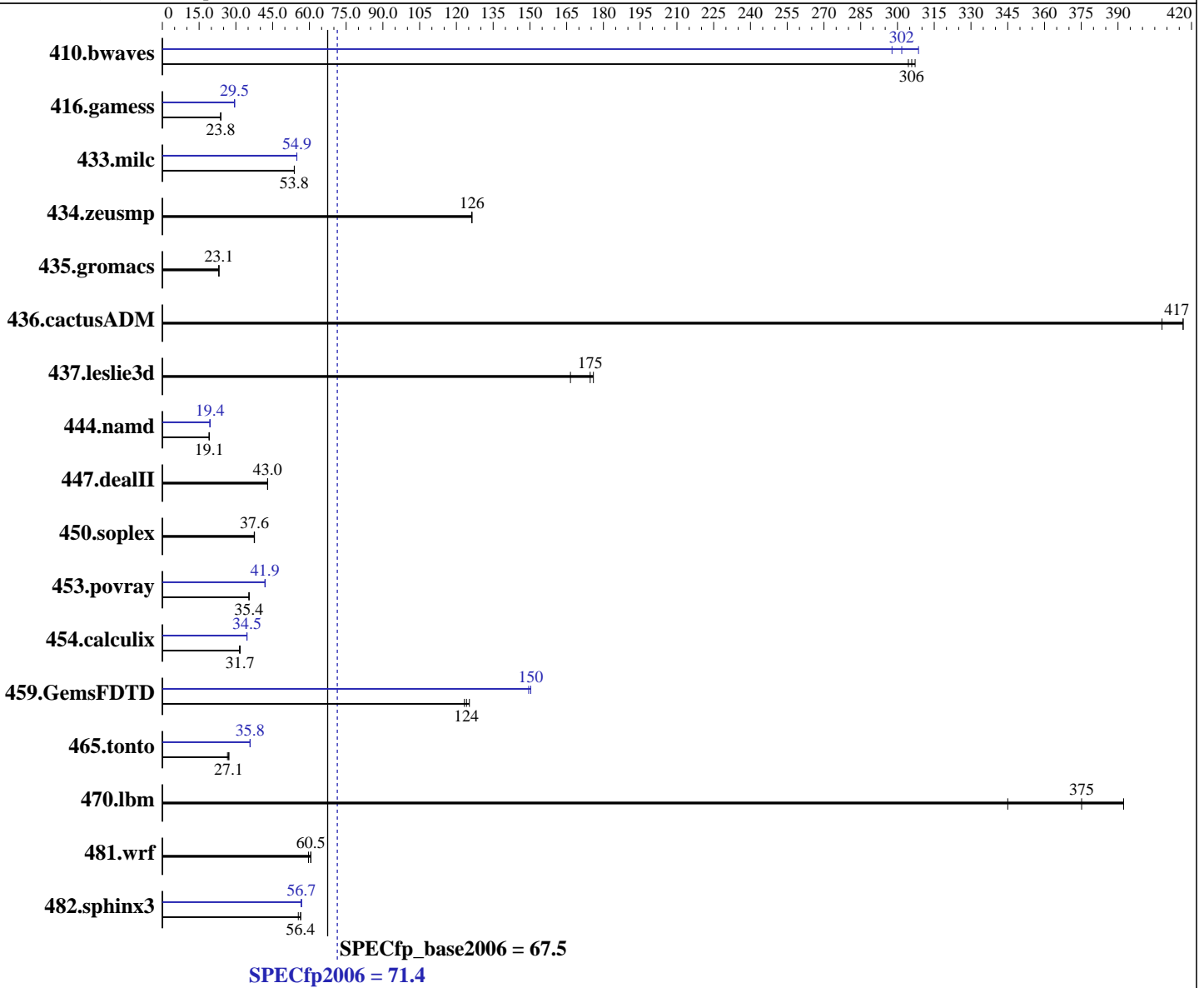$SPECfp\_base2006 =$ 67.5

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

Test date: Apr-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011

Benchmark	Result
410.bwaves	302 / 306
416.gamess	29.5 / 23.8
433.milc	54.9 / 53.8
434.zeusmp	126
435.gromacs	23.1
436.cactusADM	417
437.leslie3d	175
444.namd	19.4 / 19.1
447.dealII	43.0
450.soplex	37.6
453.povray	41.9 / 35.4
454.calculix	34.5 / 31.7
459.GemsFDTD	150 / 124
465.tonto	35.8 / 27.1
470.lbm	375
481.wrf	60.5
482.sphinx3	56.7 / 56.4

SPECfp_base2006 = 67.5
SPECfp2006 = 71.4

Hardware

CPU Name:	Intel Xeon E5-2650
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip, 2 threads/core
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 6.2 (Santiago), Kernel 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

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L3 Cache:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 x 1 TB SATA II, 7200 RPM
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	44.6	304	44.2	307	**44.4**	**306**	44.0	309	45.6	298	**45.0**	**302**
416.gamess	**822**	**23.8**	822	23.8	823	23.8	**664**	**29.5**	664	29.5	666	29.4
433.milc	170	53.9	171	53.8	**170**	**53.8**	**167**	**54.9**	167	54.9	167	54.9
434.zeusmp	72.0	126	**72.0**	**126**	72.0	126	72.0	126	**72.0**	**126**	72.0	126
435.gromacs	310	23.0	309	23.1	**309**	**23.1**	310	23.0	309	23.1	**309**	**23.1**
436.cactusADM	**28.7**	**417**	29.3	408	28.7	417	**28.7**	**417**	29.3	408	28.7	417
437.leslie3d	56.4	167	**53.8**	**175**	53.4	176	56.4	167	**53.8**	**175**	53.4	176
444.namd	420	19.1	420	19.1	**420**	**19.1**	413	19.4	413	19.4	**413**	**19.4**
447.dealII	266	43.0	**266**	**43.0**	266	42.9	266	43.0	**266**	**43.0**	266	42.9
450.soplex	**222**	**37.6**	222	37.5	222	37.6	**222**	**37.6**	222	37.5	222	37.6
453.povray	150	35.4	151	35.3	**150**	**35.4**	**127**	**41.9**	127	42.0	127	41.9
454.calculix	262	31.4	**260**	**31.7**	260	31.7	239	34.5	239	34.6	**239**	**34.5**
459.GemsFDTD	84.7	125	86.1	123	**85.5**	**124**	70.6	150	**70.6**	**150**	71.0	149
465.tonto	**363**	**27.1**	370	26.6	362	27.2	275	35.8	**275**	**35.8**	275	35.8
470.lbm	**36.6**	**375**	39.8	345	35.0	392	**36.6**	**375**	39.8	345	35.0	392
481.wrf	187	59.6	**184**	**60.5**	184	60.6	187	59.6	**184**	**60.5**	184	60.6
482.sphinx3	**346**	**56.4**	345	56.4	351	55.5	**344**	**56.7**	343	56.8	344	56.7

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

```
The system used an ATI Radeon HD 4870 X2 graphics card
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"
OMP_NUM_THREADS = "16"
```

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General Notes (Continued)

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_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:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -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) -static -auto-ilp32
          -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
             -parallel
```

C++ benchmarks:

Continued on next page

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Peak Optimization Flags (Continued)

```
  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

 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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
            -static

 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- -static

 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 file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml

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Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 04:55:54 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 May 2012.