SPEC® CFP2006 Result
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Supermicro

SuperServer 5038AD-T (C7Z87-OCE, Intel Core i7-4770, 3.40 GHz)

$SPECfp^{®}\_rate2006 = \qquad 149$

$SPECfp\_rate\_base2006 = \qquad 144$
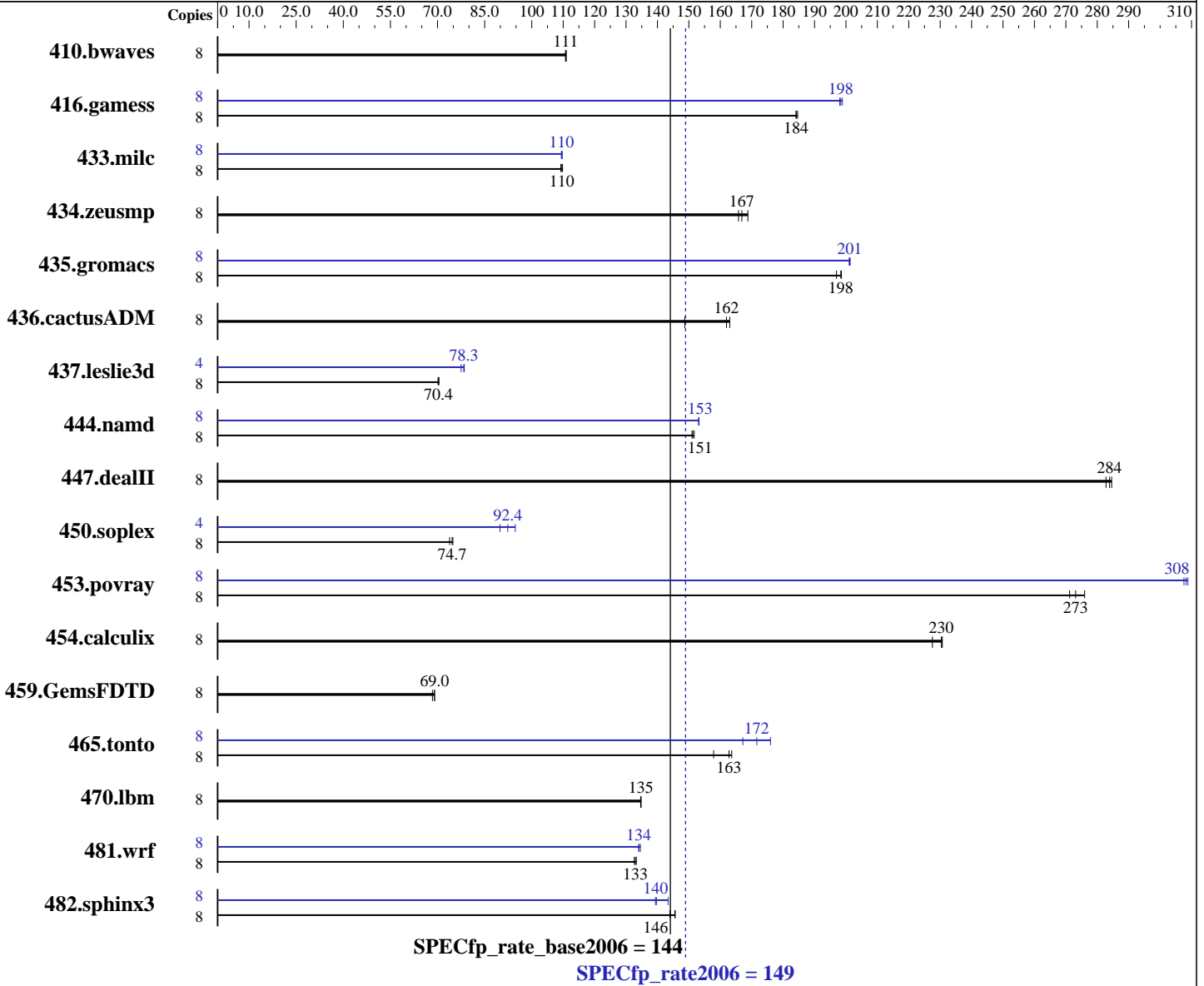
CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Jun-2013
Hardware Availability: Jun-2013
Software Availability: May-2013

Copies

Benchmark	Copies	Value
410.bwaves	8	111
416.gamess	8 / 8	198 / 184
433.milc	8 / 8	110 / 110
434.zeusmp	8	167
435.gromacs	8 / 8	201 / 198
436.cactusADM	8	162
437.leslie3d	4 / 8	78.3 / 70.4
444.namd	8 / 8	153 / 151
447.dealII	8	284
450.soplex	4 / 8	92.4 / 74.7
453.povray	8 / 8	308 / 273
454.calculix	8	230
459.GemsFDTD	8	69.0
465.tonto	8 / 8	172 / 163
470.lbm	8	135
481.wrf	8 / 8	134 / 133
482.sphinx3	8 / 8	140 / 146

SPECfp_rate_base2006 = 144
SPECfp_rate2006 = 149

Hardware
CPU Name: Intel Core i7-4770
CPU Characteristics: Intel Turbo Boost Technology up to 3.90 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 6.4, Kernel 2.6.32-358.el6.x86_64
Compiler: C/C++: Version 13.1.1.163 of Intel C++ Studio XE for Linux;
Fortran: Version 13.1.1.163 of Intel Fortran Studio XE for Linux
Auto Parallel: No
File System: ext4
System State: Run level 3 (multi-user)
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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 (4 x 4 GB 2Rx4 PC3-12800U-11)	Other Software:	None
Disk Subsystem:	1 x 300 GB SATA II, 10000 RPM		
Other Hardware:	None		

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	980	111	982	111	**981**	**111**	8	980	111	982	111	**981**	**111**
416.gamess	8	848	185	**850**	**184**	851	184	8	788	199	791	198	**790**	**198**
433.milc	8	669	110	672	109	**670**	**110**	8	**671**	**110**	669	110	671	109
434.zeusmp	8	439	166	**436**	**167**	431	169	8	439	166	**436**	**167**	431	169
435.gromacs	8	**288**	**198**	290	197	288	199	8	**284**	**201**	284	201	284	201
436.cactusADM	8	586	163	643	149	**590**	**162**	8	586	163	643	149	**590**	**162**
437.leslie3d	8	**1069**	**70.4**	1068	70.4	1072	70.2	4	485	77.5	**480**	**78.3**	479	78.5
444.namd	8	423	152	425	151	**424**	**151**	8	419	153	419	153	**419**	**153**
447.dealII	8	322	285	**322**	**284**	324	283	8	322	285	**322**	**284**	324	283
450.soplex	8	891	74.9	**894**	**74.7**	904	73.8	4	**361**	**92.4**	352	94.8	371	89.9
453.povray	8	157	271	**156**	**273**	154	276	8	**138**	**308**	138	309	138	308
454.calculix	8	286	231	290	228	**286**	**230**	8	286	231	290	228	**286**	**230**
459.GemsFDTD	8	1241	68.4	1229	69.1	**1229**	**69.0**	8	1241	68.4	1229	69.1	**1229**	**69.0**
465.tonto	8	499	158	481	164	**484**	**163**	8	471	167	447	176	**459**	**172**
470.lbm	8	816	135	**816**	**135**	816	135	8	816	135	**816**	**135**	816	135
481.wrf	8	**672**	**133**	674	133	670	133	8	664	135	667	134	**666**	**134**
482.sphinx3	8	1083	144	**1071**	**146**	1070	146	8	1087	143	1119	139	**1116**	**140**

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"

General Notes

   Environment variables set by runspec before the start of the run:
   LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

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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:
    -xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
    -ansi-alias

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Base Optimization Flags (Continued)

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

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

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

Peak Compiler Invocation

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

482.sphinx3: `icc -m32`

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

450.soplex: `icpc -m32`

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
     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
```

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Peak Portability Flags (Continued)

481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

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) -static`
`-auto-ilp32`

470.lbm: `basepeak = yes`

482.sphinx3: `-xCORE-AVX2 -ipo -O3 -no-prec-div -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- -static`

434.zeusmp: `basepeak = yes`

437.leslie3d: `-xCORE-AVX2 -ipo -O3 -no-prec-div -static -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`

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Peak Optimization Flags (Continued)

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 -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.html
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.20130702.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revB.20130719.xml
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.20130702.xml

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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