SPEC® CFP2006 Result

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Supermicro

Supermicro C7P67 motherboard (Intel Core i7-3770, 3.40 GHz)

$SPECfp^{®}\_rate2006 =$ 142

$SPECfp\_rate\_base2006 =$ 139

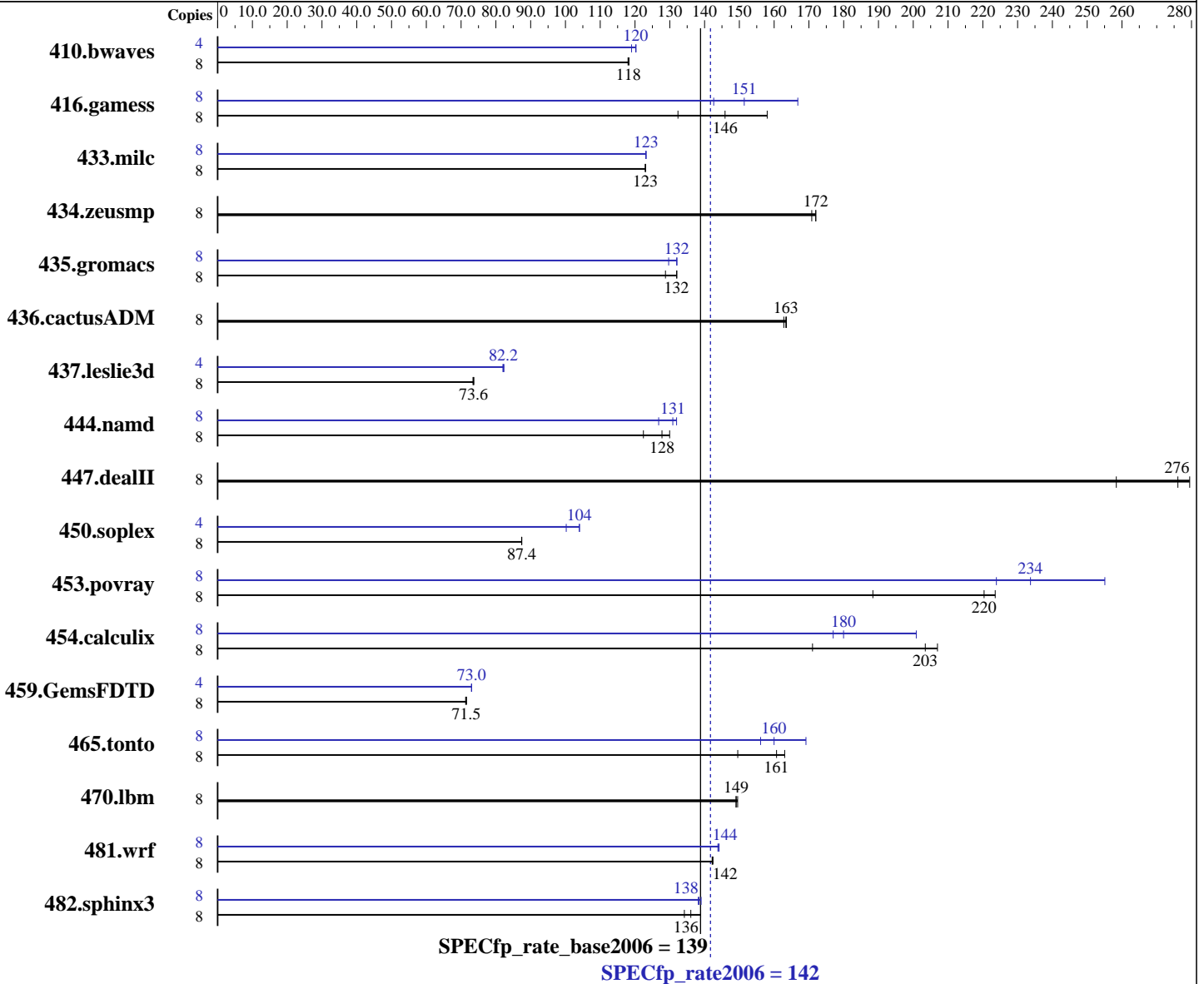Copies / benchmark chart:

Benchmark	Copies	Result
410.bwaves	4	120
410.bwaves	8	118
416.gamess	8	151
416.gamess	8	146
433.milc	8	123
433.milc	8	123
434.zeusmp	8	172
435.gromacs	8	132
435.gromacs	8	132
436.cactusADM	8	163
437.leslie3d	4	82.2
437.leslie3d	8	73.6
444.namd	8	131
444.namd	8	128
447.dealII	8	276
450.soplex	4	104
450.soplex	8	87.4
453.povray	8	234
453.povray	8	220
454.calculix	8	180
454.calculix	8	203
459.GemsFDTD	4	73.0
459.GemsFDTD	8	71.5
465.tonto	8	160
465.tonto	8	161
470.lbm	8	149
481.wrf	8	144
481.wrf	8	142
482.sphinx3	8	138
482.sphinx3	8	136

SPECfp_rate_base2006 = 139

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Hardware

CPU Name:	Intel Core i7-3770
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 6.2, 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:	No
File System:	ext4
System State:	Run level 3 (multi-user)

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Test sponsor: Supermicro	
Tested by: Supermicro	

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

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 2Rx8 PC3-14900U-13)	Other Software:	None
Disk Subsystem:	1 x 120 GB OCZ SSD		
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	921	118	**920**	**118**	919	118	4	452	120	457	119	**452**	**120**
416.gamess	8	1184	132	**1074**	**146**	991	158	8	939	167	**1035**	**151**	1098	143
433.milc	8	597	123	597	123	**597**	**123**	8	**596**	**123**	596	123	596	123
434.zeusmp	8	423	172	**423**	**172**	426	171	8	423	172	**423**	**172**	426	171
435.gromacs	8	444	129	433	132	**433**	**132**	8	432	132	**433**	**132**	440	130
436.cactusADM	8	587	163	**585**	**163**	585	164	8	587	163	**585**	**163**	585	164
437.leslie3d	8	1024	73.4	**1022**	**73.6**	1021	73.7	4	457	82.3	**458**	**82.2**	458	82.0
444.namd	8	524	122	**502**	**128**	494	130	8	486	132	**490**	**131**	506	127
447.dealII	8	354	258	**331**	**276**	327	279	8	354	258	**331**	**276**	327	279
450.soplex	8	764	87.4	**763**	**87.4**	763	87.4	4	**321**	**104**	321	104	333	100
453.povray	8	226	188	**193**	**220**	190	224	8	167	255	**182**	**234**	190	224
454.calculix	8	386	171	**324**	**203**	319	207	8	329	201	**367**	**180**	373	177
459.GemsFDTD	8	1190	71.3	1186	71.6	**1188**	**71.5**	4	581	73.0	581	73.0	**581**	**73.0**
465.tonto	8	526	150	483	163	**490**	**161**	8	465	169	**492**	**160**	504	156
470.lbm	8	735	150	**737**	**149**	737	149	8	735	150	**737**	**149**	737	149
481.wrf	8	628	142	627	142	**628**	**142**	8	620	144	621	144	**620**	**144**
482.sphinx3	8	**1146**	**136**	1162	134	1123	139	8	**1127**	**138**	1122	139	1128	138

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"
    Transparent Huge Pages disabled with:
    echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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Platform Notes

```
As tested, the system used a Supermicro CSE-732D2-500B chassis.
The chassis is configured with a PWS-502-PQ power supply, 1 SNK-P0046A4 heatsink,
as well as 1 FAN-0124L4 front cooling fan and 1 FAN-0124L4 rear exhaust fan.
BIOS configuration:
Memory Timing Selection = Manual
Memory Frequency = Force DDR-1866MHz
```

General Notes

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

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
```

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
```

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Base Portability Flags (Continued)

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

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

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

Benchmarks using both Fortran and C:
```
-xAVX -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
```

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Peak Portability Flags (Continued)

```
  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
    465.tonto: -DSPEC_CPU_LP64
     470.lbm: -DSPEC_CPU_LP64
     481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

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

     470.lbm: basepeak = yes

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

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

   447.dealII: basepeak = yes

   450.soplex: -xAVX(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: -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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -prof-use(pass 2) -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
```

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Peak Optimization Flags (Continued)

437.leslie3d: `-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch`

459.GemsFDTD: `-xAVX(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`

465.tonto: `-xAVX(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: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `Same as 454.calculix`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.20120625.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.20120625.xml

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

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