SPEC® CFP2006 Result

Supermicro

$SPECfp^{®}\_rate2006 = 517$

Supermicro Processor Blade SBI-7127RG-E
(B9DRG-E, Intel Xeon E5-2643 v2)

$SPECfp\_rate\_base2006 = 506$

CPU2006 license: 001176		**Test date:**	Dec-2013
Test sponsor: Supermicro		**Hardware Availability:**	Sep-2013
Tested by: Supermicro		**Software Availability:**	Sep-2013

SPECfp_rate_base2006 = 506

SPECfp_rate2006 = 517

Hardware	
CPU Name:	Intel Xeon E5-2643 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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 6.4, Kernel 2.6.32-358.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:	No
File System:	ext4
System State:	Run level 3 (multi-user)

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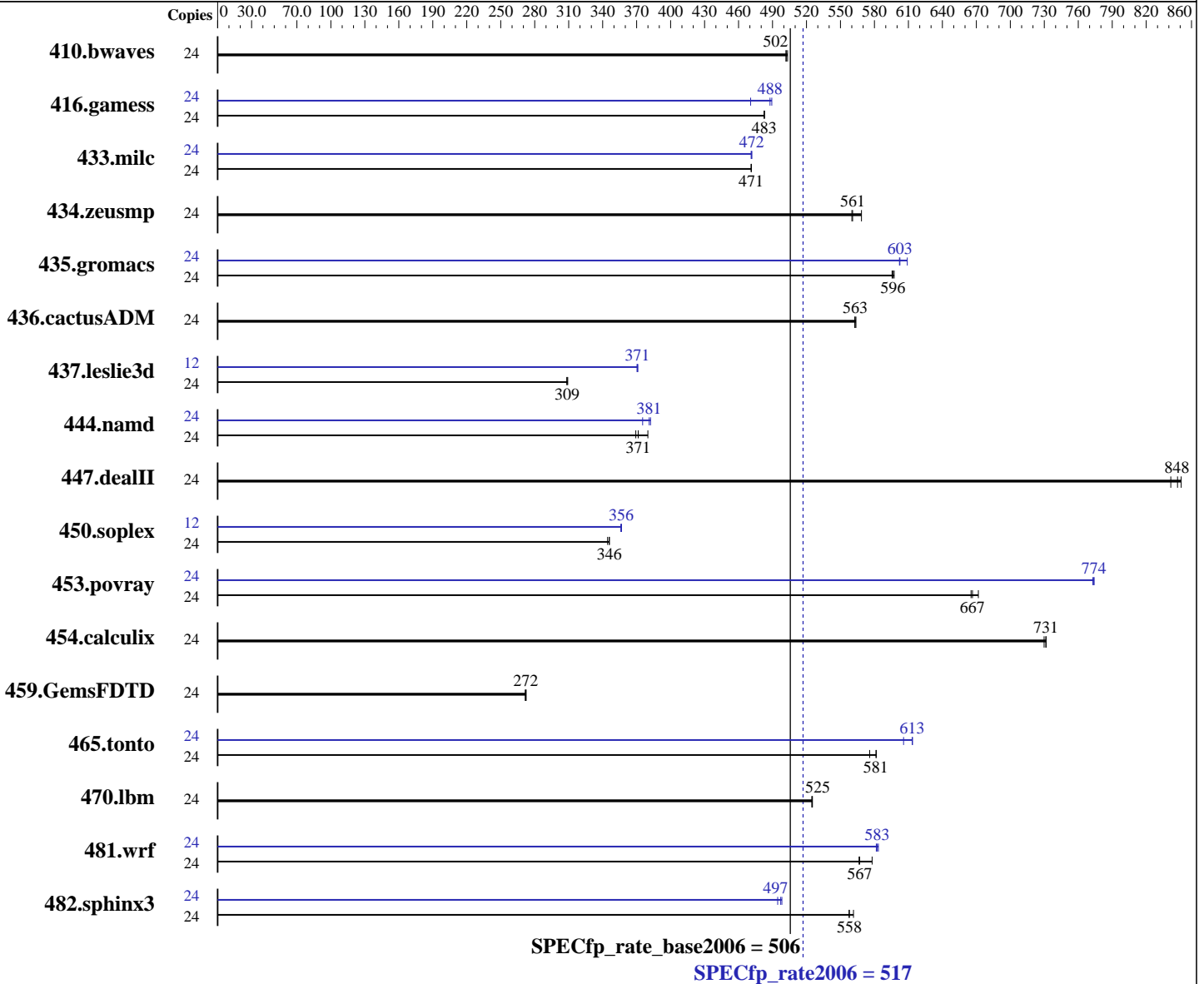|	
CPU2006 license: 001176	**Test date:** Dec-2013
Test sponsor: Supermicro	**Hardware Availability:** Sep-2013
Tested by: Supermicro	**Software Availability:** Sep-2013

L3 Cache:	25 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)	Other Software:	None
Disk Subsystem:	1 x 400 GB SSD		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	650	502	648	503	**650**	**502**	24	650	502	648	503	**650**	**502**
416.gamess	24	973	483	974	483	**974**	**483**	24	998	471	**963**	**488**	960	489
433.milc	24	467	471	**468**	**471**	468	471	24	**467**	**472**	467	472	468	471
434.zeusmp	24	390	560	384	569	**389**	**561**	24	390	560	384	569	**389**	**561**
435.gromacs	24	287	597	288	596	**287**	**596**	24	281	609	285	602	**284**	**603**
436.cactusADM	24	509	564	510	563	**509**	**563**	24	509	564	510	563	**509**	**563**
437.leslie3d	24	**731**	**309**	730	309	732	308	12	**304**	**371**	304	371	305	370
444.namd	24	507	380	521	369	**518**	**371**	24	503	382	513	375	**505**	**381**
447.dealII	24	323	851	**324**	**848**	326	842	24	323	851	**324**	**848**	326	842
450.soplex	24	581	344	579	346	**579**	**346**	12	**281**	**356**	281	357	281	356
453.povray	24	**192**	**667**	190	672	192	665	24	**165**	**774**	165	773	165	774
454.calculix	24	**271**	**731**	271	732	271	730	24	**271**	**731**	271	732	271	730
459.GemsFDTD	24	**935**	**272**	938	272	935	272	24	**935**	**272**	938	272	935	272
465.tonto	24	410	576	**406**	**581**	406	582	24	385	614	390	606	**385**	**613**
470.lbm	24	628	525	628	525	**628**	**525**	24	628	525	628	525	**628**	**525**
481.wrf	24	473	566	**473**	**567**	464	578	24	**460**	**583**	461	582	459	584
482.sphinx3	24	833	562	839	558	**838**	**558**	24	939	498	946	495	**941**	**497**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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 = "/home/spec/libs/32:/home/spec/libs/64:/home/spec/sh"

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$SPECfp\_rate2006 = 517$

$SPECfp\_rate\_base2006 = 506$

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Test sponsor:	Supermicro	**Hardware Availability:**	Sep-2013
Tested by:	Supermicro	**Software Availability:**	Sep-2013

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
Filesystem page cache cleared with:
echo 1>        /proc/sys/vm/drop_caches
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
```

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$SPECfp\_rate2006 = 517$

$SPECfp\_rate\_base2006 = 506$

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

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

Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

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

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3
```

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
```

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SPECfp_rate2006 =   517

SPECfp_rate_base2006 =   506

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

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

Peak Portability Flags (Continued)

```
    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
```

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) -opt-mem-layout-trans=3(pass 2)
               -prof-use(pass 2) -auto-ilp32

      470.lbm: basepeak = yes

   482.sphinx3: -xAVX -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
               -unroll2
```

C++ benchmarks:

```
    444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch
```

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$SPECfp_rate2006 = $ 517

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Test sponsor:	Supermicro	**Hardware Availability:**	Sep-2013
Tested by:	Supermicro	**Software Availability:**	Sep-2013

Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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-revB.20130719.html

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-revB.20130719.xml

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