SPEC® CFP2006 Result
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Supermicro

SuperServer 6017B-MTRF (X9DBL-iF, Intel Xeon E5-2470)
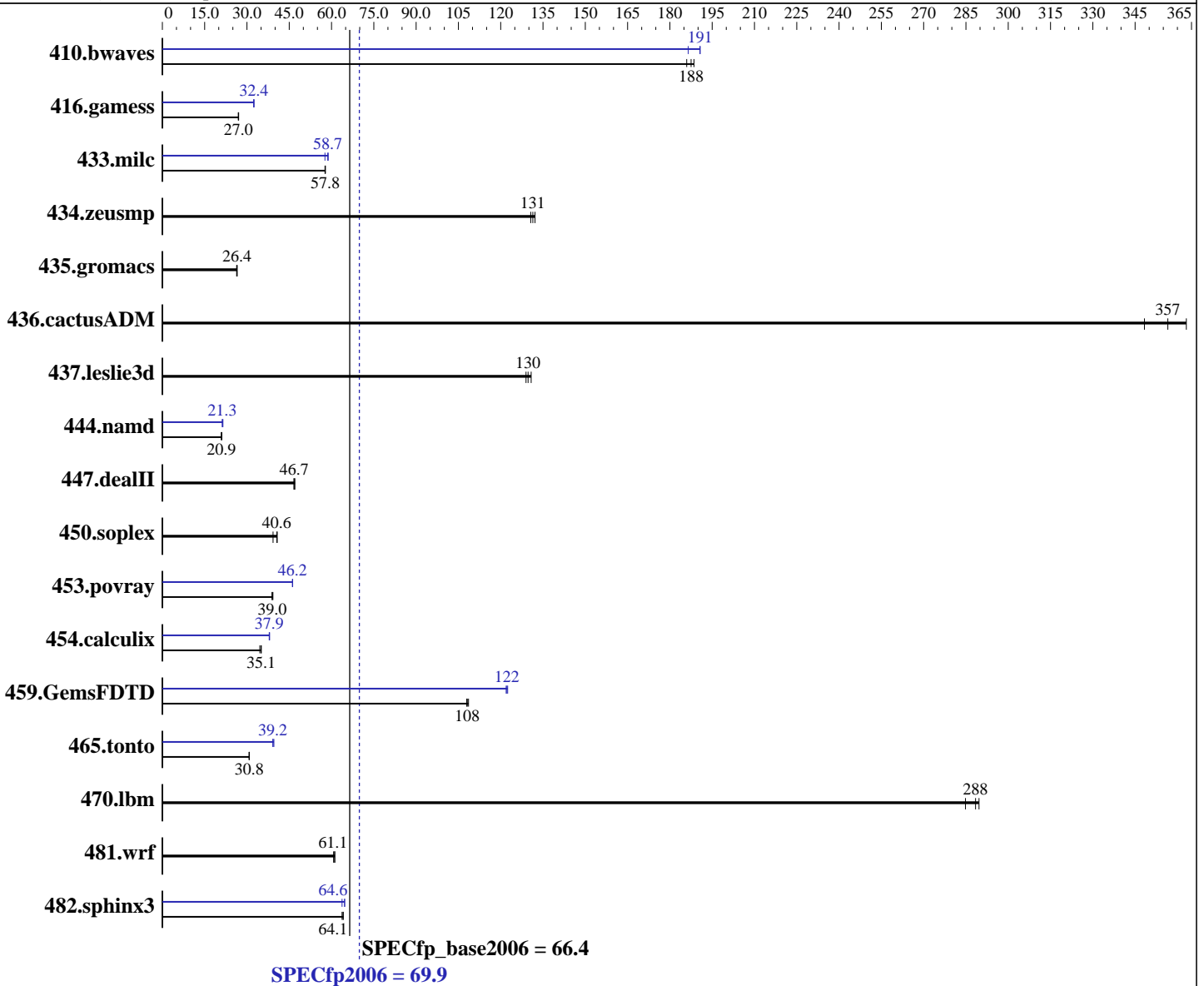
$SPECfp^{®}2006 =$ 69.9

$SPECfp\_base2006 =$ 66.4

CPU2006 license: 001176	**Test date:** Jun-2012
Test sponsor: Supermicro	**Hardware Availability:** May-2012
Tested by: Supermicro	**Software Availability:** Dec-2011

Results chart (scale 0 to 365):

- **410.bwaves** 191 / 188
- **416.gamess** 32.4 / 27.0
- **433.milc** 58.7 / 57.8
- **434.zeusmp** 131
- **435.gromacs** 26.4
- **436.cactusADM** 357
- **437.leslie3d** 130
- **444.namd** 21.3 / 20.9
- **447.dealII** 46.7
- **450.soplex** 40.6
- **453.povray** 46.2 / 39.0
- **454.calculix** 37.9 / 35.1
- **459.GemsFDTD** 122 / 108
- **465.tonto** 39.2 / 30.8
- **470.lbm** 288
- **481.wrf** 61.1
- **482.sphinx3** 64.6 / 64.1

SPECfp_base2006 = 66.4
SPECfp2006 = 69.9

Hardware

CPU Name:	Intel Xeon E5-2470
CPU Characteristics:	Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz:	2300
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, 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
System State:	Run level 3 (multi-user)

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L3 Cache:	20 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC)	Other Software:	None
Disk Subsystem:	1 x 1 TB SATA II, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	73.1	186	**72.5**	**188**	72.1	189	**71.3**	**191**	72.9	187	71.3	191
416.gamess	724	27.1	**726**	**27.0**	727	27.0	603	32.5	**604**	**32.4**	604	32.4
433.milc	**159**	**57.8**	159	57.8	159	57.7	**157**	**58.7**	156	58.8	159	57.7
434.zeusmp	68.9	132	**69.3**	**131**	69.7	131	68.9	132	**69.3**	**131**	69.7	131
435.gromacs	**270**	**26.4**	269	26.5	271	26.3	**270**	**26.4**	269	26.5	271	26.3
436.cactusADM	34.3	348	**33.5**	**357**	32.9	363	34.3	348	**33.5**	**357**	32.9	363
437.leslie3d	72.9	129	71.9	131	**72.5**	**130**	72.9	129	71.9	131	**72.5**	**130**
444.namd	383	20.9	**383**	**20.9**	380	21.1	373	21.5	377	21.3	**377**	**21.3**
447.dealII	**245**	**46.7**	245	46.7	243	47.0	**245**	**46.7**	245	46.7	243	47.0
450.soplex	**205**	**40.6**	212	39.3	205	40.7	**205**	**40.6**	212	39.3	205	40.7
453.povray	137	38.9	**136**	**39.0**	136	39.2	115	46.1	115	46.2	**115**	**46.2**
454.calculix	**235**	**35.1**	235	35.1	239	34.6	217	38.0	**218**	**37.9**	218	37.9
459.GemsFDTD	98.3	108	**98.1**	**108**	97.7	109	**86.8**	**122**	87.0	122	86.6	122
465.tonto	320	30.8	**319**	**30.8**	319	30.8	249	39.6	251	39.2	**251**	**39.2**
470.lbm	48.2	285	47.4	290	**47.6**	**288**	48.2	285	47.4	290	**47.6**	**288**
481.wrf	183	61.2	**183**	**61.1**	184	60.7	183	61.2	**183**	**61.1**	184	60.7
482.sphinx3	304	64.2	**304**	**64.1**	306	63.7	**302**	**64.6**	306	63.7	301	64.7

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"
```

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"

 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
```

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CPU2006 license: 001176
Test sponsor: Supermicro
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Test date: Jun-2012
Hardware Availability: May-2012
Software Availability: Dec-2011

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
```

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
```

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$SPECfp2006 = $ 69.9

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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:

```
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
```

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Hardware Availability: May-2012

Software Availability: Dec-2011

Peak Optimization Flags (Continued)

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

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

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