SPEC® CFP2006 Result

Supermicro

SuperServer 5017R-MTRF (X9SRi-F, Intel Xeon E5-1620)

$SPECfp^{®}2006 =$ 76.9

$SPECfp\_base2006 =$ 74.9

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

Results graph (bar chart, scale 0 to 255):

- **410.bwaves**: 190 / 189
- **416.gamess**: 40.0 / 36.8
- **433.milc**: 74.0 / 72.8
- **434.zeusmp**: 119
- **435.gromacs**: 41.1
- **436.cactusADM**: 251
- **437.leslie3d**: 120
- **444.namd**: 26.4 / 26.0
- **447.dealII**: 58.0
- **450.soplex**: 43.7
- **453.povray**: 57.2 / 48.3
- **454.calculix**: 47.1 / 45.8
- **459.GemsFDTD**: 89.5 / 85.5
- **465.tonto**: 48.5 / 45.0
- **470.lbm**: 205
- **481.wrf**: 106
- **482.sphinx3**: 82.3 / 81.6

SPECfp_base2006 = 74.9
SPECfp2006 = 76.9

Hardware

CPU Name:	Intel Xeon E5-1620
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	3600
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:	Yes
File System:	ext4
System State:	Run level 3 (multi-user)

Continued on next page

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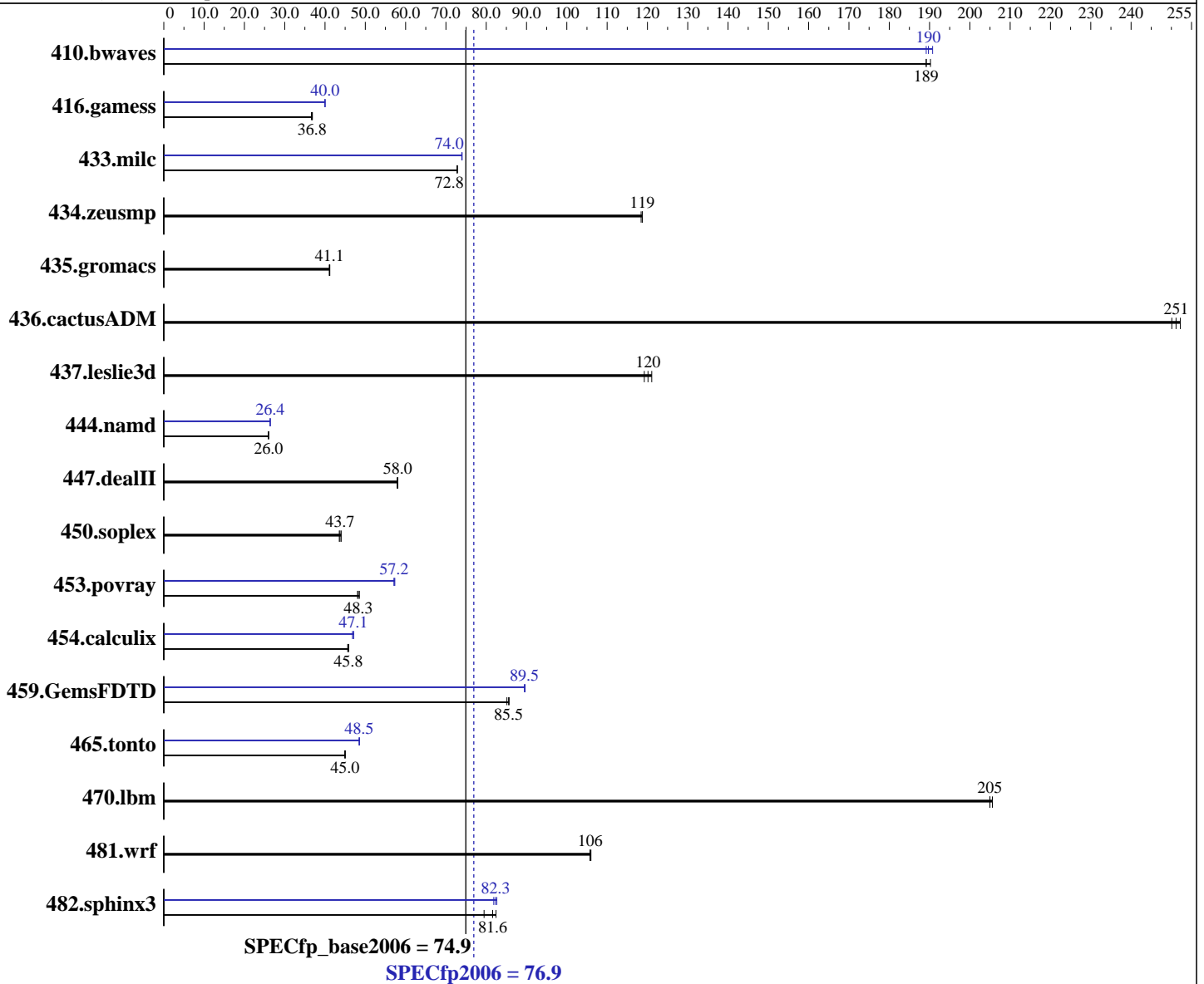|	
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L3 Cache:	10 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	32 GB (4 x 8 GB 2Rx4 PC3-12800R-11-11-E2, ECC)	Other Software:	None
Disk Subsystem:	1 x 2 TB SATA II, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	71.4	190	**71.8**	**189**	71.8	189	71.2	191	71.8	189	**71.6**	**190**
416.gamess	**532**	**36.8**	535	36.6	531	36.9	**490**	**40.0**	489	40.0	490	40.0
433.milc	126	72.9	126	72.8	**126**	**72.8**	**124**	**74.0**	124	74.0	124	73.9
434.zeusmp	**76.6**	**119**	76.6	119	76.8	118	**76.6**	**119**	76.6	119	76.8	118
435.gromacs	**174**	**41.1**	174	41.1	173	41.2	**174**	**41.1**	174	41.1	173	41.2
436.cactusADM	47.8	250	47.4	252	**47.6**	**251**	47.8	250	47.4	252	**47.6**	**251**
437.leslie3d	77.6	121	78.8	119	**78.2**	**120**	77.6	121	78.8	119	**78.2**	**120**
444.namd	309	26.0	**309**	**26.0**	309	26.0	304	26.4	**304**	**26.4**	304	26.4
447.dealII	197	58.1	**197**	**58.0**	198	57.9	197	58.1	**197**	**58.0**	198	57.9
450.soplex	**191**	**43.7**	192	43.5	189	44.0	**191**	**43.7**	192	43.5	189	44.0
453.povray	111	48.1	110	48.5	**110**	**48.3**	93.1	57.1	92.8	57.3	**93.0**	**57.2**
454.calculix	180	45.9	**180**	**45.8**	181	45.6	**175**	**47.1**	175	47.1	176	46.8
459.GemsFDTD	125	85.1	**124**	**85.5**	124	85.7	**119**	**89.5**	119	89.5	118	89.7
465.tonto	**219**	**45.0**	219	45.0	219	44.9	203	48.6	203	48.5	**203**	**48.5**
470.lbm	67.0	205	66.8	206	**67.0**	**205**	67.0	205	66.8	206	**67.0**	**205**
481.wrf	**106**	**106**	105	106	106	106	**106**	**106**	105	106	106	106
482.sphinx3	245	79.5	**239**	**81.6**	236	82.4	**237**	**82.3**	238	81.9	236	82.6

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 = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"
OMP_NUM_THREADS = "4"

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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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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Test sponsor: Supermicro
Tested by: Supermicro

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

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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Test date: Apr-2012
Hardware Availability: Mar-2011
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.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 05:10:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 May 2012.