SPEC® CFP2006 Result
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Supermicro

Motherboard X8DTN+ (Intel Xeon E5630, 2.53 GHz)

$SPECfp^{®}2006 =$ 38.1

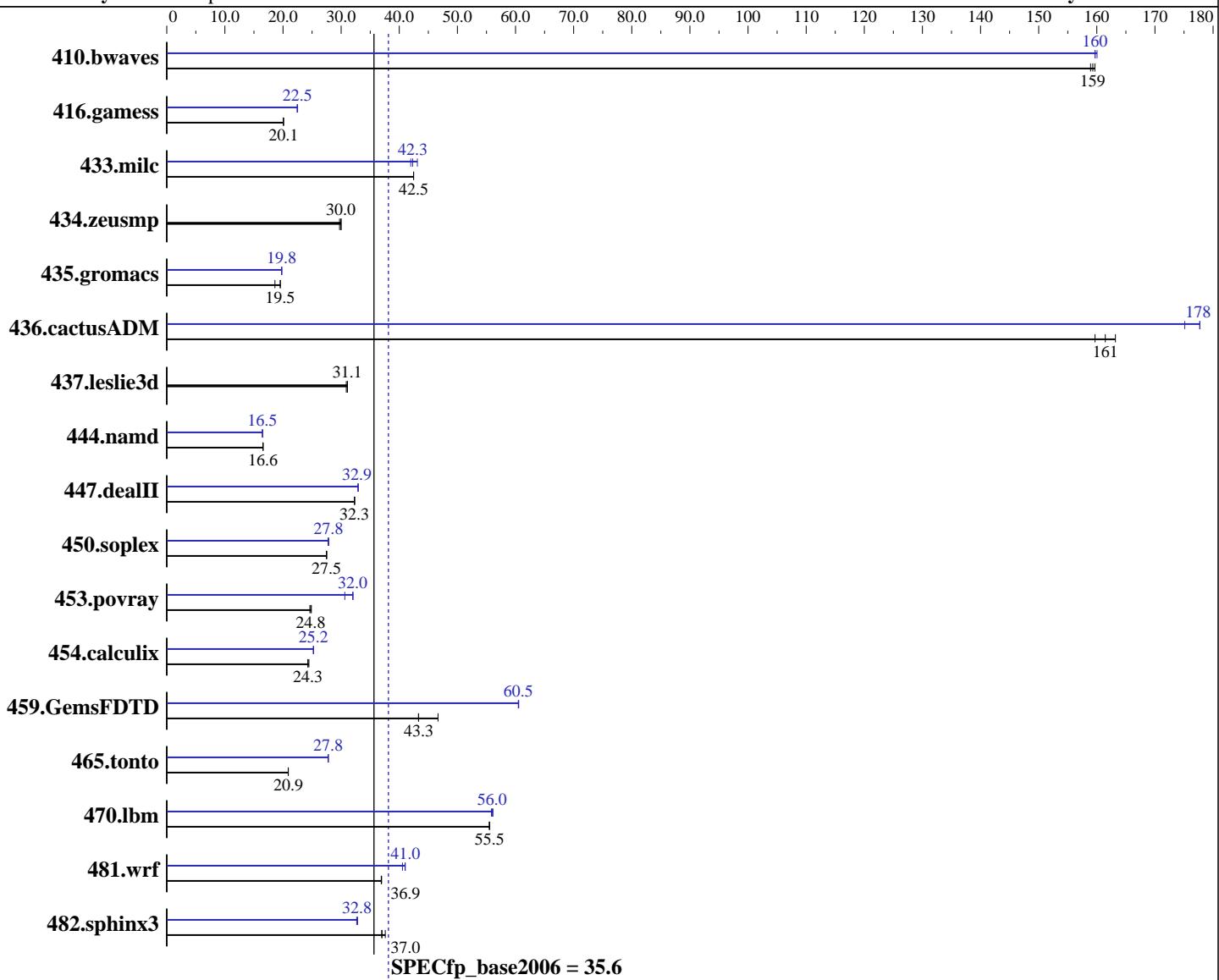$SPECfp\_base2006 =$ 35.6

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

Test date: Jun-2010
Hardware Availability: Mar-2010
Software Availability: Jan-2010

Benchmark	Value (blue)	Value (black)
410.bwaves	160	159
416.gamess	22.5	20.1
433.milc	42.3	42.5
434.zeusmp		30.0
435.gromacs	19.8	19.5
436.cactusADM	178	161
437.leslie3d		31.1
444.namd	16.5	16.6
447.dealII	32.9	32.3
450.soplex	27.8	27.5
453.povray	32.0	24.8
454.calculix	25.2	24.3
459.GemsFDTD	60.5	43.3
465.tonto	27.8	20.9
470.lbm	56.0	55.5
481.wrf	41.0	36.9
482.sphinx3	32.8	37.0

SPECfp_base2006 = 35.6
SPECfp2006 = 38.1

Hardware

CPU Name:	Intel Xeon E5630
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2533
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	SUSE Linux Enterprise Server 11 (x86_64) Kernel 2.6.27.19-5-default
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

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L3 Cache:	12 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (12 x 4 GB DDR3-1066 RDIMM, ECC, CL7)	Other Software:	None
Disk Subsystem:	1 x 500 GB 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	85.5	159	**85.3**	**159**	85.1	160	85.1	160	84.9	160	**85.1**	**160**
416.gamess	**975**	**20.1**	975	20.1	976	20.1	**872**	**22.5**	873	22.4	870	22.5
433.milc	**216**	**42.5**	216	42.5	216	42.4	213	43.1	219	42.0	**217**	**42.3**
434.zeusmp	303	30.0	**304**	**30.0**	306	29.7	303	30.0	**304**	**30.0**	306	29.7
435.gromacs	384	18.6	**366**	**19.5**	365	19.5	361	19.8	**361**	**19.8**	361	19.8
436.cactusADM	**74.0**	**161**	74.8	160	73.2	163	67.2	178	**67.2**	**178**	68.2	175
437.leslie3d	304	30.9	**303**	**31.1**	302	31.1	304	30.9	**303**	**31.1**	302	31.1
444.namd	**485**	**16.6**	485	16.5	484	16.6	**487**	**16.5**	487	16.5	487	16.5
447.dealII	**354**	**32.3**	354	32.3	354	32.3	**348**	**32.9**	348	32.9	347	32.9
450.soplex	303	27.5	303	27.5	**303**	**27.5**	300	27.8	**300**	**27.8**	299	27.9
453.povray	214	24.9	**215**	**24.8**	216	24.6	174	30.6	166	32.1	**166**	**32.0**
454.calculix	337	24.5	**340**	**24.3**	340	24.3	**327**	**25.2**	327	25.2	327	25.2
459.GemsFDTD	227	46.7	245	43.3	**245**	**43.3**	175	60.6	**175**	**60.5**	175	60.5
465.tonto	471	20.9	**471**	**20.9**	471	20.9	354	27.8	354	27.8	**354**	**27.8**
470.lbm	247	55.6	248	55.5	**248**	**55.5**	**245**	**56.0**	246	55.9	245	56.1
481.wrf	**302**	**36.9**	302	37.0	303	36.9	275	40.6	**272**	**41.0**	272	41.0
482.sphinx3	**526**	**37.0**	518	37.6	527	37.0	**594**	**32.8**	597	32.7	594	32.8

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
```

Platform Notes

```
Fan speed set to Full Speed in BIOS Setup.
As tested, the system used a Supermicro CSE-745TQ-920B chassis.
The chassis is bundled with a PWS-920P-1R power supply, 2 SNK-P0038P heatsinks,
as well as 2 FAN-0082L4 and 3 FAN-0074L4 cooling fans.
```

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General Notes

```
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
```

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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
            -ansi-alias

   470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
            -parallel -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
            -unroll2
```

C++ benchmarks:

```
 444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
            -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
            -unroll2 -ansi-alias -scalar-rep- -auto-ilp32
```

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Peak Optimization Flags (Continued)

```
    450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -opt-malloc-options=3 -auto-ilp32

    453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll4 -ansi-alias
```

Fortran benchmarks:

```
    410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
                -parallel

    416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -Ob0 -ansi-alias -scalar-rep-

    434.zeusmp: basepeak = yes

    437.leslie3d: basepeak = yes

  459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -Ob0 -opt-prefetch -parallel

     465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -inline-calloc -opt-malloc-options=3 -auto -unroll4
```

Benchmarks using both Fortran and C:

```
   435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -opt-prefetch -auto-ilp32

  436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -opt-prefetch -parallel -auto-ilp32

    454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

       481.wrf: Same as 454.calculix
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100804.html

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You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100804.xml

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

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