SPEC® CFP2006 Result
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Supermicro

Motherboard X8DTN+ (Intel Xeon L5640, 2.80 GHz)

$SPECfp^{®}2006 = $ 38.0

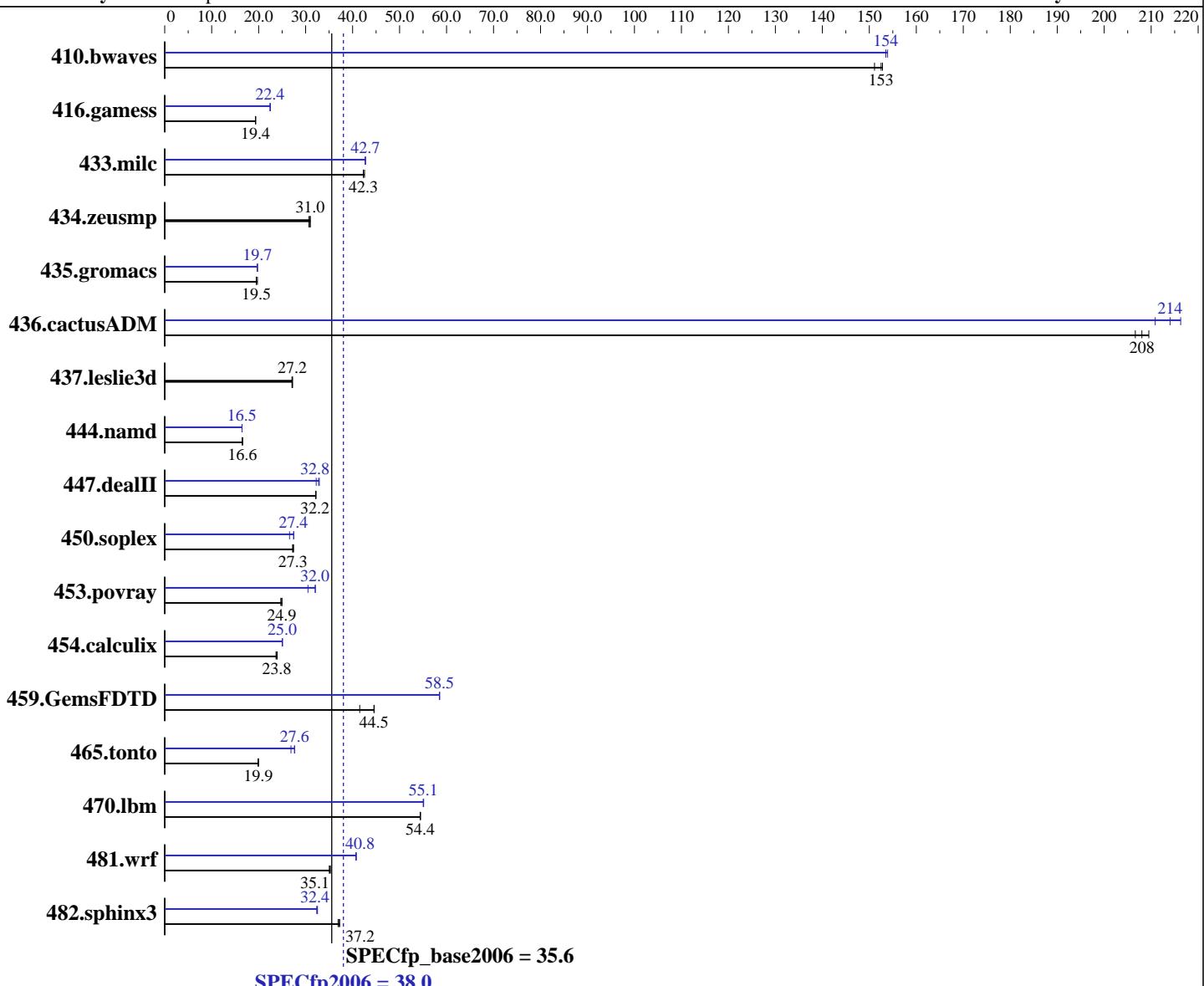$SPECfp_base2006 = $ 35.6

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

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

Benchmark	Result
410.bwaves	154 / 153
416.gamess	22.4 / 19.4
433.milc	42.7 / 42.3
434.zeusmp	31.0
435.gromacs	19.7 / 19.5
436.cactusADM	214 / 208
437.leslie3d	27.2
444.namd	16.5 / 16.6
447.dealII	32.8 / 32.2
450.soplex	27.4 / 27.3
453.povray	32.0 / 24.9
454.calculix	25.0 / 23.8
459.GemsFDTD	58.5 / 44.5
465.tonto	27.6 / 19.9
470.lbm	55.1 / 54.4
481.wrf	40.8 / 35.1
482.sphinx3	32.4 / 37.2

SPECfp_base2006 = 35.6
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Hardware

CPU Name: Intel Xeon L5640
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2267
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

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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: ReiserFS
System State: Run level 3 (multi-user)

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB DDR3-1066 RDIMM, ECC, CL7)
Disk Subsystem:	1 x 500 GB SATA II, 7200 RPM
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	89.9	151	**89.1**	**153**	88.9	153	**88.5**	**154**	88.3	154	88.5	154
416.gamess	**1012**	**19.4**	1012	19.4	1013	19.3	870	22.5	**872**	**22.4**	873	22.4
433.milc	**217**	**42.3**	217	42.3	216	42.5	215	42.7	**215**	**42.7**	215	42.7
434.zeusmp	297	30.7	294	31.0	**294**	**31.0**	297	30.7	294	31.0	**294**	**31.0**
435.gromacs	**366**	**19.5**	366	19.5	362	19.7	361	19.8	**362**	**19.7**	363	19.7
436.cactusADM	57.0	210	**57.4**	**208**	57.8	207	**55.8**	**214**	56.7	211	55.3	216
437.leslie3d	347	27.1	**346**	**27.2**	346	27.2	347	27.1	**346**	**27.2**	346	27.2
444.namd	**485**	**16.6**	484	16.6	485	16.5	487	16.5	**487**	**16.5**	487	16.5
447.dealII	356	32.1	355	32.2	**355**	**32.2**	348	32.9	355	32.3	**349**	**32.8**
450.soplex	**305**	**27.3**	306	27.2	304	27.4	**304**	**27.4**	304	27.5	314	26.6
453.povray	**214**	**24.9**	213	25.0	215	24.7	**166**	**32.0**	166	32.1	174	30.5
454.calculix	344	24.0	**346**	**23.8**	348	23.7	329	25.1	330	25.0	**329**	**25.0**
459.GemsFDTD	**238**	**44.5**	238	44.6	256	41.5	**181**	**58.5**	181	58.5	181	58.5
465.tonto	495	19.9	493	20.0	**494**	**19.9**	**356**	**27.6**	356	27.6	366	26.9
470.lbm	252	54.4	**252**	**54.4**	253	54.4	250	55.0	**249**	**55.1**	249	55.1
481.wrf	319	35.1	317	35.3	**318**	**35.1**	275	40.7	**274**	**40.8**	274	40.8
482.sphinx3	528	36.9	**524**	**37.2**	523	37.2	599	32.5	**601**	**32.4**	602	32.4

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

Platform Notes

Fan speed set to Full Speed in BIOS Setup.
As tested, the system used a Supermicro
PWS-865-PQ power supply, 2 SNK-P0038P heatsinks,
and 2 FAN-0077L cooling fans.

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General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
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

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Base Optimization Flags (Continued)

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

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
```

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Peak Optimization Flags (Continued)

```
  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

  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
```

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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.20100316.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.xml

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

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