SPEC® CFP2006 Result

ASUSTeK Computer Inc.

$SPECfp^{®}2006 = $ 48.0

ASUS RS720-E6 (Z8PE-D18) server system
(Intel Xeon X5680)

$SPECfp_base2006 = $ 45.2
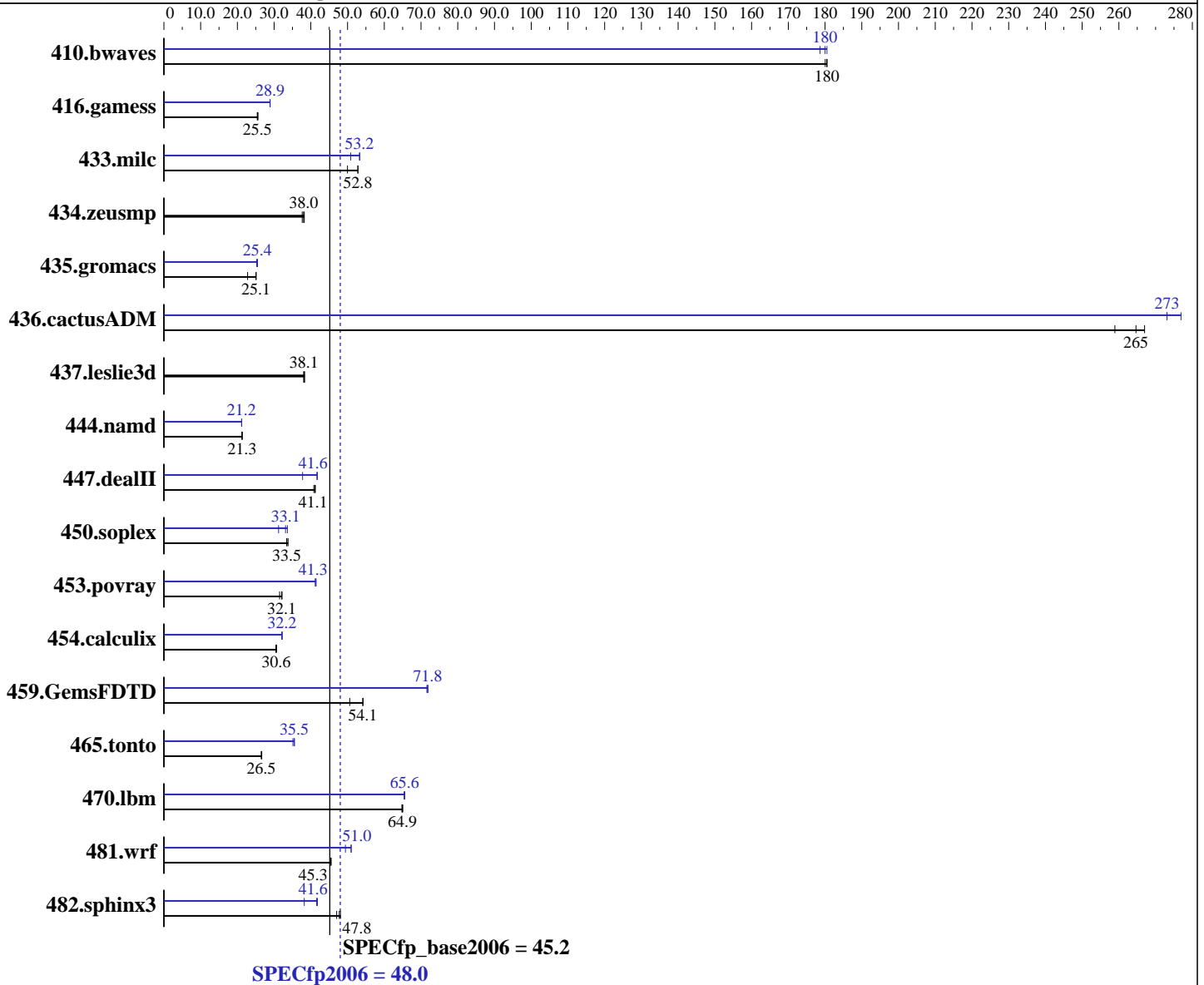
CPU2006 license: 9016

Test sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test date: Nov-2010

Hardware Availability: Oct-2010

Software Availability: Jan-2010

SPECfp_base2006 = 45.2

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Hardware

CPU Name:	Intel Xeon X5680
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	3333
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	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)	Other Software:	None
Disk Subsystem:	HITACHI HDP725050GLA380 1 x 500 GB SATAII, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	75.5	180	75.3	181	**75.3**	**180**	75.3	181	76.1	179	**75.5**	**180**
416.gamess	764	25.6	770	25.4	**769**	**25.5**	677	28.9	678	28.9	**677**	**28.9**
433.milc	184	50.0	**174**	**52.8**	174	52.8	172	53.3	**172**	**53.2**	181	50.9
434.zeusmp	**239**	**38.0**	238	38.2	242	37.7	**239**	**38.0**	238	38.2	242	37.7
435.gromacs	313	22.8	284	25.1	**285**	**25.1**	**281**	**25.4**	280	25.5	283	25.3
436.cactusADM	**45.2**	**265**	46.2	259	44.8	267	43.2	277	43.8	273	**43.8**	**273**
437.leslie3d	247	38.1	245	38.3	**247**	**38.1**	247	38.1	245	38.3	**247**	**38.1**
444.namd	377	21.3	**377**	**21.3**	377	21.3	379	21.2	379	21.2	**379**	**21.2**
447.dealII	**278**	**41.1**	280	40.8	278	41.2	**275**	**41.6**	274	41.8	303	37.8
450.soplex	247	33.8	**249**	**33.5**	249	33.4	**252**	**33.1**	248	33.6	267	31.2
453.povray	169	31.5	165	32.2	**166**	**32.1**	129	41.2	**129**	**41.3**	128	41.4
454.calculix	269	30.7	271	30.5	**270**	**30.6**	256	32.2	**257**	**32.2**	257	32.1
459.GemsFDTD	210	50.6	196	54.2	**196**	**54.1**	148	71.9	148	71.6	**148**	**71.8**
465.tonto	369	26.6	371	26.5	**371**	**26.5**	277	35.5	280	35.1	**277**	**35.5**
470.lbm	211	65.0	**212**	**64.9**	212	64.8	210	65.6	210	65.4	**210**	**65.6**
481.wrf	247	45.3	**246**	**45.3**	245	45.5	226	49.4	**219**	**51.0**	219	51.0
482.sphinx3	406	48.1	414	47.0	**408**	**47.8**	466	41.8	510	38.2	**469**	**41.6**

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

Component Notes

    Tested system case compliance with Intel EEB 3.61 spec
    SSI Server Power Supply 650W or higher
    System was configured with ASPEED AST2050 VGA (on board VGA)

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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-fp-linux64-revH.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-fp-linux64-revH.xml

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