SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

ASUS TS500-E6 (Z8NA-D6) server system (Intel Xeon X5570)

$SPECfp^{\circledR}\_rate2006 = \quad 199$

$SPECfp\_rate\_base2006 = \quad 193$

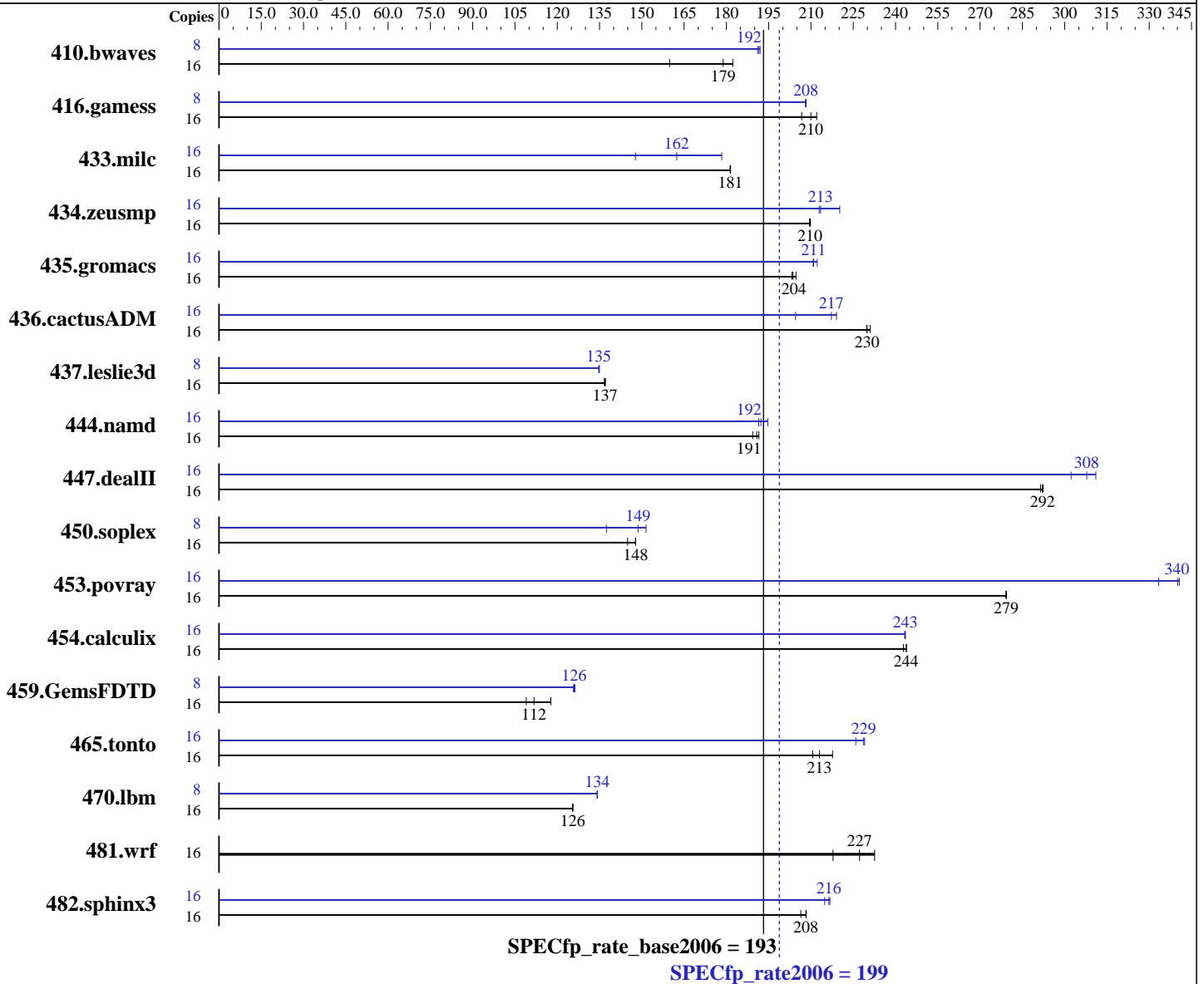|	
CPU2006 license: 9016	**Test date:** May-2009
Test sponsor: ASUSTeK Computer Inc.	**Hardware Availability:** Mar-2009
Tested by: ASUSTeK Computer Inc.	**Software Availability:** Feb-2009

Copies 0 15.0 30.0 45.0 60.0 75.0 90.0 105 120 135 150 165 180 195 210 225 240 255 270 285 300 315 330 345

Benchmark	Copies	Value
410.bwaves	8	192
	16	179
416.gamess	8	208
	16	210
433.milc	16	162
	16	181
434.zeusmp	16	213
	16	210
435.gromacs	16	211
	16	204
436.cactusADM	16	217
	16	230
437.leslie3d	8	135
	16	137
444.namd	16	192
	16	191
447.dealII	16	308
	16	292
450.soplex	8	149
	16	148
453.povray	16	340
	16	279
454.calculix	16	243
	16	244
459.GemsFDTD	8	126
	16	112
465.tonto	16	229
	16	213
470.lbm	8	134
	16	126
481.wrf	16	227
482.sphinx3	16	216
	16	208

SPECfp_rate_base2006 = 193

SPECfp_rate2006 = 199

Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
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 10 (x86_64) SP2 with patch Kernel linux 20090119, Kernel 2.6.16.60-0.34-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080
Auto Parallel:	No
File System:	ReiserFS
System State:	Run level 3 (multi-user)

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L3 Cache:	8 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	24 GB (6 X 4 GB PC3-10600R, CL=9)	Other Software:	Binutils 2.18.50.0.7.20080502
Disk Subsystem:	HITACHI HDT725050VLA360 500GB SATAII, 7200RPM		
Other Hardware:	None		

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1360	160	**1216**	**179**	1193	182	8	569	191	**568**	**192**	566	192
416.gamess	16	1478	212	1516	207	**1492**	**210**	8	753	208	752	208	**752**	**208**
433.milc	16	809	181	810	181	**810**	**181**	16	823	178	**905**	**162**	994	148
434.zeusmp	16	694	210	695	209	**694**	**210**	16	661	220	**682**	**213**	684	213
435.gromacs	16	558	205	**561**	**204**	562	203	16	538	212	**542**	**211**	542	211
436.cactusADM	16	**832**	**230**	828	231	832	230	16	**880**	**217**	935	205	873	219
437.leslie3d	16	1097	137	1100	137	**1098**	**137**	8	**558**	**135**	557	135	558	135
444.namd	16	**673**	**191**	670	192	678	189	16	659	195	**667**	**192**	670	191
447.dealII	16	628	291	626	292	**627**	**292**	16	588	311	606	302	**595**	**308**
450.soplex	16	921	145	903	148	**903**	**148**	8	485	137	**449**	**149**	440	151
453.povray	16	**305**	**279**	305	279	305	279	16	255	333	250	341	**250**	**340**
454.calculix	16	541	244	544	243	**541**	**244**	16	**542**	**243**	543	243	542	243
459.GemsFDTD	16	1442	118	1557	109	**1519**	**112**	8	672	126	675	126	**674**	**126**
465.tonto	16	748	211	**739**	**213**	723	218	16	687	229	697	226	**688**	**229**
470.lbm	16	**1752**	**126**	1751	126	1752	125	8	819	134	**819**	**134**	820	134
481.wrf	16	768	233	820	218	**787**	**227**	16	768	233	820	218	**787**	**227**
482.sphinx3	16	1511	206	1497	208	**1498**	**208**	16	1451	215	1439	217	**1441**	**216**

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

Submit Notes

    The config file option 'submit' was used.
     numactl was used to bind copies to the cores

Operating System Notes

    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

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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Test date: May-2009

Hardware Availability: Mar-2009

Software Availability: Feb-2009

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icc ifort
```

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
```

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

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

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

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Peak Compiler Invocation

C benchmarks (except as noted below):
    icc

    482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
    icpc

     450.soplex: `icpc -m32`

Fortran benchmarks (except as noted below):
    ifort

    437.leslie3d: `ifort -m32`

Benchmarks using both Fortran and C:
    icc ifort

Peak 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`
         444.namd: `-DSPEC_CPU_LP64`
        447.dealII: `-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`

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)`
             `-fno-alias`

         470.lbm: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`
             `-auto-ilp32`

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Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -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-

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

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

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: -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)

437.leslie3d: -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 -opt-prefetch

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

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)
-unroll4 -auto

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

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Peak Optimization Flags (Continued)

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 -auto-ilp32

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

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-ic11.0-fp-linux64-revA.20090710.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.xml

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