SPEC® CFP2006 Result
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Intel Corporation

Supermicro X8DAI (Intel Xeon W3570, 3.2 GHz)

$SPECfp^®2006 =$ 40.7
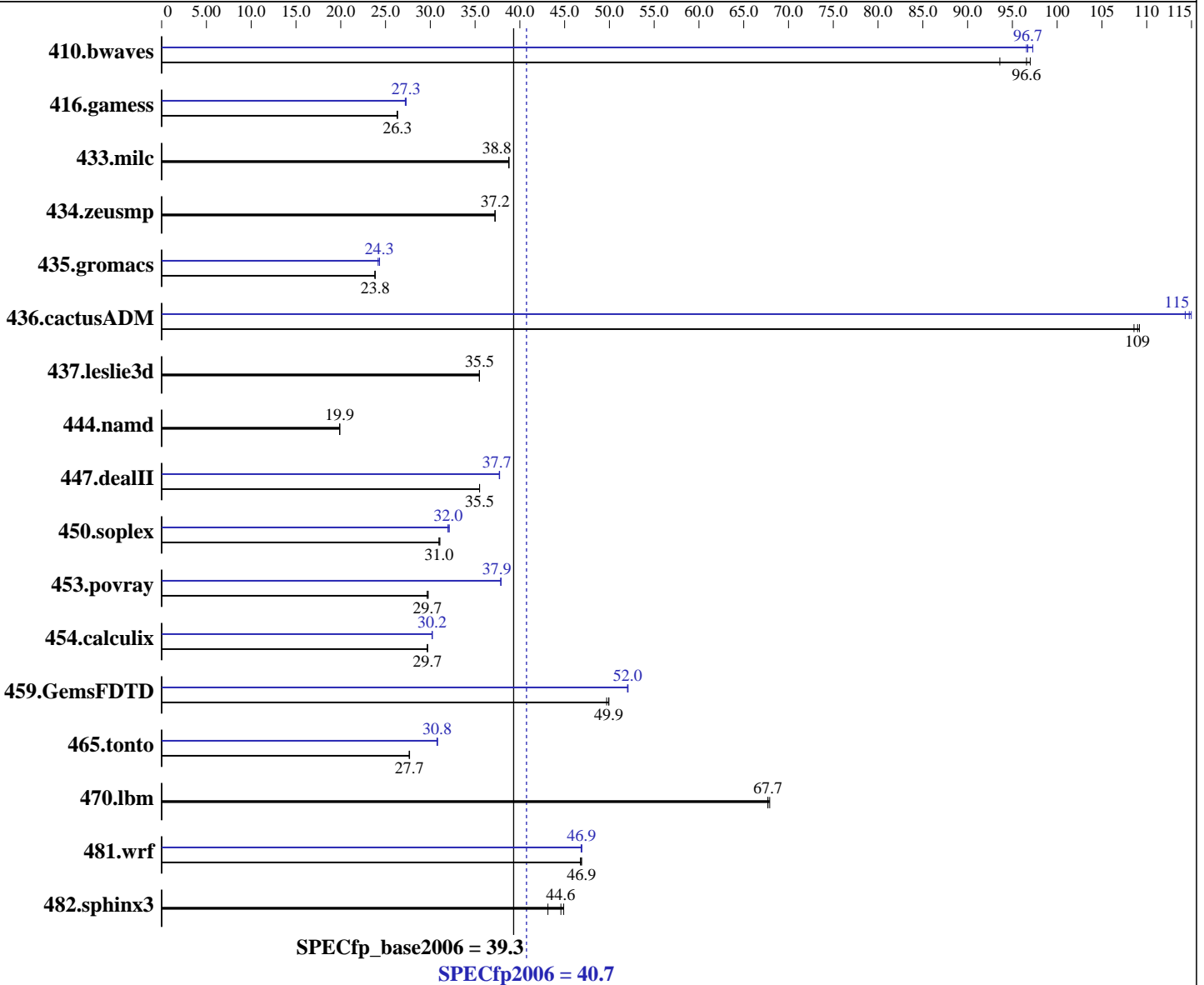
$SPECfp\_base2006 =$ 39.3

CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

Test date: Mar-2009
Hardware Availability: Mar-2009
Software Availability: Feb-2009

Benchmark	Peak	Base
410.bwaves	96.7	96.6
416.gamess	27.3	26.3
433.milc		38.8
434.zeusmp		37.2
435.gromacs	24.3	23.8
436.cactusADM	115	109
437.leslie3d		35.5
444.namd		19.9
447.dealII	37.7	35.5
450.soplex	32.0	31.0
453.povray	37.9	29.7
454.calculix	30.2	29.7
459.GemsFDTD	52.0	49.9
465.tonto	30.8	27.7
470.lbm		67.7
481.wrf	46.9	46.9
482.sphinx3		44.6

SPECfp_base2006 = 39.3
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Hardware

CPU Name: Intel Xeon W3570
CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 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 SLES10 SP2, 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: Yes
File System: ReiserFS
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit

Continued on next page

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L3 Cache:	8 MB I+D on chip per chip	Other Software:	Binutils 2.18.50.0.7.20080502
Other Cache:	None		
Memory:	12 GB (3 x 4GB DDR3-1333 CL9, IMHH4GP12A1F1C-13H T2)		
Disk Subsystem:	Western Digital Raptor WD740, 10k rpm, 74GB SATA		
Other Hardware:	None		

Results Table

	Base						Peak					
Benchmark	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	145	93.6	140	97.0	**141**	**96.6**	**141**	**96.7**	140	97.3	141	96.6
416.gamess	**744**	**26.3**	743	26.3	745	26.3	717	27.3	**718**	**27.3**	720	27.2
433.milc	237	38.8	**237**	**38.8**	237	38.7	237	38.8	**237**	**38.8**	237	38.7
434.zeusmp	244	37.2	244	37.2	**244**	**37.2**	244	37.2	244	37.2	**244**	**37.2**
435.gromacs	300	23.8	299	23.9	**299**	**23.8**	295	24.2	**294**	**24.3**	293	24.3
436.cactusADM	109	109	110	109	**110**	**109**	104	115	105	114	**104**	**115**
437.leslie3d	265	35.5	265	35.5	**265**	**35.5**	265	35.5	265	35.5	**265**	**35.5**
444.namd	403	19.9	**403**	**19.9**	404	19.9	403	19.9	**403**	**19.9**	404	19.9
447.dealII	322	35.5	**322**	**35.5**	322	35.5	303	37.7	**303**	**37.7**	303	37.7
450.soplex	268	31.1	269	31.0	**269**	**31.0**	260	32.1	261	32.0	**261**	**32.0**
453.povray	**179**	**29.7**	179	29.8	179	29.7	**140**	**37.9**	140	37.9	140	37.9
454.calculix	278	29.7	**278**	**29.7**	278	29.7	**273**	**30.2**	273	30.2	273	30.2
459.GemsFDTD	214	49.7	212	49.9	**212**	**49.9**	204	52.0	204	52.1	**204**	**52.0**
465.tonto	**356**	**27.7**	355	27.7	356	27.6	319	30.8	320	30.7	**320**	**30.8**
470.lbm	203	67.7	202	67.9	**203**	**67.7**	203	67.7	202	67.9	**203**	**67.7**
481.wrf	239	46.8	238	46.9	**238**	**46.9**	238	46.9	**238**	**46.9**	238	46.8
482.sphinx3	452	43.1	**437**	**44.6**	434	44.9	452	43.1	**437**	**44.6**	434	44.9

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

General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
System can be built with an extended ATX case like SuperChassis
743TQ-865B-SQ and an 885W power supply.
```

Base Compiler Invocation

C benchmarks:
```
icc
```

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Base Compiler Invocation (Continued)

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 -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

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

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Peak Compiler Invocation

C benchmarks:
    icc

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

    450.soplex: `icpc -m32`

Fortran benchmarks:
    ifort

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
    437.leslie3d: -DSPEC_CPU_LP64
      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
    482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

    433.milc: `basepeak = yes`

    470.lbm: `basepeak = yes`

    482.sphinx3: `basepeak = yes`

C++ benchmarks:

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Peak Optimization Flags (Continued)

444.namd: basepeak = yes

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- -opt-prefetch

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
-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)
-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

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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel -auto-ilp32

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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-ic11.0-fp-linux64-revA.20090710.04.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.20090710.04.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 23:32:56 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 March 2009.