SPEC® CFP2006 Result
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Intel Corporation

Lenovo T400 (Intel Core 2 Duo T9900)

$SPECfp^{®}2006 =$ 21.2

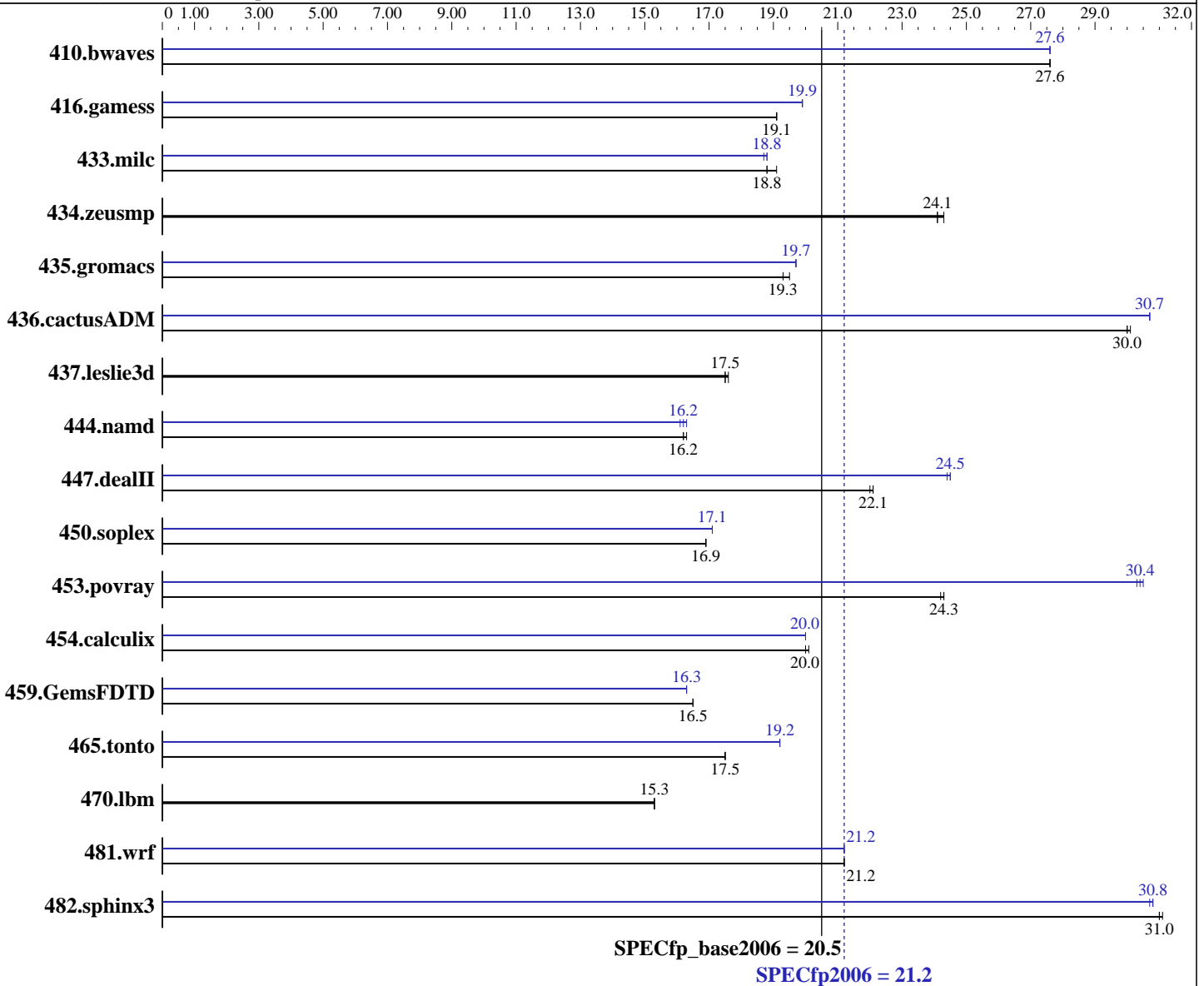SPECfp_base2006 = 20.5

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

Test date: Mar-2009
Hardware Availability: Mar-2009
Software Availability: Nov-2008

Benchmark	Result
410.bwaves	27.6 / 27.6
416.gamess	19.9 / 19.1
433.milc	18.8 / 18.8
434.zeusmp	24.1
435.gromacs	19.7 / 19.3
436.cactusADM	30.7 / 30.0
437.leslie3d	17.5
444.namd	16.2 / 16.2
447.dealII	24.5 / 22.1
450.soplex	17.1 / 16.9
453.povray	30.4 / 24.3
454.calculix	20.0 / 20.0
459.GemsFDTD	16.3 / 16.5
465.tonto	19.2 / 17.5
470.lbm	15.3
481.wrf	21.2 / 21.2
482.sphinx3	30.8 / 31.0

SPECfp_base2006 = 20.5
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Hardware

CPU Name: Intel Core 2 Duo T9900
CPU Characteristics:
CPU MHz: 3066
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
CPU(s) orderable: 1 chip
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 6 MB I+D on chip per chip

Continued on next page

Software

Operating System: Windows XP Professional w/ SP2 (64-bit)
Compiler: Intel C++ Compiler Professional 11.0 for IA32
Build 20080930 Package ID: w_cproc_p_11.0.054
Intel Visual Fortran Compiler Professional 11.0 for IA32
Build 20080930 Package ID: w_cprof_p_11.0.054
Microsoft Visual Studio 2008 (for libraries)
Auto Parallel: Yes
File System: NTFS

Continued on next page

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L3 Cache:	None
Other Cache:	None
Memory:	2 GB (2x1GB Micron DDR3-1066 CL7)
Disk Subsystem:	Hitachi HTS722020K9SA00 200GB SATA, 7200RPM
Other Hardware:	None

System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	SmartHeap Library Version 8.1 from http://www.microquill.com/

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	493	27.6	492	27.6	**492**	**27.6**	492	27.6	493	27.6	**492**	**27.6**
416.gamess	1027	19.1	1027	19.1	**1027**	**19.1**	**983**	**19.9**	984	19.9	983	19.9
433.milc	480	19.1	489	18.8	**488**	**18.8**	**490**	**18.8**	490	18.7	489	18.8
434.zeusmp	375	24.3	378	24.1	**377**	**24.1**	375	24.3	378	24.1	**377**	**24.1**
435.gromacs	367	19.5	371	19.3	**370**	**19.3**	363	19.7	362	19.7	**362**	**19.7**
436.cactusADM	398	30.1	399	30.0	**399**	**30.0**	389	30.7	**389**	**30.7**	389	30.7
437.leslie3d	535	17.6	537	17.5	**537**	**17.5**	535	17.6	537	17.5	**537**	**17.5**
444.namd	493	16.3	**496**	**16.2**	496	16.2	494	16.3	497	16.1	**494**	**16.2**
447.dealII	520	22.0	517	22.1	**517**	**22.1**	467	24.5	**467**	**24.5**	469	24.4
450.soplex	493	16.9	493	16.9	**493**	**16.9**	487	17.1	487	17.1	**487**	**17.1**
453.povray	220	24.2	219	24.3	**219**	**24.3**	175	30.3	**175**	**30.4**	175	30.5
454.calculix	411	20.1	**412**	**20.0**	412	20.0	412	20.0	412	20.0	**412**	**20.0**
459.GemsFDTD	643	16.5	642	16.5	**642**	**16.5**	**649**	**16.3**	649	16.3	650	16.3
465.tonto	562	17.5	**562**	**17.5**	562	17.5	514	19.2	**513**	**19.2**	513	19.2
470.lbm	898	15.3	898	15.3	**898**	**15.3**	898	15.3	898	15.3	**898**	**15.3**
481.wrf	**527**	**21.2**	527	21.2	527	21.2	**527**	**21.2**	527	21.2	527	21.2
482.sphinx3	**628**	**31.0**	629	31.0	628	31.1	632	30.8	636	30.7	**634**	**30.8**

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

General Notes

```
The system bus runs at 1066 MHz
Binaries were built on Windows Vista Ultimate (32-bit)
OMP_NUM_THREADS set to number of logical processors as seen by the OS
KMP_AFFINITY set to physical,0
```

Base Compiler Invocation

C benchmarks:
```
icl -Qvc9 -Qc99
```

C++ benchmarks:
```
icl -Qvc9
```

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Base Compiler Invocation (Continued)

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc9 -Qc99 ifort
```

Base Portability Flags

```
436.cactusADM: -Qlowercase /assume:underscore
      444.namd: -TP
     447.dealII: -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
    453.povray: -DSPEC_CPU_WINDOWS_ICL
   454.calculix: -DSPEC_CPU_NOZMODIFIER -Qlowercase
       481.wrf: -DSPEC_CPU_WINDOWS_ICL
```

Base Optimization Flags

C benchmarks:
```
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
/F1000000000
```

C++ benchmarks:
```
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
-Qcxx-features /F1000000000 shlw32m.lib
          -link /FORCE:MULTIPLE
```

Fortran benchmarks:
```
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
/F1000000000
```

Benchmarks using both Fortran and C:
```
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
/F1000000000
```

Peak Compiler Invocation

C benchmarks:
```
icl -Qvc9 -Qc99
```

C++ benchmarks:
```
icl -Qvc9
```

Fortran benchmarks:
```
ifort
```

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Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
```
icl -Qvc9 -Qc99 ifort
```

Peak Portability Flags

```
436.cactusADM: -Qlowercase /assume:underscore
   444.namd: -TP
  447.dealII: -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
  453.povray: -DSPEC_CPU_WINDOWS_ICL
 454.calculix: -DSPEC_CPU_NOZMODIFIER -Qlowercase
    481.wrf: -DSPEC_CPU_WINDOWS_ICL
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
          -Qipo -O3 -Qprec-div- -Oa /F1000000000

470.lbm: basepeak = yes

482.sphinx3: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qunroll2 /F1000000000
```

C++ benchmarks:

```
444.namd: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
          -Qipo -O3 -Qprec-div- -Oa /F1000000000 shlw32m.lib
                    -link /FORCE:MULTIPLE

447.dealII: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch
            -Qansi-alias -Qscalar-rep- /F1000000000 shlw32m.lib
                    -link /FORCE:MULTIPLE

450.soplex: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- /F1000000000 shlw32m.lib
                    -link /FORCE:MULTIPLE

453.povray: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias /F1000000000
            shlw32m.lib          -link /FORCE:MULTIPLE
```

Fortran benchmarks:

```
410.bwaves: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel
            /F1000000000
```

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Peak Optimization Flags (Continued)

```
416.gamess: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias
            -Qscalar-rep- /F1000000000

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
              -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qopt-prefetch
              -Qparallel /F1000000000

465.tonto: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
           -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000
```

Benchmarks using both Fortran and C:

```
435.gromacs: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
             -Qipo -O3 -Qprec-div- -Qopt-prefetch /F1000000000

436.cactusADM: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
               -Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch -Qparallel
               /F1000000000

454.calculix: -QxSSE4.1 -Qipo -O3 -Qprec-div- /F1000000000

481.wrf: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel
         /F1000000000
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-win32-revA.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-win32-revA.xml

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

Tested with SPEC CPU2006 v1.1.
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