SPEC® CFP2006 Result
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NEC Corporation

Express5800/iR110a-1H
(Intel Core 2 Duo T9400)

$SPECfp^{®}\_rate2006 =$ 26.7

$SPECfp\_rate\_base2006 =$ 25.7
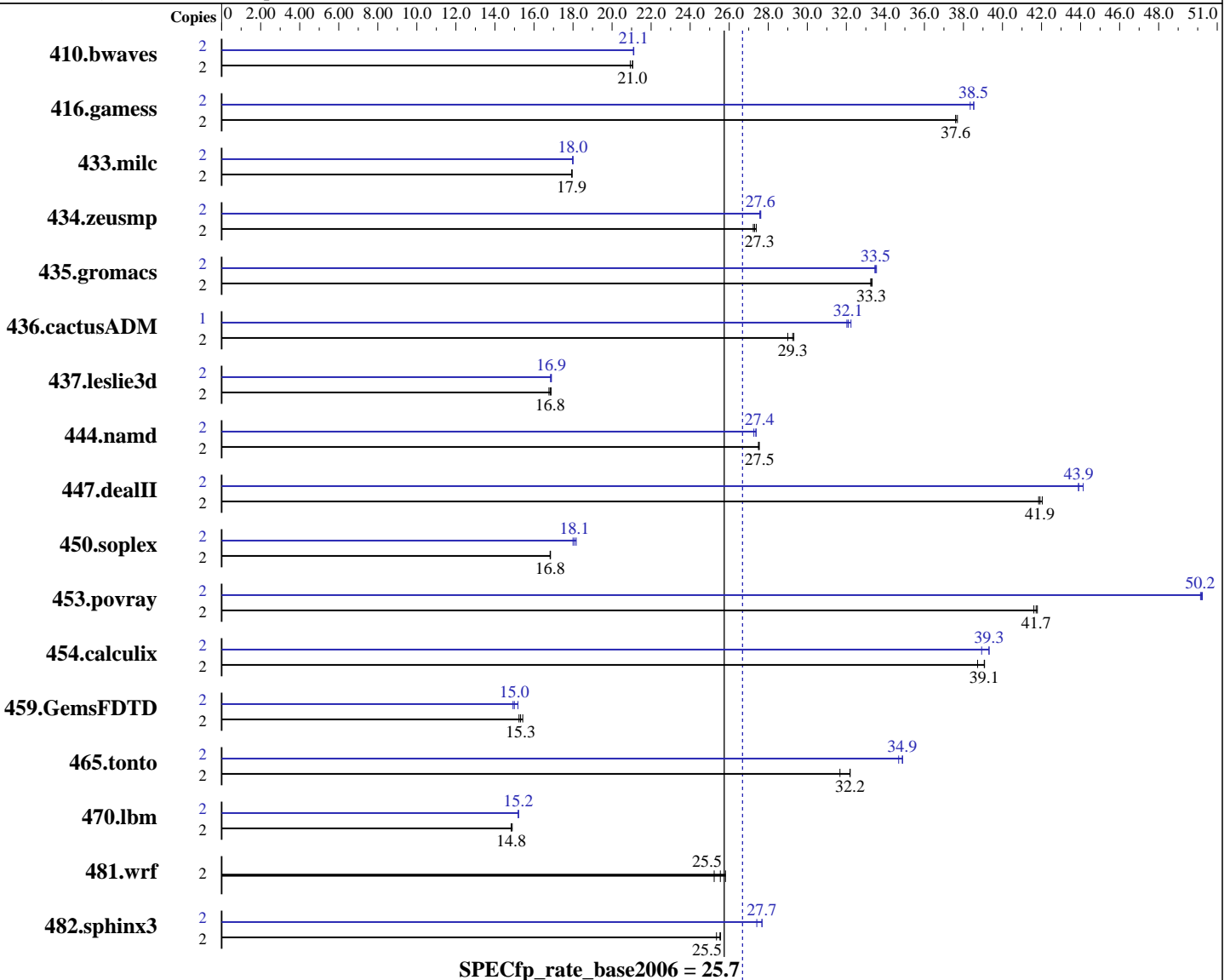
CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Feb-2009
Hardware Availability: Jan-2009
Software Availability: Nov-2008

Copies

Benchmark	Copies	Value
410.bwaves	2	21.1
	2	21.0
416.gamess	2	38.5
	2	37.6
433.milc	2	18.0
	2	17.9
434.zeusmp	2	27.6
	2	27.3
435.gromacs	2	33.5
	2	33.3
436.cactusADM	1	32.1
	2	29.3
437.leslie3d	2	16.9
	2	16.8
444.namd	2	27.4
	2	27.5
447.dealII	2	43.9
	2	41.9
450.soplex	2	18.1
	2	16.8
453.povray	2	50.2
	2	41.7
454.calculix	2	39.3
	2	39.1
459.GemsFDTD	2	15.0
	2	15.3
465.tonto	2	34.9
	2	32.2
470.lbm	2	15.2
	2	14.8
481.wrf	2	25.5
482.sphinx3	2	27.7
	2	25.5

SPECfp_rate_base2006 = 25.7
SPECfp_rate2006 = 26.7

Hardware

CPU Name: Intel Core 2 Duo T9400
CPU Characteristics: 1066 MHz system bus
CPU MHz: 2533
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: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20081105 Package ID: l_cproc_p_11.0.074, l_cprof_p_11.0.074
Auto Parallel: Yes
File System: ext2
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4x2 GB PC2-5300P, 1 rank, CL5-5-5, ECC)
Disk Subsystem: 1x160 GB SATAII, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	1298	20.9	**1292**	**21.0**	1291	21.1	2	**1288**	**21.1**	1288	21.1	1287	21.1
416.gamess	2	**1041**	**37.6**	1039	37.7	1041	37.6	2	1016	38.5	1021	38.3	**1017**	**38.5**
433.milc	2	1023	17.9	**1023**	**17.9**	1023	18.0	2	1020	18.0	**1021**	**18.0**	1021	18.0
434.zeusmp	2	665	27.4	668	27.2	**667**	**27.3**	2	659	27.6	660	27.6	**659**	**27.6**
435.gromacs	2	429	33.3	429	33.2	**429**	**33.3**	2	426	33.5	**426**	**33.5**	427	33.5
436.cactusADM	2	**817**	**29.3**	815	29.3	824	29.0	1	373	32.0	**372**	**32.1**	371	32.2
437.leslie3d	2	1121	16.8	**1117**	**16.8**	1114	16.9	2	1116	16.8	**1114**	**16.9**	1113	16.9
444.namd	2	583	27.5	**583**	**27.5**	582	27.5	2	**586**	**27.4**	588	27.3	586	27.4
447.dealII	2	**546**	**41.9**	547	41.9	544	42.0	2	518	44.1	521	43.9	**521**	**43.9**
450.soplex	2	990	16.8	**991**	**16.8**	991	16.8	2	**923**	**18.1**	918	18.2	927	18.0
453.povray	2	256	41.6	**255**	**41.7**	255	41.8	2	212	50.1	**212**	**50.2**	212	50.2
454.calculix	2	422	39.1	**422**	**39.1**	426	38.7	2	**420**	**39.3**	424	38.9	420	39.3
459.GemsFDTD	2	1376	15.4	**1386**	**15.3**	1393	15.2	2	1398	15.2	**1415**	**15.0**	1422	14.9
465.tonto	2	621	31.7	611	32.2	**611**	**32.2**	2	564	34.9	567	34.7	**564**	**34.9**
470.lbm	2	1846	14.9	**1852**	**14.8**	1853	14.8	2	1807	15.2	**1808**	**15.2**	1808	15.2
481.wrf	2	865	25.8	**874**	**25.5**	885	25.2	2	865	25.8	**874**	**25.5**	885	25.2
482.sphinx3	2	**1527**	**25.5**	1538	25.4	1525	25.6	2	1422	27.4	1408	27.7	**1408**	**27.7**

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.
    taskset was used to bind processes to cores except
    for 436.cactusADM peak
```

Operating System Notes

```
    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to "physical,0"
    KMP_STACKSIZE set to 64M
```

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Platform Notes

```
Bios settings:
Hardware Prefetcher:        Enabled
Adjacent Cache Line Prefetch:    Enabled
```

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:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

```
482.sphinx3: /opt/intel/Compiler/11.0/074/bin/ia32/icc
        -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

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

```
450.soplex: /opt/intel/Compiler/11.0/074/bin/ia32/icpc
        -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

Fortran benchmarks (except as noted below):
```
ifort
```

```
437.leslie3d: /opt/intel/Compiler/11.0/074/bin/ia32/ifort
        -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

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
```

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Peak Portability Flags (Continued)

```
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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
         -auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
```

C++ benchmarks:

```
444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -unroll4 -ansi-alias
```

Fortran benchmarks:

```
410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static -unroll2 -Ob0 -ansi-alias
            -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
            -no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
              -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
              -no-prec-div -static -unroll2 -Ob0 -opt-prefetch
```

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Peak Optimization Flags (Continued)

465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -unroll2 -opt-prefetch -parallel`
`-auto-ilp32`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revE.20090710.html
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revE.20090710.xml
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml

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

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