SPEC® CFP2006 Result

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NEC Corporation

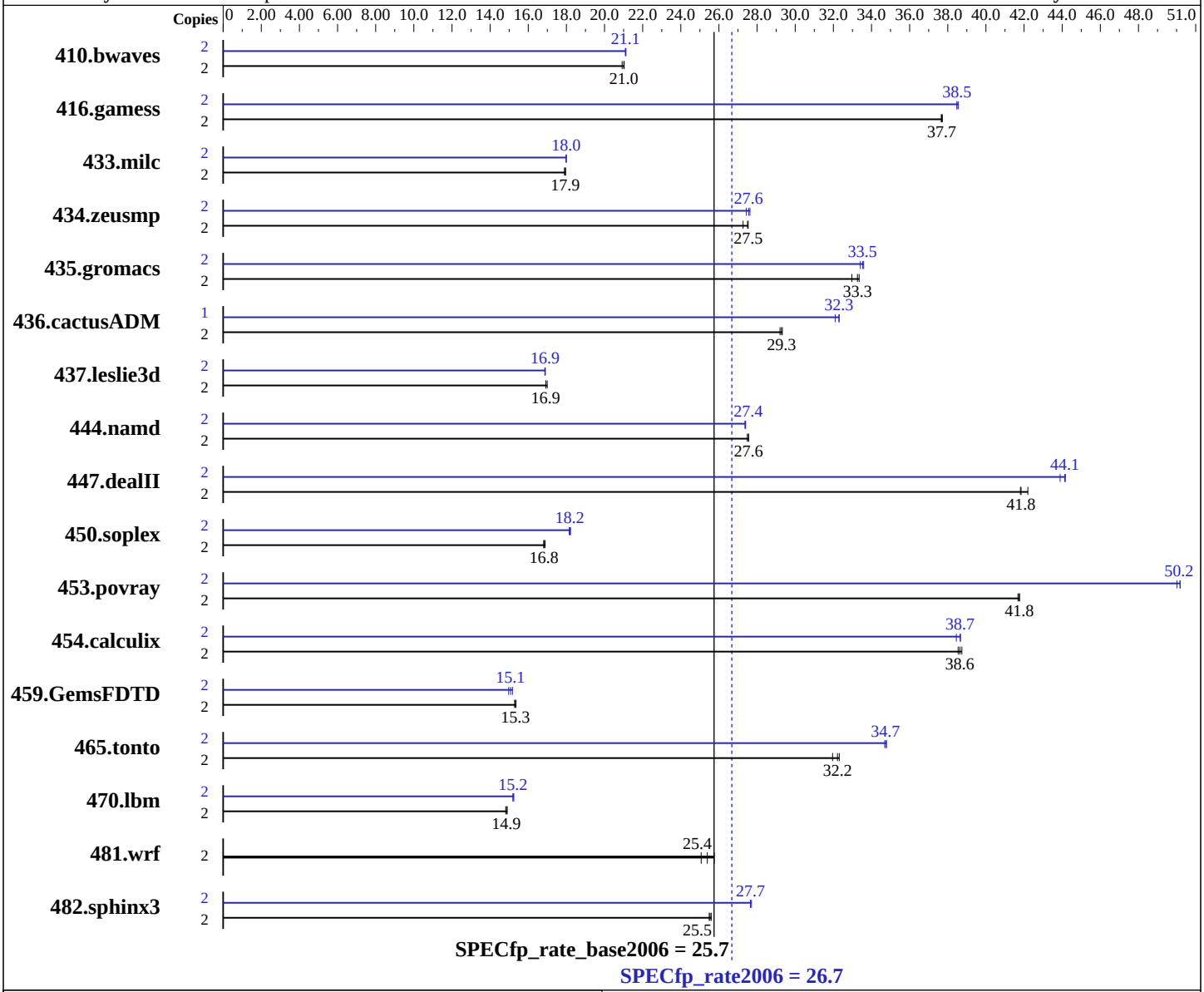
Express5800/R110a-1H
(Intel Core 2 Duo T9400)

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



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

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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	1299	20.9	**1294**	**21.0**	1292	21.0	2	1289	21.1	**1288**	**21.1**	1287	21.1
416.gamess	2	1038	37.7	1040	37.7	**1039**	**37.7**	2	1016	38.6	1018	38.5	**1018**	**38.5**
433.milc	2	1026	17.9	**1023**	**17.9**	1023	18.0	2	**1021**	**18.0**	1021	18.0	1020	18.0
434.zeusmp	2	661	27.5	667	27.3	**662**	**27.5**	2	659	27.6	**660**	**27.6**	663	27.4
435.gromacs	2	**429**	**33.3**	428	33.4	433	33.0	2	427	33.4	425	33.6	**426**	**33.5**
436.cactusADM	2	818	29.2	815	29.3	**816**	**29.3**	1	**370**	**32.3**	370	32.3	372	32.1
437.leslie3d	2	1106	17.0	**1111**	**16.9**	1111	16.9	2	**1113**	**16.9**	1114	16.9	1113	16.9
444.namd	2	**582**	**27.6**	584	27.5	582	27.6	2	586	27.4	**586**	**27.4**	585	27.4
447.dealII	2	**547**	**41.8**	547	41.8	542	42.2	2	518	44.2	521	43.9	**518**	**44.1**
450.soplex	2	**991**	**16.8**	992	16.8	988	16.9	2	919	18.1	916	18.2	**917**	**18.2**
453.povray	2	**255**	**41.8**	255	41.7	255	41.8	2	213	50.0	**212**	**50.2**	212	50.2
454.calculix	2	426	38.7	428	38.5	**427**	**38.6**	2	**427**	**38.7**	427	38.7	429	38.4
459.GemsFDTD	2	1382	15.4	**1384**	**15.3**	1388	15.3	2	1398	15.2	1417	15.0	**1408**	**15.1**
465.tonto	2	**611**	**32.2**	609	32.3	616	32.0	2	**566**	**34.7**	567	34.7	566	34.8
470.lbm	2	1845	14.9	**1850**	**14.9**	1854	14.8	2	**1808**	**15.2**	1803	15.2	1808	15.2
481.wrf	2	**880**	**25.4**	868	25.8	891	25.1	2	**880**	**25.4**	868	25.8	891	25.1
482.sphinx3	2	1523	25.6	**1527**	**25.5**	1529	25.5	2	1410	27.7	**1409**	**27.7**	1407	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
```

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`

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