SPEC® CFP2006 Result
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NEC Corporation

Express5800/GT110b-S
(Intel Core i3-540)

$SPECfp^{®}2006 =$ 31.0
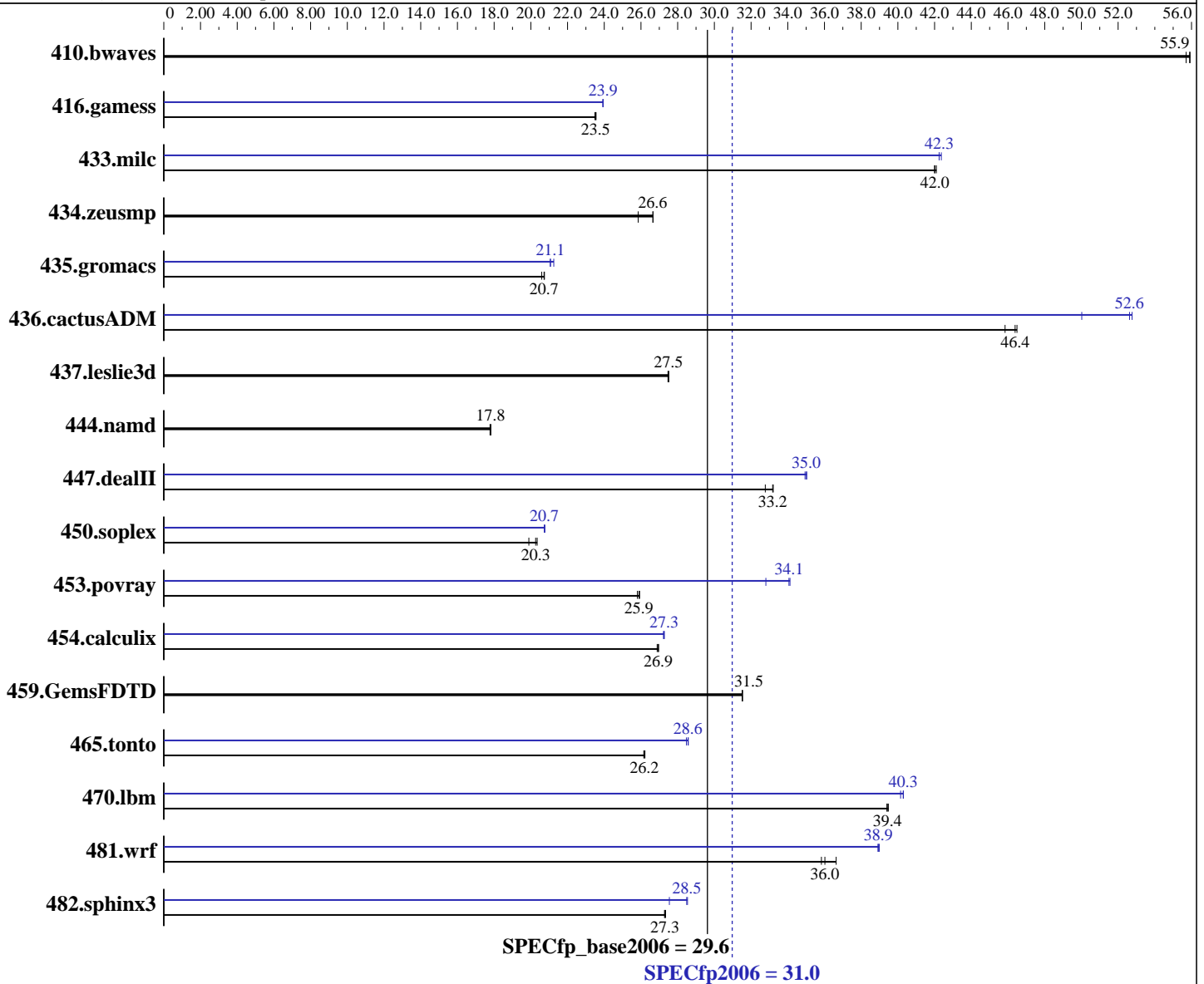
$SPECfp\_base2006 =$ 29.6

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Feb-2010
Hardware Availability: Apr-2010
Software Availability: Nov-2009

410.bwaves 55.9
416.gamess 23.9 / 23.5
433.milc 42.3 / 42.0
434.zeusmp 26.6
435.gromacs 21.1 / 20.7
436.cactusADM 52.6 / 46.4
437.leslie3d 27.5
444.namd 17.8
447.dealII 35.0 / 33.2
450.soplex 20.7 / 20.3
453.povray 34.1 / 25.9
454.calculix 27.3 / 26.9
459.GemsFDTD 31.5
465.tonto 28.6 / 26.2
470.lbm 40.3 / 39.4
481.wrf 38.9 / 36.0
482.sphinx3 28.5 / 27.3

SPECfp_base2006 = 29.6
SPECfp2006 = 31.0

Hardware

CPU Name:	Intel Core i3-540
CPU Characteristics:	
CPU MHz:	3067
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
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 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091012 Package ID: l_cproc_p_11.1.059, l_cprof_p_11.1.059
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

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L3 Cache:	4 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	8 GB (4 x 2 GB PC3-10600E, 2 rank, CL9, ECC)	Other Software:	None
Disk Subsystem:	1x160 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	244	55.7	243	55.9	**243**	**55.9**	244	55.7	243	55.9	**243**	**55.9**
416.gamess	833	23.5	**832**	**23.5**	831	23.6	819	23.9	**818**	**23.9**	818	23.9
433.milc	219	42.0	218	42.1	**219**	**42.0**	217	42.4	**217**	**42.3**	217	42.2
434.zeusmp	341	26.7	**342**	**26.6**	352	25.8	341	26.7	**342**	**26.6**	352	25.8
435.gromacs	344	20.7	**345**	**20.7**	347	20.6	**339**	**21.1**	336	21.2	339	21.1
436.cactusADM	257	46.5	261	45.8	**258**	**46.4**	**227**	**52.6**	227	52.8	239	50.0
437.leslie3d	**342**	**27.5**	342	27.5	342	27.5	**342**	**27.5**	342	27.5	342	27.5
444.namd	**450**	**17.8**	451	17.8	450	17.8	**450**	**17.8**	451	17.8	450	17.8
447.dealII	344	33.2	**345**	**33.2**	349	32.8	**327**	**35.0**	327	35.0	327	34.9
450.soplex	419	19.9	410	20.3	**412**	**20.3**	402	20.7	402	20.8	**402**	**20.7**
453.povray	205	25.9	206	25.8	**205**	**25.9**	162	32.8	**156**	**34.1**	156	34.1
454.calculix	306	27.0	307	26.9	**306**	**26.9**	303	27.2	**303**	**27.3**	303	27.3
459.GemsFDTD	337	31.5	336	31.5	**337**	**31.5**	337	31.5	336	31.5	**337**	**31.5**
465.tonto	375	26.2	376	26.2	**376**	**26.2**	344	28.6	**344**	**28.6**	346	28.5
470.lbm	**349**	**39.4**	349	39.4	348	39.5	342	40.1	**341**	**40.3**	341	40.3
481.wrf	312	35.8	**310**	**36.0**	305	36.6	**287**	**38.9**	287	39.0	287	38.9
482.sphinx3	714	27.3	713	27.3	**714**	**27.3**	683	28.5	**684**	**28.5**	707	27.5

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

Operating System Notes

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

Platform Notes

Default BIOS settings were used.

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M

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Base Compiler Invocation

C benchmarks:
    icc   -m64

C++ benchmarks:
    icpc   -m64

Fortran benchmarks:
    ifort -m64

Benchmarks using both Fortran and C:
    icc   -m64 ifort -m64

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 (except as noted below):
```
icc    -m64
```

    482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
```
icpc   -m64
```

    450.soplex: `icpc -m32`

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

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`

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)
        `-ansi-alias`

    470.lbm: `-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)
        `-parallel -ansi-alias -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: `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- -auto-ilp32`

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: `basepeak = yes`

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: `basepeak = yes`

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)`
`-inline-calloc -opt-malloc-options=3 -auto -unroll4`

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: `Same as 454.calculix`

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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-ic11.1-fp-linux64-revE.20100302.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revE.20100302.xml

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

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