SPEC® CFP2006 Result
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NEC Corporation

Express5800/R110b-1
(Intel Xeon X3430)

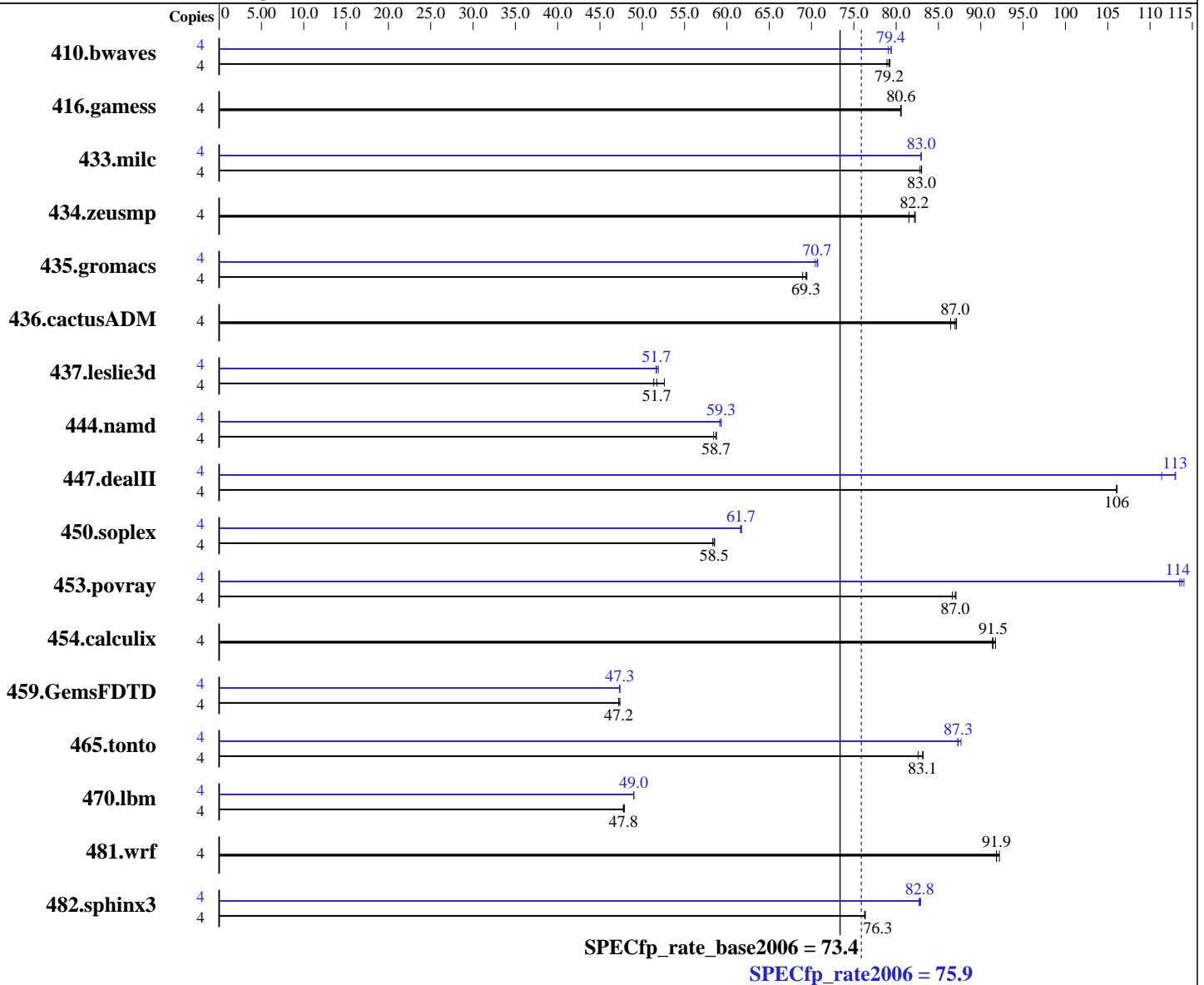$SPECfp^{®}\_rate2006 =$ 75.9

$SPECfp\_rate\_base2006 =$ 73.4

CPU2006 license: 9006	**Test date:** Mar-2010
Test sponsor: NEC Corporation	**Hardware Availability:** Jan-2010
Tested by: NEC Corporation	**Software Availability:** Nov-2009

Copies 0 5.00 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0 55.0 60.0 65.0 70.0 75.0 80.0 85.0 90.0 95.0 100 105 110 115

- 410.bwaves — 4 / 4 — 79.4 / 79.2
- 416.gamess — 4 — 80.6
- 433.milc — 4 / 4 — 83.0 / 83.0
- 434.zeusmp — 4 — 82.2
- 435.gromacs — 4 / 4 — 70.7 / 69.3
- 436.cactusADM — 4 — 87.0
- 437.leslie3d — 4 / 4 — 51.7 / 51.7
- 444.namd — 4 / 4 — 59.3 / 58.7
- 447.dealII — 4 / 4 — 113 / 106
- 450.soplex — 4 / 4 — 61.7 / 58.5
- 453.povray — 4 / 4 — 114 / 87.0
- 454.calculix — 4 — 91.5
- 459.GemsFDTD — 4 / 4 — 47.3 / 47.2
- 465.tonto — 4 / 4 — 87.3 / 83.1
- 470.lbm — 4 / 4 — 49.0 / 47.8
- 481.wrf — 4 — 91.9
- 482.sphinx3 — 4 / 4 — 82.8 / 76.3

SPECfp_rate_base2006 = 73.4

SPECfp_rate2006 = 75.9

Hardware

CPU Name:	Intel Xeon X3430
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
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:	No
File System:	ext3
System State:	Run level 3 (multi-user)

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L3 Cache:	8 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	16 GB (4 x 4 GB PC3-10600R, 2 rank, CL9, ECC)	Other Software:	None
Disk Subsystem:	1x160 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	686	79.3	689	78.9	**687**	**79.2**	4	687	79.1	**685**	**79.4**	684	79.4
416.gamess	4	**972**	**80.6**	973	80.5	972	80.6	4	**972**	**80.6**	973	80.5	972	80.6
433.milc	4	442	83.0	443	82.8	**442**	**83.0**	4	**443**	**83.0**	443	83.0	443	82.9
434.zeusmp	4	447	81.5	442	82.3	**443**	**82.2**	4	447	81.5	442	82.3	**443**	**82.2**
435.gromacs	4	411	69.5	414	69.0	**412**	**69.3**	4	404	70.7	**404**	**70.7**	405	70.4
436.cactusADM	4	553	86.4	**550**	**87.0**	549	87.1	4	553	86.4	**550**	**87.0**	549	87.1
437.leslie3d	4	715	52.6	732	51.4	**727**	**51.7**	4	**728**	**51.7**	728	51.7	724	51.9
444.namd	4	**546**	**58.7**	546	58.8	549	58.4	4	541	59.3	**541**	**59.3**	542	59.1
447.dealII	4	432	106	431	106	**431**	**106**	4	**405**	**113**	405	113	411	111
450.soplex	4	572	58.3	570	58.6	**570**	**58.5**	4	542	61.6	540	61.7	**541**	**61.7**
453.povray	4	244	87.1	246	86.6	**245**	**87.0**	4	187	114	187	114	**187**	**114**
454.calculix	4	360	91.7	361	91.4	**361**	**91.5**	4	360	91.7	361	91.4	**361**	**91.5**
459.GemsFDTD	4	899	47.2	896	47.4	**899**	**47.2**	4	**896**	**47.3**	897	47.3	896	47.4
465.tonto	4	**474**	**83.1**	476	82.6	473	83.2	4	449	87.7	451	87.3	**451**	**87.3**
470.lbm	4	1148	47.9	**1150**	**47.8**	1151	47.8	4	1122	49.0	**1122**	**49.0**	1122	49.0
481.wrf	4	485	92.2	**486**	**91.9**	486	91.9	4	485	92.2	**486**	**91.9**	486	91.9
482.sphinx3	4	**1021**	**76.3**	1021	76.3	1022	76.3	4	**942**	**82.8**	943	82.7	941	82.9

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.
     numactl was used to bind copies to the cores

Operating System Notes

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

Platform Notes

    Default BIOS settings were used.

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CPU2006 license: 9006

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Test date: Mar-2010

Hardware Availability: Jan-2010

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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

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

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

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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)`
                `-fno-alias -opt-prefetch`

         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)`
                `-opt-malloc-options=3 -ansi-alias -auto-ilp32`

Continued on next page

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Peak Optimization Flags (Continued)

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

C++ benchmarks:

444.namd: `-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)`
`-fno-alias -auto-ilp32`

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-`

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`

416.gamess: `basepeak = yes`

434.zeusmp: `basepeak = yes`

437.leslie3d: `-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 -opt-prefetch`

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`

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 -inline-calloc -opt-malloc-options=3`

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: `basepeak = yes`

454.calculix: `basepeak = yes`

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Peak Optimization Flags (Continued)

481.wrf: basepeak = yes

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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