SPEC® CFP2006 Result
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NEC Corporation

Express5800/B120a
(Intel Xeon E5504)

$SPECfp^{®}2006 =$ 25.3

$SPECfp\_base2006 =$ 23.9

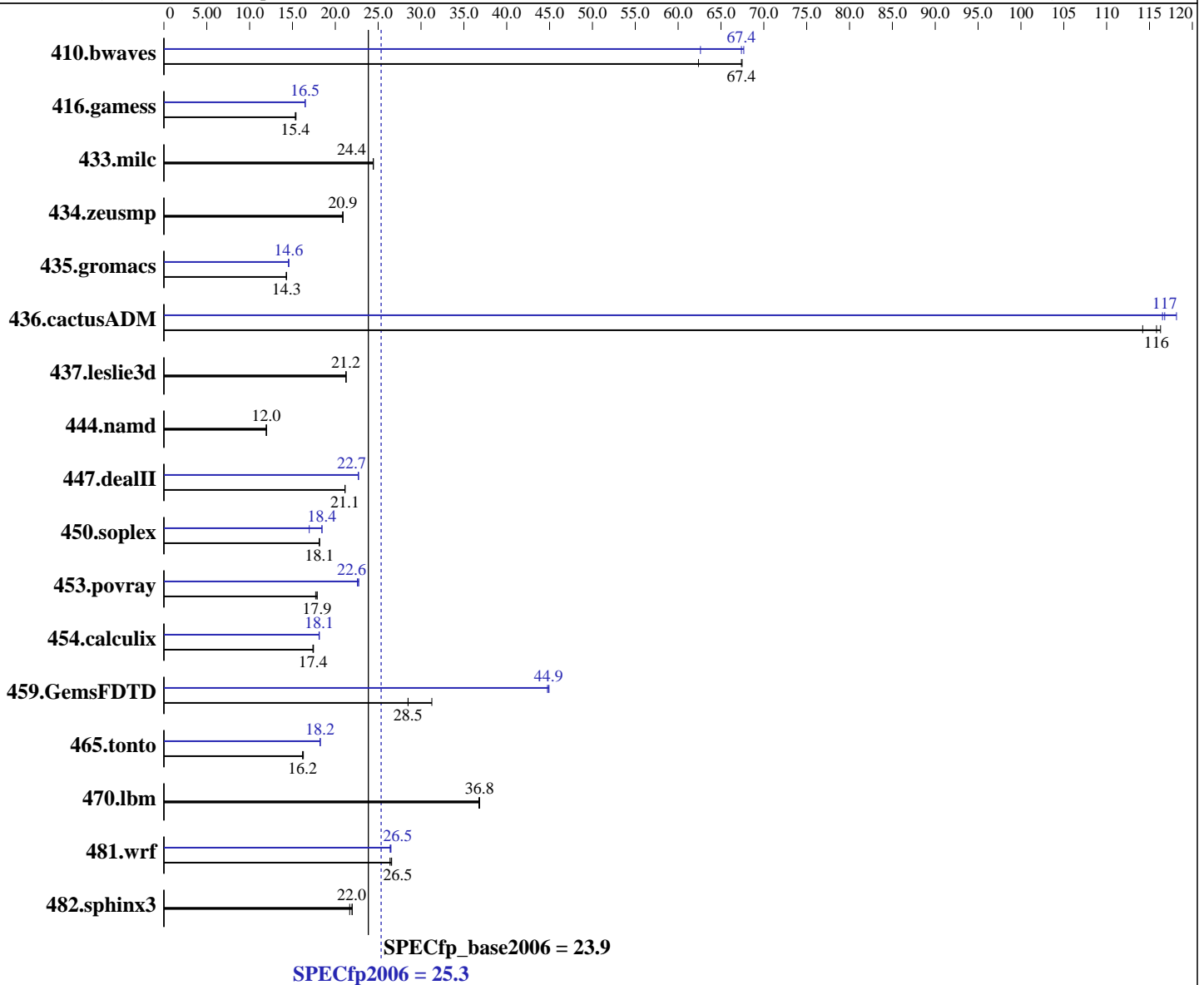|	
CPU2006 license: 9006	**Test date:** Aug-2009
Test sponsor: NEC Corporation	**Hardware Availability:** Jul-2009
Tested by: NEC Corporation	**Software Availability:** Feb-2009

410.bwaves 67.4 / 67.4
416.gamess 16.5 / 15.4
433.milc 24.4
434.zeusmp 20.9
435.gromacs 14.6 / 14.3
436.cactusADM 117 / 116
437.leslie3d 21.2
444.namd 12.0
447.dealII 22.7 / 21.1
450.soplex 18.4 / 18.1
453.povray 22.6 / 17.9
454.calculix 18.1 / 17.4
459.GemsFDTD 44.9 / 28.5
465.tonto 18.2 / 16.2
470.lbm 36.8
481.wrf 26.5 / 26.5
482.sphinx3 22.0

SPECfp_base2006 = 23.9
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Hardware

CPU Name:	Intel Xeon E5504
CPU Characteristics:	
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
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 10 (x86_64) SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp
Compiler:	Intel C++ and Fortran Compiler Professional 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.081, l_cprof_p_11.0.081
Auto Parallel:	Yes
File System:	ReiserFS

Continued on next page

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L3 Cache:	4 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6 X 4 GB PC3-8500R running at 800 MHz)
Disk Subsystem:	1x73 GB SATA2, 10000 RPM
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	201	67.5	218	62.4	**202**	**67.4**	217	62.6	201	67.7	**202**	**67.4**
416.gamess	1276	15.3	**1275**	**15.4**	1270	15.4	1189	16.5	1188	16.5	**1188**	**16.5**
433.milc	**376**	**24.4**	376	24.4	376	24.4	**376**	**24.4**	376	24.4	376	24.4
434.zeusmp	436	20.9	435	20.9	**436**	**20.9**	436	20.9	435	20.9	**436**	**20.9**
435.gromacs	500	14.3	499	14.3	**499**	**14.3**	**491**	**14.6**	490	14.6	491	14.5
436.cactusADM	105	114	103	116	**103**	**116**	103	117	**102**	**117**	101	118
437.leslie3d	**443**	**21.2**	442	21.3	443	21.2	**443**	**21.2**	442	21.3	443	21.2
444.namd	670	12.0	**671**	**12.0**	671	11.9	670	12.0	**671**	**12.0**	671	11.9
447.dealII	541	21.1	542	21.1	**542**	**21.1**	**504**	**22.7**	504	22.7	504	22.7
450.soplex	**460**	**18.1**	460	18.1	459	18.2	452	18.4	**452**	**18.4**	492	17.0
453.povray	297	17.9	300	17.7	**298**	**17.9**	234	22.7	**235**	**22.6**	236	22.6
454.calculix	473	17.5	474	17.4	**474**	**17.4**	456	18.1	455	18.1	**455**	**18.1**
459.GemsFDTD	**372**	**28.5**	372	28.5	339	31.3	236	44.9	237	44.8	**236**	**44.9**
465.tonto	605	16.3	**608**	**16.2**	608	16.2	539	18.2	**540**	**18.2**	540	18.2
470.lbm	374	36.8	373	36.8	**373**	**36.8**	374	36.8	373	36.8	**373**	**36.8**
481.wrf	423	26.4	**421**	**26.5**	420	26.6	**422**	**26.5**	423	26.4	422	26.5
482.sphinx3	899	21.7	887	22.0	**888**	**22.0**	899	21.7	887	22.0	**888**	**22.0**

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

Platform Notes

    BIOS setting:
    NUMA configuration : Enabled

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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:
    -xSSE4.2 -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:
    icc

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

     450.soplex: icpc -m32

Fortran benchmarks:
    ifort

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
    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
    482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

    433.milc: basepeak = yes

    470.lbm: basepeak = yes

    482.sphinx3: basepeak = yes

C++ benchmarks:

Continued on next page

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Peak Optimization Flags (Continued)

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- -opt-prefetch

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
-parallel

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: -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 -opt-prefetch -parallel

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

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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel -auto-ilp32

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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-revH.html
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.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-revH.xml
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.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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