SPEC® CFP2006 Result

NEC Corporation

Express5800/B120a
(Intel Xeon E5504)

$SPECfp®\_rate2006 =$ 115

$SPECfp\_rate\_base2006 =$ 111

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

Test date: Aug-2009
Hardware Availability: Jul-2009
Software Availability: Feb-2009

Benchmark	Copies	Result
410.bwaves	8	126
410.bwaves	8	126
416.gamess	8	131
416.gamess	8	130
433.milc	8	105
433.milc	8	105
434.zeusmp	8	119
434.zeusmp	8	117
435.gromacs	8	115
435.gromacs	8	113
436.cactusADM	8	133
436.cactusADM	8	125
437.leslie3d	8	85.0
444.namd	8	94.5
444.namd	8	93.5
447.dealII	8	156
447.dealII	8	144
450.soplex	8	91.9
450.soplex	8	86.6
453.povray	8	181
453.povray	8	143
454.calculix	8	138
454.calculix	8	138
459.GemsFDTD	8	78.9
459.GemsFDTD	8	76.5
465.tonto	8	120
465.tonto	8	113
470.lbm	8	83.3
470.lbm	8	80.6
481.wrf	8	139
482.sphinx3	8	118
482.sphinx3	8	114

SPECfp_rate_base2006 = 111

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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: No
File System: ReiserFS
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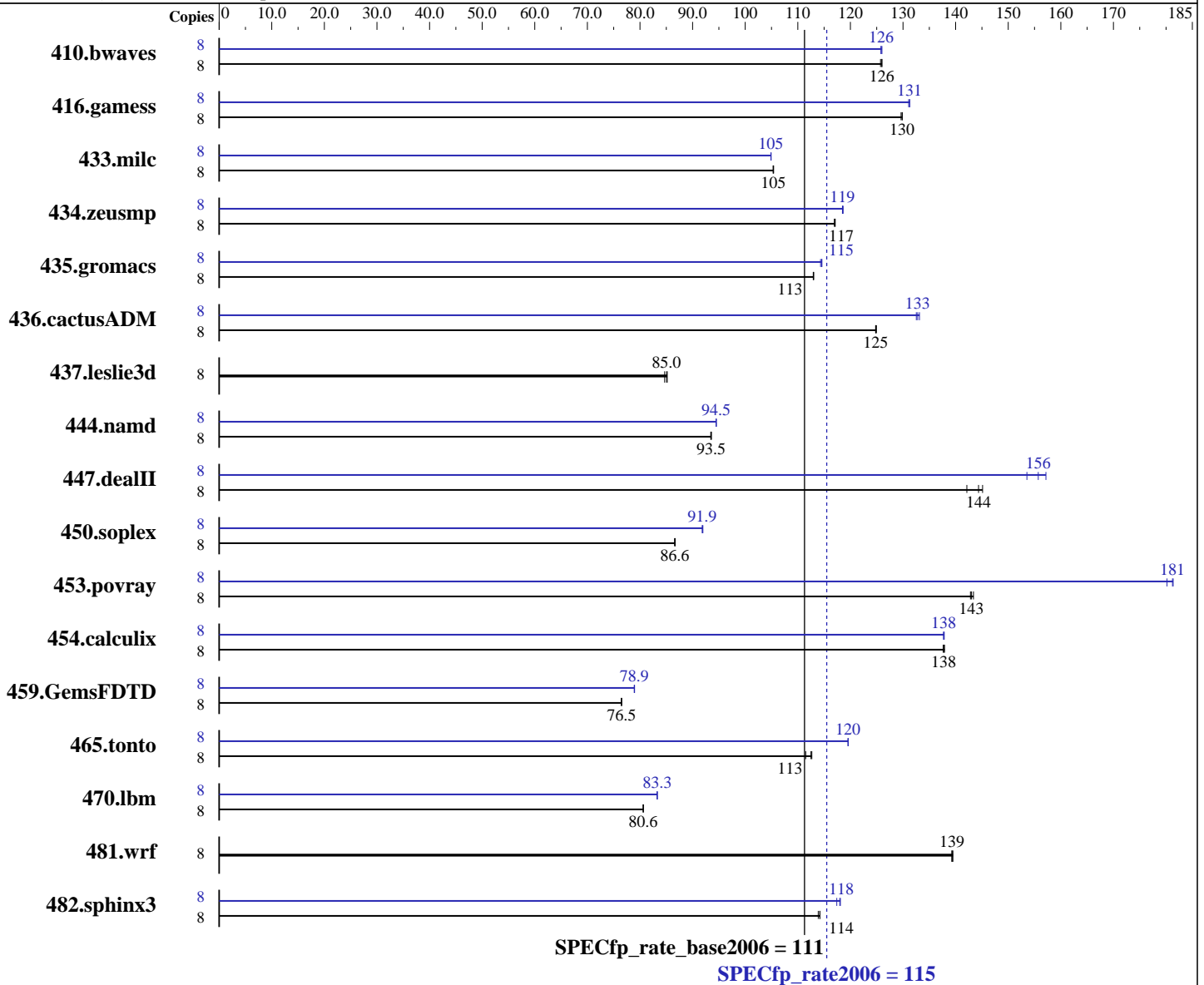
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L3 Cache:	4 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6 X 4 GB PC3-8500R running at 800 MHz)
Disk Subsystem:	1x73 GB SATA2, 10000 RPM
Other Hardware:	None

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	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	865	126	863	126	**863**	**126**	8	**864**	**126**	864	126	863	126
416.gamess	8	**1207**	**130**	1208	130	1206	130	8	**1193**	**131**	1193	131	1195	131
433.milc	8	697	105	**697**	**105**	697	105	8	700	105	**700**	**105**	700	105
434.zeusmp	8	622	117	622	117	**622**	**117**	8	614	118	**614**	**119**	614	119
435.gromacs	8	506	113	505	113	**506**	**113**	8	500	114	499	115	**499**	**115**
436.cactusADM	8	**766**	**125**	766	125	765	125	8	718	133	**720**	**133**	721	133
437.leslie3d	8	**884**	**85.0**	888	84.7	883	85.2	8	**884**	**85.0**	888	84.7	883	85.2
444.namd	8	686	93.6	**686**	**93.5**	687	93.5	8	679	94.4	**679**	**94.5**	679	94.5
447.dealII	8	**634**	**144**	631	145	644	142	8	**588**	**156**	582	157	596	154
450.soplex	8	770	86.7	**770**	**86.6**	771	86.6	8	726	92.0	**726**	**91.9**	726	91.8
453.povray	8	297	143	**298**	**143**	298	143	8	**235**	**181**	235	181	236	180
454.calculix	8	479	138	**479**	**138**	480	138	8	479	138	**479**	**138**	479	138
459.GemsFDTD	8	**1110**	**76.5**	1110	76.5	1109	76.5	8	1075	79.0	**1075**	**78.9**	1076	78.9
465.tonto	8	699	113	**700**	**113**	706	112	8	659	120	**658**	**120**	658	120
470.lbm	8	**1363**	**80.6**	1364	80.6	1363	80.6	8	**1320**	**83.3**	1320	83.3	1320	83.2
481.wrf	8	**641**	**139**	642	139	641	139	8	**641**	**139**	642	139	641	139
482.sphinx3	8	**1365**	**114**	1369	114	1365	114	8	1328	117	1320	118	**1322**	**118**

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

```
    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

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`

        482.sphinx3: `icc -m32`

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`

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`

        470.lbm: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`
                `-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: -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: -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: -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)

      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

       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 -auto-ilp32

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Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.2 -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-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.

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