SPEC® CFP2006 Result

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Dell Inc.

PowerEdge R610 (Intel Xeon E5530, 2.40 GHz)

$SPECfp®\_rate2006 = \quad 162$

$SPECfp\_rate\_base2006 = \quad 155$
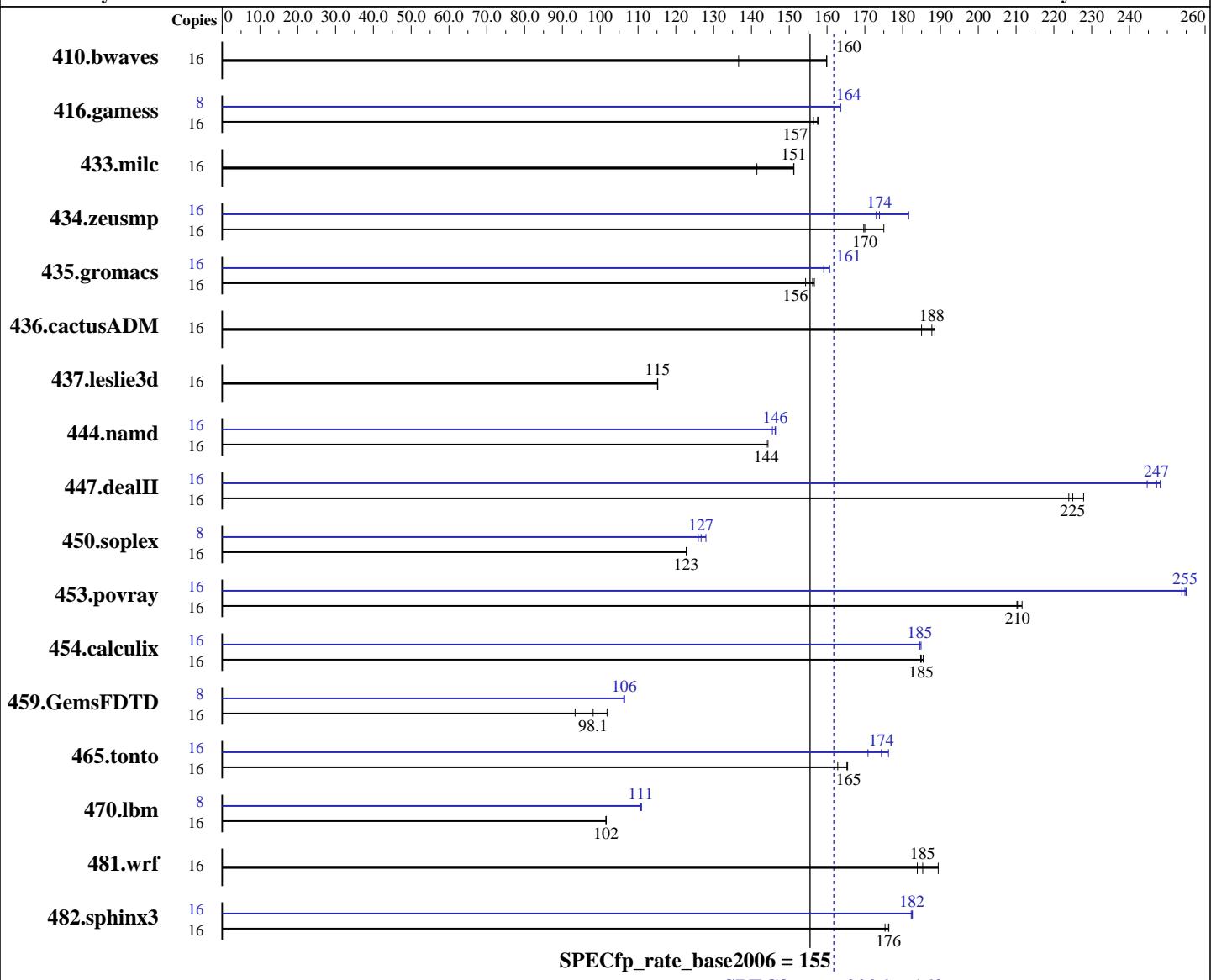
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Apr-2009
Hardware Availability: Mar-2009
Software Availability: Feb-2009

SPECfp_rate_base2006 = 155

SPECfp_rate2006 = 162

Hardware

CPU Name: Intel Xeon E5530
CPU Characteristics: Intel Turbo Boost Technology up to 2.66 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
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, Kernel 2.6.16.60-0.21-smp
Compiler: Intel C++ and Fortran Compiler Professional 11.0 for Linux
Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080
Auto Parallel: No
File System: ReiserFS
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:	24 GB (6 x 4 GB DDR3-1066 DR RDIMM)	Other Software:	Binutils 2.18.50.0.7.20080502
Disk Subsystem:	1 x 146 GB 10000 RPM SAS		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1592	137	1359	160	**1360**	**160**	16	1592	137	1359	160	**1360**	**160**
416.gamess	16	2003	156	1988	158	**1989**	**157**	8	958	164	958	163	**958**	**164**
433.milc	16	1038	141	971	151	**972**	**151**	16	1038	141	971	151	**972**	**151**
434.zeusmp	16	858	170	**857**	**170**	832	175	16	**837**	**174**	842	173	802	182
435.gromacs	16	729	157	740	154	**731**	**156**	16	**711**	**161**	711	161	718	159
436.cactusADM	16	**1019**	**188**	1034	185	1014	189	16	**1019**	**188**	1034	185	1014	189
437.leslie3d	16	1310	115	**1306**	**115**	1305	115	16	1310	115	**1306**	**115**	1305	115
444.namd	16	889	144	892	144	**892**	**144**	16	877	146	**877**	**146**	882	146
447.dealII	16	817	224	**814**	**225**	803	228	16	**741**	**247**	738	248	748	245
450.soplex	16	1086	123	**1087**	**123**	1087	123	8	530	126	**527**	**127**	521	128
453.povray	16	402	212	405	210	**405**	**210**	16	334	255	335	254	**334**	**255**
454.calculix	16	714	185	712	185	**714**	**185**	16	**715**	**185**	714	185	716	184
459.GemsFDTD	16	1818	93.4	**1730**	**98.1**	1667	102	8	**798**	**106**	798	106	799	106
465.tonto	16	952	165	**953**	**165**	967	163	16	922	171	**903**	**174**	893	176
470.lbm	16	2164	102	**2165**	**102**	2166	102	8	991	111	**993**	**111**	994	111
481.wrf	16	**965**	**185**	944	189	972	184	16	**965**	**185**	944	189	972	184
482.sphinx3	16	1768	176	1779	175	**1769**	**176**	16	1711	182	1708	183	**1709**	**182**

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

Base Compiler Invocation

C benchmarks:
     icc

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Base Compiler Invocation (Continued)

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: `basepeak = yes`

         470.lbm: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`
                `-auto-ilp32`

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

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Peak Optimization Flags (Continued)

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: 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: -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: basepeak = yes

   454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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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-ic11.0-fp-linux64-revA.20090710.html`

You can also download the XML flags source by saving the following link:

`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.xml`

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