SPEC® CFP2006 Result

Dell Inc.

PowerEdge R610 (Intel Xeon L5630, 2.13 GHz)

$SPECfp^®\_rate2006 =$ 138

$SPECfp\_rate\_base2006 =$ 132

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Jun-2010
Hardware Availability: Mar-2010
Software Availability: Dec-2009

Benchmark	Copies	Result
410.bwaves	16	130
416.gamess	16	137
433.milc	16	134
433.milc	16	134
434.zeusmp	16	163
435.gromacs	16	132
435.gromacs	16	132
436.cactusADM	16	168
437.leslie3d	8	89.6
437.leslie3d	16	84.7
444.namd	16	129
444.namd	16	125
447.dealII	16	219
450.soplex	8	110
450.soplex	16	99.1
453.povray	16	225
453.povray	16	186
454.calculix	16	165
459.GemsFDTD	8	85.4
459.GemsFDTD	16	78.4
465.tonto	16	159
465.tonto	16	150
470.lbm	8	82.9
470.lbm	16	76.0
481.wrf	16	146
482.sphinx3	16	154
482.sphinx3	16	145

SPECfp_rate_base2006 = 132

SPECfp_rate2006 = 138

Hardware

CPU Name: Intel Xeon L5630
CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz: 2133
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 11 (x86_64), Kernel 2.6.27.19-5-smp
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)

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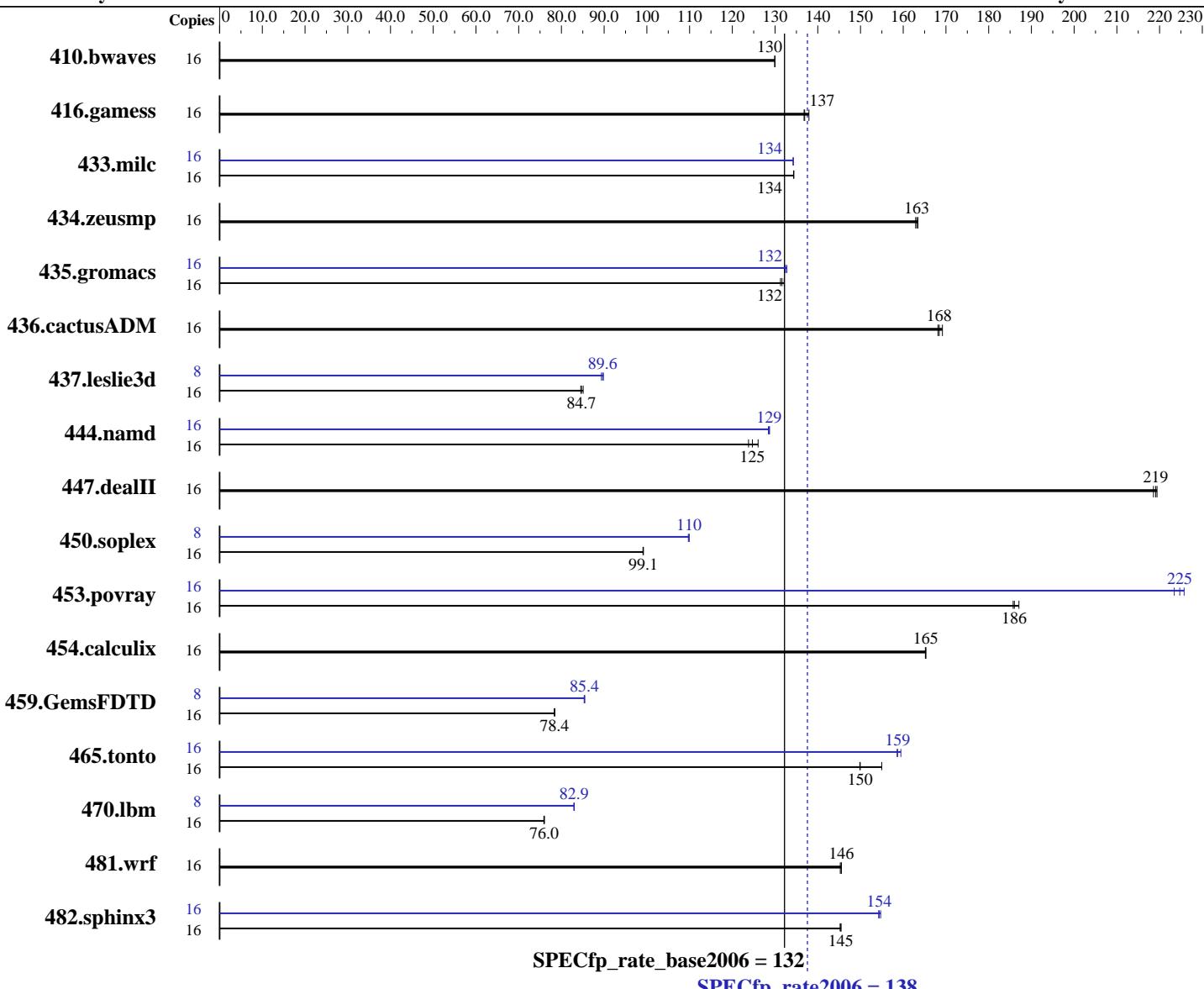
$\text{SPECfp\_rate\_base2006} = \quad 132$

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC, downclocked to 1066 MHz)
Disk Subsystem:	1 x 146 GB 15000 RPM SAS
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	16	**1673**	**130**	1673	130	1673	130	16	**1673**	**130**	1673	130	1673	130
416.gamess	16	**2288**	**137**	2271	138	2290	137	16	**2288**	**137**	2271	138	2290	137
433.milc	16	**1093**	**134**	1093	134	1093	134	16	1094	134	**1094**	**134**	1094	134
434.zeusmp	16	**892**	**163**	891	163	894	163	16	**892**	**163**	891	163	894	163
435.gromacs	16	870	131	865	132	**868**	**132**	16	863	132	**862**	**132**	860	133
436.cactusADM	16	1130	169	1137	168	**1135**	**168**	16	1130	169	1137	168	**1135**	**168**
437.leslie3d	16	1767	85.1	1779	84.5	**1776**	**84.7**	8	**839**	**89.6**	842	89.4	837	89.8
444.namd	16	1037	124	1018	126	**1029**	**125**	16	**998**	**129**	999	128	997	129
447.dealII	16	834	219	837	219	**835**	**219**	16	834	219	837	219	**835**	**219**
450.soplex	16	1347	99.1	1345	99.2	**1346**	**99.1**	8	607	110	**607**	**110**	608	110
453.povray	16	458	186	**458**	**186**	455	187	16	**379**	**225**	377	226	381	223
454.calculix	16	**799**	**165**	799	165	799	165	16	**799**	**165**	799	165	799	165
459.GemsFDTD	16	**2165**	**78.4**	2165	78.4	2167	78.3	8	993	85.4	995	85.3	**994**	**85.4**
465.tonto	16	1016	155	1051	150	**1050**	**150**	16	**992**	**159**	993	159	987	159
470.lbm	16	2892	76.0	**2894**	**76.0**	2897	75.9	8	1324	83.0	1325	82.9	**1325**	**82.9**
481.wrf	16	1230	145	**1228**	**146**	1228	146	16	1230	145	**1228**	**146**	1228	146
482.sphinx3	16	2147	145	**2145**	**145**	2144	145	16	**2020**	**154**	2015	155	2022	154

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 Settings:
    Power Management = Maximum Performance (Default = Active Power Controller)
    Data Reuse = Disabled (Default = Enabled)
```

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General Notes

```
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
The Dell PowerEdge R610 and
the Bull NovaScale R440 F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R610 model.
```

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

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Base Optimization Flags (Continued)

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

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

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
```

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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

    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: basepeak = yes

    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: basepeak = yes

    434.zeusmp: basepeak = yes

    437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

   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

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-linux64-revE.20100330.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 10:58:54 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 20 July 2010.