SPEC® CFP2006 Result
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Dell Inc.

PowerEdge R620 (Intel Xeon E5-2643 v2, 3.50 GHz)

$SPECfp^{®}2006 =$ 103

$SPECfp\_base2006 =$ 98.1

CPU2006 license: 55	**Test date:** Sep-2013
Test sponsor: Dell Inc.	**Hardware Availability:** Sep-2013
Tested by: Dell Inc.	**Software Availability:** Sep-2013

0 20.0 40.0 60.0 80.0 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 560

Benchmark	Result
410.bwaves	484
416.gamess	41.3 / 36.7
433.milc	75.5 / 74.8
434.zeusmp	173
435.gromacs	50.5
436.cactusADM	438
437.leslie3d	235
444.namd	27.0 / 26.5
447.dealII	58.1
450.soplex	51.1
453.povray	61.4 / 51.9
454.calculix	57.2 / 52.9
459.GemsFDTD	193 / 178
465.tonto	52.5 / 40.1
470.lbm	558
481.wrf	89.6
482.sphinx3	86.3 / 78.8

SPECfp_base2006 = 98.1

SPECfp2006 = 103

Hardware

CPU Name:	Intel Xeon E5-2643 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip
CPU(s) orderable:	1,2 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 SP3 (x86_64) 3.0.76-0.11-default
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux; Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext2
System State:	Run level 3 (multi-user)

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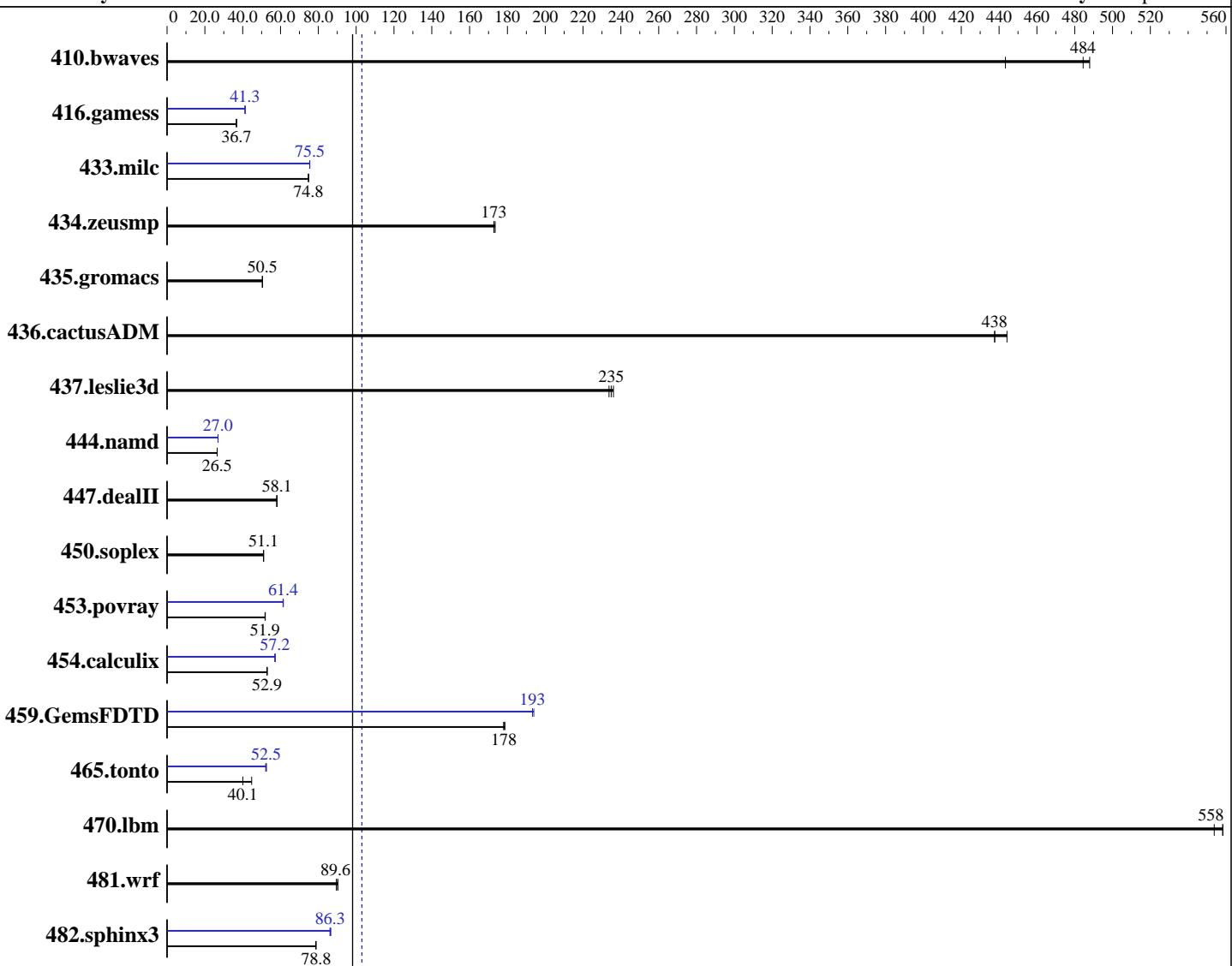**CPU2006 license:** 55 **Test sponsor:** Dell Inc. **Tested by:** Dell Inc.

Test date: Sep-2013
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Software Availability: Sep-2013

L3 Cache:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	1 x 300 GB 15000 RPM SAS
Other Hardware:	None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	30.7	443	**28.1**	**484**	27.9	488	30.7	443	**28.1**	**484**	27.9	488
416.gamess	534	36.7	**534**	**36.7**	534	36.7	**474**	**41.3**	474	41.3	475	41.2
433.milc	123	74.8	**123**	**74.8**	123	74.8	122	75.5	**122**	**75.5**	122	75.4
434.zeusmp	**52.6**	**173**	52.6	173	52.4	174	**52.6**	**173**	52.6	173	52.4	174
435.gromacs	141	50.5	142	50.4	**141**	**50.5**	141	50.5	142	50.4	**141**	**50.5**
436.cactusADM	27.3	438	**27.3**	**438**	26.9	444	27.3	438	**27.3**	**438**	26.9	444
437.leslie3d	40.2	234	39.8	236	**40.0**	**235**	40.2	234	39.8	236	**40.0**	**235**
444.namd	302	26.5	303	26.5	**303**	**26.5**	**298**	**27.0**	297	27.0	298	26.9
447.dealII	197	58.1	197	58.1	**197**	**58.1**	197	58.1	197	58.1	**197**	**58.1**
450.soplex	163	51.1	164	51.0	**163**	**51.1**	163	51.1	164	51.0	**163**	**51.1**
453.povray	102	51.9	103	51.8	**103**	**51.9**	**86.6**	**61.4**	86.7	61.3	86.5	61.5
454.calculix	**156**	**52.9**	156	53.0	156	52.8	145	57.0	144	57.2	**144**	**57.2**
459.GemsFDTD	59.4	179	59.6	178	**59.6**	**178**	54.7	194	**54.9**	**193**	54.9	193
465.tonto	**246**	**40.1**	246	40.1	220	44.7	189	52.1	187	52.5	**188**	**52.5**
470.lbm	24.6	558	**24.6**	**558**	24.8	554	24.6	558	**24.6**	**558**	24.8	554
481.wrf	124	90.4	**125**	**89.6**	125	89.5	124	90.4	**125**	**89.6**	125	89.5
482.sphinx3	247	78.8	**247**	**78.8**	248	78.6	226	86.1	**226**	**86.3**	225	86.6

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
BIOS settings:
Virtualization Technology disabled
Execute Disable disabled
Logical Processor disabled
System Profile set to Performance
Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Sun Sep 22 13:08:02 2013

This section contains SUT (System Under Test) info as seen by
```
Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/

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Dell Inc.

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Platform Notes (Continued)

```
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2643 v2 @ 3.50GHz
      2 "physical id"s (chips)
      12 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 6
      siblings  : 6
      physical 0: cores 2 3 4 8 9 10
      physical 1: cores 2 3 4 8 9 10
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:      264634596 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 22 08:06 last=S

SPEC is set to: /root/cpu2006.1.2.ic13
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext2  267G   56G  211G  21% /

Additional information from dmidecode:
  BIOS Dell Inc. 2.0.19 08/29/2013
  Memory:
   6x 00AD00B300AD HMT42GR7MFR4C-RD 16 GB 1866 MHz
   10x 00AD04B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz

(End of data from sysinfo program)
```

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General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/cpu2006.1.2.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"
OMP_NUM_THREADS = "12"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL5.5
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled
  Filesystem page cache cleared with:
  echo 1>   /proc/sys/vm/drop_caches

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

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Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

Peak Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

```
  433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
            -ansi-alias

   470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
            -parallel
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

       444.namd: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
               `-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias`
               `-auto-ilp32`

       447.dealII: basepeak = yes

       450.soplex: basepeak = yes

       453.povray: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
               `-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias`

Fortran benchmarks:

       410.bwaves: basepeak = yes

       416.gamess: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
               `-no-prec-div(pass 2) -prof-use(pass 2) -unroll2`
               `-inline-level=0 -scalar-rep- -static`

       434.zeusmp: basepeak = yes

       437.leslie3d: basepeak = yes

    459.GemsFDTD: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
               `-no-prec-div(pass 2) -prof-use(pass 2) -unroll2`
               `-inline-level=0 -opt-prefetch -parallel`

       465.tonto: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
               `-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc`
               `-opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

       435.gromacs: basepeak = yes

    436.cactusADM: basepeak = yes

       454.calculix: `-xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

         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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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