SPEC® CFP2006 Result

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Dell Inc.

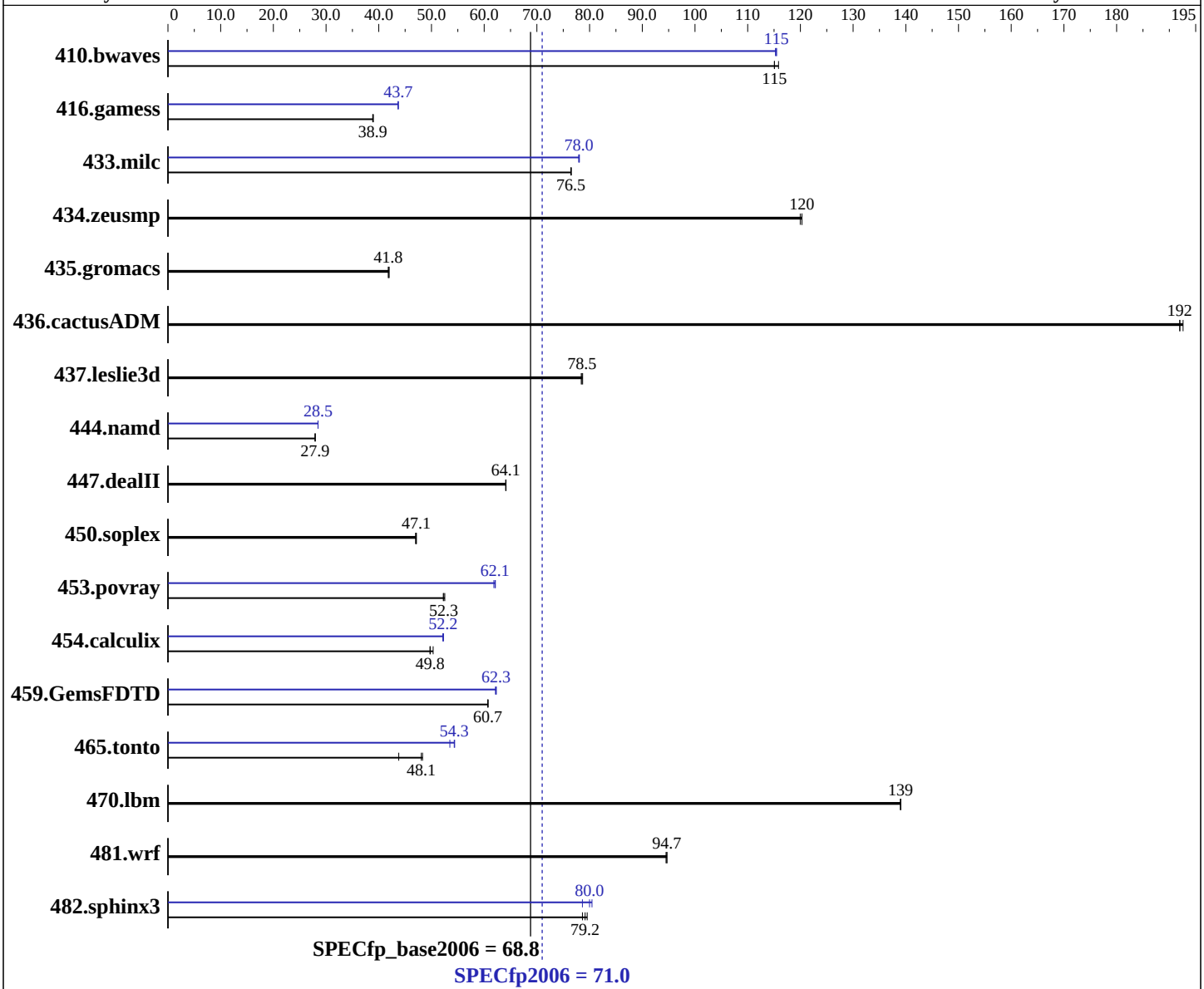
PowerEdge R210 II (Intel Xeon E3-1280 v2, 3.60 GHz)

SPECfp®2006 = 71.0

SPECfp_base2006 = 68.8

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

Test date: Mar-2012
Hardware Availability: May-2012
Software Availability: Feb-2012



Hardware

CPU Name:	Intel Xeon E3-1280 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3600
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default
Compiler:	C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (2 x 8 GB 2Rx8 PC3-12800R-11, ECC)
Disk Subsystem: 1 TB 7200 RPM SATA
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	**118**	**115**	117	116	118	115	118	115	118	115	**118**	**115**
416.gamess	**504**	**38.9**	504	38.9	502	39.0	**448**	**43.7**	448	43.7	448	43.7
433.milc	120	76.5	120	76.5	**120**	**76.5**	118	78.1	118	77.9	**118**	**78.0**
434.zeusmp	75.9	120	75.7	120	**75.7**	**120**	75.9	120	75.7	120	**75.7**	**120**
435.gromacs	170	42.0	171	41.8	**171**	**41.8**	170	42.0	171	41.8	**171**	**41.8**
436.cactusADM	62.0	193	**62.2**	**192**	62.2	192	62.0	193	**62.2**	**192**	62.2	192
437.leslie3d	119	78.7	120	78.4	**120**	**78.5**	119	78.7	120	78.4	**120**	**78.5**
444.namd	287	27.9	287	27.9	**287**	**27.9**	282	28.5	282	28.5	**282**	**28.5**
447.dealII	178	64.1	178	64.1	**178**	**64.1**	178	64.1	178	64.1	**178**	**64.1**
450.soplex	177	47.1	178	47.0	**177**	**47.1**	177	47.1	178	47.0	**177**	**47.1**
453.povray	102	52.2	**102**	**52.3**	101	52.5	86.0	61.8	85.6	62.1	**85.7**	**62.1**
454.calculix	166	49.7	**166**	**49.8**	164	50.3	**158**	**52.2**	158	52.3	158	52.2
459.GemsFDTD	175	60.8	175	60.7	**175**	**60.7**	170	62.3	171	62.1	**170**	**62.3**
465.tonto	204	48.3	**205**	**48.1**	225	43.8	181	54.4	**181**	**54.3**	184	53.5
470.lbm	98.8	139	**98.8**	**139**	98.8	139	98.8	139	**98.8**	**139**	98.8	139
481.wrf	118	94.7	118	94.5	**118**	**94.7**	118	94.7	118	94.5	**118**	**94.7**
482.sphinx3	245	79.5	**246**	**79.2**	248	78.6	242	80.5	248	78.6	**244**	**80.0**

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

```
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on linux-htyj Wed Mar  7 02:36:29 2012

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

Platform Notes (Continued)

```
      http://www.spec.org/cpu2006/Docs/config.html#sysinfo

    From /proc/cpuinfo
       model name : Intel(R) Xeon(R) CPU E3-1280 V2 @ 3.60GHz
          1 "physical id"s (chips)
          8 "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 : 4
          siblings  : 8
          physical 0: cores 0 1 2 3
       cache size : 8192 KB

    From /proc/meminfo
       MemTotal:       16326560 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 = 2

    uname -a:
       Linux linux-htyj 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012
       (54ddfaf) x86_64 x86_64 x86_64 GNU/Linux

    run-level 3 Mar 6 21:35 last=S

    SPEC is set to: /root/CPU2006-1.2
       Filesystem     Type  Size  Used Avail Use% Mounted on
       /dev/sda2      ext3  913G   27G  840G   4% /

    Additional information from dmidecode:

    (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,scatter"
 LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"
 OMP_NUM_THREADS = "4"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RHEL5.5
```

Continued on next page

General Notes (Continued)

```
Transparent Huge Pages disabled with:
echo never  > /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

Base Optimization Flags

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

Continued on next page

Base Optimization Flags (Continued)

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`

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.xml

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:07:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 February 2013.