SPEC® CFP2006 Result

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Dell Inc.

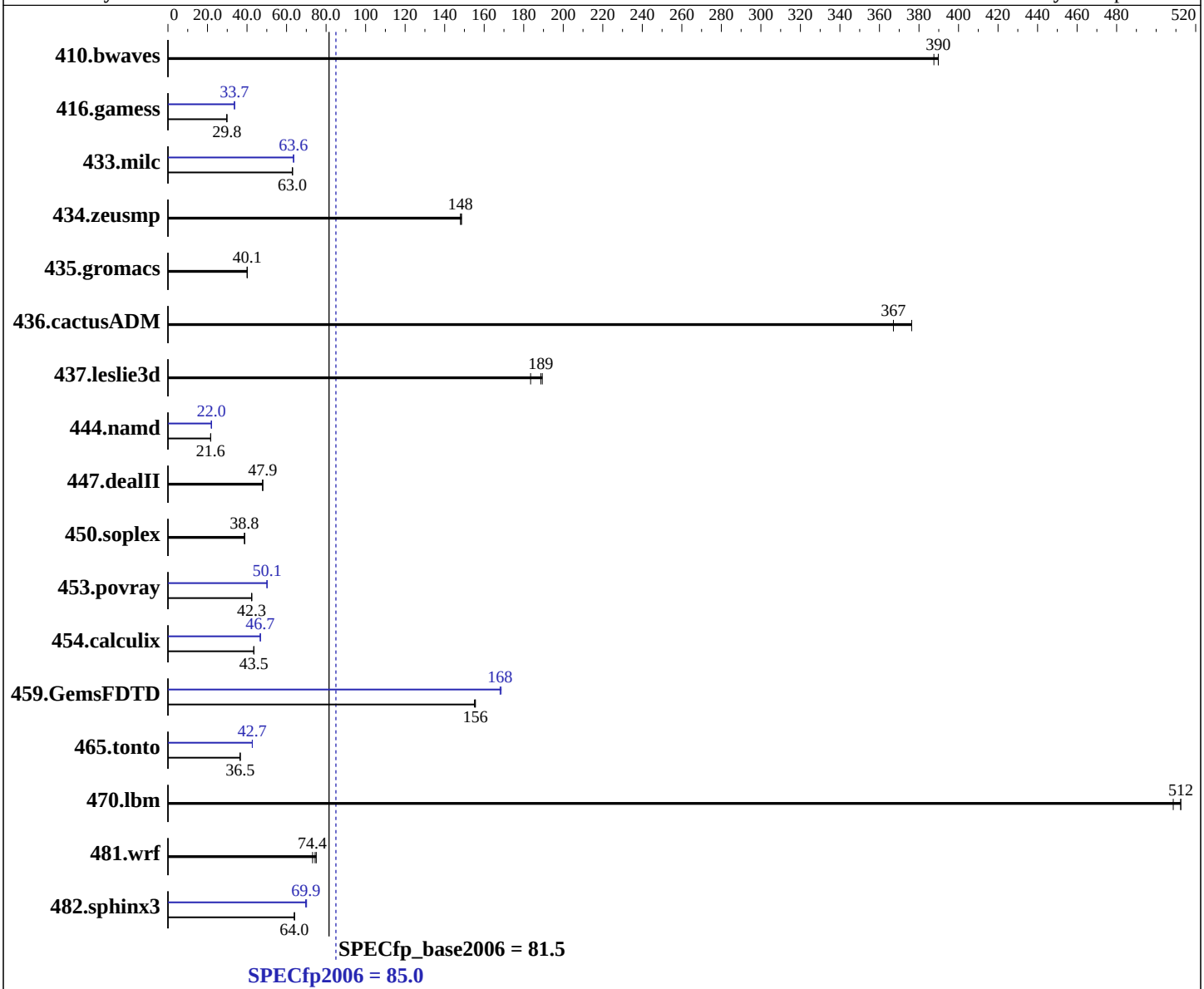
PowerEdge T620 (Intel Xeon E5-2630 v2, 2.60 GHz)

SPECfp®2006 = 85.0

SPECfp_base2006 = 81.5

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

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



Hardware

CPU Name:	Intel Xeon E5-2630 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.10 GHz
CPU MHz:	2600
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

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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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L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz)
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	34.9	390	**34.9**	**390**	35.1	388	34.9	390	**34.9**	**390**	35.1	388
416.gamess	657	29.8	657	29.8	**657**	**29.8**	582	33.7	**582**	**33.7**	581	33.7
433.milc	146	63.1	**146**	**63.0**	146	62.9	144	63.6	**144**	**63.6**	144	63.5
434.zeusmp	61.2	149	**61.4**	**148**	61.4	148	61.2	149	**61.4**	**148**	61.4	148
435.gromacs	178	40.1	178	40.1	**178**	**40.1**	178	40.1	178	40.1	**178**	**40.1**
436.cactusADM	32.6	367	**32.6**	**367**	31.8	376	32.6	367	**32.6**	**367**	31.8	376
437.leslie3d	51.2	183	**49.8**	**189**	49.6	189	51.2	183	**49.8**	**189**	49.6	189
444.namd	371	21.6	**371**	**21.6**	371	21.6	365	22.0	**365**	**22.0**	365	22.0
447.dealII	239	47.9	239	47.9	**239**	**47.9**	239	47.9	239	47.9	**239**	**47.9**
450.soplex	215	38.7	215	38.8	**215**	**38.8**	215	38.7	215	38.8	**215**	**38.8**
453.povray	**126**	**42.3**	125	42.4	126	42.3	**106**	**50.1**	106	50.2	106	50.1
454.calculix	190	43.4	**190**	**43.5**	190	43.5	176	46.8	**176**	**46.7**	177	46.7
459.GemsFDTD	68.4	155	68.2	156	**68.2**	**156**	**63.1**	**168**	63.1	168	62.9	169
465.tonto	**269**	**36.5**	270	36.5	269	36.6	**230**	**42.7**	230	42.7	231	42.7
470.lbm	**26.8**	**512**	26.8	512	27.0	509	**26.8**	**512**	26.8	512	27.0	509
481.wrf	153	73.2	149	75.0	**150**	**74.4**	153	73.2	149	75.0	**150**	**74.4**
482.sphinx3	**305**	**64.0**	304	64.1	305	64.0	**279**	**69.9**	278	70.1	280	69.7

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 Mon Sep  9 14:57:59 2013
```

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Platform Notes (Continued)

```
This section contains SUT (System Under Test) info as seen by
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 E5-2630 v2 @ 2.60GHz
      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 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 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 9 08:44 last=S

SPEC is set to: /root/cpu2006.1.2.ic13
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext2  267G   57G  209G  22% /

Additional information from dmidecode:
  BIOS Dell Inc. 2.0.19 08/30/2013
  Memory:
   16x 00CE00B300CE M393B2G70CB0-CMA 16 GB 1600 MHz

(End of data from sysinfo program)
```

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
```

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`

Continued on next page

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 other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 18:43:14 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 October 2013.