SPEC® CFP2006 Result

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Dell Inc.

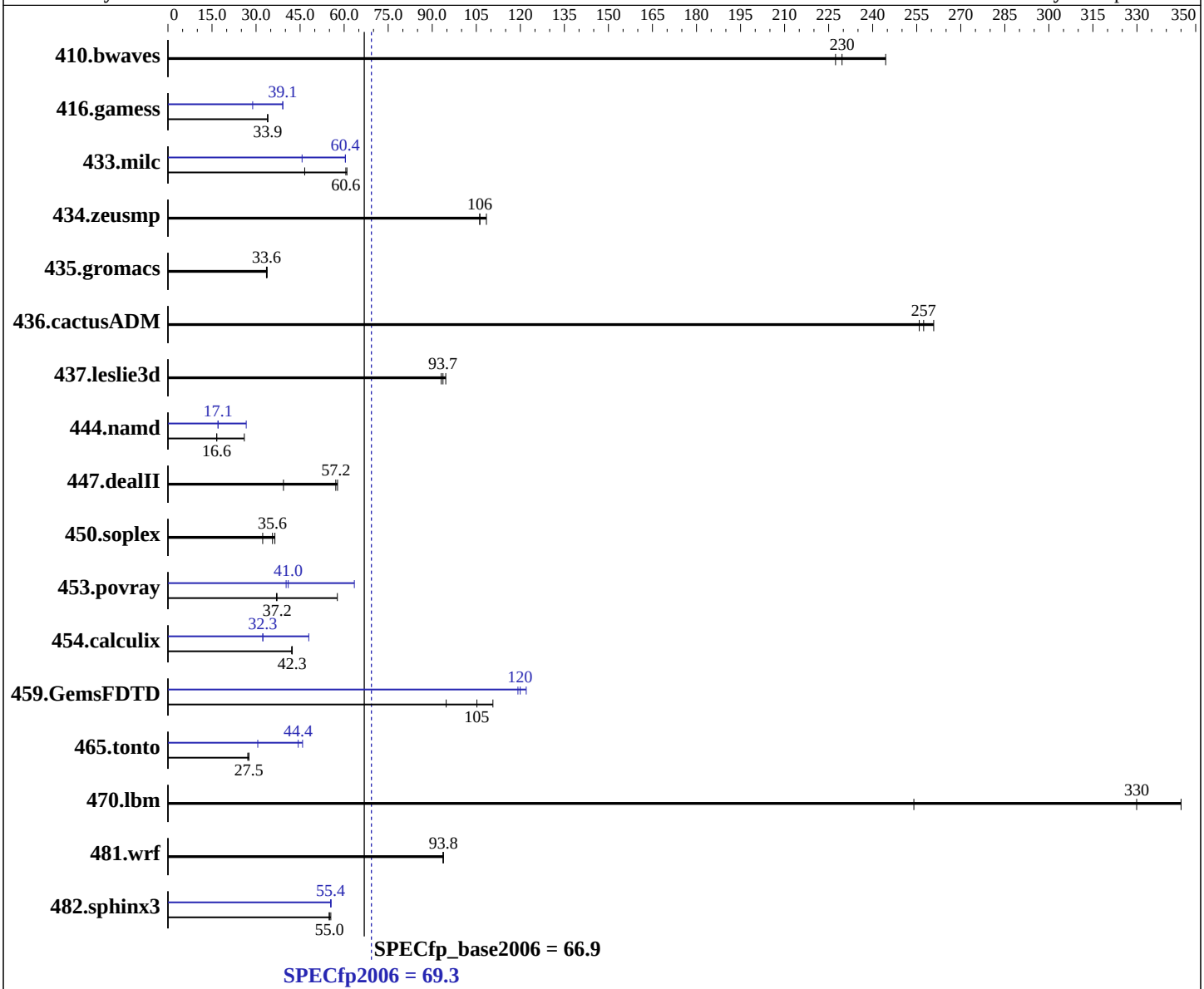
Dell Precision Tower 7910 (Intel Xeon E5-2699 v3)

SPECfp®2006 = 69.3

SPECfp_base2006 = 66.9

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

Test date: Oct-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014



Hardware

CPU Name:	Intel Xeon E5-2699 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip, 2 threads/core
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:	Red Hat Enterprise Linux Workstation release 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)

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L3 Cache:	45 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	240 GB (15 x 16 GB 2Rx4 PC4-2133P-R)	Other Software:	None
Disk Subsystem:	415 GB SATA SSD		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	55.6	244	**59.2**	**230**	59.8	227	55.6	244	**59.2**	**230**	59.8	227
416.gamess	576	34.0	**577**	**33.9**	577	33.9	500	39.1	**501**	**39.1**	679	28.9
433.milc	197	46.6	**152**	**60.6**	151	61.0	**152**	**60.4**	152	60.4	201	45.7
434.zeusmp	**85.7**	**106**	85.7	106	83.9	108	**85.7**	**106**	85.7	106	83.9	108
435.gromacs	**213**	**33.6**	211	33.8	213	33.5	**213**	**33.6**	211	33.8	213	33.5
436.cactusADM	46.7	256	**46.4**	**257**	45.8	261	46.7	256	**46.4**	**257**	45.8	261
437.leslie3d	101	93.1	**100**	**93.7**	99.4	94.6	101	93.1	**100**	**93.7**	99.4	94.6
444.namd	**483**	**16.6**	308	26.0	483	16.6	**470**	**17.1**	301	26.7	470	17.1
447.dealII	291	39.3	**200**	**57.2**	198	57.8	291	39.3	**200**	**57.2**	198	57.8
450.soplex	**234**	**35.6**	258	32.3	229	36.4	**234**	**35.6**	258	32.3	229	36.4
453.povray	**143**	**37.2**	144	36.9	92.2	57.7	132	40.2	83.8	63.5	**130**	**41.0**
454.calculix	195	42.3	**195**	**42.3**	196	42.1	**255**	**32.3**	172	48.0	255	32.3
459.GemsFDTD	95.9	111	**101**	**105**	112	94.7	89.0	119	87.0	122	**88.4**	**120**
465.tonto	357	27.6	362	27.2	**358**	**27.5**	215	45.8	**222**	**44.4**	322	30.6
470.lbm	39.8	345	54.1	254	**41.6**	**330**	39.8	345	54.1	254	**41.6**	**330**
481.wrf	**119**	**93.8**	119	93.7	119	93.8	**119**	**93.8**	119	93.7	119	93.8
482.sphinx3	351	55.5	355	54.9	**354**	**55.0**	351	55.6	352	55.4	**352**	**55.4**

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

```
Sysinfo program /home/ashows/Desktop/speccpu15/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Tue Oct 14 15:10:47 2014

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 E5-2699 v3 @ 2.30GHz
```

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Platform Notes (Continued)

```
        2 "physical id"s (chips)
        72 "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 : 18
        siblings  : 36
        physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
        physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
     cache size : 46080 KB

  From /proc/meminfo
     MemTotal:       247380632 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="Red Hat Enterprise Linux Workstation"
        VERSION="7.0 (Maipo)"
        ID="rhel"
        ID_LIKE="fedora"
        VERSION_ID="7.0"
        PRETTY_NAME="Red Hat Enterprise Linux Workstation 7.0 (Maipo)"
        ANSI_COLOR="0;31"
        CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:workstation"
     redhat-release: Red Hat Enterprise Linux Workstation release 7.0 (Maipo)
     system-release: Red Hat Enterprise Linux Workstation release 7.0 (Maipo)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:workstation

  uname -a:
     Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
     EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Oct 13 16:37

  SPEC is set to: /home/ashows/Desktop/speccpu15
     Filesystem            Type  Size  Used Avail Use% Mounted on
     /dev/mapper/rhel-home xfs   415G  211G  205G  51% /home

  Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

  (End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/ashows/Desktop/speccpu15/libs/32:/home/ashows/Desktop/speccpu15/libs/64:/home/ashows/Desktop/speccpu15/sh"
OMP_NUM_THREADS = "36"
```

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General Notes (Continued)

```
Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

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 -parallel -opt-prefetch -ansi-alias
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -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: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-auto-ilp32` `-ansi-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel`

C++ benchmarks:

444.namd: `-xSSE4.2`(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`

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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: -xSSE4.2(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-

434.zeusmp: basepeak = yes

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) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(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: -xSSE4.2 -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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Default-Platform-Flags.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Default-Platform-Flags.xml

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

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