



# SPEC® CFP2006 Result

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## Dell Inc.

SPECfp®2006 = **69.3**

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

SPECfp\_base2006 = **66.9**

CPU2006 license: 55

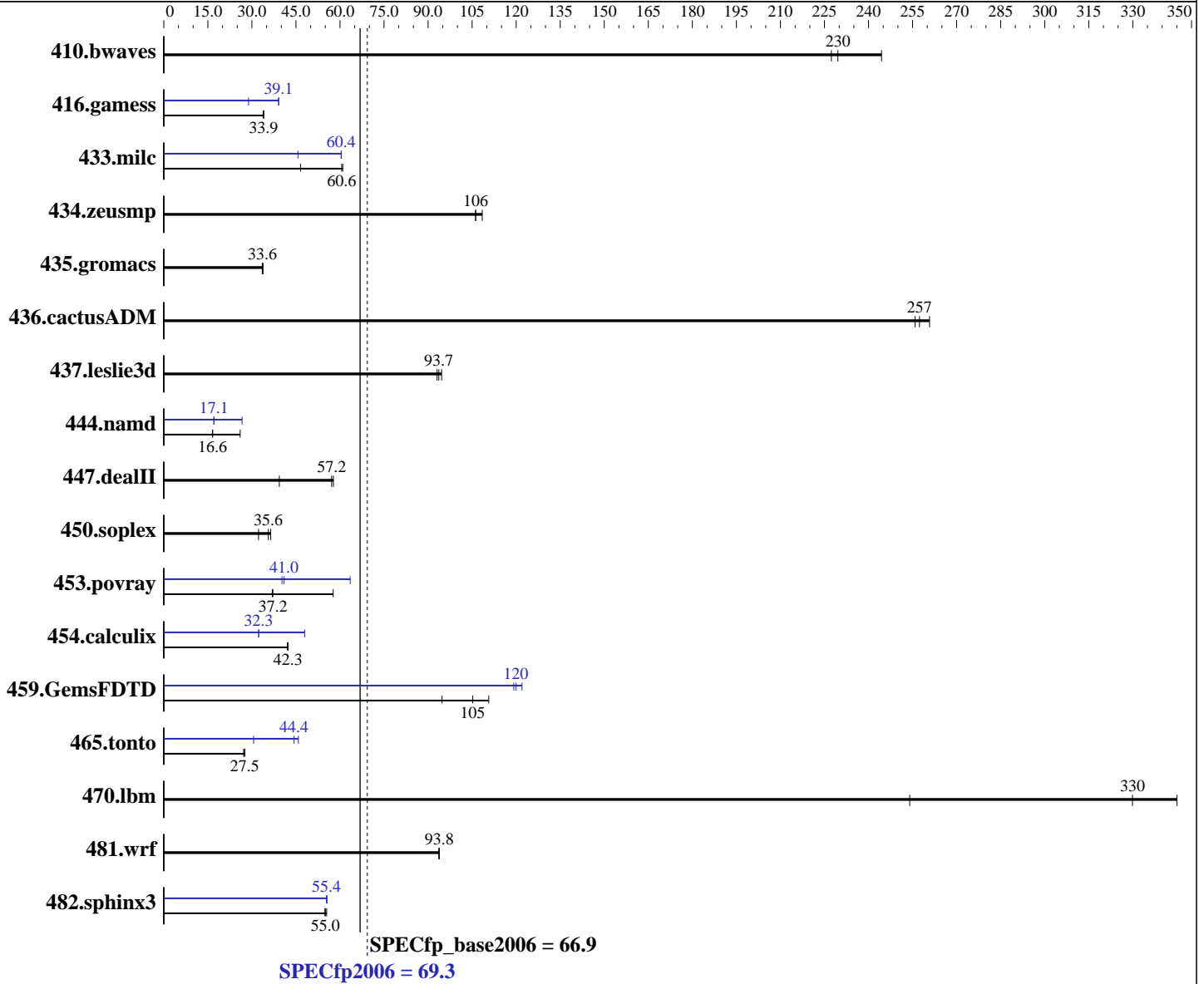
Test date: Oct-2014

Test sponsor: Dell Inc.

Hardware Availability: Sep-2014

Tested by: Dell

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

*Continued on next page*

**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  
Other Cache: None  
Memory: 240 GB (15 x 16 GB 2Rx4 PC4-2133P-R)  
Disk Subsystem: 415 GB SATA SSD  
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	55.6	244	<u>59.2</u>	<u>230</u>	59.8	227	55.6	244	<u>59.2</u>	<u>230</u>	59.8	227
416.gamess	576	34.0	<u>577</u>	<u>33.9</u>	577	33.9	500	39.1	<u>501</u>	<u>39.1</u>	679	28.9
433.milc	197	46.6	<u>152</u>	<u>60.6</u>	151	61.0	<u>152</u>	<u>60.4</u>	152	60.4	201	45.7
434.zeusmp	<u>85.7</u>	<u>106</u>	85.7	106	83.9	108	<u>85.7</u>	<u>106</u>	85.7	106	83.9	108
435.gromacs	<u>213</u>	<u>33.6</u>	211	33.8	213	33.5	<u>213</u>	<u>33.6</u>	211	33.8	213	33.5
436.cactusADM	46.7	256	<u>46.4</u>	<u>257</u>	45.8	261	46.7	256	<u>46.4</u>	<u>257</u>	45.8	261
437.leslie3d	101	93.1	<u>100</u>	<u>93.7</u>	99.4	94.6	101	93.1	<u>100</u>	<u>93.7</u>	99.4	94.6
444.namd	<u>483</u>	<u>16.6</u>	308	26.0	483	16.6	<u>470</u>	<u>17.1</u>	301	26.7	470	17.1
447.dealII	291	39.3	<u>200</u>	<u>57.2</u>	198	57.8	291	39.3	<u>200</u>	<u>57.2</u>	198	57.8
450.soplex	<u>234</u>	<u>35.6</u>	258	32.3	229	36.4	<u>234</u>	<u>35.6</u>	258	32.3	229	36.4
453.povray	<u>143</u>	<u>37.2</u>	144	36.9	92.2	57.7	132	40.2	83.8	63.5	<u>130</u>	<u>41.0</u>
454.calculix	195	42.3	<u>195</u>	<u>42.3</u>	196	42.1	<u>255</u>	<u>32.3</u>	172	48.0	255	32.3
459.GemsFDTD	95.9	111	<u>101</u>	<u>105</u>	112	94.7	89.0	119	87.0	122	<u>88.4</u>	<u>120</u>
465.tonto	357	27.6	362	27.2	<u>358</u>	<u>27.5</u>	215	45.8	<u>222</u>	<u>44.4</u>	322	30.6
470.lbm	39.8	345	54.1	254	<u>41.6</u>	<u>330</u>	39.8	345	54.1	254	<u>41.6</u>	<u>330</u>
481.wrf	<u>119</u>	<u>93.8</u>	119	93.7	119	93.8	<u>119</u>	<u>93.8</u>	119	93.7	119	93.8
482.sphinx3	351	55.5	355	54.9	<u>354</u>	<u>55.0</u>	351	55.6	352	55.4	<u>352</u>	<u>55.4</u>

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.dealIII: 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-alloc  
-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](mailto:webmaster@spec.org).

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