



# SPEC® CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Dell Inc.

SPECfp®2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

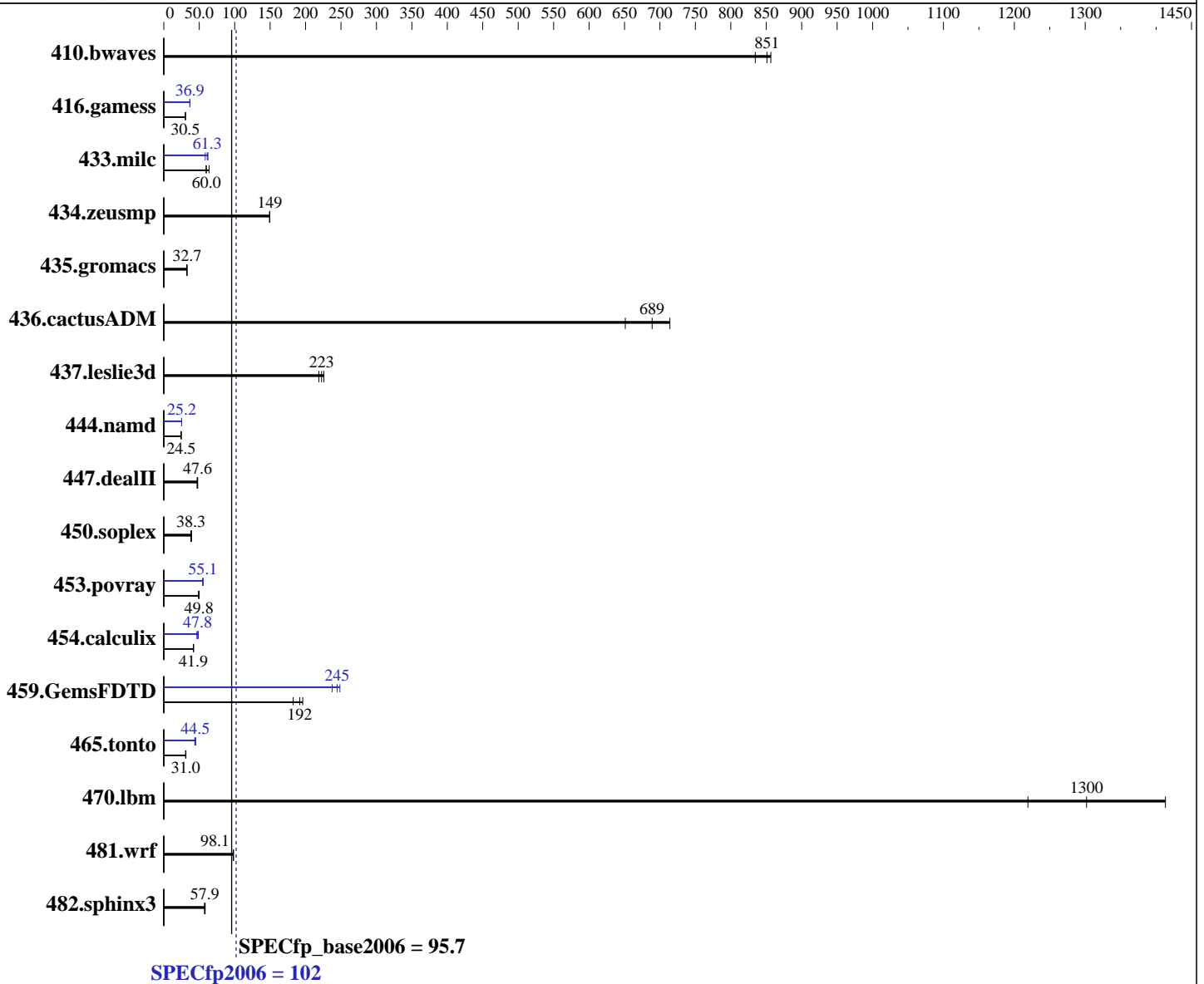
Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015



**Hardware**

CPU Name: Intel Xeon E5-4660 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 56 cores, 4 chips, 14 cores/chip, 2 threads/core  
 CPU(s) orderable: 4 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

**Software**

Operating System: SUSE Linux Enterprise Server 12 3.12.28-4-default  
 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: ext4  
 System State: Run level 3 (multi-user)

Continued on next page

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015

L3 Cache: 35 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 1 x 400 GB 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	16.3	834	<b>16.0</b>	<b>851</b>	15.9	856	16.3	834	<b>16.0</b>	<b>851</b>	15.9	856
416.gamess	642	30.5	<b>642</b>	<b>30.5</b>	642	30.5	<b>531</b>	<b>36.9</b>	532	36.8	531	36.9
433.milc	144	64.0	154	59.6	<b>153</b>	<b>60.0</b>	157	58.4	<b>150</b>	<b>61.3</b>	147	62.3
434.zeusmp	61.0	149	60.8	150	<b>60.9</b>	<b>149</b>	61.0	149	60.8	150	<b>60.9</b>	<b>149</b>
435.gromacs	218	32.8	<b>218</b>	<b>32.7</b>	220	32.5	218	32.8	<b>218</b>	<b>32.7</b>	220	32.5
436.cactusADM	16.7	714	18.4	651	<b>17.3</b>	<b>689</b>	16.7	714	18.4	651	<b>17.3</b>	<b>689</b>
437.leslie3d	<b>42.2</b>	<b>223</b>	41.6	226	43.0	219	<b>42.2</b>	<b>223</b>	41.6	226	43.0	219
444.namd	328	24.4	327	24.6	<b>328</b>	<b>24.5</b>	<b>318</b>	<b>25.2</b>	319	25.2	318	25.2
447.dealII	239	47.8	<b>240</b>	<b>47.6</b>	244	46.9	239	47.8	<b>240</b>	<b>47.6</b>	244	46.9
450.soplex	<b>218</b>	<b>38.3</b>	219	38.1	213	39.2	<b>218</b>	<b>38.3</b>	219	38.1	213	39.2
453.povray	<b>107</b>	<b>49.8</b>	107	49.9	109	48.8	96.7	55.0	96.0	55.4	<b>96.5</b>	<b>55.1</b>
454.calculix	197	41.8	<b>197</b>	<b>41.9</b>	197	41.9	177	46.7	170	48.7	<b>173</b>	<b>47.8</b>
459.GemsFDTD	<b>55.3</b>	<b>192</b>	54.1	196	58.1	182	42.7	248	<b>43.4</b>	<b>245</b>	44.7	238
465.tonto	319	30.8	315	31.3	<b>318</b>	<b>31.0</b>	225	43.7	218	45.1	<b>221</b>	<b>44.5</b>
470.lbm	<b>10.6</b>	<b>1300</b>	9.72	1410	11.3	1220	<b>10.6</b>	<b>1300</b>	9.72	1410	11.3	1220
481.wrf	114	98.4	114	97.9	<b>114</b>	<b>98.1</b>	114	98.4	114	97.9	<b>114</b>	<b>98.1</b>
482.sphinx3	334	58.4	339	57.4	<b>337</b>	<b>57.9</b>	334	58.4	339	57.4	<b>337</b>	<b>57.9</b>

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:  
 Snoop Mode set to Home Snoop  
 Virtualization Technology disabled  
 System Profile set to Performance  
 Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914  
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
 running on linux-3aq4 Tue Jan 20 23:42:12 2015

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



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015

## Platform Notes (Continued)

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

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-4660 v3 @ 2.10GHz

4 "physical id"s (chips)

112 "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 : 14

siblings : 28

physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

cache size : 35840 KB

From /proc/meminfo

MemTotal: 529334376 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

SUSE Linux Enterprise Server 12

From /etc/\*release\* /etc/\*version\*

SuSE-release:

SUSE Linux Enterprise Server 12 (x86\_64)

VERSION = 12

PATCHLEVEL = 0

# This file is deprecated and will be removed in a future service pack or release.

# Please check /etc/os-release for details about this release.

os-release:

NAME="SLES"

VERSION="12"

VERSION\_ID="12"

PRETTY\_NAME="SUSE Linux Enterprise Server 12"

ID="sles"

ANSI\_COLOR="0;32"

CPE\_NAME="cpe:/o:suse:sles:12"

uname -a:

Linux linux-3aq4 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014 (9879bd4) x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Jan 20 17:25

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 ext4 267G 13G 253G 5% /

Additional information from dmidecode:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015

## Platform Notes (Continued)

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Dell Inc. 0.4.0 01/08/2015

Memory:

3x 00AD063200AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz  
29x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz  
16x Not Specified Not Specified

(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 = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"

OMP\_NUM\_THREADS = "56"

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015

## Base Portability Flags (Continued)

```

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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -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

```



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: -xCORE-AVX2(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: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(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.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 102

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

SPECfp\_base2006 = 95.7

CPU2006 license: 55

Test date: Jan-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015

## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -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/Dell-Platform-Settings-V1.2-revE.20150421.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/Dell-Platform-Settings-V1.2-revE.20150421.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Jun 2 12:38:23 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 2 June 2015.