



# SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

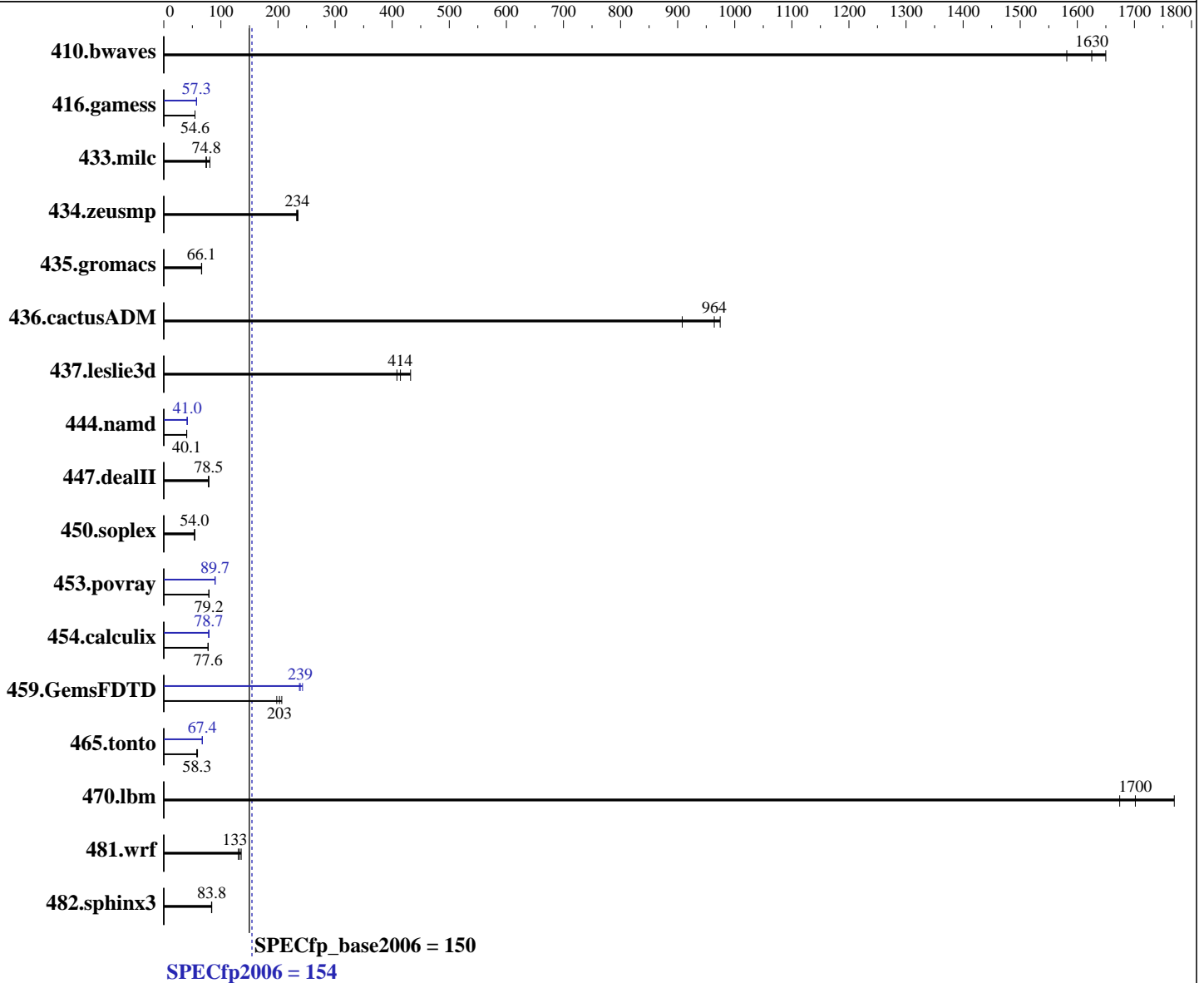
Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017



### Hardware

CPU Name: Intel Xeon Gold 6144  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.20 GHz  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 1 MB I+D on chip per core

Continued on next page

### Software

Operating System: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default  
 Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017

L3 Cache: 24.75 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)  
 Disk Subsystem: 1 x 960 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	8.59	1580	8.24	1650	<b><u>8.36</u></b>	<b><u>1630</u></b>	8.59	1580	8.24	1650	<b><u>8.36</u></b>	<b><u>1630</u></b>
416.gamess	<b><u>358</u></b>	<b><u>54.6</u></b>	359	54.6	358	54.6	<b><u>341</u></b>	<b><u>57.3</u></b>	341	57.3	342	57.3
433.milc	114	80.7	124	73.9	<b><u>123</u></b>	<b><u>74.8</u></b>	114	80.7	124	73.9	<b><u>123</u></b>	<b><u>74.8</u></b>
434.zeusmp	<b><u>38.9</u></b>	<b><u>234</u></b>	38.7	235	39.1	233	<b><u>38.9</u></b>	<b><u>234</u></b>	38.7	235	39.1	233
435.gromacs	108	66.4	<b><u>108</u></b>	<b><u>66.1</u></b>	108	66.1	108	66.4	<b><u>108</u></b>	<b><u>66.1</u></b>	108	66.1
436.cactusADM	13.2	908	<b><u>12.4</u></b>	<b><u>964</u></b>	12.3	974	13.2	908	<b><u>12.4</u></b>	<b><u>964</u></b>	12.3	974
437.leslie3d	21.7	432	<b><u>22.7</u></b>	<b><u>414</u></b>	23.0	408	21.7	432	<b><u>22.7</u></b>	<b><u>414</u></b>	23.0	408
444.namd	200	40.1	200	40.1	<b><u>200</u></b>	<b><u>40.1</u></b>	<b><u>195</u></b>	<b><u>41.0</u></b>	196	41.0	195	41.0
447.dealII	146	78.3	<b><u>146</u></b>	<b><u>78.5</u></b>	145	78.9	146	78.3	<b><u>146</u></b>	<b><u>78.5</u></b>	145	78.9
450.soplex	<b><u>154</u></b>	<b><u>54.0</u></b>	154	54.0	155	53.9	<b><u>154</u></b>	<b><u>54.0</u></b>	154	54.0	155	53.9
453.povray	<b><u>67.2</u></b>	<b><u>79.2</u></b>	67.4	78.9	67.2	79.2	59.4	89.6	<b><u>59.3</u></b>	<b><u>89.7</u></b>	59.1	90.1
454.calculix	<b><u>106</u></b>	<b><u>77.6</u></b>	106	77.7	106	77.5	104	79.4	<b><u>105</u></b>	<b><u>78.7</u></b>	105	78.4
459.GemsFDTD	53.6	198	<b><u>52.4</u></b>	<b><u>203</u></b>	51.3	207	<b><u>44.4</u></b>	<b><u>239</u></b>	43.7	243	44.7	238
465.tonto	167	59.1	<b><u>169</u></b>	<b><u>58.3</u></b>	170	57.7	146	67.5	146	67.4	<b><u>146</u></b>	<b><u>67.4</u></b>
470.lbm	<b><u>8.07</u></b>	<b><u>1700</u></b>	8.21	1670	7.76	1770	<b><u>8.07</u></b>	<b><u>1700</u></b>	8.21	1670	7.76	1770
481.wrf	82.4	136	85.6	130	<b><u>84.1</u></b>	<b><u>133</u></b>	82.4	136	85.6	130	<b><u>84.1</u></b>	<b><u>133</u></b>
482.sphinx3	<b><u>233</u></b>	<b><u>83.8</u></b>	233	83.5	232	84.0	<b><u>233</u></b>	<b><u>83.8</u></b>	233	83.5	232	84.0

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

BIOS settings:  
 Sub NUMA Cluster disabled  
 Virtualization Technology disabled  
 System Profile set to Custom  
 CPU Performance set to Maximum Performance  
 C States set to Autonomous  
 C1E disabled  
 Energy Efficient Turbo disabled  
 Uncore Frequency set to Dynamic  
 Energy Efficiency Policy set to Performance

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017

## Platform Notes (Continued)

```

Memory Patrol Scrub disabled
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /home/_cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-b14r Thu Jul 13 01:58:11 2017

```

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) Gold 6144 CPU @ 3.50GHz
 4 "physical id"s (chips)
 64 "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 : 8
  siblings  : 16
  physical 0: cores 0 4 5 6 16 19 20 22
  physical 1: cores 0 4 5 6 16 19 20 22
  physical 2: cores 0 2 3 9 16 19 26 27
  physical 3: cores 0 2 3 9 16 19 26 27
cache size : 25344 KB

```

```

From /proc/meminfo
MemTotal:      791002368 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
# 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-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017

## Platform Notes (Continued)

```
uname -a:
Linux linux-b14r 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jul 12 22:00
```

```
SPEC is set to: /home/_cpu2006-1.2_ic17u3
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   852G  25G  827G   3% /home
```

Additional information from dmidecode:

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. 1.0.3 05/30/2017

Memory:

48x 00CE063200CE M393A2K43BB1-CTD 16 GB 2 rank 2666 MHz

(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/\_cpu2006-1.2\_ic17u3/lib/ia32:/home/\_cpu2006-1.2\_ic17u3/lib/intel64:/home/\_cpu2006-1.2\_ic17u3/sh10.2"

OMP\_NUM\_THREADS = "32"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2

Transparent Huge Pages enabled by default.

Filesystem page cache cleared with:

shell invocation of 'sync; echo 3 > /proc/sys/vm/drop\_caches' prior to run

## 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



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017

## 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.deallI: -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 -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

```

## 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 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll2 -inline-level=0  
-qopt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -inline-calloc -qopt-malloc-options=3  
-auto -unroll4

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 154

PowerEdge R940 (Intel Xeon Gold 6144, 3.50 GHz)

SPECfp\_base2006 = 150

CPU2006 license: 55

Test date: Jul-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Apr-2017

## 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

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-ic17.0-official-linux64-revF.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Flags-PowerEdge14G-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Flags-PowerEdge14G-revC.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 Wed Sep 20 11:03:02 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 19 September 2017.