



# SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Dell Inc.

SPECfp®2006 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

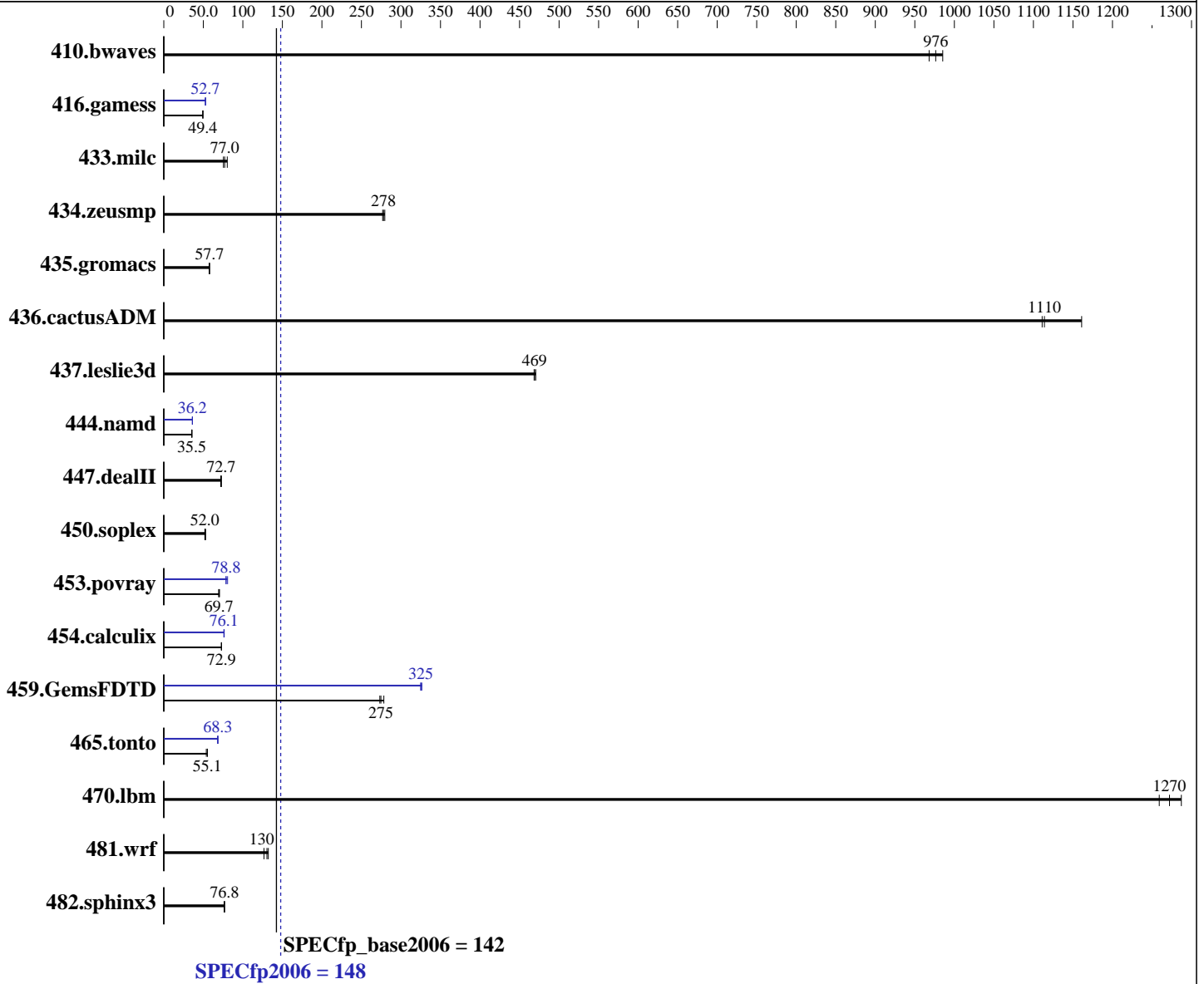
Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016



**Hardware**

CPU Name: Intel Xeon Gold 6150  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2700  
 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: 1 MB I+D on chip per core

Continued on next page

**Software**

Operating System: SUSE Linux Enterprise Server 12 SP3 (x86\_64) 4.4.70-2-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: btrfs  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

L3 Cache: 24.75 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 192 GB (12 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	14.0	968	<u>13.9</u>	<u>976</u>	13.8	985	14.0	968	<u>13.9</u>	<u>976</u>	13.8	985
416.gamess	396	49.4	<u>396</u>	<u>49.4</u>	396	49.4	<u>372</u>	<u>52.7</u>	371	52.7	372	52.7
433.milc	<u>119</u>	<u>77.0</u>	114	80.3	122	75.4	<u>119</u>	<u>77.0</u>	114	80.3	122	75.4
434.zeusmp	<u>32.7</u>	<u>278</u>	32.6	280	32.9	277	<u>32.7</u>	<u>278</u>	32.6	280	32.9	277
435.gromacs	<u>124</u>	<u>57.7</u>	123	57.9	124	57.5	<u>124</u>	<u>57.7</u>	123	57.9	124	57.5
436.cactusADM	<u>10.7</u>	<u>1110</u>	10.3	1160	10.8	1110	<u>10.7</u>	<u>1110</u>	10.3	1160	10.8	1110
437.leslie3d	<u>20.0</u>	<u>469</u>	20.0	470	20.1	468	<u>20.0</u>	<u>469</u>	20.0	470	20.1	468
444.namd	226	35.4	226	35.5	<u>226</u>	<u>35.5</u>	<u>222</u>	<u>36.2</u>	222	36.1	222	36.2
447.dealII	159	72.0	<u>157</u>	<u>72.7</u>	157	72.8	159	72.0	<u>157</u>	<u>72.7</u>	157	72.8
450.soplex	<u>160</u>	<u>52.0</u>	160	52.0	158	52.9	<u>160</u>	<u>52.0</u>	160	52.0	158	52.9
453.povray	<u>76.3</u>	<u>69.7</u>	75.5	70.5	76.6	69.5	67.6	78.7	65.9	80.7	<u>67.5</u>	<u>78.8</u>
454.calculix	113	72.9	<u>113</u>	<u>72.9</u>	113	73.0	108	76.1	<u>108</u>	<u>76.1</u>	108	76.4
459.GemsFDTD	38.1	278	38.8	273	<u>38.6</u>	<u>275</u>	32.5	326	<u>32.6</u>	<u>325</u>	32.7	325
465.tonto	<u>179</u>	<u>55.1</u>	183	53.8	179	55.1	<u>144</u>	<u>68.3</u>	144	68.5	144	68.1
470.lbm	10.9	1260	10.7	1290	<u>10.8</u>	<u>1270</u>	10.9	1260	10.7	1290	<u>10.8</u>	<u>1270</u>
481.wrf	<u>85.6</u>	<u>130</u>	84.5	132	88.1	127	<u>85.6</u>	<u>130</u>	84.5	132	88.1	127
482.sphinx3	253	76.9	255	76.4	<u>254</u>	<u>76.8</u>	253	76.9	255	76.4	<u>254</u>	<u>76.8</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

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 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

## 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 /root/cpu2006-1.2\_ic17u3/config/sysinfo.rev6993  
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
 running on linux-8d7c Fri Sep 8 03:41:57 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 6150 CPU @ 2.70GHz
 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 : 25344 KB
```

```
From /proc/meminfo
MemTotal: 196682072 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 3
# 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-SP3"
VERSION_ID="12.3"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
Linux linux-8d7c 4.4.70-2-default #1 SMP Wed Jun 7 15:12:06 UTC 2017
(4502c76) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Sep 7 23:15

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

## Platform Notes (Continued)

```

SPEC is set to: /root/cpu2006-1.2_ic17u3
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       btrfs    855G  8.7G  846G   2% /
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. 1.0.0 08/10/2017
Memory:
12x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz
4x 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_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"
OMP_NUM_THREADS = "36"

```

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 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

## 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.deall: -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 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

## 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 = 148

PowerEdge M640 (Intel Xeon Gold 6150, 2.70 GHz)

SPECfp\_base2006 = 142

CPU2006 license: 55

Test date: Sep-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

## 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 Oct 4 12:38:56 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 3 October 2017.