



# SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

SPECfp®2006 = **145**

SPECfp\_base2006 = **137**

CPU2006 license: 9017

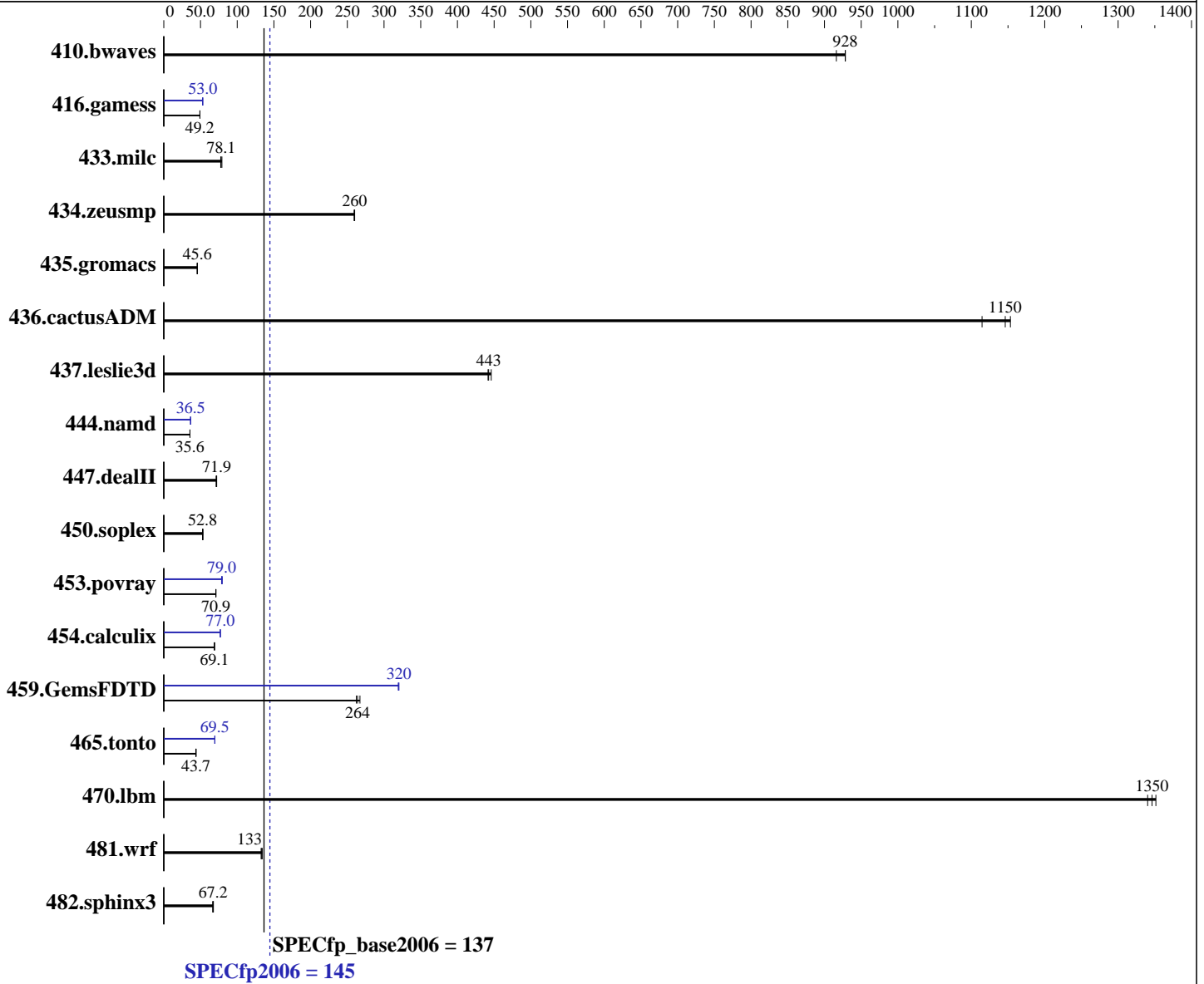
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016



**Hardware**

CPU Name: Intel Xeon Gold 6138  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 2 chips, 20 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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 (x86\_64)  
 Kernel 4.4.21-69-default  
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 17.0.0.098 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

## Lenovo Global Technology

SPECfp2006 = **145**

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

SPECfp\_base2006 = **137**

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

L3 Cache: 27.5 MB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (12 x 32 GB 2Rx4 PC4-2666V-R)  
Disk Subsystem: 1 x 800 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	14.8	916	<b>14.6</b>	<b>928</b>	14.6	928	14.8	916	<b>14.6</b>	<b>928</b>	14.6	928
416.gamess	397	49.3	398	49.2	<b>398</b>	<b>49.2</b>	371	52.8	369	53.1	<b>369</b>	<b>53.0</b>
433.milc	118	77.5	116	79.2	<b>118</b>	<b>78.1</b>	118	77.5	116	79.2	<b>118</b>	<b>78.1</b>
434.zeusmp	35.0	260	35.1	259	<b>35.0</b>	<b>260</b>	35.0	260	35.1	259	<b>35.0</b>	<b>260</b>
435.gromacs	157	45.5	156	45.6	<b>156</b>	<b>45.6</b>	157	45.5	156	45.6	<b>156</b>	<b>45.6</b>
436.cactusADM	10.4	1150	<b>10.4</b>	<b>1150</b>	10.7	1110	10.4	1150	<b>10.4</b>	<b>1150</b>	10.7	1110
437.leslie3d	21.3	442	21.1	446	<b>21.2</b>	<b>443</b>	21.3	442	21.1	446	<b>21.2</b>	<b>443</b>
444.namd	225	35.6	<b>225</b>	<b>35.6</b>	225	35.6	220	36.5	220	36.5	<b>220</b>	<b>36.5</b>
447.dealII	<b>159</b>	<b>71.9</b>	161	71.2	159	72.1	<b>159</b>	<b>71.9</b>	161	71.2	159	72.1
450.soplex	156	53.4	158	52.8	<b>158</b>	<b>52.8</b>	156	53.4	158	52.8	<b>158</b>	<b>52.8</b>
453.povray	74.9	71.0	<b>75.1</b>	<b>70.9</b>	75.1	70.9	<b>67.3</b>	<b>79.0</b>	66.7	79.7	67.6	78.7
454.calculix	119	69.1	<b>119</b>	<b>69.1</b>	120	68.8	<b>107</b>	<b>77.0</b>	107	77.0	107	77.0
459.GemsFDTD	<b>40.2</b>	<b>264</b>	40.5	262	39.7	267	33.2	319	<b>33.1</b>	<b>320</b>	33.1	320
465.tonto	223	44.1	<b>225</b>	<b>43.7</b>	226	43.6	142	69.5	141	69.6	<b>142</b>	<b>69.5</b>
470.lbm	10.3	1340	10.2	1350	<b>10.2</b>	<b>1350</b>	10.3	1340	10.2	1350	<b>10.2</b>	<b>1350</b>
481.wrf	<b>83.8</b>	<b>133</b>	84.3	133	83.3	134	<b>83.8</b>	<b>133</b>	84.3	133	83.3	134
482.sphinx3	288	67.6	<b>290</b>	<b>67.2</b>	293	66.5	288	67.6	<b>290</b>	<b>67.2</b>	293	66.5

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 configuration:  
Operating Mode set to Maximum Performance  
Hyper-Threading set to Disabled  
Uncore Frequency Scaling set to Disable  
LLC dead line alloc set to Disable  
Sysinfo program /home/cpu2006-1.2-ic17.0/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on linux-dqoj Thu Jun 15 17:45:30 2017

This section contains SUT (System Under Test) info as seen by  
Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECfp2006 = 145

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

SPECfp\_base2006 = 137

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

### Platform Notes (Continued)

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 6138 CPU @ 2.00GHz
  2 "physical id"s (chips)
  40 "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 : 20
    siblings  : 20
    physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
    physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  cache size : 28160 KB

```

```

From /proc/meminfo
MemTotal:      395882080 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

```

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"

```

```

uname -a:
Linux linux-dqoj 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 Jun 14 22:27

```

SPEC is set to: /home/cpu2006-1.2-ic17.0
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdb2       btrfs    744G   18G  726G   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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

**SPECfp2006 = 145**

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

**SPECfp\_base2006 = 137**

**CPU2006 license:** 9017

**Test date:** Jun-2017

**Test sponsor:** Lenovo Global Technology

**Hardware Availability:** Aug-2017

**Tested by:** Lenovo Global Technology

**Software Availability:** Nov-2016

## Platform Notes (Continued)

hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Lenovo -[TEE105Z-1.00]- 04/27/2017

Memory:

12x Hynix HMA84GR7AFR4N-VK 32 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"

LD\_LIBRARY\_PATH = "/home/cpu2006-1.2-ic17.0/libs/32:/home/cpu2006-1.2-ic17.0/libs/64:/home/cpu2006-1.2-ic17.0/sh10.2"

OMP\_NUM\_THREADS = "40"

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.

## 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 145

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

SPECfp\_base2006 = 137

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

## Base Portability Flags (Continued)

```

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

## Peak Portability Flags

Same as Base Portability Flags



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 145

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

SPECfp\_base2006 = 137

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

## 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

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR530  
(2.00 GHz, Intel Xeon Gold 6138)

**SPECfp2006 = 145**

**SPECfp\_base2006 = 137**

**CPU2006 license:** 9017

**Test sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test date:** Jun-2017

**Hardware Availability:** Aug-2017

**Software Availability:** Nov-2016

## Peak Optimization Flags (Continued)

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.html>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-C.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.xml>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-C.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 Thu Jul 13 12:50:45 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 July 2017.