



# SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp®2006 = **155**

SPECfp\_base2006 = **148**

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017



### Hardware

CPU Name: Intel Xeon Platinum 8180  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 56 cores, 2 chips, 28 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 17.0.3.191 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

## Lenovo Global Technology

SPECfp2006 = **155**

ThinkSystem SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp\_base2006 = **148**

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

L3 Cache: 38.5 MB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)  
Disk Subsystem: 1 x 800 GB SAS, RAID 0  
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	11.9	1150	11.9	1140	<b><u>11.9</u></b>	<b><u>1140</u></b>	11.9	1150	11.9	1140	<b><u>11.9</u></b>	<b><u>1140</u></b>
416.gamess	397	49.3	<b><u>397</u></b>	<b><u>49.3</u></b>	397	49.3	<b><u>372</u></b>	<b><u>52.6</u></b>	373	52.5	372	52.6
433.milc	120	76.2	120	76.3	<b><u>120</u></b>	<b><u>76.2</u></b>	120	76.2	120	76.3	<b><u>120</u></b>	<b><u>76.2</u></b>
434.zeusmp	32.7	278	32.3	282	<b><u>32.6</u></b>	<b><u>279</u></b>	32.7	278	32.3	282	<b><u>32.6</u></b>	<b><u>279</u></b>
435.gromacs	137	52.1	136	52.4	<b><u>137</u></b>	<b><u>52.1</u></b>	137	52.1	136	52.4	<b><u>137</u></b>	<b><u>52.1</u></b>
436.cactusADM	8.22	1450	8.19	1460	<b><u>8.19</u></b>	<b><u>1460</u></b>	8.22	1450	8.19	1460	<b><u>8.19</u></b>	<b><u>1460</u></b>
437.leslie3d	18.0	522	18.4	511	<b><u>18.4</u></b>	<b><u>512</u></b>	18.0	522	18.4	511	<b><u>18.4</u></b>	<b><u>512</u></b>
444.namd	219	36.6	219	36.6	<b><u>219</u></b>	<b><u>36.6</u></b>	214	37.4	<b><u>214</u></b>	<b><u>37.5</u></b>	214	37.5
447.dealII	<b><u>155</u></b>	<b><u>73.7</u></b>	155	73.8	156	73.4	<b><u>155</u></b>	<b><u>73.7</u></b>	155	73.8	156	73.4
450.soplex	157	53.1	<b><u>157</u></b>	<b><u>53.0</u></b>	159	52.5	157	53.1	<b><u>157</u></b>	<b><u>53.0</u></b>	159	52.5
453.povray	74.7	71.2	74.1	71.8	<b><u>74.3</u></b>	<b><u>71.6</u></b>	<b><u>65.3</u></b>	<b><u>81.4</u></b>	65.3	81.4	65.5	81.2
454.calculix	112	73.7	<b><u>112</u></b>	<b><u>73.5</u></b>	112	73.4	106	77.8	<b><u>106</u></b>	<b><u>77.7</u></b>	106	77.6
459.GemsFDTD	<b><u>40.9</u></b>	<b><u>259</u></b>	41.5	256	40.6	261	<b><u>33.8</u></b>	<b><u>314</u></b>	33.8	314	33.7	315
465.tonto	<b><u>197</u></b>	<b><u>50.1</u></b>	195	50.3	201	48.9	147	66.7	<b><u>148</u></b>	<b><u>66.7</u></b>	148	66.6
470.lbm	<b><u>7.83</u></b>	<b><u>1760</u></b>	7.79	1760	7.83	1760	<b><u>7.83</u></b>	<b><u>1760</u></b>	7.79	1760	7.83	1760
481.wrf	83.0	135	<b><u>82.9</u></b>	<b><u>135</u></b>	82.9	135	83.0	135	<b><u>82.9</u></b>	<b><u>135</u></b>	82.9	135
482.sphinx3	<b><u>272</u></b>	<b><u>71.8</u></b>	271	71.8	277	70.4	<b><u>272</u></b>	<b><u>71.8</u></b>	271	71.8	277	70.4

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:  
Choose Operating Mode set to Maximum Performance  
Hyper-Threading set to Disabled  
LLC dead line alloc set to Disable  
Sysinfo program /home/cpu2006-1.2-ic17.0u3/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on Cable-8180-SUSE12SP2 Fri Jun 16 12:01:55 2017

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 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

**SPECfp2006 = 155**

ThinkSystem SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

**SPECfp\_base2006 = 148**

**CPU2006 license:** 9017

**Test sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test date:** Jun-2017

**Hardware Availability:** Aug-2017

**Software Availability:** Apr-2017

### Platform Notes (Continued)

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

From /proc/cpuinfo

```

model name : Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
 2 "physical id"s (chips)
 56 "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 : 28
  siblings  : 28
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
 25 26 27 28 29 30
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
 25 26 27 28 29 30
  cache size : 39424 KB

```

From /proc/meminfo

```

MemTotal:      395881752 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 Cable-8180-SUSE12SP2 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 12:50

SPEC is set to: /home/cpu2006-1.2-ic17.0u3

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       btrfs    743G   12G  731G   2% /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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 155

ThinkSystem SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp\_base2006 = 148

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

## Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS Lenovo -[IVE109F-1.00]- 05/25/2017

Memory:

24x Samsung 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"

LD\_LIBRARY\_PATH = "/home/cpu2006-1.2-ic17.0u3/lib/ia32:/home/cpu2006-1.2-ic17.0u3/lib/intel64:/home/cpu2006-1.2-ic17.0u3/sh10.2"

OMP\_NUM\_THREADS = "56"

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 with:

echo never > /sys/kernel/mm/transparent\_hugepage/enabled

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

## 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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 155

ThinkSystem SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp\_base2006 = 148

CPU2006 license: 9017

Test date: Jun-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

## Base Portability Flags (Continued)

```

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 -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

ThinkSystem SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

SPECfp2006 = 155

SPECfp\_base2006 = 148

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Jun-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017

## 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 SR630  
(2.50 GHz, Intel Xeon Platinum 8180)

**SPECfp2006 = 155**

**SPECfp\_base2006 = 148**

**CPU2006 license:** 9017

**Test sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test date:** Jun-2017

**Hardware Availability:** Aug-2017

**Software Availability:** Apr-2017

## 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-revF.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-revF.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 12:51:02 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 July 2017.