



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp[®]2006 = **150**

SPECfp_base2006 = **142**

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Oct-2017

Hardware Availability: Sep-2017

Software Availability: Apr-2017



Hardware	
CPU Name:	Intel Xeon Gold 6140M
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	72 cores, 4 chips, 18 cores/chip
CPU(s) orderable:	2,4 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:	xfs
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 = **150**

ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp_base2006 = **142**

CPU2006 license: 9017

Test date: Oct-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

L3 Cache: 24.75 MB I+D on chip per chip
Other Cache: None
Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)
Disk Subsystem: 1 x 800 GB SAS 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	<u>6.83</u>	<u>1990</u>	6.70	2030	6.98	1950	<u>6.83</u>	<u>1990</u>	6.70	2030	6.98	1950
416.gamess	<u>405</u>	<u>48.3</u>	405	48.3	406	48.3	379	51.7	<u>379</u>	<u>51.7</u>	379	51.7
433.milc	<u>128</u>	<u>72.0</u>	128	72.0	126	73.0	<u>128</u>	<u>72.0</u>	128	72.0	126	73.0
434.zeusmp	48.7	187	46.6	195	<u>47.0</u>	<u>194</u>	48.7	187	46.6	195	<u>47.0</u>	<u>194</u>
435.gromacs	149	47.8	<u>150</u>	<u>47.8</u>	150	47.6	149	47.8	<u>150</u>	<u>47.8</u>	150	47.6
436.cactusADM	8.65	1380	<u>8.67</u>	<u>1380</u>	8.85	1350	8.65	1380	<u>8.67</u>	<u>1380</u>	8.85	1350
437.leslie3d	26.4	356	25.4	370	<u>25.6</u>	<u>368</u>	26.4	356	25.4	370	<u>25.6</u>	<u>368</u>
444.namd	225	35.6	225	35.6	<u>225</u>	<u>35.6</u>	220	36.5	220	36.5	<u>220</u>	<u>36.5</u>
447.dealII	160	71.5	159	71.8	<u>160</u>	<u>71.6</u>	160	71.5	159	71.8	<u>160</u>	<u>71.6</u>
450.soplex	<u>163</u>	<u>51.1</u>	162	51.5	164	50.9	<u>163</u>	<u>51.1</u>	162	51.5	164	50.9
453.povray	<u>76.2</u>	<u>69.9</u>	76.2	69.8	76.0	70.0	67.0	79.4	<u>67.2</u>	<u>79.2</u>	67.3	79.1
454.calculix	115	71.8	<u>115</u>	<u>71.7</u>	115	71.5	107	76.9	108	76.5	<u>108</u>	<u>76.7</u>
459.GemsFDTD	66.0	161	<u>66.4</u>	<u>160</u>	67.3	158	56.6	187	58.3	182	<u>57.8</u>	<u>183</u>
465.tonto	213	46.2	223	44.2	<u>219</u>	<u>45.0</u>	<u>144</u>	<u>68.5</u>	144	68.5	144	68.4
470.lbm	4.51	3050	4.54	3030	<u>4.52</u>	<u>3040</u>	4.51	3050	4.54	3030	<u>4.52</u>	<u>3040</u>
481.wrf	85.2	131	<u>85.4</u>	<u>131</u>	87.5	128	85.2	131	<u>85.4</u>	<u>131</u>	87.5	128
482.sphinx3	<u>289</u>	<u>67.4</u>	289	67.4	290	67.2	<u>289</u>	<u>67.4</u>	289	67.4	290	67.2

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 Disable
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 linux-ciok Mon Oct 30 22:30:44 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 = **150**

ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp_base2006 = **142**

CPU2006 license: 9017

Test date: Oct-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

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) Gold 6140M CPU @ 2.30GHz

4 "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 : 18

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

physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

physical 3: 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: 1584767344 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-ciok 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 Oct 30 22:28

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

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	xfs	445G	32G	414G	8%	/

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 = 150

ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp_base2006 = 142

CPU2006 license: 9017

Test date: Oct-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-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 -[PSE105X-1.00]- 08/17/2017

Memory:

48x NO DIMM NO DIMM

48x Samsung M393A4K40BB2-CTD 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-ic17.0u3/lib/ia32:/home/cpu2006-1.2-ic17.0u3/lib/intel64:/home/cpu2006-1.2-ic17.0u3/sh10.2"

OMP_NUM_THREADS = "72"

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

Transparent Huge Pages disabled 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

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 = 150

ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp_base2006 = 142

CPU2006 license: 9017

Test date: Oct-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Base Portability Flags (Continued)

```

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

Peak Portability Flags

Same as Base Portability Flags



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 150

ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp_base2006 = 142

CPU2006 license: 9017

Test date: Oct-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

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 SR950
(2.30 GHz, Intel Xeon Gold 6140M)

SPECfp2006 = 150

SPECfp_base2006 = 142

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Oct-2017

Hardware Availability: Sep-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-F.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-F.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.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Dec 21 17:10:50 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 21 December 2017.