



SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp®2006 = 128

SPECfp_base2006 = 122

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Nov-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017



Hardware	
CPU Name:	Intel Xeon Gold 5118
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	48 cores, 4 chips, 12 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 = **128**

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp_base2006 = **122**

CPU2006 license: 9017

Test date: Nov-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

L3 Cache: 16.5 MB I+D on chip per chip
Other Cache: None
Memory: 1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)
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	11.6	1170	11.2	1210	11.3	1200	11.6	1170	11.2	1210	11.3	1200
416.gamess	473	41.4	474	41.3	473	41.4	439	44.6	438	44.7	438	44.7
433.milc	142	64.5	143	64.2	141	65.0	142	64.5	143	64.2	141	65.0
434.zeusmp	60.1	151	57.2	159	60.9	149	60.1	151	57.2	159	60.9	149
435.gromacs	161	44.5	161	44.4	161	44.5	161	44.5	161	44.4	161	44.5
436.cactusADM	10.3	1160	10.3	1160	10.7	1110	10.3	1160	10.3	1160	10.7	1110
437.leslie3d	31.1	303	28.2	333	28.3	332	31.1	303	28.2	333	28.3	332
444.namd	261	30.7	261	30.7	261	30.7	254	31.5	254	31.5	255	31.5
447.dealII	183	62.6	183	62.5	183	62.6	183	62.6	183	62.5	183	62.6
450.soplex	198	42.1	195	42.7	195	42.8	198	42.1	195	42.7	195	42.8
453.povray	87.7	60.7	88.0	60.5	88.0	60.5	77.4	68.7	77.3	68.8	77.1	69.0
454.calculix	132	62.7	132	62.5	132	62.6	124	66.3	124	66.4	125	66.0
459.GemsFDTD	61.6	172	59.3	179	61.0	174	53.2	200	52.6	202	53.2	199
465.tonto	232	42.3	238	41.4	233	42.2	166	59.1	166	59.1	166	59.3
470.lbm	6.01	2290	5.98	2300	5.99	2290	6.01	2290	5.98	2300	5.99	2290
481.wrf	99.2	113	99.3	112	98.9	113	99.2	113	99.3	112	98.9	113
482.sphinx3	317	61.4	319	61.2	318	61.3	317	61.4	319	61.2	318	61.3

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
LLC dead line alloc set to Disable
Patrol Scrub set to Disable
DCU Streamer Prefetcher set to Disable
Hyper-Threading set to Disable
Sysinfo program /home/cpu2006-1.2-ic17.0u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on Electron-02 Sat Nov 25 11:37:45 2017

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 128

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp_base2006 = 122

CPU2006 license: 9017

Test date: Nov-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Platform Notes (Continued)

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 5118 CPU @ 2.30GHz
 4 "physical id"s (chips)
 48 "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      : 12
siblings       : 12
physical 0:    : cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1:    : cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 2:    : cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 3:    : cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size     : 16896 KB
```

From /proc/meminfo

```
MemTotal:      1584976748 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 Electron-02 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 Nov 25 11:34

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

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   689G  130G  560G  19% /home
```

Additional information from dmidecode:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 128

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp_base2006 = 122

CPU2006 license: 9017

Test date: Nov-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Platform Notes (Continued)

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 Lenovo -[TEE115E-1.01]- 08/11/2017

Memory:

48x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666 MHz, configured at 2400 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 = "48"

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

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

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 = 128

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp_base2006 = 122

CPU2006 license: 9017

Test date: Nov-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Base Portability Flags (Continued)

```

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
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

Lenovo Global Technology

SPECfp2006 = 128

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp_base2006 = 122

CPU2006 license: 9017

Test date: Nov-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

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

Lenovo Global Technology

ThinkSystem SR850
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp2006 = 128

SPECfp_base2006 = 122

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Nov-2017

Hardware Availability: Aug-2017

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/Lenovo-Platform-Flags-V1.2-SKL-C.20171004.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.20171004.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 Wed Dec 27 12:05:56 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 December 2017.