



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp[®]2006 = 146

SPECfp_base2006 = 140

CPU2006 license: 9017

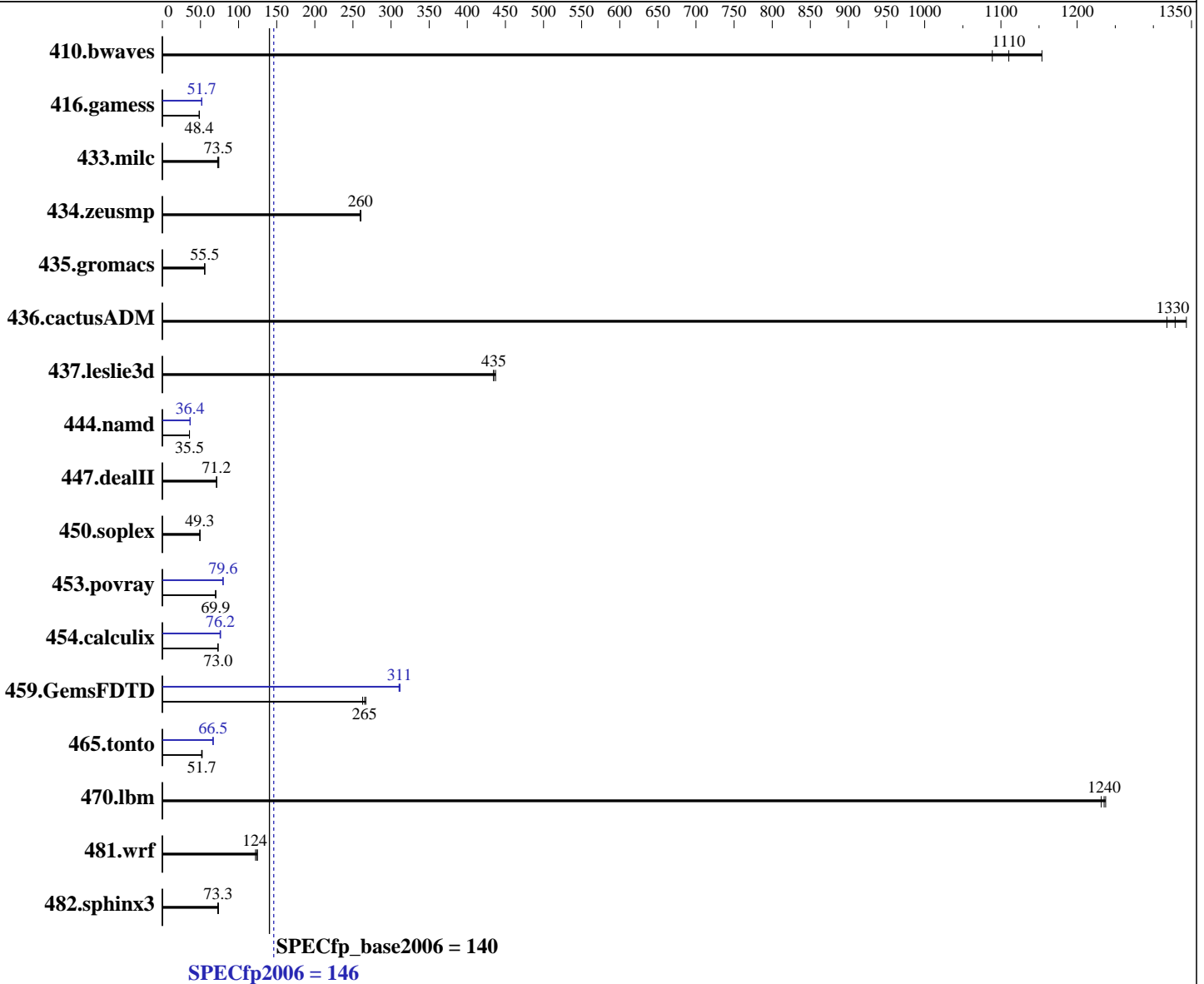
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-2017

Hardware Availability: Aug-2017

Software Availability: Apr-2017



Hardware	
CPU Name:	Intel Xeon Gold 6142
CPU Characteristics:	Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	32 cores, 2 chips, 16 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:	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 = **146**

ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp_base2006 = **140**

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

L3 Cache: 22 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	11.8	1150	<u>12.2</u>	<u>1110</u>	12.5	1090	11.8	1150	<u>12.2</u>	<u>1110</u>	12.5	1090
416.gamess	404	48.4	<u>404</u>	<u>48.4</u>	404	48.5	378	51.8	<u>379</u>	<u>51.7</u>	379	51.6
433.milc	<u>125</u>	<u>73.5</u>	127	72.5	124	74.1	<u>125</u>	<u>73.5</u>	127	72.5	124	74.1
434.zeusmp	35.1	259	34.9	260	<u>35.0</u>	<u>260</u>	35.1	259	34.9	260	<u>35.0</u>	<u>260</u>
435.gromacs	129	55.5	128	55.6	<u>129</u>	<u>55.5</u>	129	55.5	128	55.6	<u>129</u>	<u>55.5</u>
436.cactusADM	<u>8.99</u>	<u>1330</u>	8.90	1340	9.07	1320	<u>8.99</u>	<u>1330</u>	8.90	1340	9.07	1320
437.leslie3d	21.5	437	<u>21.6</u>	<u>435</u>	21.6	435	21.5	437	<u>21.6</u>	<u>435</u>	21.6	435
444.namd	226	35.5	<u>226</u>	<u>35.5</u>	226	35.5	220	36.4	<u>220</u>	<u>36.4</u>	220	36.4
447.dealII	160	71.3	161	71.1	<u>161</u>	<u>71.2</u>	160	71.3	161	71.1	<u>161</u>	<u>71.2</u>
450.soplex	<u>169</u>	<u>49.3</u>	170	49.1	169	49.4	<u>169</u>	<u>49.3</u>	170	49.1	169	49.4
453.povray	<u>76.1</u>	<u>69.9</u>	76.1	69.9	76.0	70.0	<u>66.8</u>	<u>79.7</u>	<u>66.8</u>	<u>79.6</u>	66.9	79.6
454.calculix	113	73.1	<u>113</u>	<u>73.0</u>	113	72.9	<u>108</u>	<u>76.2</u>	108	76.3	109	75.7
459.GemsFDTD	39.7	267	<u>40.0</u>	<u>265</u>	40.4	263	34.0	312	34.2	310	<u>34.1</u>	<u>311</u>
465.tonto	<u>190</u>	<u>51.7</u>	188	52.3	191	51.6	<u>148</u>	<u>66.5</u>	147	66.8	148	66.3
470.lbm	11.1	1240	<u>11.1</u>	<u>1240</u>	11.2	1230	11.1	1240	<u>11.1</u>	<u>1240</u>	11.2	1230
481.wrf	<u>90.3</u>	<u>124</u>	89.5	125	91.4	122	<u>90.3</u>	<u>124</u>	89.5	125	91.4	122
482.sphinx3	265	73.5	<u>266</u>	<u>73.3</u>	268	72.7	<u>265</u>	<u>73.5</u>	<u>266</u>	<u>73.3</u>	268	72.7

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

DCA set to Enable

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 stark-02-02 Wed Aug 2 11:18:29 2017

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 146

ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp_base2006 = 140

CPU2006 license: 9017

Test date: Aug-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 6142 CPU @ 2.60GHz
 2 "physical id"s (chips)
 32 "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    : 16
  siblings     : 16
  physical 0   : cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  physical 1   : cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size     : 22528 KB

```

From /proc/meminfo

```

MemTotal:      395893572 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 stark-02-02 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 Aug 2 11:11

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

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   689G  47G  643G   7% /home

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 146

ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp_base2006 = 140

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Platform Notes (Continued)

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 -[TEE113J-1.00]- 06/03/2017

Memory:

4x NO DIMM NO DIMM

12x 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 = "32"

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

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 = 146

ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp_base2006 = 140

CPU2006 license: 9017

Test date: Aug-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 = 146

ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp_base2006 = 140

CPU2006 license: 9017

Test date: Aug-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 SD530
(2.60 GHz, Intel Xeon Gold 6142)

SPECfp2006 = 146

SPECfp_base2006 = 140

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-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 Oct 4 12:36:59 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 October 2017.