



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp[®]2006 = 142

SPECfp_base2006 = 137

CPU2006 license: 9017

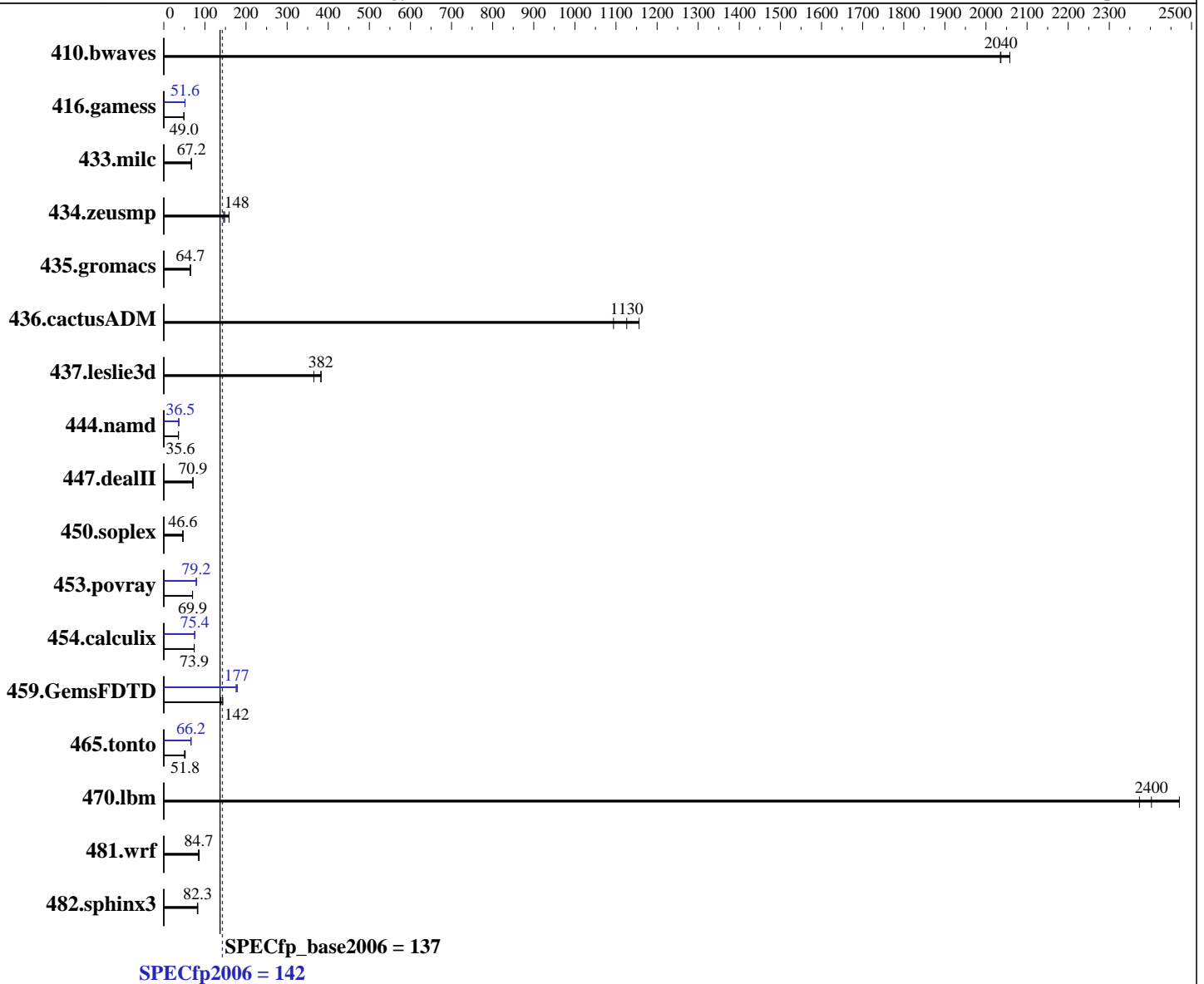
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-2017

Hardware Availability: Sep-2017

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon Platinum 8156
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3600
 FPU: Integrated
 CPU(s) enabled: 32 cores, 8 chips, 4 cores/chip
 CPU(s) orderable: 2,4,8 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 = **142**

ThinkSystem SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp_base2006 = **137**

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-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: 3 TB (96 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	6.60	2060	6.68	2040	<u>6.67</u>	<u>2040</u>	6.60	2060	6.68	2040	<u>6.67</u>	<u>2040</u>
416.gamess	400	49.0	399	49.0	<u>400</u>	<u>49.0</u>	381	51.4	379	51.7	<u>379</u>	<u>51.6</u>
433.milc	<u>137</u>	<u>67.2</u>	136	67.4	137	66.9	<u>137</u>	<u>67.2</u>	136	67.4	137	66.9
434.zeusmp	62.6	145	57.3	159	<u>61.5</u>	<u>148</u>	62.6	145	57.3	159	<u>61.5</u>	<u>148</u>
435.gromacs	110	64.8	<u>110</u>	<u>64.7</u>	111	64.6	110	64.8	<u>110</u>	<u>64.7</u>	111	64.6
436.cactusADM	10.3	1160	10.9	1090	<u>10.6</u>	<u>1130</u>	10.3	1160	10.9	1090	<u>10.6</u>	<u>1130</u>
437.leslie3d	25.8	365	24.6	383	<u>24.6</u>	<u>382</u>	25.8	365	24.6	383	<u>24.6</u>	<u>382</u>
444.namd	225	35.6	<u>225</u>	<u>35.6</u>	225	35.6	220	36.5	220	36.5	<u>220</u>	<u>36.5</u>
447.dealII	<u>161</u>	<u>70.9</u>	161	71.1	162	70.7	<u>161</u>	<u>70.9</u>	161	71.1	162	70.7
450.soplex	178	46.8	182	45.8	<u>179</u>	<u>46.6</u>	178	46.8	182	45.8	<u>179</u>	<u>46.6</u>
453.povray	76.2	69.9	<u>76.2</u>	<u>69.9</u>	76.1	69.9	67.3	79.1	67.1	79.3	<u>67.2</u>	<u>79.2</u>
454.calculix	112	73.9	111	74.0	<u>112</u>	<u>73.9</u>	109	75.5	110	75.1	<u>109</u>	<u>75.4</u>
459.GemsFDTD	76.6	138	<u>74.7</u>	<u>142</u>	73.9	144	59.2	179	<u>59.8</u>	<u>177</u>	60.4	176
465.tonto	196	50.2	<u>190</u>	<u>51.8</u>	190	51.9	149	66.2	149	66.2	<u>149</u>	<u>66.2</u>
470.lbm	5.79	2370	<u>5.72</u>	<u>2400</u>	5.56	2470	5.79	2370	<u>5.72</u>	<u>2400</u>	5.56	2470
481.wrf	130	86.1	<u>132</u>	<u>84.7</u>	132	84.6	130	86.1	<u>132</u>	<u>84.7</u>	132	84.6
482.sphinx3	<u>237</u>	<u>82.3</u>	236	82.6	239	81.6	<u>237</u>	<u>82.3</u>	236	82.6	239	81.6

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 Proton8S-SUSE12SP2 Wed Aug 30 11:01:17 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 = 142

ThinkSystem SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp_base2006 = 137

CPU2006 license: 9017

Test date: Aug-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) Platinum 8156 CPU @ 3.60GHz
 8 "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 : 4
  siblings  : 4
  physical 0: cores 1 5 9 13
  physical 1: cores 0 3 10 13
  physical 2: cores 1 2 5 11
  physical 3: cores 1 5 9 13
  physical 4: cores 1 2 5 11
  physical 5: cores 1 5 9 13
  physical 6: cores 1 5 9 13
  physical 7: cores 1 5 9 13
cache size : 16896 KB

```

From /proc/meminfo

```

MemTotal:      3170209980 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 Proton8S-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 Aug 30 06:53

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

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sdb3       btrfs    743G   62G  681G   9% /home

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp2006 = 142

ThinkSystem SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp_base2006 = 137

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Platform Notes (Continued)

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

BIOS Lenovo -[PSE105L-1.00]- 06/22/2017

Memory:

96x 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

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 = 142

ThinkSystem SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp_base2006 = 137

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Base Portability Flags (Continued)

```

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.deallI: -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 = 142

ThinkSystem SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp_base2006 = 137

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Sep-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 SR950
(3.60 GHz, Intel Xeon Platinum 8156)

SPECfp2006 = 142

SPECfp_base2006 = 137

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-2017

Hardware Availability: Sep-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 12:34:35 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 October 2017.