



SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp®2006 = **125**

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp_base2006 = **120**

CPU2006 license: 9017

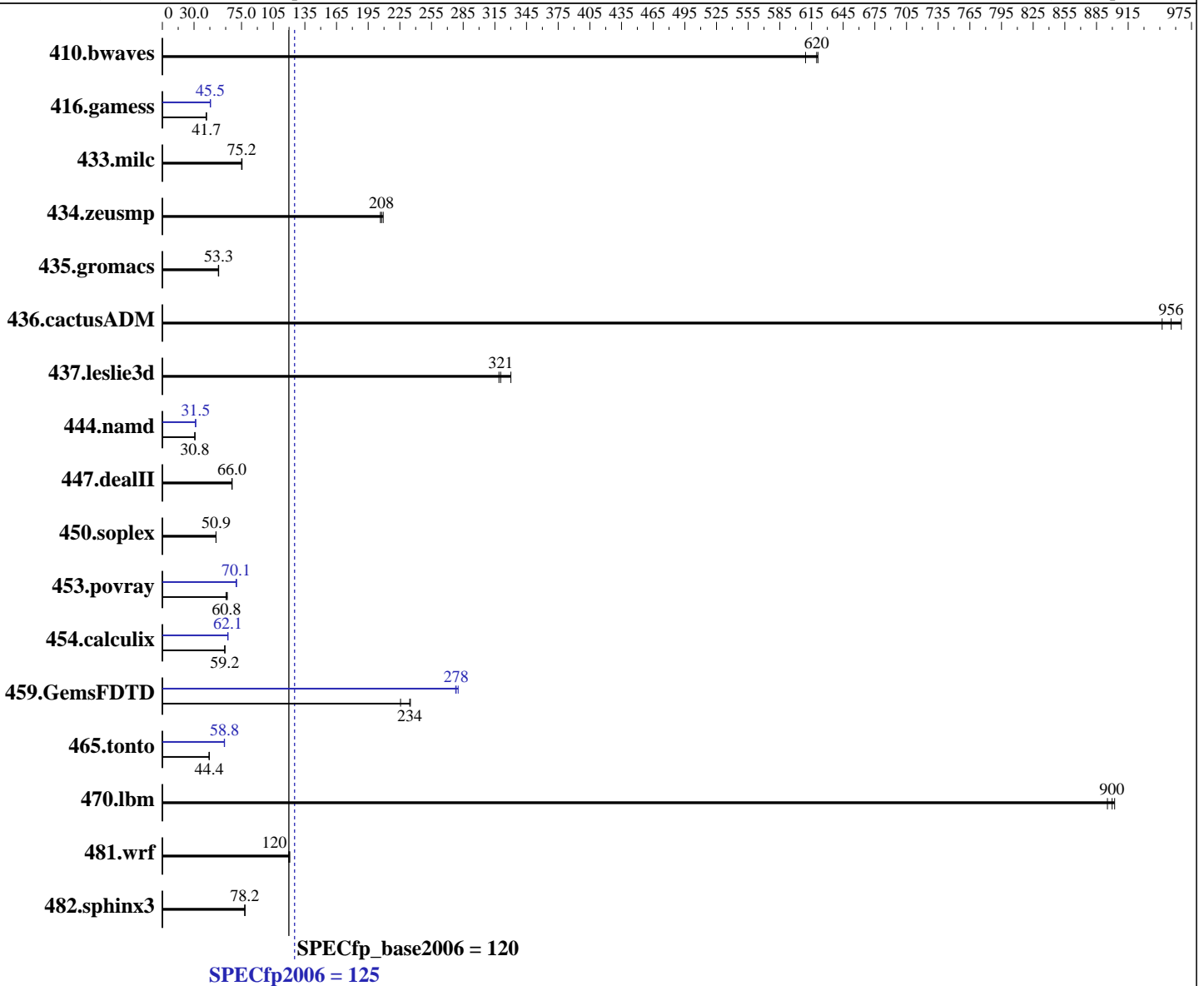
Test date: Jan-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2016

Tested by: Lenovo Group Limited

Software Availability: Sep-2016



Hardware	
CPU Name:	Intel Xeon E5-2690 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	28 cores, 2 chips, 14 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

Continued on next page

Software	
Operating System:	SUSE Linux Enterprise Server 12 SP1 (x86_64) Kernel 3.12.49-11-default
Compiler:	C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 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 Group Limited

SPECfp2006 = **125**

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp_base2006 = **120**

CPU2006 license: 9017

Test date: Jan-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2016

Tested by: Lenovo Group Limited

Software Availability: Sep-2016

L3 Cache: 35 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 480 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	21.9	621	22.3	609	<u>21.9</u>	<u>620</u>	21.9	621	22.3	609	<u>21.9</u>	<u>620</u>
416.gamess	469	41.8	<u>470</u>	<u>41.7</u>	471	41.6	430	45.5	431	45.5	<u>430</u>	<u>45.5</u>
433.milc	<u>122</u>	<u>75.2</u>	122	75.1	122	75.5	<u>122</u>	<u>75.2</u>	122	75.1	122	75.5
434.zeusmp	43.5	209	<u>43.8</u>	<u>208</u>	44.0	207	43.5	209	<u>43.8</u>	<u>208</u>	44.0	207
435.gromacs	134	53.3	<u>134</u>	<u>53.3</u>	135	53.0	134	53.3	<u>134</u>	<u>53.3</u>	135	53.0
436.cactusADM	12.4	965	12.6	947	<u>12.5</u>	<u>956</u>	12.4	965	12.6	947	<u>12.5</u>	<u>956</u>
437.leslie3d	28.5	330	<u>29.3</u>	<u>321</u>	29.5	319	28.5	330	<u>29.3</u>	<u>321</u>	29.5	319
444.namd	260	30.8	260	30.8	<u>260</u>	<u>30.8</u>	255	31.5	<u>255</u>	<u>31.5</u>	254	31.5
447.dealII	173	66.0	173	66.0	<u>173</u>	<u>66.0</u>	173	66.0	173	66.0	<u>173</u>	<u>66.0</u>
450.soplex	164	50.8	<u>164</u>	<u>50.9</u>	164	50.9	164	50.8	<u>164</u>	<u>50.9</u>	164	50.9
453.povray	<u>87.5</u>	<u>60.8</u>	86.4	61.6	88.1	60.4	75.7	70.3	<u>75.9</u>	<u>70.1</u>	76.1	69.9
454.calculix	<u>139</u>	<u>59.2</u>	139	59.2	139	59.1	133	62.1	133	62.1	<u>133</u>	<u>62.1</u>
459.GemsFDTD	<u>45.3</u>	<u>234</u>	45.2	235	47.0	226	38.2	278	<u>38.1</u>	<u>278</u>	37.9	280
465.tonto	221	44.6	223	44.2	<u>222</u>	<u>44.4</u>	<u>167</u>	<u>58.8</u>	168	58.6	167	58.9
470.lbm	15.3	895	<u>15.3</u>	<u>900</u>	15.2	902	15.3	895	<u>15.3</u>	<u>900</u>	15.2	902
481.wrf	93.2	120	<u>92.7</u>	<u>120</u>	92.6	121	93.2	120	<u>92.7</u>	<u>120</u>	92.6	121
482.sphinx3	249	78.3	<u>249</u>	<u>78.2</u>	250	78.0	249	78.3	<u>249</u>	<u>78.2</u>	250	78.0

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"
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/transparent_hugepage/enabled

Platform Notes

BIOS configuration:
Hyper-Threading set to Disabled
Sysinfo program /home/cpu2006-1.2-ic17.0/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on Kent-SUT2 Sat Jan 16 15:04:15 2016

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 Group Limited

SPECfp2006 = 125

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp_base2006 = 120

CPU2006 license: 9017

Test date: Jan-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2016

Tested by: Lenovo Group Limited

Software Availability: Sep-2016

Platform Notes (Continued)

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

From /proc/cpuinfo

```

model name : Intel(R) Xeon(R) CPU E5-2690 v4@ 2.60GHz
 2 "physical id"s (chips)
 28 "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 : 14
  siblings  : 14
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

```

From /proc/meminfo

```

MemTotal:      132188384 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

From /etc/*release* /etc/*version*

```

SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# 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-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"

```

uname -a:

```

Linux Kent-SUT2 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jan 16 15:03

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

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2        btrfs    447G  7.9G  439G   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 determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 125

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp_base2006 = 120

CPU2006 license: 9017

Test date: Jan-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2016

Tested by: Lenovo Group Limited

Software Availability: Sep-2016

Platform Notes (Continued)

BIOS American Megatrends Inc. 3.57 08/12/2016

Memory:

8x NO DIMM NO DIMM

8x Samsung M393A2G40DB1-CRC 16 GB 2 rank 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-ic17.0/libs/32:/home/cpu2006-1.2-ic17.0/libs/64:/home/cpu2006-1.2-ic17.0/sh10.2"

OMP_NUM_THREADS = "28"

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

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

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

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 Group Limited

SPECfp2006 = 125

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp_base2006 = 120

CPU2006 license: 9017

Test date: Jan-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2016

Tested by: Lenovo Group Limited

Software Availability: Sep-2016

Base Portability Flags (Continued)

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

Peak Optimization Flags

C benchmarks:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 125

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp_base2006 = 120

CPU2006 license: 9017

Test date: Jan-2017

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2016

Tested by: Lenovo Group Limited

Software Availability: Sep-2016

Peak Optimization Flags (Continued)

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.dealIII: 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

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer SD350
(2.60 GHz, Intel Xeon E5-2690 v4)

SPECfp2006 = 125

SPECfp_base2006 = 120

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Jan-2017

Hardware Availability: Sep-2016

Software Availability: Sep-2016

Peak Optimization Flags (Continued)

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.html>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revE.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.xml>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revE.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 Tue Feb 7 17:00:11 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 February 2017.