



# SPEC® CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

### SPECint®\_rate2006 = 592

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

### SPECint\_rate\_base2006 = 556

CPU2006 license: 9017

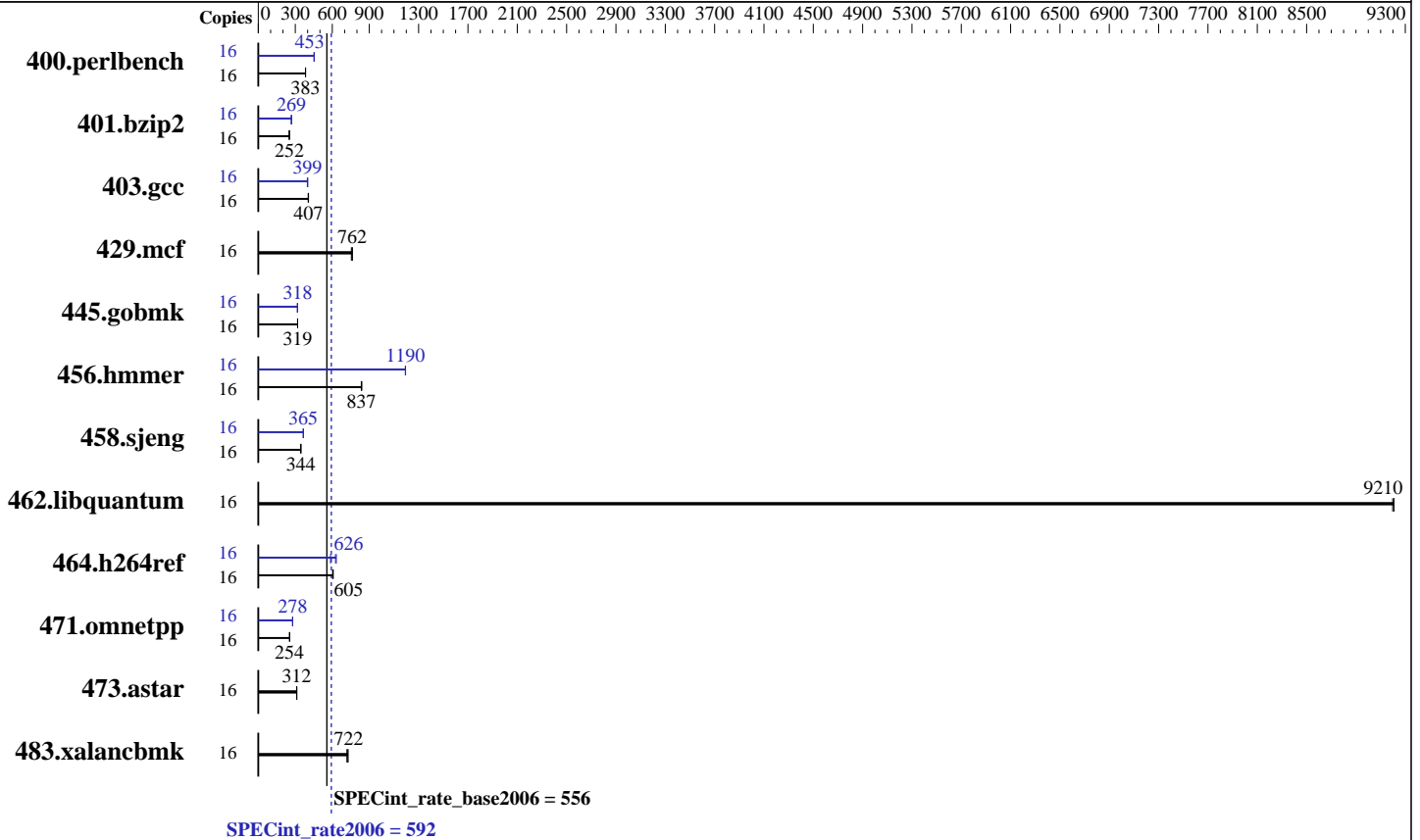
Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016



### 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: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 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  
 L3 Cache: 16.5 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

### Software

Operating System: SUSE Linux Enterprise Server 12 SP2 (x86\_64)  
 Kernel 4.4.21-69-default  
 Compiler: C/C++: Version 17.0.1.132 of Intel C/C++ Compiler for Linux  
 Auto Parallel: No  
 File System: btrfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

SPECint\_rate2006 = 592

SPECint\_rate\_base2006 = 556

CPU2006 license: 9017

Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Aug-2017

Hardware Availability: Aug-2017

Software Availability: Nov-2016

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	<b>408</b>	<b>383</b>	409	382	408	383	16	344	454	<b>345</b>	<b>453</b>	346	452
401.bzip2	16	611	253	616	251	<b>613</b>	<b>252</b>	16	<b>575</b>	<b>269</b>	573	269	576	268
403.gcc	16	316	407	<b>317</b>	<b>407</b>	318	404	16	324	398	321	401	<b>322</b>	<b>399</b>
429.mcf	16	193	755	191	762	<b>192</b>	<b>762</b>	16	193	755	191	762	<b>192</b>	<b>762</b>
445.gobmk	16	526	319	527	319	<b>527</b>	<b>319</b>	16	528	318	<b>528</b>	<b>318</b>	529	317
456.hammer	16	179	835	178	839	<b>178</b>	<b>837</b>	16	125	1190	125	1190	<b>125</b>	<b>1190</b>
458.sjeng	16	560	346	562	344	<b>562</b>	<b>344</b>	16	530	365	530	365	<b>530</b>	<b>365</b>
462.libquantum	16	36.0	9210	<b>36.0</b>	<b>9210</b>	36.0	9200	16	36.0	9210	<b>36.0</b>	<b>9210</b>	36.0	9200
464.h264ref	16	583	608	<b>585</b>	<b>605</b>	588	603	16	560	633	605	585	<b>566</b>	<b>626</b>
471.omnetpp	16	<b>394</b>	<b>254</b>	392	255	395	253	16	359	279	360	278	<b>359</b>	<b>278</b>
473.astar	16	<b>360</b>	<b>312</b>	361	311	360	312	16	<b>360</b>	<b>312</b>	361	311	360	312
483.xalancbmk	16	152	729	<b>153</b>	<b>722</b>	154	719	16	152	729	<b>153</b>	<b>722</b>	154	719

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS configuration:  
 Operating Mode set to Maximum Performance  
 SNC set to Enable  
 DCU Streamer Prefetcher set to Disable  
 Adjacent Cache Prefetch set to Disable  
 UPI Prefetcher set to Disable  
 Stale AtoS set to Enable  
 LLC dead line alloc set to Disable  
 Sysinfo program /home/cpu2006-1.2-ic17.0u1/config/sysinfo.rev6993  
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
 running on linux-yyst Mon Aug 14 22:03:19 2017

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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECint\_rate2006 = 592

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

SPECint\_rate\_base2006 = 556

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

### Platform Notes (Continued)

```

model name : Intel(R) Xeon(R) Platinum 8156 CPU @ 3.60GHz
 2 "physical id"s (chips)
 16 "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  : 8
  physical 0: cores 0 3 10 13
  physical 1: cores 1 5 9 13
cache size : 16896 KB

```

```

From /proc/meminfo
MemTotal:      395882420 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-yyist 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 14 21:35

```

SPEC is set to: /home/cpu2006-1.2-ic17.0u1
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       btrfs 744G  246G  496G  34% /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.

BIOS Lenovo -[TEE105Z-1.00]- 04/27/2017

Memory:

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECint\_rate2006 = 592

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

SPECint\_rate\_base2006 = 556

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

## Platform Notes (Continued)

12x Hynix HMA84GR7AFR4N-VK 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:

LD\_LIBRARY\_PATH = "/home/cpu2006-1.2-ic17.0u1/lib/ia32:/home/cpu2006-1.2-ic17.0u1/lib/intel64:/home/cpu2006-1.2-ic17.0u1/sh10.2"

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:

```
echo 1> /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

## Base Compiler Invocation

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

## Base Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -D\_FILE\_OFFSET\_BITS=64

403.gcc: -D\_FILE\_OFFSET\_BITS=64

429.mcf: -D\_FILE\_OFFSET\_BITS=64

445.gobmk: -D\_FILE\_OFFSET\_BITS=64

456.hmmer: -D\_FILE\_OFFSET\_BITS=64

458.sjeng: -D\_FILE\_OFFSET\_BITS=64

462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

464.h264ref: -D\_FILE\_OFFSET\_BITS=64

471.omnetpp: -D\_FILE\_OFFSET\_BITS=64

473.astar: -D\_FILE\_OFFSET\_BITS=64

483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
```

```
-qopt-mem-layout-trans=3
```

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECint\_rate2006 = 592

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

SPECint\_rate\_base2006 = 556

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

## Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -D\_FILE\_OFFSET\_BITS=64

429.mcf: -D\_FILE\_OFFSET\_BITS=64

445.gobmk: -D\_FILE\_OFFSET\_BITS=64

456.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

464.h264ref: -D\_FILE\_OFFSET\_BITS=64

471.omnetpp: -D\_FILE\_OFFSET\_BITS=64

473.astar: -D\_FILE\_OFFSET\_BITS=64

483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECint\_rate2006 = 592

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

SPECint\_rate\_base2006 = 556

CPU2006 license: 9017

Test date: Aug-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology

Software Availability: Nov-2016

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -qopt-prefetch -auto-ilp32  
-qopt-mem-layout-trans=3

403.gcc: -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3

429.mcf: basepeak = yes

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -qopt-mem-layout-trans=3

456.hmmer: -xCORE-AVX512 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-qopt-mem-layout-trans=3

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll4 -auto-ilp32  
-qopt-mem-layout-trans=3

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll2 -qopt-mem-layout-trans=3

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2)  
-qopt-ra-region-strategy=block  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs  
-L/sh10.2 -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Platinum 8156)

SPECint\_rate2006 = 592

SPECint\_rate\_base2006 = 556

**CPU2006 license:** 9017

**Test sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test date:** Aug-2017

**Hardware Availability:** Aug-2017

**Software Availability:** Nov-2016

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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-revD.html>  
<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-C.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-revD.xml>  
<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-C.xml>

SPEC and SPECint 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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Wed Sep 20 11:05:39 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 19 September 2017.