





# SPEC CINT2006 Result

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## Lenovo Global Technology

ThinkSystem SR550  
(3.60 GHz, Intel Xeon Gold 5122)

SPECint2006 = **73.1**

SPECint\_base2006 = **69.8**

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

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b><u>209</u></b>	<b><u>46.7</u></b>	211	46.4	208	46.9	186	52.7	185	52.8	<b><u>185</u></b>	<b><u>52.7</u></b>
401.bzip2	341	28.3	<b><u>341</u></b>	<b><u>28.3</u></b>	340	28.4	339	28.5	<b><u>339</u></b>	<b><u>28.5</u></b>	339	28.5
403.gcc	189	42.5	<b><u>189</u></b>	<b><u>42.5</u></b>	190	42.4	<b><u>185</u></b>	<b><u>43.5</u></b>	185	43.5	185	43.4
429.mcf	119	76.7	114	79.8	<b><u>117</u></b>	<b><u>78.2</u></b>	<b><u>117</u></b>	<b><u>78.0</u></b>	117	78.0	118	77.1
445.gobmk	317	33.1	317	33.1	<b><u>317</u></b>	<b><u>33.1</u></b>	311	33.7	312	33.6	<b><u>312</u></b>	<b><u>33.6</u></b>
456.hammer	96.3	96.8	<b><u>96.5</u></b>	<b><u>96.7</u></b>	96.5	96.7	96.3	96.8	<b><u>96.5</u></b>	<b><u>96.7</u></b>	96.5	96.7
458.sjeng	329	36.8	<b><u>329</u></b>	<b><u>36.8</u></b>	329	36.8	323	37.5	322	37.5	<b><u>322</u></b>	<b><u>37.5</u></b>
462.libquantum	5.38	3850	4.90	4230	<b><u>5.34</u></b>	<b><u>3880</u></b>	5.38	3850	4.90	4230	<b><u>5.34</u></b>	<b><u>3880</u></b>
464.h264ref	308	71.9	306	72.4	<b><u>308</u></b>	<b><u>71.9</u></b>	308	71.9	306	72.4	<b><u>308</u></b>	<b><u>71.9</u></b>
471.omnetpp	211	29.6	206	30.3	<b><u>211</u></b>	<b><u>29.6</u></b>	158	39.5	<b><u>157</u></b>	<b><u>39.7</u></b>	157	39.8
473.astar	183	38.3	182	38.6	<b><u>182</u></b>	<b><u>38.5</u></b>	183	38.3	183	38.4	<b><u>183</u></b>	<b><u>38.4</u></b>
483.xalancbmk	86.1	80.1	84.9	81.3	<b><u>85.8</u></b>	<b><u>80.4</u></b>	79.1	87.3	77.9	88.6	<b><u>78.1</u></b>	<b><u>88.3</u></b>

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

## Submit Notes

The config file option 'submit' was used.

## Operating System Notes

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

## Platform Notes

BIOS configuration:

Operating Mode set to Maximum Performance

Hyper-Threading set to Disable

Per Core P-state 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 localhost.localdomain Mon Aug 7 08:17:15 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

model name : Intel(R) Xeon(R) Gold 5122 CPU @ 3.60GHz

2 "physical id"s (chips)

8 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with

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info@spec.org

<http://www.spec.org/>

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### Platform Notes (Continued)

```

caution.)
  cpu cores : 4
  siblings  : 4
  physical 0: cores 2 3 4 10
  physical 1: cores 1 5 9 13
  cache size : 16896 KB

```

```

From /proc/meminfo
MemTotal:      395696816 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

```

```

uname -a:
Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13
EDT 2016 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Aug 7 07:45

```

SPEC is set to: /home/cpu2006-1.2-ic17.0u3
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs  689G  187G  502G   28% /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:
12x Hynix HMA84GR7AFR4N-VK 32 GB 2 rank 2666 MHz

```

(End of data from sysinfo program)



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## 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 = "8"

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

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch  
-auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh10.2 -lsmartheap64



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## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

C++ benchmarks (except as noted below):

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

473.astar: icpc -m64

## Peak Portability Flags

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

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

429.mcf: -DSPEC\_CPU\_LP64

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

456.hmmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

464.h264ref: -DSPEC\_CPU\_LP64

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

473.astar: -DSPEC\_CPU\_LP64

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

## Peak Optimization Flags

C benchmarks:

400.perlbench: -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) -qopt-prefetch

401.bzip2: -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 -auto-ilp32 -qopt-prefetch

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## Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
-qopt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-qopt-prefetch -auto-p32

445.gobmk: -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)

456.hmmr: basepeak = yes

458.sjeng: -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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -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) -qopt-ra-region-strategy=block  
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

## 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-revF.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-revF.xml>

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



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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