### Lenovo Global Technology

**ThinkSystem SR950**  
(2.30 GHz, Intel Xeon Gold 5118)

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>Not Run</th>
</tr>
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<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>2220</td>
</tr>
</tbody>
</table>

**Test date:** Dec-2017  
**Hardware Availability:** Sep-2017  
**Software Availability:** Apr-2017

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>9017</th>
</tr>
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<tbody>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Tested sponsor:</td>
<td>Lenovo Global Technology</td>
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</tbody>
</table>

#### SPECint Rate 2006

<table>
<thead>
<tr>
<th>Copies</th>
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<tr>
<td>400.perlbench</td>
<td>1500 3000 4500 6000 7500 9000 11000 13000 15000 17000 19000 21000 23000 25000 27000 29000 31000 33000 35000</td>
<td></td>
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<tr>
<td>401.bzip2</td>
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<td>403.gcc</td>
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<tr>
<td>429.mcf</td>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
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<tr>
<td>458.sjeng</td>
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<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>35400</td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>2230</td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>1190</td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>1290</td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>35500</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Gold 5118</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.20 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2300</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>48 cores, 4 chips, 12 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>2,4 chips</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>16.5 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>800 GB tmpfs</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 12 SP2 (x86_64) Kernel 4.4.21-69-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>tmpfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>
SPEC CINT2006 Result

Lenovo Global Technology
ThinkSystem SR950
(2.30 GHz, Intel Xeon Gold 5118)

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 2220

CPU2006 license: 9017
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
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<td>972</td>
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<td>456.hmmer</td>
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<tr>
<td>458.sjeng</td>
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<tr>
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<td>2850</td>
<td>233</td>
<td>2850</td>
<td>232</td>
<td>2850</td>
</tr>
</tbody>
</table>

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"
Tmpfs filesystem can be set with:
mount -t tmpfs -o size=800g tmpfs /home
Process tuning setting:
  echo 50000 > /proc/sys/kernel/sched_cfs_bandwidth_slice_us
  echo 240000000 > /proc/sys/kernel/sched_latency_ns
  echo 5000000 > /proc/sys/kernel/sched_migration_cost_ns
  echo 100000000 > /proc/sys/kernel/sched_min_granularity_ns
  echo 1500000000 > /proc/sys/kernel/sched_wakeup_granularity_ns

Platform Notes
BIOS configuration:
Choose Operating Mode set to Maximum Performance
SNC set to Enable
DCU Streamer Prefetcher set to Disable
Stale AtoS set to Enable
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 linux-ciok Mon Dec 11 20:09:56 2017

Standard Performance Evaluation Corporation
Page 2
Lenovo Global Technology
ThinkSystem SR950
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SPEC CINT2006 Result

SPECint\textsubscript{rate2006} = Not Run
SPECint\textsubscript{rate\_base2006} = 2220

CPU\textsubscript{2006} license: 9017
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test date: Dec-2017
Hardware Availability: Sep-2017
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 5118 CPU @ 2.30GHz
4 "physical id"s (chips)
96 "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 : 12
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 16896 KB

From /proc/meminfo
MemTotal: 1584766272 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:
(x86_64) x86_64 x86_64 GNU/Linux
run-level 3 Dec 11 20:02

SPEC is set to: /home/cpu2006-1.2-ic17.0u3
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 800G 5.0G 796G 1% /home
Additional information from dmidecode:
Continued on next page
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Platform Notes (Continued)

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 -[PSE105X-1.00]- 08/17/2017
Memory:
48x NO DIMM NO DIMM
48x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666 MHz, configured at 2400 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-icl7.0u3/lib/ia32:/home/cpu2006-1.2-icl7.0u3/lib/intel64:/home/cpu2006-1.2-icl7.0u3/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:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
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

Continued on next page
# SPEC CINT2006 Result

**Lenovo Global Technology**  
ThinkSystem SR950  
(2.30 GHz, Intel Xeon Gold 5118)  
**SPECint_rate2006 = Not Run**  
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| CPU2006 license | Lenovo Global Technology | Test date | Dec-2017  
|-----------------|--------------------------|-----------|-----------  
| Test sponsor    | Lenovo Global Technology | Hardware Availability | Sep-2017  
| Tested by       | Lenovo Global Technology | Software Availability | Apr-2017  

## Base Portability Flags (Continued)

<table>
<thead>
<tr>
<th>Flag</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>473.astar</td>
<td>-D_FILE_OFFSET_BITS=64</td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX</td>
<td></td>
</tr>
</tbody>
</table>

## Base Optimization Flags

**C benchmarks:**
- `xCORE-AVX512`  
- `-ipo`  
- `-no-prec-div`  
- `-qopt-prefetch`  
- `-qopt-mem-layout-trans=3`

**C++ benchmarks:**
- `xCORE-AVX512`  
- `-ipo`  
- `-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`

The flags files that were used to format this result can be browsed at:

- [http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-E.html](http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-E.html)

You can also download the XML flags sources by saving the following links:

- [http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-E.xml](http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-E.xml)

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For questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

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