Lenovo Global Technology

ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp®2006 = 146
SPECfp_base2006 = 140

CPU2006 license: 9017
Test date: Jul-2017
Test sponsor: Lenovo Global Technology
Hardware Availability: Aug-2017
Tested by: Lenovo Global Technology
Software Availability: Nov-2016

CPU Name: Intel Xeon Gold 6126T
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHZ: 2600
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip
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

Software

Operating System: SUSE Linux Enterprise Server 12 SP2 (x86_64)
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)
Lenovo Global Technology

ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp2006 = 146
SPECfp_base2006 = 140

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

Test date: Jul-2017
Hardware Availability: Aug-2017
Tested by: Lenovo Global Technology
Software Availability: Nov-2016

L3 Cache: 19.25 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

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>14.0</td>
<td>973</td>
<td>14.5</td>
<td>934</td>
<td>14.7</td>
<td>925</td>
<td>14.0</td>
<td>973</td>
<td>14.5</td>
<td>934</td>
</tr>
<tr>
<td>416.gamess</td>
<td>405</td>
<td>48.3</td>
<td>404</td>
<td>48.4</td>
<td>404</td>
<td>48.5</td>
<td>378</td>
<td>51.8</td>
<td>378</td>
<td>51.8</td>
</tr>
<tr>
<td>433.milc</td>
<td>126</td>
<td>72.6</td>
<td>125</td>
<td>73.4</td>
<td>125</td>
<td>73.7</td>
<td>126</td>
<td>72.6</td>
<td>125</td>
<td>73.4</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>35.3</td>
<td>258</td>
<td>35.2</td>
<td>259</td>
<td>35.5</td>
<td>256</td>
<td>35.3</td>
<td>258</td>
<td>35.2</td>
<td>259</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>126</td>
<td>56.9</td>
<td>126</td>
<td>56.8</td>
<td>126</td>
<td>56.5</td>
<td>126</td>
<td>56.9</td>
<td>126</td>
<td>56.8</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>20.3</td>
<td>463</td>
<td>20.3</td>
<td>462</td>
<td>20.2</td>
<td>466</td>
<td>20.3</td>
<td>463</td>
<td>20.3</td>
<td>462</td>
</tr>
<tr>
<td>444.namd</td>
<td>225</td>
<td>35.6</td>
<td>225</td>
<td>35.6</td>
<td>225</td>
<td>35.6</td>
<td>220</td>
<td>36.5</td>
<td>220</td>
<td>36.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>161</td>
<td>71.1</td>
<td>161</td>
<td>71.0</td>
<td>162</td>
<td>70.8</td>
<td>161</td>
<td>71.1</td>
<td>161</td>
<td>71.0</td>
</tr>
<tr>
<td>450.soplex</td>
<td>169</td>
<td>49.4</td>
<td>171</td>
<td>48.7</td>
<td>170</td>
<td>49.0</td>
<td>169</td>
<td>49.4</td>
<td>171</td>
<td>48.7</td>
</tr>
<tr>
<td>453.povray</td>
<td>76.4</td>
<td>69.6</td>
<td>76.0</td>
<td>70.0</td>
<td>76.0</td>
<td>70.0</td>
<td>67.7</td>
<td>78.6</td>
<td>67.3</td>
<td>79.1</td>
</tr>
<tr>
<td>454.calculix</td>
<td>114</td>
<td>72.6</td>
<td>114</td>
<td>72.4</td>
<td>114</td>
<td>72.3</td>
<td>108</td>
<td>76.6</td>
<td>108</td>
<td>76.5</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>37.9</td>
<td>280</td>
<td>38.1</td>
<td>278</td>
<td>38.8</td>
<td>273</td>
<td>32.2</td>
<td>329</td>
<td>32.7</td>
<td>324</td>
</tr>
<tr>
<td>465.tonto</td>
<td>187</td>
<td>52.7</td>
<td>187</td>
<td>52.5</td>
<td>188</td>
<td>52.4</td>
<td>143</td>
<td>68.9</td>
<td>143</td>
<td>68.8</td>
</tr>
<tr>
<td>470.lbm</td>
<td>11.5</td>
<td>1190</td>
<td>12.1</td>
<td>1130</td>
<td>12.2</td>
<td>1130</td>
<td>11.5</td>
<td>1190</td>
<td>12.1</td>
<td>1130</td>
</tr>
<tr>
<td>481.wrf</td>
<td>84.7</td>
<td>132</td>
<td>84.9</td>
<td>132</td>
<td>84.6</td>
<td>132</td>
<td>84.7</td>
<td>132</td>
<td>84.9</td>
<td>132</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>250</td>
<td>77.9</td>
<td>250</td>
<td>77.8</td>
<td>250</td>
<td>77.8</td>
<td>250</td>
<td>77.9</td>
<td>250</td>
<td>77.8</td>
</tr>
</tbody>
</table>

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:
Operating Mode set to Maximum Performance
Hyper-Threading set to Disabled
Uncore Frequency Scaling set to Disable
LLC dead line alloc set to Disable
Sysinfo program /home/cpu2006-1.2-ic17.0/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-yyst Wed Jul 26 20:43:25 2017
This section contains SUT (System Under Test) info as seen by
Continued on next page
Lenovo Global Technology

ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp2006 = 146
SPECfp_base2006 = 140

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

Test date: Jul-2017
Hardware Availability: Aug-2017
Software Availability: Nov-2016

Platform Notes (Continued)

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 6126T CPU @ 2.60GHz
 2 "physical id"s (chips)
 24 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
carection.)
cpu cores : 12
siblings : 12
physical 0: cores 0 1 3 4 5 6 8 9 10 11 12 13
physical 1: cores 0 1 3 4 5 6 8 9 10 11 12 13
cache size : 19712 KB

From /proc/meminfo
MemTotal: 395882956 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:
  (9464f67) x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Jul 26 20:41

SPEC is set to: /home/cpu2006-1.2-ic17.0
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 btrfs 744G 277G 466G 38% /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
Continued on next page
Lenovo Global Technology

ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp2006 = 146
SPECfp_base2006 = 140

CPU2006 license: 9017
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Test date: Jul-2017
Hardware Availability: Aug-2017
Software Availability: Nov-2016

Platform Notes (Continued)

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)

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 = "$24"

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

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.dealII: -DSPEC_CPU_LP64
 450.soplex: -DSPEC_CPU_LP64

Continued on next page
Lenovo Global Technology
ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp2006 = 146
SPECfp_base2006 = 140

CPU2006 license: 9017
Test sponsor: Lenovo Global Technology
Test date: Jul-2017
Tested by: Lenovo Global Technology
Hardware Availability: Aug-2017
Software Availability: Nov-2016

Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags
Lenovo Global Technology
ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp2006 = 146
SPECfp_base2006 = 140

CPU2006 license: 9017
Test sponsor: Lenovo Global Technology
Test date: Jul-2017
Tested by: Lenovo Global Technology
Hardware Availability: Aug-2017
Software Availability: Nov-2016

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-ipo32

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

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes

Continued on next page
Lenovo Global Technology
ThinkSystem SR550
(2.60 GHz, Intel Xeon Gold 6126T)

SPECfp2006 = 146
SPECfp_base2006 = 140

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

Test date: Jul-2017
Hardware Availability: Aug-2017
Software Availability: Nov-2016

Peak Optimization Flags (Continued)

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.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.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Flags-V1.2-SKL-C.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.
Originally published on 19 September 2017.