**Lenovo Global Technology**

ThinkSystem ST550  
(2.20 GHz, Intel Xeon Silver 4114T)

**SPECrate2017_fp_base = 104**

**SPECrate2017_fp_peak = 106**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SpecRate2017_base</th>
<th>SpecRate2017_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>bwaves</td>
<td>86.9</td>
<td></td>
</tr>
<tr>
<td>cactuBSSN</td>
<td>85.0</td>
<td></td>
</tr>
<tr>
<td>namd</td>
<td>72.3</td>
<td></td>
</tr>
<tr>
<td>parest</td>
<td>69.5</td>
<td></td>
</tr>
<tr>
<td>povray</td>
<td></td>
<td>118</td>
</tr>
<tr>
<td>lbm</td>
<td>75.7</td>
<td></td>
</tr>
<tr>
<td>wrf</td>
<td>97.9</td>
<td></td>
</tr>
<tr>
<td>blender</td>
<td>98.3</td>
<td></td>
</tr>
<tr>
<td>cam4</td>
<td>93.1</td>
<td></td>
</tr>
<tr>
<td>imagick</td>
<td></td>
<td>144</td>
</tr>
<tr>
<td>nab</td>
<td></td>
<td>126</td>
</tr>
<tr>
<td>fotonik3d</td>
<td>99.7</td>
<td></td>
</tr>
<tr>
<td>roms</td>
<td>59.6</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Silver 4114T  
- **Max MHz:** 3000  
- **Nominal:** 2200  
- **Enabled:** 20 cores, 2 chips, 2 threads/core  
- **Orderable:** 1,2 chips  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **Cache L2:** 1 MB I+D on chip per core  
- **Cache L3:** 13.75 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)  
- **Storage:** 1 x 800 GB SAS SSD  
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 12 SP2 (x86_64)  
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++  
- **Parallel:** No  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Other:** None

---

**Test Details**

- **CPU2017 License:** 9017  
- **Test Sponsor:** Lenovo Global Technology  
- **Tested by:** Lenovo Global Technology  
- **Hardware Availability:** Aug-2017  
- **Software Availability:** Feb-2018  
- **Test Date:** Mar-2018  
- **Test Date:** Mar-2018  
- **Hardware:** Lenovo Global Technology  
- **Software:** Lenovo Global Technology

---

**Lenovo Global Technology**

ThinkSystem ST550  
(2.20 GHz, Intel Xeon Silver 4114T)
SPEC CPU2017 Floating Point Rate Result

Lenovo Global Technology
ThinkSystem ST550
(2.20 GHz, Intel Xeon Silver 4114T)

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>40</td>
<td>1185</td>
<td>338</td>
<td>1186</td>
<td>338</td>
<td>1186</td>
<td>338</td>
<td>40</td>
<td>1185</td>
<td>338</td>
<td>1187</td>
<td>338</td>
<td>1185</td>
<td>338</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>40</td>
<td>582</td>
<td>86.9</td>
<td>583</td>
<td>86.9</td>
<td>583</td>
<td>86.8</td>
<td>40</td>
<td>595</td>
<td>85.1</td>
<td>596</td>
<td>85.0</td>
<td>596</td>
<td>85.0</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>40</td>
<td>529</td>
<td>71.9</td>
<td>524</td>
<td>72.6</td>
<td>525</td>
<td>72.3</td>
<td>40</td>
<td>523</td>
<td>72.7</td>
<td>524</td>
<td>72.5</td>
<td>523</td>
<td>72.7</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>40</td>
<td>1506</td>
<td>69.5</td>
<td>1510</td>
<td>69.3</td>
<td>1506</td>
<td>69.5</td>
<td>40</td>
<td>1509</td>
<td>69.3</td>
<td>1509</td>
<td>69.3</td>
<td>1508</td>
<td>69.4</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>40</td>
<td>794</td>
<td>118</td>
<td>794</td>
<td>118</td>
<td>796</td>
<td>117</td>
<td>40</td>
<td>678</td>
<td>138</td>
<td>687</td>
<td>136</td>
<td>682</td>
<td>137</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>40</td>
<td>556</td>
<td>75.8</td>
<td>558</td>
<td>75.5</td>
<td>557</td>
<td>75.7</td>
<td>40</td>
<td>505</td>
<td>83.4</td>
<td>504</td>
<td>83.7</td>
<td>506</td>
<td>83.4</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>40</td>
<td>723</td>
<td>124</td>
<td>720</td>
<td>124</td>
<td>721</td>
<td>124</td>
<td>40</td>
<td>705</td>
<td>127</td>
<td>707</td>
<td>127</td>
<td>707</td>
<td>127</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>40</td>
<td>622</td>
<td>97.9</td>
<td>621</td>
<td>98.1</td>
<td>623</td>
<td>97.9</td>
<td>40</td>
<td>620</td>
<td>98.3</td>
<td>621</td>
<td>98.2</td>
<td>619</td>
<td>98.4</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>40</td>
<td>751</td>
<td>93.1</td>
<td>749</td>
<td>93.4</td>
<td>753</td>
<td>92.9</td>
<td>40</td>
<td>737</td>
<td>94.9</td>
<td>739</td>
<td>94.7</td>
<td>738</td>
<td>94.8</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>40</td>
<td>693</td>
<td>144</td>
<td>694</td>
<td>143</td>
<td>693</td>
<td>144</td>
<td>40</td>
<td>693</td>
<td>144</td>
<td>693</td>
<td>143</td>
<td>694</td>
<td>143</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>40</td>
<td>537</td>
<td>125</td>
<td>536</td>
<td>126</td>
<td>535</td>
<td>126</td>
<td>40</td>
<td>528</td>
<td>127</td>
<td>528</td>
<td>128</td>
<td>529</td>
<td>127</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>40</td>
<td>1564</td>
<td>99.7</td>
<td>1562</td>
<td>99.8</td>
<td>1564</td>
<td>99.7</td>
<td>40</td>
<td>1565</td>
<td>99.6</td>
<td>1564</td>
<td>99.6</td>
<td>1563</td>
<td>99.7</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>40</td>
<td>1066</td>
<td>59.6</td>
<td>1070</td>
<td>59.4</td>
<td>1065</td>
<td>59.7</td>
<td>40</td>
<td>1050</td>
<td>60.5</td>
<td>1047</td>
<td>60.7</td>
<td>1047</td>
<td>60.7</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"

General Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH = "/home/cpu2017.1.0.2.ic18.0/lib/ia32:/home/cpu2017.1.0.2.ic18.0/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017.1.0.2.ic18.0/je5.0.1-32:/home/cpu2017.1.0.2.ic18.0/je5.0.1-64"
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesyste page cache synced and cleared with:
```
sync; echo 3 > /proc/sys/vm/drop_caches
```
runcpu command invoked through numactl i.e.:
```
numactl --interleave=all runcpu <etc>
```
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

(Continued on next page)
Lenovo Global Technology
ThinkSystem ST550
(2.20 GHz, Intel Xeon Silver 4114T)

SPECrate2017_fp_base = 104
SPECrate2017_fp_peak = 106

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Mar-2018
Hardware Availability: Aug-2017
Software Availability: Feb-2018

General Notes (Continued)
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
DCU Streamer Prefetcher set to Disable
MONITORWAIT set to Enable
Stale AtoS set to Enable
LLC dead line alloc set to Disable
Sysinfo program /home/cpu2017.1.0.2.ic18.0/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618b0c0f
running on ST550 Fri Mar 30 20:09:23 2018

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Silver 4114T CPU @ 2.20GHz
  2 "physical id"s (chips)
  40 "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 : 10
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                40
On-line CPU(s) list:   0-39
Thread(s) per core:    2
Core(s) per socket:    10
Socket(s):             2
NUMA node(s):          2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Silver 4114T CPU @ 2.20GHz

(Continued on next page)
Lenovo Global Technology

ThinkSystem ST550
(2.20 GHz, Intel Xeon Silver 4114T)

SPECrate2017_fp_base = 104
SPECrate2017_fp_peak = 106

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Platform Notes (Continued)

Stepping: 4
CPU MHz: 2194.850
BogoMIPS: 4389.70
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 14080K
NUMA node0 CPU(s): 0-9,20-29
NUMA node1 CPU(s): 10-19,30-39
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts
dtherm intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vnmi flexpriority
ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx
avx512f avx512dq vrdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt
xsavex xgetbv1 cqm_llc cqm_occup_llc

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

Available: 2 nodes (0-1)
Node 0 cpus: 0 1 2 3 4 5 6 7 8 9 20 21 22 23 24 25 26 27 28 29
Node 0 size: 193110 MB
Node 0 free: 191130 MB
Node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
Node 1 size: 193504 MB
Node 1 free: 192076 MB
Node distances:
Node 0 1
0: 10 21
1: 21 10

From /proc/meminfo
MemTotal: 395893792 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12

(Continued on next page)
**SPEC CPU2017 Floating Point Rate Result**

**Lenovo Global Technology**

ThinkSystem ST550
(2.20 GHz, Intel Xeon Silver 4114T)

**SPECrate2017_fp_base = 104**

**SPECrate2017_fp_peak = 106**

---

**Platform Notes (Continued)**

```
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 ST550 4.4.114-92.64-default #1 SMP Thu Feb 1 19:18:19 UTC 2018 (c6ce5db) x86_64
    x86_64 x86_64 GNU/Linux

run-level 3 Mar 29 22:21

SPEC is set to: /home/cpu2017.1.0.2.ic18.0
    Filesystem     Type   Size  Used Avail Use% Mounted on
    /dev/sda2      btrfs  744G  182G  561G  25% /home
```

Additional information from dmidecode follows. 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 -[O0E109Q-1.12]- 02/06/2018
Memory:
    12x Hynix HMA84GR7AFR4N-VK 32 GB 2 rank 2666, configured at 2400
```

(End of data from sysinfo program)

---

**Compiler Version Notes**

```
==============================================================================
CC  519.lbm_r(base) 538.imagick_r(base, peak) 544.nab_r(base)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
CC  519.lbm_r(peak) 544.nab_r(peak)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

(Continued on next page)
<table>
<thead>
<tr>
<th>Compiler Version Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXXC 508.namd_r (base) 510.parest_r (base)</td>
</tr>
<tr>
<td>icpc (ICC) 18.0.0 20170811</td>
</tr>
<tr>
<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

| CXXC 508.namd_r (peak) 510.parest_r (peak) |
| icpc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |

| CC 511.povray_r (base) 526.blender_r (base) |
| icpc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |
| icc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |

| CC 511.povray_r (peak) 526.blender_r (peak) |
| icpc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |
| icc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |

| FC 507.cactuBSSN_r (base) |
| icpc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |
| icc (ICC) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |
| ifort (IFORT) 18.0.0 20170811 |
| Copyright (C) 1985-2017 Intel Corporation. All rights reserved. |

| FC 507.cactuBSSN_r (peak) |

(Continued on next page)
**Lenovo Global Technology**
ThinkSystem ST550  
(2.20 GHz, Intel Xeon Silver 4114T)

**SPECrate2017_fp_base = 104**  
**SPECrate2017_fp_peak = 106**

<table>
<thead>
<tr>
<th><strong>CPU2017 License:</strong></th>
<th>9017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test Sponsor:</strong></td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td><strong>Tested by:</strong></td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td><strong>Test Date:</strong></td>
<td>Mar-2018</td>
</tr>
<tr>
<td><strong>Hardware Availability:</strong></td>
<td>Aug-2017</td>
</tr>
<tr>
<td><strong>Software Availability:</strong></td>
<td>Feb-2018</td>
</tr>
</tbody>
</table>

---

**Compiler Version Notes (Continued)**

```plaintext
icpc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

icc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

```plaintext
FC 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base)  

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

```plaintext
FC 554.roms_r(peak)  

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

```plaintext
CC 521.wrf_r(base) 527.cam4_r(base)  

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

```plaintext
CC 521.wrf_r(peak) 527.cam4_r(peak)  

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

**Base Compiler Invocation**

C benchmarks:  
icc

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Lenovo Global Technology
ThinkSystem ST550
(2.20 GHz, Intel Xeon Silver 4114T)

SPECrater2017_fp_base = 104
SPECrater2017_fp_peak = 106

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Mar-2018
Hardware Availability: Aug-2017
Software Availability: Feb-2018

Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icc

Benchmarks using both C and C++:
icpc icc

Benchmarks using Fortran, C, and C++:
icpc icc ifort

Base Portability Flags

503.bwaves.r -DSPEC_LP64
507.cactuBSSN_r -DSPEC_LP64
508.namd_r -DSPEC_LP64
510.parest.r -DSPEC_LP64
511.povray.r -DSPEC_LP64
519.ibm_r -DSPEC_LP64
521.wrf_r -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender.r -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r -DSPEC_LP64
544.nab_r -DSPEC_LP64
549.fotonik3d_r -DSPEC_LP64
554.roms_r -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

(Continued on next page)
### Base Optimization Flags (Continued)

Fortran benchmarks:
```bash
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both Fortran and C:
```bash
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both C and C++:
```bash
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3
```

Benchmarks using Fortran, C, and C++:
```bash
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

### Base Other Flags

C benchmarks:
```bash
-m64 -std=c11
```

C++ benchmarks:
```bash
-m64
```

Fortran benchmarks:
```bash
-m64
```

Benchmarks using both Fortran and C:
```bash
-m64 -std=c11
```

Benchmarks using both C and C++:
```bash
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```bash
-m64 -std=c11
```

### Peak Compiler Invocation

C benchmarks:
```bash
icc
```

(Continued on next page)
Lenovo Global Technology
ThinkSystem ST550
(2.20 GHz, Intel Xeon Silver 4114T)

**SPECrate2017_fp_base = 104**
**SPECrate2017_fp_peak = 106**

**CPU2017 License:** 9017
**Test Sponsor:** Lenovo Global Technology
**Test Date:** Mar-2018
**Tested by:** Lenovo Global Technology
**Hardware Availability:** Aug-2017
**Software Availability:** Feb-2018

---

**Peak Compiler Invocation (Continued)**

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`ifort icc`

Benchmarks using both C and C++:
`icpc icc`

Benchmarks using Fortran, C, and C++:
`icpc icc ifort`

---

**Peak Portability Flags**

Same as Base Portability Flags

---

**Peak Optimization Flags**

C benchmarks:

`519.lbm_r`: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3

`538.imagick_r`: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3

`544.nab_r`: Same as 519.lbm_r

C++ benchmarks:

-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3

Fortran benchmarks:

`503.bwaves_r`: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte

(Continued on next page)
Peak Optimization Flags (Continued)

549.fotonik3d_r: Same as 503.bwaves_r

554.roms_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-align array32byte

Benchmarks using both Fortran and C:

-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-align array32byte

Benchmarks using both C and C++:

-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:

-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-align array32byte

Peak Other Flags

C benchmarks:

-m64 -std=c11

C++ benchmarks:

-m64

Fortran benchmarks:

-m64

Benchmarks using both Fortran and C:

-m64 -std=c11

Benchmarks using both C and C++:

-m64 -std=c11

Benchmarks using Fortran, C, and C++:

-m64 -std=c11
# SPEC CPU2017 Floating Point Rate Result

## Lenovo Global Technology

**ThinkSystem ST550**  
(2.20 GHz, Intel Xeon Silver 4114T)

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_peak</td>
<td>106</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Mar-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Aug-2017</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2018</td>
</tr>
</tbody>
</table>

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

- [http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html](http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html)
- [http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-C.html](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-C.html)

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

- [http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml](http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml)
- [http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-C.xml](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-C.xml)

SPEC is a registered trademark 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 info@spec.org.

Tested with SPEC CPU2017 v1.0.2 on 2018-03-30 08:09:22-0400.  
Report generated on 2018-10-31 18:00:13 by CPU2017 PDF formatter v6067.  
Originally published on 2018-06-12.