SPEC CPU®2017 Floating Point Rate Result

Lenovo Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

SPECrater®2017_fp_base = 349
SPECrater®2017_fp_peak = Not Run

Lenovo Global Technology

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

**Test Date:** May-2021
**Hardware Availability:** Jul-2021
**Software Availability:** Feb-2021

---

### Hardware

- **CPU Name:** Intel Xeon Gold 6330
- **Max MHz:** 3.100
- **Nominal:** 2.000
- **Enabled:** 56 cores, 2 chips
- **Orderable:** 1,2 chips
- **Cache L1:** 32 KB I + 48 KB D on chip per core
- **L2:** 1.25 MB I+D on chip per core
- **L3:** 42 MB I+D on chip per chip
- **Memory:** 1 TB (32 x 32 GB 2Rx8 PC4-3200AA-R, running at 2933)
- **Storage:** 1 x 960 GB SATA SSD
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)
  - Kernel 4.18.0-240.el8.x86_64
- **Compiler:**
  - C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
  - Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;
- **Parallel:** No
- **Firmware:** Lenovo BIOS Version U8E109PT1 1.01 released Apr-2021
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage

---

**Copies**

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base (349)</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r 56</td>
</tr>
<tr>
<td>507.cactuBSSN_r 56</td>
</tr>
<tr>
<td>508.namd_r 56</td>
</tr>
<tr>
<td>510.parest_r 56</td>
</tr>
<tr>
<td>511.povray_r 56</td>
</tr>
<tr>
<td>519.lbm_r 56</td>
</tr>
<tr>
<td>521.wrf_r 56</td>
</tr>
<tr>
<td>526.blender_r 56</td>
</tr>
<tr>
<td>527.cam4_r 56</td>
</tr>
<tr>
<td>538.imagick_r 56</td>
</tr>
<tr>
<td>544.nab_r 56</td>
</tr>
<tr>
<td>549.fotonik3d_r 56</td>
</tr>
<tr>
<td>554.roms_r 56</td>
</tr>
</tbody>
</table>

---

**Tested by:** Lenovo Global Technology

---

**Hardware**

**Software**
**SPEC CPU®2017 Floating Point Rate Result**

Lenovo Global Technology  
ThinkSystem ST650 V2  
(2.00 GHz, Intel Xeon Gold 6330)

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

<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>56</td>
<td>816</td>
<td>688</td>
<td>818</td>
<td>686</td>
<td>817</td>
<td>687</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>56</td>
<td>137</td>
<td>516</td>
<td>137</td>
<td>519</td>
<td>137</td>
<td>517</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>56</td>
<td>205</td>
<td>259</td>
<td>205</td>
<td>260</td>
<td>200</td>
<td>266</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>56</td>
<td>625</td>
<td>234</td>
<td>626</td>
<td>234</td>
<td>623</td>
<td>235</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>56</td>
<td>328</td>
<td>399</td>
<td>328</td>
<td>399</td>
<td>327</td>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>519.cmbm_r</td>
<td>56</td>
<td>238</td>
<td>248</td>
<td>237</td>
<td>249</td>
<td>237</td>
<td>249</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>56</td>
<td>389</td>
<td>323</td>
<td>387</td>
<td>324</td>
<td>387</td>
<td>324</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>56</td>
<td>274</td>
<td>312</td>
<td>274</td>
<td>312</td>
<td>274</td>
<td>311</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>56</td>
<td>284</td>
<td>344</td>
<td>285</td>
<td>344</td>
<td>285</td>
<td>344</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>56</td>
<td>168</td>
<td>829</td>
<td>161</td>
<td>864</td>
<td>172</td>
<td>809</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>56</td>
<td>190</td>
<td>496</td>
<td>186</td>
<td>507</td>
<td>186</td>
<td>506</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>56</td>
<td>1047</td>
<td>209</td>
<td>1048</td>
<td>208</td>
<td>1046</td>
<td>209</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>554.oms_r</td>
<td>56</td>
<td>503</td>
<td>177</td>
<td>504</td>
<td>176</td>
<td>506</td>
<td>176</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Results 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"

**Environment Variables Notes**

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

```
LD_LIBRARY_PATH = "'/home/cpu2017-1.1.5-ic2021.1-revB/lib/intel64:/home/cpu2017-1.1.5-ic202 1.1-revB/jre5.0.1-64"
MALLOC_CONF = "retain:true"
```

**General Notes**

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1

Transparent Huge Pages enabled by default

(Continued on next page)
SPECPJ2017 Floating Point Rate Result

Lenovo Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

SPECrate®2017_fp_base = 349
SPECrate®2017_fp_peak = Not Run

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

General Notes (Continued)

Prior to runcpu invocation
Filesystem 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>

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
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 and then set it to Custom Mode
SNC set to Enabled
Hyper-Threading set to Disabled

Sysinfo program /home/cpu2017-1.1.5-ic2021.1-revB/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Tue May 18 18:06:21 2021

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) Gold 6330 CPU @ 2.00GHz
  2 "physical id"s (chips)
  56 "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: 28
  siblings: 28
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

From lscpu:
  Architecture: x86_64
  CPU op-mode(s): 32-bit, 64-bit

(Continued on next page)
Lenovo Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

SPECrate®2017_fp_base = 349
SPECrate®2017_fp_peak = Not Run

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Platform Notes (Continued)

Byte Order: Little Endian
CPU(s): 56
On-line CPU(s) list: 0-55
Thread(s) per core: 1
Core(s) per socket: 28
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6330 CPU @ 2.00GHz
Stepping: 6
CPU MHz: 2600.516
BogoMIPS: 4000.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 43008K
NUMA node0 CPU(s): 0-13
NUMA node1 CPU(s): 14-27
NUMA node2 CPU(s): 28-41
NUMA node3 CPU(s): 42-55
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 cpuid
aperfmpref perf our_pcpit cpuid_fault peb tsc_deadline_timer aes xsave avx f16c
rdandr lahf_lm abm 3dmwflush cpuid_fault epb cat l3 invpcid_single intel_p8in
ssbd mba ibs ibpb stibp ibrs enhanced tpr_shadow vmx flexpriority ept vpid ept_ad
fsagbaset tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cm qdt _a avx512f avx512dq
rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw
avx512vl xsaveopt xsave xsavec xgetbv1 xsavees cqm llc cqm_occup llc cqm_mbb_total
avx512_vmbi_local split_lock Detect wbnoinvd dtherm ida arat pln pts avx512vbmi umip pku
ospke avx512 vpbmi gfnl vaes vpclmulqdq avx512_vnmi avx512 bitalg tme
avx512_vpconfdq 1a57 rdpid md-clear pconfig flush_l1d arch_capabilities

/cache data
cache size: 43008 KB

From numacl --hardware WARNING: a numacl 'node' might or might not correspond to a
physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13
node 0 size: 253749 MB
node 0 free: 257342 MB
node 1 cpus: 14 15 16 17 18 19 20 21 22 23 24 25 26 27

(Continued on next page)
Lenovo Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

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

SPECrade®2017_fp_base = 349
SPECrade®2017_fp_peak = Not Run

Platform Notes (Continued)

node 1 size: 254260 MB
node 1 free: 257451 MB
node 2 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41
node 2 size: 254110 MB
node 2 free: 257760 MB
node 3 cpus: 42 43 44 45 46 47 48 49 50 51 52 53 54 55
node 3 size: 254445 MB
node 3 free: 257796 MB
node distances:
node 0 1 2 3
0: 10 11 20 20
1: 11 10 20 20
2: 20 20 10 11
3: 20 20 11 10

From /proc/meminfo
MemTotal: 1056489796 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sbin/tuned-adm active
Current active profile: balanced

From /etc/*release* /etc/*version*
-os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.3 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.3"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
ANSI_COLOR="0;31"
redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected

(Continued on next page)
Lenovo Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

SPECrated®2017_fp_base = 349
SPECrated®2017_fp_peak = Not Run

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Platform Notes (Continued)

CVE-2018-3639 (Speculative Store Bypass):
Mitigation: Speculative Store Bypass disabled via prctl and seccomp

CVE-2017-5753 (Spectre variant 1):
Mitigation: usercopy/swapgs barriers and __user pointer sanitization

CVE-2017-5715 (Spectre variant 2):
Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 May 18 18:05

SPEC is set to: /home/cpu2017-1.1.5-ic2021.1-revB
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 818G 89G 729G 11% /home

From /sys/devices/virtual/dmi/id
Vendor: Lenovo
Product: ThinkSystem ST650V2
Product Family: ThinkSystem
Serial: 1234567890

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.

Memory:
32x Samsung M393A4G43AB3-CWE 32 GB 2 rank 3200, configured at 2933

BIOS:
BIOS Vendor: Lenovo
BIOS Version: U8E109PT1-1.01
BIOS Date: 04/28/2021
BIOS Revision: 1.1
Firmware Revision: 1.20

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
==============================================================================

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113

(Continued on next page)
Lenovo Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

SPECraten®2017_fp_base = 349
SPECraten®2017_fp_peak = Not Run

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
C++ | 508.namd_r(base) 510.parest_r(base)
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
C++, C | 511.povray_r(base) 526.blender_r(base)
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base)
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
Fortran | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
Fortran, C | 521.wrf_r(base) 527.cam4_r(base)
**Lenovo Global Technology**

ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

<table>
<thead>
<tr>
<th>SPECrate\textsuperscript{®}2017_fp_base</th>
<th>349</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate\textsuperscript{®}2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Test Date:** May-2021  
**Hardware Availability:** Jul-2021  
**Software Availability:** Feb-2021

---

**Compiler Version Notes (Continued)**

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on  
Intel(R) 64, Version 2021.1 Build 20201112_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

**Base Compiler Invocation**

C benchmarks:  
icx  

C++ benchmarks:  
icpx  

Fortran benchmarks:  
ifort  

Benchmarks using both Fortran and C:  
ifort icx  

Benchmarks using both C and C++:  
icpx icx  

Benchmarks using Fortran, C, and C++:  
icpx icx 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
LENOCO Global Technology
ThinkSystem ST650 V2
(2.00 GHz, Intel Xeon Gold 6330)

SPECrate®2017_fp_base = 349
SPECrate®2017_fp_peak = Not Run

C benchmarks:
w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:
w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:
w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:
w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both C and C++:
w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using Fortran, C, and C++:
w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-ICElake-D.html
## Lenovo Global Technology

ThinkSystem ST650 V2  
(2.00 GHz, Intel Xeon Gold 6330)

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base =</th>
<th>349</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak =</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Test Date:** May-2021  
**Hardware Availability:** Jul-2021  
**Software Availability:** Feb-2021

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

- [http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-ICElake-D.xml](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-ICElake-D.xml)

---

SPEC CPU and SPECrate 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 info@spec.org.