**Lenovo Global Technology**

**Thinksystem SR250**

(3.30 GHz, Intel Xeon E-2124)

**SPECrate2017_fp_base = 29.3**

**SPECrate2017_fp_peak = Not Run**

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</table>

---

**Hardware**

CPU Name: Intel Xeon E-2124  
Max MHz.: 4300  
Nominal: 3300  
Enabled: 4 cores, 1 chip  
Orderable: 1 chip  
Cache L1: 32 KB I + 32 KB D on chip per core  
L2: 256 KB I+D on chip per core  
L3: 8 MB I+D on chip per chip  
Other: None  
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)  
Storage: 1 x 480 GB SATA SSD  
Other: None

**Software**

OS: SUSE Linux Enterprise Server 12 SP3 (x86_64)  
Kernel 4.4.131-94.29-default  
Compiler: C/C++: Version 18.0.2.199 of Intel C/C++  
Compiler for Linux;  
Fortran: Version 18.0.2.199 of Intel Fortran  
Compiler for Linux  
Parallel: No  
Firmware: Lenovo BIOS Version ISE105G 1.01 released Oct-2018  
File System: btrfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
Other: None
## Lenovo Global Technology

**Thinksystem SR250**  
(3.30 GHz, Intel Xeon E-2124)

### SPEC CPU2017 Floating Point Rate Result

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</table>

---

**Submit Notes**

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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/cpu2017-1.0.5-ic18.0u2/lib/ia32:/home/cpu2017-1.0.5-ic18.0u2/lib/intel64"`  
- `LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017-1.0.5-ic18.0u2/je5.0.1-32:/home/cpu2017-1.0.5-ic18.0u2/je5.0.1-64"`  

Binaries compiled on a system with 1x Intel Core i7-6700K CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5  
Transparent Huge Pages enabled by default  
Prior to runcpu invocation  
Filesystem page cache synced and cleared with:  
`sync; echo 3> /proc/sys/vm/drop_caches`

Yes: 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)

(Continued on next page)
Lenovo Global Technology

Thinksystem SR250
(3.30 GHz, Intel Xeon E-2124)

SPECraten2017_fp_base = 29.3
SPECraten2017_fp_peak = Not Run

General Notes (Continued)

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
Choose Operating Mode set to Custom Mode
CPU P-state Control set to Legacy
Execute Disable Bit set to Disable
Per Core P-state set to Disable
Adjacent Cache Prefetch set to Disable
Sysinfo program /home/cpu2017-1.0.5-ic18.0u2/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-ys4m Tue Dec 4 20:39:24 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) E-2124 CPU @ 3.30GHz
1 "physical id"s (chips)
4 "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 : 4
siblings : 4
physical 0: cores 0 1 2 3

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 4
On-line CPU(s) list: 0-3
Thread(s) per core: 1
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) E-2124 CPU @ 3.30GHz
Stepping: 10

(Continued on next page)
### Lenovo Global Technology

**Tested by:** Lenovo Global Technology  
**CPU2017 License:** 9017  
**Test Date:** Dec-2018  
**Test Sponsor:** Lenovo Global Technology  
**Hardware Availability:** Jan-2019  
**Software Availability:** May-2018

**Thinksystem SR250**  
(3.30 GHz, Intel Xeon E-2124)

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<tbody>
<tr>
<td>SPECrate2017_fp_peak</td>
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</table>

**Platform Notes (Continued)**

```
CPU MHz:               4084.275  
CPU max MHz:           4300.0000  
CPU min MHz:           800.0000  
BogoMIPS:              6623.98  
Virtualization:        VT-x  
L1d cache:             32K  
L1i cache:             32K  
L2 cache:              256K  
L3 cache:              8192K  
NUMA node0 CPU(s):     0-3  
Flags:                 fpu vme de pse tsc msr pae mce cmov 
                       pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb 
                       rdtscp lm constant_tsc 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 sse4_1 sse4_2 x2apic movbe 
                       popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch 
                       ida arat epb invpclid_single pln pts dtherm hwlp_notify hwlp_act_window hwlp_epp intel_pt 
                       stibp ssbd retpoline kaiser tpr_shadow vnmi fxl priority ept vpid fsgsbase 
                       tsc_adjust bmi1 hle avx2 smep bmi2 2sms erms invpcid rtmp mx newseed adx 
                       smap clflushopt xsaveopt xsaved xsavec xgetbv1
```

/proc/cpuinfo cache data  
cache size : 8192 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.  
available: 1 nodes (0)  
node 0 cpus: 0 1 2 3  
node 0 size: 64382 MB  
node 0 free: 63083 MB  
node distances:  
node 0            0: 10

From /proc/meminfo  
MemTotal:       65927396 kB  
HugePages_Total:       0  
Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*  
SuSE-release:  
    SUSE Linux Enterprise Server 12 (x86_64)  
    VERSION = 12  
    PATCHLEVEL = 3  
    # 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:

(Continued on next page)
Lenovo Global Technology

Thinksystem SR250
(3.30 GHz, Intel Xeon E-2124)

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

SPEC CPU2017 Floating Point Rate Result

SPECrate2017_fp_base = 29.3
SPECrate2017_fp_peak = Not Run

Platform Notes (Continued)

NAME="SLES"
VERSION="12-SP3"
VERSION_ID="12.3"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
Linux linux-ys4m 4.4.131-94.29-default #1 SMP Mon May 21 14:41:34 UTC 2018 (f49bc78)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 Dec 4 18:18

SPEC is set to: /home/cpu2017-1.0.5-ic18.0u2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 btrfs 446G 19G 427G 5% /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 -[ISE105G-1.01]- 10/25/2018
Memory:
  4x Micron 18ASF2G72AZ-2G6D1 16 GB 2 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  519.ibm_r(base) 538.imagick_r(base) 544.nab_r(base)
==============================================================================
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================
CXXC 508.namd_r(base) 510.parest_r(base)
==============================================================================

(Continued on next page)
## Lenovo Global Technology

### Thinksystem SR250

(3.30 GHz, Intel Xeon E-2124)

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

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### Compiler Version Notes (Continued)

```plaintext
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

CC  511.povray_r(base) 526.blender_r(base)

---

icpc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC  507.cactuBSSN_r(base)

---

icpc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC  503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)

---

ifort (IFORT) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

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

---

ifort (IFORT) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

### Base Compiler Invocation

C benchmarks:  
```plaintext
icc -m64 -std=c11
```

(Continued on next page)
Lenovo Global Technology

Thinksystem SR250
(3.30 GHz, Intel Xeon E-2124)

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

Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using both C and C++:
icpc -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

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.llvm_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.sotonk3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3
Lenovo Global Technology
Thinksystem SR250
(3.30 GHz, Intel Xeon E-2124)

SPECRate2017_fp_base = 29.3
SPECRate2017_fp_peak = Not Run

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

Base Optimization Flags (Continued)

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

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

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

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

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml
http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-H.xml

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