# SPEC CPU®2017 Integer Speed Result

## Lenovo Global Technology

### ThinkSystem SR250
### (3.70 GHz, Intel Xeon E-2288G)

SPECspeed®2017_int_base = 11.7

SPECspeed®2017_int_energy_base = 231

SPECspeed®2017_int_peak = 11.9
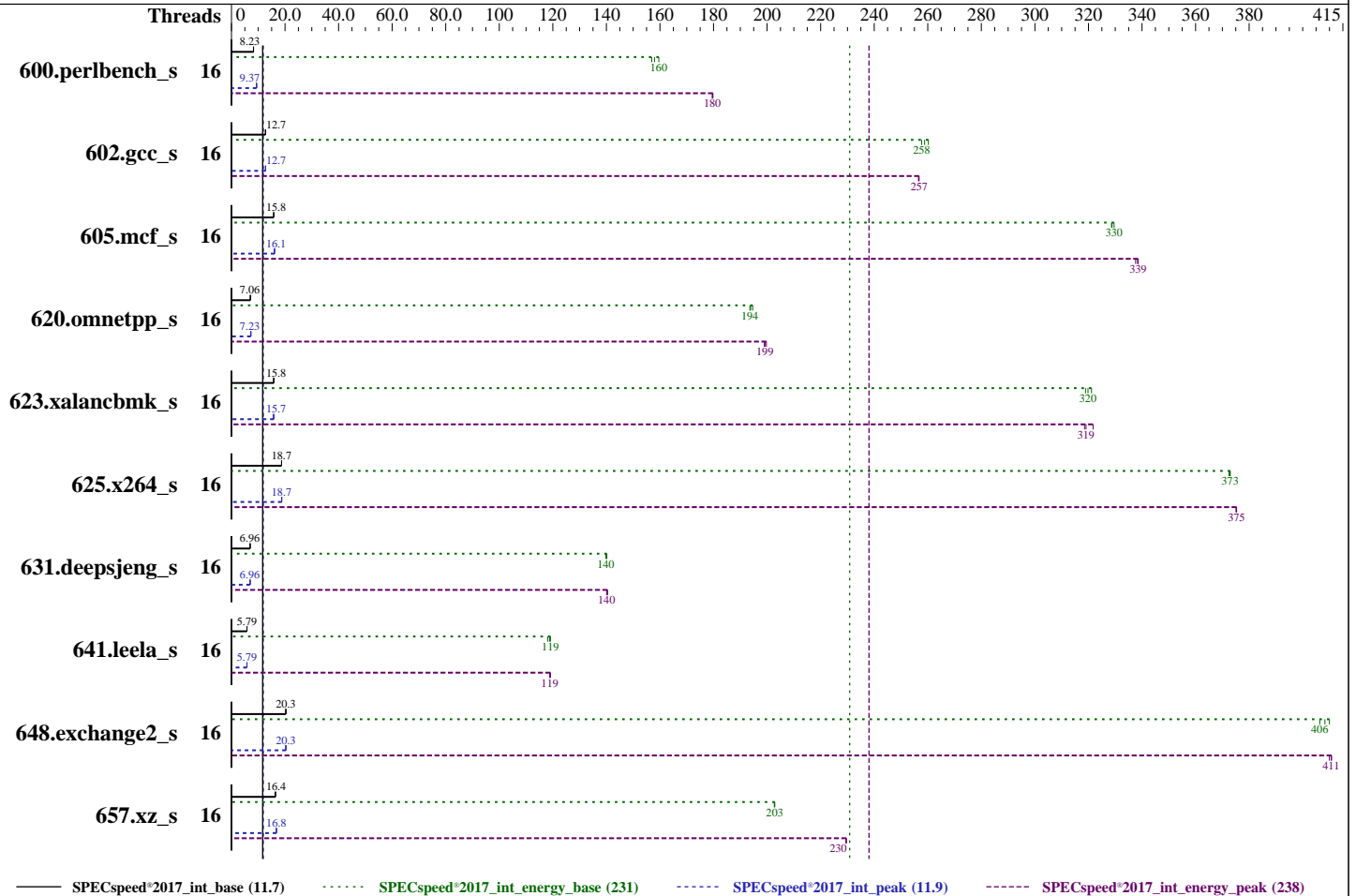
SPECspeed®2017_int_energy_peak = 238

| | |
|---|---|
| **CPU2017 License:** 9017 | **Test Date:** Feb-2020 |
| **Test Sponsor:** Lenovo Global Technology | **Hardware Availability:** Mar-2020 |
| **Tested by:** Lenovo Global Technology | **Software Availability:** Jun-2019 |

**Threads**

| Benchmark | Threads | base | peak | energy_base | energy_peak |
|---|---|---|---|---|---|
| 600.perlbench_s | 16 | 8.23 | 9.37 | 160 | 180 |
| 602.gcc_s | 16 | 12.7 | 12.7 | 258 | 257 |
| 605.mcf_s | 16 | 15.8 | 16.1 | 330 | 339 |
| 620.omnetpp_s | 16 | 7.06 | 7.23 | 194 | 199 |
| 623.xalancbmk_s | 16 | 15.8 | 15.7 | 320 | 319 |
| 625.x264_s | 16 | 18.7 | 18.7 | 373 | 375 |
| 631.deepsjeng_s | 16 | 6.96 | 6.96 | 140 | 140 |
| 641.leela_s | 16 | 5.79 | 5.79 | 119 | 119 |
| 648.exchange2_s | 16 | 20.3 | 20.3 | 406 | 411 |
| 657.xz_s | 16 | 16.4 | 16.8 | 203 | 230 |

SPECspeed®2017_int_base (11.7)     SPECspeed®2017_int_energy_base (231)     SPECspeed®2017_int_peak (11.9)     SPECspeed®2017_int_energy_peak (238)

## Hardware

CPU Name: Intel Xeon E-2288G
 Max MHz: 5000
 Nominal: 3700
Enabled: 8 cores, 1 chip, 2 threads/core
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: 16 MB I+D on chip per chip
Other: None
Memory: 64 GB (2 x 32 GB 2Rx8 PC4-2666V-E, populated on DIMM 1 and DIMM 3)
Storage: 1 x 480 GB ThinkSystem 2.5" Intel S4510 Entry SATA 6Gb Hot Swap SSD
Other: None

## Software

OS: SUSE Linux Enterprise Server 15 SP1 (x86_64) Kernel 4.12.14-195-default
Compiler: C/C++: Version 19.0.4.227 of Intel C/C++ Compiler for Linux; Fortran: Version 19.0.4.227 of Intel Fortran Compiler for Linux
Parallel: Yes
Firmware: Lenovo BIOS Version ISE113H 2.00 released Dec-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit

**(Continued on next page)**

    Standard Performance Evaluation Corporation (info@spec.org)     https://www.spec.org/

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## Software (Continued)

Other: jemalloc memory allocator V5.0.1  
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage

## Power

Max. Power (W): 187.47  
Idle Power (W): 24.96  
Min. Temperature (C): 20.94  
Elevation (m): 43  
Line Standard: 220 V / 50 Hz / 1 phase / 3 wires  
Provisioning: Line-powered  

### Power Settings

Management FW: Version 3.40 of TEI395L  
Memory Mode: Normal  

### Power-Relevant Hardware

Power Supply: 1 x 450 W (non-redundant)  
 Details: ThinkSystem 450W (230V/115V) Platinum Hot-Swap Power Supply 4P57A12649  
Backplane: ThinkSystem SR250 2.5" SATA/SAS 8-Bay BP[B413]  
Other Storage: Embedded SATA Controller  
Storage Model #s: 4XB7A10248  
NICs Installed: 1 x Broadcom 2-port BCM5720 embedded @ 1 Gb  
NICs Enabled (FW/OS): 2 / 1  
NICs Connected/Speed: 1 @ 1 Gb  
Other HW Model #s: 2.5" Chassis  

### Power Analyzer

Power Analyzer: WIN:8888  
Hardware Vendor: YOKOGAWA, Inc.  
Model: YokogawaWT310E  
Serial Number: C3UG05013E  
Input Connection: Default  
Metrology Institute: CNAS  
Calibration By: China CEPREI Laboratory  
Calibration Label: 1GA19013841-0005  
Calibration Date: 27-Sep-2019  
PTDaemon™ Version: 1.9.1 (a2d19f26; 2019-07-17)  
Setup Description: Connected to PSU1  
Current Ranges Used: 1A  
Voltage Range Used: 300V  

### Temperature Meter

Temperature Meter: WIN:8889  
Hardware Vendor: Digi Intermational, Inc.  
Model: DigiWATCHPORT_H  
Serial Number: COM1  
Input Connection: USB  
PTDaemon Version: 1.9.1 (a2d19f26; 2019-07-17)  
Setup Description: 50 mm in front of SUT main intake  

## Base Results Table

| Benchmark | Threads | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 600.perlbench_s | 16 | **216** | **8.23** | **12.1** | **160** | **55.9** | **57.4** | 216 | 8.21 | 12.3 | 157 | 56.7 | 57.8 | 215 | 8.26 | 12.2 | 158 | 56.7 | 57.9 |
| 602.gcc_s | 16 | 314 | 12.7 | 16.7 | 259 | 53.3 | 56.3 | **313** | **12.7** | **16.8** | **258** | **53.6** | **56.2** | 313 | 12.7 | 16.6 | 260 | 53.2 | 56.6 |
| 605.mcf_s | 16 | 299 | 15.8 | 15.7 | 329 | 52.4 | 58.1 | 299 | 15.8 | 15.7 | 329 | 52.4 | 57.7 | **299** | **15.8** | **15.6** | **330** | **52.2** | **57.9** |
| 620.omnetpp_s | 16 | 231 | 7.06 | 9.12 | 195 | 39.5 | 43.0 | **231** | **7.06** | **9.17** | **194** | **39.7** | **43.4** | 231 | 7.05 | 9.15 | 194 | 39.5 | 44.4 |
| 623.xalancbmk_s | 16 | **89.8** | **15.8** | **4.81** | **320** | **53.6** | **56.9** | 89.9 | 15.8 | 4.83 | 319 | 53.7 | 57.1 | 89.5 | 15.8 | 4.79 | 321 | 53.5 | 56.8 |
| 625.x264_s | 16 | 94.4 | 18.7 | 5.15 | 373 | 54.5 | 55.5 | 94.2 | 18.7 | 5.15 | 372 | 54.7 | 55.8 | **94.3** | **18.7** | **5.15** | **373** | **54.6** | **55.3** |

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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| | |
|---|---|
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| SPECspeed®2017_int_energy_base = | 231 |
| SPECspeed®2017_int_peak = | 11.9 |
| SPECspeed®2017_int_energy_peak = | 238 |

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

**Test Date:** Feb-2020  
**Hardware Availability:** Mar-2020  
**Software Availability:** Jun-2019  

## Base Results Table (Continued)

| Benchmark | Threads | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 631.deepsjeng_s | 16 | **206** | **6.96** | **11.1** | **140** | **54.1** | **55.4** | 206 | 6.96 | 11.1 | 140 | 53.9 | 55.1 | 206 | 6.97 | 11.1 | 140 | 54.1 | 56.0 |
| 641.leela_s | 16 | 295 | 5.79 | 15.7 | 118 | 53.1 | 53.8 | 295 | 5.78 | 15.6 | 119 | 52.7 | 53.7 | **295** | **5.79** | **15.5** | **119** | **52.6** | **53.2** |
| 648.exchange2_s | 16 | **145** | **20.3** | **7.87** | **406** | **54.3** | **54.9** | 144 | 20.4 | 7.80 | 410 | 54.0 | 54.7 | 145 | 20.3 | 7.83 | 408 | 54.0 | 54.6 |
| 657.xz_s | 16 | 376 | 16.4 | 33.2 | 203 | 88.3 | 187 | 377 | 16.4 | 33.2 | 203 | 88.2 | 179 | **376** | **16.4** | **33.2** | **203** | **88.1** | **178** |

| SPECspeed®2017_int_base = | 11.7 |
|---|---|
| SPECspeed®2017_int_energy_base = | 231 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Peak Results Table

| Benchmark | Threads | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power | Seconds | Ratio | Energy (kJ) | Energy Ratio | Average Power | Maximum Power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 600.perlbench_s | 16 | **190** | **9.37** | **10.7** | **180** | **56.6** | **57.9** | 190 | 9.35 | 10.7 | 180 | 56.5 | 58.1 | 189 | 9.37 | 10.7 | 180 | 56.5 | 57.7 |
| 602.gcc_s | 16 | 313 | 12.7 | 16.9 | 257 | 53.9 | 57.1 | 313 | 12.7 | 16.9 | 257 | 53.9 | 56.0 | **313** | **12.7** | **16.9** | **257** | **53.9** | **57.7** |
| 605.mcf_s | 16 | 293 | 16.1 | 15.3 | 338 | 52.0 | 57.5 | 294 | 16.1 | 15.2 | 338 | 51.8 | 57.5 | **294** | **16.1** | **15.2** | **339** | **51.8** | **57.7** |
| 620.omnetpp_s | 16 | 225 | 7.24 | 8.92 | 199 | 39.6 | 41.4 | 226 | 7.22 | 8.88 | 200 | 39.3 | 44.3 | **226** | **7.23** | **8.91** | **199** | **39.5** | **41.5** |
| 623.xalancbmk_s | 16 | 90.3 | 15.7 | 4.83 | 319 | 53.5 | 56.8 | **90.2** | **15.7** | **4.82** | **319** | **53.4** | **56.5** | 89.6 | 15.8 | 4.78 | 322 | 53.4 | 57.0 |
| 625.x264_s | 16 | 94.1 | 18.7 | 5.11 | 375 | 54.3 | 55.4 | 94.0 | 18.8 | 5.12 | 375 | 54.5 | 55.2 | **94.1** | **18.7** | **5.11** | **375** | **54.3** | **55.3** |
| 631.deepsjeng_s | 16 | 206 | 6.96 | 11.1 | 140 | 53.9 | 55.4 | **206** | **6.96** | **11.1** | **140** | **54.0** | **55.7** | 206 | 6.96 | 11.1 | 140 | 53.9 | 55.4 |
| 641.leela_s | 16 | **295** | **5.79** | **15.5** | **119** | **52.7** | **53.3** | 295 | 5.78 | 15.5 | 119 | 52.6 | 53.3 | 295 | 5.79 | 15.5 | 119 | 52.7 | 53.3 |
| 648.exchange2_s | 16 | 145 | 20.3 | 7.80 | 410 | 53.8 | 54.5 | 145 | 20.3 | 7.79 | 411 | 53.9 | 54.8 | **145** | **20.3** | **7.79** | **411** | **53.8** | **54.5** |
| 657.xz_s | 16 | **368** | **16.8** | **29.3** | **230** | **79.6** | **149** | 368 | 16.8 | 29.3 | 230 | 79.6 | 158 | 369 | 16.8 | 29.3 | 229 | 79.6 | 149 |

| SPECspeed®2017_int_peak = | 11.9 |
|---|---|
| SPECspeed®2017_int_energy_peak = | 238 |

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"
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH =
     "/home/cpu2017-1.1.0-ic19.0u4/lib/intel64:/home/cpu2017-1.1.0-ic19.0u4/j
     e5.0.1-64"
OMP_STACKSIZE = "192M"
```

## General Notes

```
Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
Transparent Huge Pages enabled by default
```

**(Continued on next page)**

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**Test Date:** Feb-2020

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## General Notes (Continued)

```
 Prior to runcpu invocation
 Filesystem page cache synced and cleared with:
 sync; echo 3>      /proc/sys/vm/drop_caches
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.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4)
is mitigated in the system as tested and documented.
 jemalloc, a general purpose malloc implementation
 built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
 sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

## Platform Notes

```
BIOS configuration:
Choose Operating Mode set to Custom Mode
Zero Output set to Advanced Mode
Per Core P-state set to Disable

 Sysinfo program /home/cpu2017-1.1.0-ic19.0u4/bin/sysinfo
 Rev: r6365 of 2019-08-21 295195f888a3d7edb1e6e46a485a0011
 running on linux-jecn Thu Feb 14 23:44:56 2019

 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-2288G CPU @ 3.70GHz
       1  "physical id"s (chips)
       16 "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 : 8
       siblings  : 16
       physical 0: cores 0 1 2 3 4 5 6 7

 From lscpu:
      Architecture:         x86_64
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
        CPU op-mode(s):         32-bit, 64-bit
        Byte Order:             Little Endian
        Address sizes:          39 bits physical, 48 bits virtual
        CPU(s):                 16
        On-line CPU(s) list:    0-15
        Thread(s) per core:     2
        Core(s) per socket:     8
        Socket(s):              1
        NUMA node(s):           1
        Vendor ID:              GenuineIntel
        CPU family:             6
        Model:                  158
        Model name:             Intel(R) Xeon(R) E-2288G CPU @ 3.70GHz
        Stepping:               13
        CPU MHz:                3701.000
        CPU max MHz:            3701.0000
        CPU min MHz:            800.0000
        BogoMIPS:               7392.00
        Virtualization:         VT-x
        L1d cache:              32K
        L1i cache:              32K
        L2 cache:               256K
        L3 cache:               16384K
        NUMA node0 CPU(s):      0-15
        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
    aperfmperf tsc_known_freq 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 cpuid_fault epb invpcid_single
    ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase
    tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm mpx rdseed adx smap clflushopt
    intel_pt xsaveopt xsavec xgetbv1 xsaves dtherm ida arat pln pts hwp hwp_notify
    hwp_act_window hwp_epp md_clear flush_l1d arch_capabilities

 /proc/cpuinfo cache data
    cache size : 16384 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 4 5 6 7 8 9 10 11 12 13 14 15
    node 0 size: 64352 MB
    node 0 free: 63354 MB
    node distances:
```

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## Platform Notes (Continued)

```
   node   0
     0:  10

 From /proc/meminfo
    MemTotal:       65896704 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 From /etc/*release* /etc/*version*
    os-release:
        NAME="SLES"
        VERSION="15-SP1"
        VERSION_ID="15.1"
        PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
        ID="sles"
        ID_LIKE="suse"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:15:sp1"

 uname -a:
    Linux linux-jecn 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
    x86_64 x86_64 x86_64 GNU/Linux

 Kernel self-reported vulnerability status:

 CVE-2018-3620 (L1 Terminal Fault):        Not affected
 Microarchitectural Data Sampling:         Not affected
 CVE-2017-5754 (Meltdown):                 Not affected
 CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled
                                           via prctl and seccomp
 CVE-2017-5753 (Spectre variant 1):        Mitigation: __user pointer sanitization
 CVE-2017-5715 (Spectre variant 2):        Mitigation: Enhanced IBRS, IBPB: conditional,
                                           RSB filling

 run-level 3 Feb 14 22:21

 SPEC is set to: /home/cpu2017-1.1.0-ic19.0u4
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       xfs   446G   28G  418G   7% /

 From /sys/devices/virtual/dmi/id
    BIOS:    Lenovo -[ISE113H-2.00]- 12/27/2019
    Vendor:  Lenovo
    Product: ThinkSystem SR250 -[7Y51CTO0WW]-
    Product Family: ThinkSystem
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
     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:
     2x Not Specified Not Specified
     2x SK Hynix HMAA4GU7AJR8N-VK 32767 MB 2 rank 2666

 (End of data from sysinfo program)
```

## Compiler Version Notes

```
==============================================================================
C        | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base,
         | peak) 625.x264_s(base, peak) 657.xz_s(base, peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++      | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak)
         | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran | 648.exchange2_s(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

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## Base Compiler Invocation

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

C++ benchmarks:
```
icpc -m64
```

Fortran benchmarks:
```
ifort -m64
```

## Base Portability Flags

```
600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
```

## Base Optimization Flags

C benchmarks:
```
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

C++ benchmarks:
```
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs
```

# SPEC CPU®2017 Integer Speed Result

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## Lenovo Global Technology

ThinkSystem SR250
(3.70 GHz, Intel Xeon E-2288G)

| | |
|---|---|
| SPECspeed®2017_int_base = | 11.7 |
| SPECspeed®2017_int_energy_base = | 231 |
| SPECspeed®2017_int_peak = | 11.9 |
| SPECspeed®2017_int_energy_peak = | 238 |

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Feb-2020

**Hardware Availability:** Mar-2020

**Software Availability:** Jun-2019

## Peak Compiler Invocation

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

C++ benchmarks:
```
icpc -m64
```

Fortran benchmarks:
```
ifort -m64
```

## Peak Portability Flags

```
Same as Base Portability Flags
```

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
605.mcf_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
625.x264_s: -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
657.xz_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3
```

**(Continued on next page)**

Standard Performance Evaluation Corporation (info@spec.org)

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# SPEC CPU®2017 Integer Speed Result

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## Lenovo Global Technology

### ThinkSystem SR250
### (3.70 GHz, Intel Xeon E-2288G)

SPECspeed®2017_int_base = 11.7

SPECspeed®2017_int_energy_base = 231

SPECspeed®2017_int_peak = 11.9

SPECspeed®2017_int_energy_peak = 238

**CPU2017 License:** 9017

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**Test Date:** Feb-2020

**Hardware Availability:** Mar-2020

**Software Availability:** Jun-2019

## Peak Optimization Flags (Continued)

657.xz_s (continued):
```
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc
```

C++ benchmarks:

620.omnetpp_s: `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo`
```
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc
```

623.xalancbmk_s: `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div`
```
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc
```

631.deepsjeng_s: `Same as 623.xalancbmk_s`

641.leela_s: `Same as 623.xalancbmk_s`

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs
```

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

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