ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017_int_base = 139
SPECrate®2017_int_peak = 143

ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Jan-2022
Hardware Availability: May-2021
Software Availability: Mar-2021

Hardware

<table>
<thead>
<tr>
<th>Program</th>
<th>Lic</th>
<th>Copies</th>
<th>SPECrate®2017_int_base (139)</th>
<th>SPECrate®2017_int_peak (143)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>32</td>
<td>107</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>32</td>
<td>119</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>32</td>
<td>132</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>32</td>
<td>245</td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>32</td>
<td>176</td>
<td>176</td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td>32</td>
<td>279</td>
<td>279</td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>32</td>
<td>292</td>
<td>292</td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>32</td>
<td>276</td>
<td>276</td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>32</td>
<td>276</td>
<td>276</td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>74.1</td>
<td>74.1</td>
<td></td>
</tr>
</tbody>
</table>

Software

OS: Red Hat Enterprise Linux release 8.3 (Ootpa) 4.18.0-240.22.1.el8_3.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;
C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux
Parallel: No
Firmware: Version 0504 released May-2021
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

CPU Name: Intel Xeon Silver 4309Y
Max MHz: 3600
Nominal: 2800
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1, 2 chip(s)
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1.25 MB I+D on chip per core
L3: 12 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R, running at 2666)
Storage: 1 x 4 TB PCIE NVME SSD
Other: None
ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017_int_base = 139
SPECrate®2017_int_peak = 143

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>500.perlbench_r</td>
<td>32</td>
<td>559</td>
<td>91.2</td>
<td>559</td>
<td>91.1</td>
<td>559</td>
<td>91.1</td>
<td>32</td>
<td>478</td>
<td>107</td>
<td>478</td>
<td>107</td>
<td>478</td>
<td>107</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>32</td>
<td>380</td>
<td>119</td>
<td>382</td>
<td>119</td>
<td>382</td>
<td>119</td>
<td>32</td>
<td>342</td>
<td>133</td>
<td>343</td>
<td>132</td>
<td>343</td>
<td>132</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>32</td>
<td>211</td>
<td>245</td>
<td>211</td>
<td>245</td>
<td>211</td>
<td>245</td>
<td>32</td>
<td>211</td>
<td>245</td>
<td>211</td>
<td>245</td>
<td>211</td>
<td>245</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>32</td>
<td>423</td>
<td>99.2</td>
<td>425</td>
<td>98.8</td>
<td>423</td>
<td>99.2</td>
<td>32</td>
<td>423</td>
<td>99.2</td>
<td>425</td>
<td>98.8</td>
<td>423</td>
<td>99.2</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>32</td>
<td>192</td>
<td>176</td>
<td>192</td>
<td>176</td>
<td>192</td>
<td>176</td>
<td>32</td>
<td>192</td>
<td>176</td>
<td>192</td>
<td>176</td>
<td>192</td>
<td>176</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>32</td>
<td>201</td>
<td>279</td>
<td>201</td>
<td>279</td>
<td>201</td>
<td>279</td>
<td>32</td>
<td>192</td>
<td>292</td>
<td>192</td>
<td>292</td>
<td>192</td>
<td>292</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>32</td>
<td>359</td>
<td>102</td>
<td>360</td>
<td>102</td>
<td>359</td>
<td>102</td>
<td>32</td>
<td>359</td>
<td>102</td>
<td>360</td>
<td>102</td>
<td>359</td>
<td>102</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>32</td>
<td>534</td>
<td>99.2</td>
<td>534</td>
<td>99.2</td>
<td>534</td>
<td>99.2</td>
<td>32</td>
<td>534</td>
<td>99.2</td>
<td>534</td>
<td>99.2</td>
<td>534</td>
<td>99.2</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>32</td>
<td>304</td>
<td>276</td>
<td>304</td>
<td>276</td>
<td>304</td>
<td>276</td>
<td>32</td>
<td>304</td>
<td>276</td>
<td>304</td>
<td>276</td>
<td>304</td>
<td>276</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>456</td>
<td>75.9</td>
<td>461</td>
<td>75.0</td>
<td>462</td>
<td>74.8</td>
<td>32</td>
<td>466</td>
<td>74.1</td>
<td>466</td>
<td>74.2</td>
<td>466</td>
<td>74.1</td>
</tr>
</tbody>
</table>

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"
OS set to performance mode via cpupower frequency-set -g performance

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu118/lib/intel64/:/home/cpu118/lib/ia32/:/home/cpu118/je5.0.1-32"
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
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.:

(Continued on next page)
ASUSTeK Computer Inc.  
ASUS RS700-E10(Z12PP-D32) Server System (2.80 GHz, Intel Xeon Silver 4309Y)  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 139</th>
<th>SPECrate®2017_int_peak = 143</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2017 License: 9016</td>
<td>Test Date: Jan-2022</td>
</tr>
<tr>
<td>Test Sponsor: ASUSTeK Computer Inc.</td>
<td>Hardware Availability: May-2021</td>
</tr>
<tr>
<td>Tested by: ASUSTeK Computer Inc.</td>
<td>Software Availability: Mar-2021</td>
</tr>
</tbody>
</table>

General Notes (Continued)

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:
VT-d = Disabled
Patrol Scrub = Disabled
Engine Boost = Aggressive
SR-IOV Support = Disabled

BMC Configuration:
Fan mode = Full speed mode

Sysinfo program /home/cpu118/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaafc64d
running on localhost.localdomain Thu Jan 13 11:19:47 2022

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 4309Y CPU @ 2.80GHz
  2 "physical id"s (chips)
  32 "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
  physical 1: cores 0 1 2 3 4 5 6 7

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32

(Continued on next page)
ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017_int_base = 139
SPECrate®2017_int_peak = 143

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Test Date: Jan-2022
Hardware Availability: May-2021
Tested by: ASUSTeK Computer Inc.
Software Availability: Mar-2021

Platform Notes (Continued)

On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Silver 4309Y CPU @ 2.80GHz
Stepping: 6
CPU MHz: 3025.030
CPU max MHz: 3600.0000
CPU min MHz: 800.0000
BogoMIPS: 5600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 12288K
NUMA node0 CPU(s): 0-7,16-23
NUMA node1 CPU(s): 8-15,24-31
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acp1 mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpec1g rdtscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xptr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 invpcid_single
intel_ppip sbbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept
vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cmq rdt_a
avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni
avx512bw avx512vl xsaveopt xsaves xsavec xgetbv1 xsaveavx qmxavc qmxasav qmxsave
avx512vfm avx512vfm avx512vfm avx512vfm avx512bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d
arch_capabilities

/proc/cpuinfo cache data
  cache size : 12288 KB

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 16 17 18 19 20 21 22 23
node 0 size: 506434 MB
node 0 free: 514414 MB
node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 506021 MB

(Continued on next page)
ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

SPECrat®2017_int_base = 139
SPECrat®2017_int_peak = 143

Test Date: Jan-2022
Hardware Availability: May-2021
Software Availability: Mar-2021

Platform Notes (Continued)

node 1 free: 514939 MB
node distances:
  node 0 1
  0: 10 20
  1: 20 10

From /proc/meminfo
  MemTotal: 1056483860 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/sbin/tuned-adm active
  Current active profile: throughput-performance

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

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 4.18.0-240.22.1.el8_3.x86_64 #1 SMP Thu Mar 25 14:36:04 EDT 2021 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
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swaps barriers and __user pointer sanitation

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017_int_peak = 143
SPECrate®2017_int_base = 139

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Platform Notes (Continued)

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 Jan 13 05:05
SPEC is set to: /home/cpu118

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>xfs</td>
<td>3.6T</td>
<td>31G</td>
<td>3.6T</td>
<td>1%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id
Vendor: ASUSTeK COMPUTER INC.
Product: RS700-E10-RS12U
Product Family: Server

Additional information from dmidecode 3.2 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:
16x NO DIMM NO DIMM
16x Samsung M393A8G40AB2-CWE 64 GB 2 rank 3200, configured at 2666

BIOS:
BIOS Vendor: American Megatrends Inc.
BIOS Version: 0504
BIOS Date: 05/26/2021
BIOS Revision: 5.4

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C       | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C 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.
------------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version

(Continued on next page)
Compiler Version Notes (Continued)

2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
        | 525.x264_r(base, peak) 557.xz_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       | 500.perlbench_r(peak) 557.xz_r(peak)
---

Intel(R) C 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.

---

C       | 502.gcc_r(peak)
---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
        | 525.x264_r(base, peak) 557.xz_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       | 500.perlbench_r(peak) 557.xz_r(peak)
---

Intel(R) C 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.

---

(Continued on next page)
## SPEC CPU®2017 Integer Rate Result

**ASUSTeK Computer Inc.**

ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

### SPECrate®2017_int_base = 139

### SPECrate®2017_int_peak = 143

<table>
<thead>
<tr>
<th>CPU2017 License: 9016</th>
<th>Test Date: Jan-2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: ASUSTeK Computer Inc.</td>
<td>Hardware Availability: May-2021</td>
</tr>
<tr>
<td>Tested by: ASUSTeK Computer Inc.</td>
<td>Software Availability: Mar-2021</td>
</tr>
</tbody>
</table>

### Compiler Version Notes (Continued)

<table>
<thead>
<tr>
<th></th>
<th>502.gcc_r(peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2021.1 Build 20201113</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>548.exchange2_r(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

### Base Compiler Invocation

C benchmarks:

- icx

C++ benchmarks:

- icpx

Fortran benchmarks:

- ifort
SPEC CPU®2017 Integer Rate Result
Copyright 2017-2022 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrate®2017_int_base = 139
SPECrate®2017_int_peak = 143

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Test Date: Jan-2022
Tested by: ASUSTeK Computer Inc.
Hardware Availability: May-2021
Software Availability: Mar-2021

Base Portability Flags
500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags
C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

Peak Compiler Invocation
C benchmarks (except as noted below):
icc
500.perlbench_r: icc

(Continued on next page)
**SPEC CPU®2017 Integer Rate Result**

**ASUSTeK Computer Inc.**  
ASUS RS700-E10(Z12PP-D32) Server System  
(2.80 GHz, Intel Xeon Silver 4309Y)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 139</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak = 143</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>ASUSTeK Computer Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>ASUSTeK Computer Inc.</td>
</tr>
</tbody>
</table>

**Test Date:** Jan-2022  
**Hardware Availability:** May-2021  
**Software Availability:** Mar-2021

---

### Peak Compiler Invocation (Continued)

557.xz_r: icc

C++ benchmarks:
- icpx

Fortran benchmarks:
- ifort

---

### Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

---

### Peak Optimization Flags

C benchmarks:

500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)  
-xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -fno-strict-overflow  
mbranches-within-32B-boundaries  
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin  
-1qkmalloc

502.gcc_r: -m32  
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/ia32_lin  
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)  
-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -fto  
-Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4  
mbranches-within-32B-boundaries  
-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

505.mcf_r: basepeak = yes

---

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.80 GHz, Intel Xeon Silver 4309Y)

SPECrater®2017_int_base = 139
SPECrater®2017_int_peak = 143

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Peak Optimization Flags (Continued)

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto
-O3 -ffast-math -gopt-mem-layout-trans=4 -fno-alias
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-gopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
520.omnetpp_r: basepeak = yes
523.xalancbmk_r: basepeak = yes
531.deepsjeng_r: basepeak = yes
541.leela_r: basepeak = yes

Fortran benchmarks:
548.exchange2_r: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/ASUSTeKPlatform-Settings-z12-V1.2.html
You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/ASUSTeKPlatform-Settings-z12-V1.2.xml
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

SPEC CPU and SPECrater 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.