ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

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

Hardware
CPU Name: Intel Xeon Platinum 8352V
Max MHz: 3500
Nominal: 2100
Enabled: 72 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: 54 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R, running at 2933)
Storage: 1 x 4 TB PCIE NVME SSD
Other: None

Software
OS: Red Hat Enterprise Linux release 8.2 (Ootpa)
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 0502 released May-2021
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 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.
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>144</td>
<td>2037</td>
<td>709</td>
<td>2043</td>
<td>707</td>
<td>2077</td>
<td>695</td>
<td>72</td>
<td>1030</td>
<td>701</td>
<td>1033</td>
<td>699</td>
<td>1030</td>
<td>701</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>144</td>
<td>296</td>
<td>615</td>
<td>296</td>
<td>615</td>
<td>299</td>
<td>609</td>
<td>144</td>
<td>296</td>
<td>615</td>
<td>296</td>
<td>615</td>
<td>299</td>
<td>609</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>144</td>
<td>405</td>
<td>338</td>
<td>405</td>
<td>338</td>
<td>405</td>
<td>338</td>
<td>144</td>
<td>405</td>
<td>338</td>
<td>405</td>
<td>338</td>
<td>405</td>
<td>338</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>144</td>
<td>1852</td>
<td>203</td>
<td>1854</td>
<td>203</td>
<td>1850</td>
<td>204</td>
<td>72</td>
<td>683</td>
<td>276</td>
<td>683</td>
<td>276</td>
<td>684</td>
<td>275</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>144</td>
<td>660</td>
<td>509</td>
<td>661</td>
<td>508</td>
<td>659</td>
<td>510</td>
<td>144</td>
<td>572</td>
<td>587</td>
<td>574</td>
<td>586</td>
<td>575</td>
<td>585</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>144</td>
<td>575</td>
<td>264</td>
<td>574</td>
<td>264</td>
<td>575</td>
<td>264</td>
<td>144</td>
<td>575</td>
<td>264</td>
<td>574</td>
<td>264</td>
<td>575</td>
<td>264</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>144</td>
<td>962</td>
<td>335</td>
<td>956</td>
<td>337</td>
<td>972</td>
<td>332</td>
<td>72</td>
<td>447</td>
<td>361</td>
<td>458</td>
<td>352</td>
<td>449</td>
<td>359</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>144</td>
<td>462</td>
<td>475</td>
<td>462</td>
<td>475</td>
<td>462</td>
<td>475</td>
<td>144</td>
<td>462</td>
<td>475</td>
<td>462</td>
<td>475</td>
<td>462</td>
<td>475</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>144</td>
<td>517</td>
<td>487</td>
<td>515</td>
<td>489</td>
<td>516</td>
<td>488</td>
<td>144</td>
<td>517</td>
<td>487</td>
<td>515</td>
<td>489</td>
<td>516</td>
<td>488</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>144</td>
<td>312</td>
<td>1150</td>
<td>313</td>
<td>1150</td>
<td>313</td>
<td>1150</td>
<td>144</td>
<td>312</td>
<td>1150</td>
<td>313</td>
<td>1150</td>
<td>313</td>
<td>1150</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>144</td>
<td>309</td>
<td>786</td>
<td>308</td>
<td>786</td>
<td>309</td>
<td>785</td>
<td>144</td>
<td>304</td>
<td>796</td>
<td>303</td>
<td>800</td>
<td>304</td>
<td>798</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>144</td>
<td>2520</td>
<td>223</td>
<td>2553</td>
<td>220</td>
<td>2562</td>
<td>219</td>
<td>144</td>
<td>2520</td>
<td>223</td>
<td>2553</td>
<td>220</td>
<td>2562</td>
<td>219</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>144</td>
<td>1501</td>
<td>152</td>
<td>1523</td>
<td>150</td>
<td>1536</td>
<td>149</td>
<td>72</td>
<td>621</td>
<td>184</td>
<td>624</td>
<td>183</td>
<td>619</td>
<td>185</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 = "/cpu118/lib/intel64:/cpu118/je5.0.1-64"
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
Prior to runcpu invocation
SPEC CPU®2017 Floating Point Rate Result

ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

SPECrate®2017_fp_base = 410
SPECrate®2017_fp_peak = 434

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Test Date: Jul-2021
Tested by: ASUSTeK Computer Inc.
Hardware Availability: May-2021
Software Availability: Dec-2020

General Notes (Continued)

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:
VT-d = Disabled
Patrol Scrub = Disabled
SNC = Enable SNC2 (2-clusters)
Engine Boost = Aggressive
SR-IOV Support = Disabled
BMC Configuration:
Fan mode = Full speed mode

Sysinfo program /cpu118/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d running on localhost.localdomain Sun Jul 18 01:56:54 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) Platinum 8352V CPU @ 2.10GHz
  2 "physical id"s (chips)
  144 "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 : 36
siblings : 72
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 28 29 30 31 32 33 34 35
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 28 29 30 31 32 33 34 35

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

<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>

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 410</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak = 434</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

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):** 144
- **On-line CPU(s) list:** 0-143
- **Thread(s) per core:** 2
- **Core(s) per socket:** 36
- **Socket(s):** 2
- **NUMA node(s):** 4
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 106
- **Model name:** Intel(R) Xeon(R) Platinum 8352V CPU @ 2.10GHz
- **Stepping:** 6
- **CPU MHz:** 2500.000
- **CPU max MHz:** 3500.0000
- **CPU min MHz:** 800.0000
- **BogoMIPS:** 4200.00
- **Virtualization:** VT-x
- **L1d cache:** 48K
- **L1i cache:** 32K
- **L2 cache:** 1280K
- **L3 cache:** 55296K
- **NUMA node0 CPU(s):** 0-17, 72-89
- **NUMA node1 CPU(s):** 18-35, 90-107
- **NUMA node2 CPU(s):** 36-53, 108-125
- **NUMA node3 CPU(s):** 54-71, 126-143

**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 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
- xtrunc 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_13 invpcid_single ssbd
- mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnumi flexpriority ept vpid fsgsbase
- tsc_adjust bmi1 hle avx2 smep bmi2 ermv invpcid rtm cqm rdt_a avx512f avx512dq
- rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw
- avx512vl xsaveopt xsaves xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total
- cqm_mbb_local wboinvvd dtherm ida arat pln pts hwp hwp_act_window hwp epp
- hwp_pkg_topic avx512vbm umip kpu ospke avx512vbmi2 gfnv vaes vpcmldqavx512_vnni
- avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d
- arch_capabilities

```
/proc/cpuinfo cache data
cache size : 55296 KB
```

(Continued on next page)
### Platform Notes (Continued)

From `numactl --hardware`

WARNING: a `numactl '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 14 15 16 17 72 73 74 75 76 77 78 79 80 81
82 83 84 85 86 87 88 89
node 0 size: 257616 MB
node 0 free: 257272 MB
node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 90 91 92 93 94 95 96
97 98 99 100 101 102 103 104 105 106 107
node 1 size: 258012 MB
node 1 free: 257337 MB
node 2 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 108 109 110 111 112
113 114 115 116 117 118 119 120 121 122 123 124 125
node 2 size: 258039 MB
node 2 free: 257773 MB
node 3 cpus: 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 126 127 128 129 130
131 132 133 134 135 136 137 138 139 140 141 142 143
node 3 size: 258035 MB
node 3 free: 257772 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`

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MemTotal:</td>
<td>1056465648 kB</td>
</tr>
<tr>
<td>HugePages_Total:</td>
<td>0</td>
</tr>
<tr>
<td>Hugepagesize:</td>
<td>2048 kB</td>
</tr>
</tbody>
</table>

/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="8.2 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.2"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
ANSI_COLOR="0;31"

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result

ASUSTeK Computer Inc.

ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

SPECRate®2017_fp_base = 410
SPECRate®2017_fp_peak = 434

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

Test Date: Jul-2021
Hardware Availability: May-2021
Software Availability: Dec-2020

Platform Notes (Continued)

redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

uname -a:
Linux localhost.localdomain 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 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
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 sanitation
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): No status reported
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Jul 18 01:56

SPEC is set to: /cpu118

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 2.6T 101G 2.5T 4% /

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 2933

BIOS:
  BIOS Vendor: American Megatrends Inc.
  BIOS Version: 0502

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECrate®2017_fp_base = 410
SPECrate®2017_fp_peak = 434

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

Test Date: Jul-2021
Hardware Availability: May-2021
Software Availability: Dec-2020

Platform Notes (Continued)

BIOS Date: 05/07/2021
BIOS Revision: 5.2

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
C | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
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++ | 508.namd_r(base, peak) 510.parest_r(base, peak)
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(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.
Intel(R) C 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++, C | 511.povray_r(base) 526.blender_r(base, peak)
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.

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

C++, C | 511.povray_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.

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++, C | 511.povray_r(base) 526.blender_r(base, peak)

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.

C++, C, Fortran | 507.cactuBSSN_r(base, peak)

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, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)

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(peak)

(Continued on next page)
ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

SPECrate®2017_fp_base = 410
SPECrate®2017_fp_peak = 434

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

Test Date: Jul-2021
Hardware Availability: May-2021
Software Availability: Dec-2020

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

(Continued on next page)
Base Compiler Invocation (Continued)

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

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.
ASUS RS700-E10(Z12PP-D32) Server System
(2.10 GHz, Intel Xeon Platinum 8352V)

SPECrate®2017_fp_base = 410
SPECrate®2017_fp_peak = 434

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Test Date: Jul-2021
Tested by: ASUSTeK Computer Inc.
Hardware Availability: May-2021
Software Availability: Dec-2020

Base Optimization Flags (Continued)

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

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

(Continued on next page)
Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
521.wrf_r: ifort icc
527.cam4_r: ifort icx

Benchmarks using both C and C++:
511.povray_r: icpc icc
526.blender_r: icpx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifort

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
519.lbm_r: basepeak = yes
538.imagick_r: basepeak = yes

C++ benchmarks:
508.namd_r: basepeak = yes
510.parest_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops

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

510. parest_r (continued):
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503. bwaves_r -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -03 -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

549. fotonik3d_r: basepeak = yes

554. roms_r: Same as 503. bwaves_r

Benchmarks using both Fortran and C:

521. wrf_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -03
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

527. cam4_r: basepeak = yes

Benchmarks using both C and C++:

511. povray_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -03
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

526. blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507. cactuBSSN_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-V1.0.html
<table>
<thead>
<tr>
<th>ASUSTeK Computer Inc.</th>
<th>SPECrate®2017_fp_base = 410</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASUS RS700-E10(Z12PP-D32) Server System (2.10 GHz, Intel Xeon Platinum 8352V)</td>
<td>SPECrate®2017_fp_peak = 434</td>
</tr>
<tr>
<td>CPU2017 License: 9016</td>
<td>Test Date: Jul-2021</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: Dec-2020</td>
</tr>
</tbody>
</table>

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


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.

Tested with SPEC CPU®2017 v1.1.8 on 2021-07-17 13:56:54-0400.
Report generated on 2021-08-19 10:48:26 by CPU2017 PDF formatter v6442.
Originally published on 2021-08-17.