ASUSTeK Computer Inc.
ASUS RS720-E10-RS12(Z12PP-D32) Server System
(2.30 GHz, Intel Xeon Platinum 8380)

SPEC CPU®2017 Integer Rate Result

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Test Sponsor: ASUSTeK Computer Inc.
Test Date: Apr-2023
Hardware Availability: Jul-2021

Software Availability: Dec-2022

CPU2017 License: 9016
Tested by: ASUSTeK Computer Inc.

Hardware

CPU Name: Intel Xeon Platinum 8380
Max MHz: 3400
Nominal: 2300
Enabled: 80 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: 60 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)
Storage: 1 x 240 GB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux 8.3 (Ootpa)
4.18.0-240.22.1.el8_3.x86_64
Compiler: C/C++; Version 2023.0 of Intel oneAPI DPC++/C++
Compiler for Linux;
Fortran: Version 2023.0 of Intel Fortran Compiler
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.

SPECrate®2017_int_base = 612
SPECrate®2017_int_peak = 638
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### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<tbody>
<tr>
<td>500.perlbench_r</td>
<td>160</td>
<td>580</td>
<td>439</td>
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<td>505.mcf_r</td>
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<tr>
<td>520.omnetpp_r</td>
<td>160</td>
<td>612</td>
<td>343</td>
<td>611</td>
<td>344</td>
<td>612</td>
<td>343</td>
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<tr>
<td>523.xalancbmk_r</td>
<td>160</td>
<td>175</td>
<td>963</td>
<td>176</td>
<td>958</td>
<td>175</td>
<td>964</td>
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<td>525.x264_r</td>
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<td>1280</td>
<td>172</td>
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<td>531.deepsjeng_r</td>
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<td>391</td>
<td>468</td>
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<tr>
<td>541.leela_r</td>
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<td>459</td>
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<td>548.exchange2_r</td>
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<td>1330</td>
<td>315</td>
<td>1330</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>160</td>
<td>514</td>
<td>336</td>
<td>516</td>
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<td>514</td>
<td>336</td>
</tr>
</tbody>
</table>

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

### Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

### 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/cpu119/lib/intel64:/home/cpu119/lib/ia32:/home/cpu119/je5.0.1-32"  
MALLOC_CONF = "retain:true"
GeneraNotes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
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.:
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.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

PlatformNotes

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 /home/cpu119/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Thu Apr 27 08:28:07 2023

SUT (System Under Test) info as seen by some common utilities.

------------------------------------------------------------
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------------------------------------------------------------
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3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. iacpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 239 (239-41.el8_3.2)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. tuned-adm active
17. systct
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release

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Platform Notes (Continued)

22. Disk information
23. /sys/devices/virtual/dmi/id
24. dmidecode
25. BIOS

1. 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

2. w
08:28:07 up 3 min, 1 user, load average: 0.79, 1.94, 0.95
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
root     tty1     -                08:26    7.00s  1.21s  0.01s -bash

3. Username
From environment variable $USER: root

4. ulimit --a
core file size          (blocks, -c) 0
data seg size           (kbytes, -d) unlimited
scheduling priority             (-e) 0
file size               (blocks, -f) unlimited
pending signals                 (-i) 4125954
max locked memory       (kbytes, -l) 64
max memory size         (kbytes, -m) unlimited
open files                      (-n) 1024
pipe size            (512 bytes, -p) 8
POSIX message queues     (bytes, -q) 819200
real-time priority              (-r) 0
stack size              (kbytes, -s) unlimited
cpu time               (seconds, -t) unlimited
max user processes              (-u) 4125954
virtual memory          (kbytes, -v) unlimited
file locks                      (-x) unlimited

5. sysinfo process ancestry
/sys/lib/systemd/systemd --switched-root --system --deserialize 17
login -- root
-bash
-runcpu --nobuild --action validate --define default-platform-flags --define numcopies=160 -c
ic2023.0-lin-core-avx512-rate-20221201.cfg --define smt-on --define cores=80 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=160 --configfile
ic2023.0-lin-core-avx512-rate-20221201.cfg --define smt-on --define cores=80 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
--runmode rate --tune base:peak --size reffrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.023/templogs/preenv.intrate.023.0.0.log --lognum 023.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu119

6. /proc/cpuinfo

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Platform Notes (Continued)

model name : Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
vendor_id : GenuineIntel
cpu family : 6
model : 106
stepping : 6
microcode : 0xd000280
bugs : spectre_v1 spectre_v2 spec_store_bypass swaps
sibling : 80
2 physical ids (chips)
160 processors (hardware threads)
physical id 0: core ids 0-39
physical id 1: core ids 0-39
physical id 0: apicids 0-79
physical id 1: apicids 128-207
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
virtualized systems. Use the above data carefully.

7. lscpu

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): 160
On-line CPU(s) list: 0-159
Thread(s) per core: 2
Core(s) per socket: 40
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Platinum 8380 CPU @ 2.30GHz
Stepping: 6
CPU MHz: 3153.167
CPU max MHz: 3400.0000
CPU min MHz: 800.0000
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 61440K
NUMA node0 CPU(s): 0-19,80-99
NUMA node1 CPU(s): 20-39,100-119
NUMA node2 CPU(s): 40-59,120-139
NUMA node3 CPU(s): 60-79,140-159
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 pdaep1gb rdtsscp 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 xtpr 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 intel_pni ssbd mda ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi1 erms invpcid cqm rdt_a avx512off rdseed adx smap
avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsave
xgetbv1 xsaves cqm l1c cqm_occup llc cqm mbm_toa l1c cqm mbm local split lock detect
wbnoinvd dtherm ida arat pni pts hw hwp act window hwp epp hw_pkg_req avx512f vibi

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Platform Notes (Continued)

umip pku ospke avx512_vbmi2 gfn vaes vpclmulqdq avx512_vnni avx512_bitalg tme
avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d arch_capabilities

---

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 4 nodes (0-3)
node 0 cpus: 0-19,80-99
node 0 size: 250229 MB
node 0 free: 256424 MB
node 1 cpus: 20-39,100-119
node 1 size: 250276 MB
node 1 free: 257499 MB
node 2 cpus: 40-59,120-139
node 2 size: 250600 MB
node 2 free: 257679 MB
node 3 cpus: 60-79,140-159
node 3 size: 250858 MB
node 3 free: 257691 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

---

9. /proc/meminfo
MemTotal: 1056452824 kB

---

10. who -r
run-level 3 Apr 27 08:25

---

11. Systemd service manager version: systemd 239 (239-41.el8_3.2)
Default Target Status
multi-user degraded

---

12. Failed units, from systemctl list-units --state=failed
UNIT LOAD ACTIVE SUB DESCRIPTION
* kdump.service loaded failed failed Crash recovery kernel arming

---

13. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online abrt-journal-core abrt-oops
abrt-vmcore abrt-xorg abrtd atd auditd autovt@ chrony crond firewalld getty@ import-state
irqbalance iscsi iscsi-onboot kdump libstoragemgmt lm_sensors loadmodules lvm2-monitor mcelog
mdmonitor microcode multipathd pmcd pmie pnmgger rsmcartrd rmgd rsyslog selinux-autorelabel-mark
smartd ssd ssd syslog syslogd systemd timedatex tuned udisks2 vdo vgauthd vmtoolsd

---

(Continued on next page)
Platform Notes (Continued)

14. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=(hd0,gpt2)/vmlinuz-4.18.0-240.22.1.el8_3.x86_64
   root=/dev/mapper/rhel-root
   ro
   resume=/dev/mapper/rhel-swap
   rd.lvm.lv=rhel/root
   rd.lvm.lv=rhel/swap
   rhgb
   quiet

15. cpupower frequency-info
   analyzing CPU 0:
   current policy: frequency should be within 800 MHz and 3.40 GHz.
   The governor "performance" may decide which speed to use
   within this range.
   boost state support:
   Supported: yes
   Active: yes

16. tuned-adm active
   Current active profile: throughput-performance

17. sysctl
   kernel.numa_balancing               1
   kernel.randomize_va_space           2
   vm.dirty_background_bytes           0
   vm.dirty_background_ratio          10
   vm.dirty_bytes                     0
   vm.dirty_expire_centisecs          3000
   vm.dirty_ratio                     40
   vm.dirty_writeback_centisecs      500
   vm.dirtytime_expire_seconds       43200
   vm.extfrag_threshold              500
   vm.min_unmapped_ratio             1
   vm.nr_hugepages                   0
   vm.nr_hugepages_mempolicy         0
   vm.nr_overcommit_hugepages        0
   vm.swappiness                      10
   vm.watermark_scale_factor         10
   vm.zone_reclaim_mode              0

18. /sys/kernel/mm/transparent_hugepage
   defrag         always defer defer+madvice [madvice] never
   enabled        [always] madvice never
   hpage_pmd_size  2097152
   shmem_enabled  always within_size advise [never] deny force

19. /sys/kernel/mm/transparent_hugepage/khugepaged
   alloc_sleep_millisecs  60000
   defrag         1
   max_ptes_none   511
   max_ptes_swap   64

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<table>
<thead>
<tr>
<th>pages_to_scan</th>
<th>4096</th>
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</thead>
<tbody>
<tr>
<td>scan_sleep_millisecs</td>
<td>10000</td>
</tr>
</tbody>
</table>

20. OS release
   From /etc/*-release /etc/*-version
   os-release      Red Hat Enterprise Linux 8.3 (Ootpa)
   redhat-release  Red Hat Enterprise Linux release 8.3 (Ootpa)
   system-release  Red Hat Enterprise Linux release 8.3 (Ootpa)

   itlb_multihit      Not affected
   l1tf               Not affected
   mds                Not affected
   meltdown           Not affected
   spec_store_bypass  Mitigation: Speculative Store Bypass disabled via prctl and seccomp
   spectre_v1         Mitigation: usercopy/swapgs barriers and __user pointer sanitization
   spectre_v2         Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
   srbds              Not affected
   tsx_async_abort    Not affected

For more information, see the Linux documentation on hardware vulnerabilities, for example

22. Disk information
   SPEC is set to: /home/cpu119
   Filesystem            Type  Size  Used Avail Use% Mounted on
                         /dev/mapper/rhel-home xfs   148G   78G   71G  53% /home

23. /sys/devices/virtual/dmi/id
   Vendor:         ASUSTeK COMPUTER INC.
   Product:        RS720-E10-RS12
   Product Family: Server
   Serial:         012345678901

24. dmidecode
   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

25. BIOS
   (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:      American Megatrends Inc.
   BIOS Version:    0504
   BIOS Date:       05/26/2021
   BIOS Revision:   5.4
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**Base Compiler Invocation**

**C benchmarks:**
- icx

**C++ benchmarks:**
- icpx

**Fortran benchmarks:**
- ifx

---

**Compiler Version Notes**

```
C       | 502.gcc_r(peak)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C       | 502.gcc_r(peak)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Fortran | 548.exchange2_r(base, peak)  
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
```
### 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`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

**C++ benchmarks:**
- `-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math`
- `-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

**Fortran benchmarks:**
- `-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs -align array32byte -auto`
- `-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

### Peak Compiler Invocation

**C benchmarks:**
- `icx`

**C++ benchmarks:**
- `icpx`

**Fortran benchmarks:**
- `ifx`
## SPEC CPU®2017 Integer Rate Result

**ASUSTeK Computer Inc.**  
**ASUS RS720-E10-RS12(Z12PP-D32) Server System**  
(2.30 GHz, Intel Xeon Platinum 8380)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>Test Date:</th>
<th>Test Sponsor:</th>
<th>Tested by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9016</td>
<td>Apr-2023</td>
<td>ASUSTeK Computer Inc.</td>
<td>ASUSTeK Computer Inc.</td>
</tr>
</tbody>
</table>

**SPECrate®2017_int_base = 612**  
**SPECrate®2017_int_peak = 638**

### Peak Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flag Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>-DSPEC_LP64 -DSPEC_LINUX_X64</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>-D_FILE_OFFSET_BITS=64</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>-DSPEC_LP64 -DSPEC_LINUX</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>-DSPEC_LP64</td>
</tr>
</tbody>
</table>

### Peak Optimization Flags

#### C benchmarks:

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flag Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>-w -std=c11 -m64 -Wl,-z,muldefs</td>
</tr>
<tr>
<td>-fprofile-generate(pass 1)</td>
<td></td>
</tr>
<tr>
<td>-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)</td>
<td></td>
</tr>
<tr>
<td>-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse</td>
<td></td>
</tr>
<tr>
<td>-funroll-loops -qopt-mem-layout-trans=4</td>
<td></td>
</tr>
<tr>
<td>-fno-strict-overflow</td>
<td></td>
</tr>
<tr>
<td>-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin</td>
<td></td>
</tr>
<tr>
<td>-lqkmalloc</td>
<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>-m32</td>
</tr>
<tr>
<td>-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin</td>
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</tr>
<tr>
<td>-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)</td>
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</tr>
<tr>
<td>-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)</td>
<td></td>
</tr>
<tr>
<td>-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse</td>
<td></td>
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<tr>
<td>-funroll-loops -qopt-mem-layout-trans=4</td>
<td></td>
</tr>
<tr>
<td>-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc</td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -0fast</td>
</tr>
<tr>
<td>-ffast-math -flto -mfpmath=sse -funroll-loops</td>
<td></td>
</tr>
<tr>
<td>-qopt-mem-layout-trans=4 -fno-alias</td>
<td></td>
</tr>
<tr>
<td>-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin</td>
<td></td>
</tr>
<tr>
<td>-lqkmalloc</td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>basepeak = yes</td>
</tr>
</tbody>
</table>

#### C++ benchmarks:

(Continued on next page)
ASUSTeK Computer Inc.  
ASUS RS720-E10-RS12(Z12PP-D32) Server System  
(2.30 GHz, Intel Xeon Platinum 8380)  

SPEC CPU®2017 Integer Rate Result  

Test Date: Apr-2023  
Hardware Availability: Jul-2021  
Software Availability: Dec-2022  

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

SPECrater®2017_int_base = 612  
SPECrater®2017_int_peak = 638  

Peak Optimization Flags (Continued)  

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  
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.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-ic2023-official-linux64.xml  

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

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