SPEC CPU®2017 Integer Rate Result

ASUSTeK Computer Inc.
ASUS ESC4000-E11
(2.00 GHz, Intel Xeon Platinum 8450H)

SPECraten®2017_int_base = 474
SPECraten®2017_int_peak = 489

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.
Hardware Availability: Jul-2023
Test Date: Mar-2024
Software Availability: Dec-2023

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CPU Name: Intel Xeon Platinum 8450H
Max MHz: 3500
Nominal: 2000
Enabled: 56 cores, 2 chips, 2 threads/core
Orderable: 1, 2 chip(s)
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 2 MB I+D on chip per core
L3: 75 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 1.6 TB PCIe NVMe SSD
Other: Cooling: DLC

Hardware

Software

OS: SUSE Linux Enterprise Server 15 SP4 (x86_64)
Kernel 5.14.21-150400.22-default
Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 2101 released Dec-2023
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.

500.perlbench_r 502.gcc_r 505.mcf_r 520.omnetpp_r 523.xalancbmk_r 525.x264_r 531.deepsjeng_r 541.leela_r 548.exchange2_r 557.xz_r

| Copy   | 0 | 40 | 80 | 120 | 160 | 200 | 240 | 280 | 320 | 360 | 400 | 440 | 480 | 520 | 560 | 600 | 640 | 680 | 720 | 760 | 800 | 840 | 880 | 920 | 960 |
|--------|---|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 500.perlbench_r | 112 | 112 | 112 | 112 | 112 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 502.gcc_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 505.mcf_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 520.omnetpp_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 523.xalancbmk_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 525.x264_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 531.deepsjeng_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 541.leela_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 548.exchange2_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |
| 557.xz_r | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 | 112 |

500.perlbench_r = 351
502.gcc_r = 429
505.mcf_r = 386
520.omnetpp_r = 385
523.xalancbmk_r = 322
525.x264_r = 303
531.deepsjeng_r = 240
541.leela_r = 240
548.exchange2_r = 240
557.xz_r = 240

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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>
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<tr>
<td>500.perlbench_r</td>
<td>112</td>
<td>508</td>
<td>351</td>
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<td>505.mcf_r</td>
<td>112</td>
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<tr>
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<td>663</td>
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<td>399</td>
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<td>613</td>
<td>303</td>
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<td>548.exchange2_r</td>
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<tr>
<td>557.xz_r</td>
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<td>241</td>
<td>505</td>
<td>240</td>
<td>504</td>
<td>240</td>
</tr>
</tbody>
</table>

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

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 = "/ic23u2/lib/intel64:/ic23u2/lib/ia32:/ic23u2/je5.0.1-32"
MALLOC_CONF = "retain:true"

General Notes
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.

(Continued on next page)
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CPU2017 License: 9016
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Tested by: ASUSTeK Computer Inc.

General Notes (Continued)
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 SNC4 (4-clusters)
LLC dead line alicc = Disabled
Engine Boost = Aggressive
SR-IOV Support = Disabled
BMC Configuration:
Fan mode = Full speed mode

Sysinfo program /lc23u2/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c88b7ed5c36ae2c92cc097bec197
running on localhost Sun Mar 3 23:57:04 2024

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

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1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

1. uname -a
Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)x86_64 x86_64 x86_64 GNU/Linux

(Continued on next page)
Platform Notes (Continued)

23:57:04 up 2 days, 9:13, 2 users, load average: 25.24, 65.86, 87.31

3. Username
From environment variable $USER: root

4. ulimit -a
core file size (blocks, -c) unlimited
data seg size (kbytes, -d) unlimited
file size (blocks, -f) unlimited
max locked memory (kbytes, -l) 64
max memory size (kbytes, -m) unlimited
open files (-n) 1024
pipe size (512 bytes, -p) 8
POSIX message queue (bytes, -q) 819200
real-time priority (-r) 0
stack size (kbytes, -s) unlimited
cpu time (seconds, -t) unlimited
max user processes (-u) 4126852
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./rate.sh
$SPEC = /ic23u2

6. /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8450H
vendor_id : GenuineIntel
cpu family : 6
model : 143
stepping : 8
microcode : 0x2b000461
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores : 28
siblings : 56
2 physical ids (chips)
112 processors (hardware threads)
physical id 0: core ids 0-27

(Continued on next page)
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Platform Notes (Continued)

physical id 1: core ids 0-27  
physical id 0: apicids 0-55  
physical id 1: apicids 128-183

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 2.37.2:

Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Address sizes: 46 bits physical, 57 bits virtual  
Byte Order: Little Endian  
CPU(s): 112  
On-line CPU(s) list: 0-111

Vendor ID: GenuineIntel  
Model name: Intel(R) Xeon(R) Platinum 8450H  
CPU family: 6  
Model: 143  
Thread(s) per core: 2  
Core(s) per socket: 28  
Socket(s): 2  
Stepping: 8  
CPU max MHz: 3500.000  
CPU min MHz: 800.000  
BogoMIPS: 4000.00

Flags:

Virtualization: VT-x  
L1d cache: 2.6 MB (56 instances)  
L1i cache: 1.8 MB (56 instances)  
L2 cache: 112 MB (56 instances)  
L3 cache: 150 MB (2 instances)  
NUMA node(s): 8  
NUMA node0 CPU(s): 0-6,56-62  
NUMA node1 CPU(s): 7-13,63-69  
NUMA node2 CPU(s): 14-20,70-76  
NUMA node3 CPU(s): 21-27,77-83  
NUMA node4 CPU(s): 28-34,84-90  
NUMA node5 CPU(s): 35-41,91-97  
NUMA node6 CPU(s): 42-48,98-104  
NUMA node7 CPU(s): 49-55,105-111

Vulnerability Itlb multihit: Not affected

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

- Vulnerability L1tf: Not affected
- Vulnerability Mds: Not affected
- Vulnerability Meltdown: Not affected
- Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
- Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
- Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
- Vulnerability Srbds: Not affected
- Vulnerability Tsx async abort: Not affected

---

**From lscpu --cache:**

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>48K</td>
<td>2.6M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>1.8M</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L2</td>
<td>2M</td>
<td>112M</td>
<td>16</td>
<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L3</td>
<td>75M</td>
<td>150M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>81920</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

---

8. numactl --hardware

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

**available:** 8 nodes (0-7)

node 0 cpus: 0-6,56-62
node 0 size: 128658 MB
node 0 free: 127395 MB
node 1 cpus: 7-13,63-69
node 1 size: 129020 MB
node 1 free: 128270 MB
node 2 cpus: 14-20,70-76
node 2 size: 129020 MB
node 2 free: 128210 MB
node 3 cpus: 21-27,77-83
node 3 size: 129020 MB
node 3 free: 128209 MB
node 4 cpus: 28-34,84-90
node 4 size: 129020 MB
node 4 free: 128158 MB
node 5 cpus: 35-41,91-97
node 5 size: 129020 MB
node 5 free: 128255 MB
node 6 cpus: 42-48,98-104
node 6 size: 129020 MB
node 6 free: 128239 MB
node 7 cpus: 49-55,105-111
node 7 size: 128957 MB
node 7 free: 128164 MB

node distances:

<table>
<thead>
<tr>
<th>node distances:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0: 10 12 12 12 21 21 21 21</td>
</tr>
<tr>
<td>1: 12 10 12 12 21 21 21 21</td>
</tr>
<tr>
<td>2: 12 12 10 12 21 21 21 21</td>
</tr>
<tr>
<td>3: 12 12 12 10 21 21 21 21</td>
</tr>
<tr>
<td>4: 21 21 21 21 10 12 12 12</td>
</tr>
<tr>
<td>5: 21 21 21 21 12 10 12 12</td>
</tr>
<tr>
<td>6: 21 21 21 21 12 12 10 12</td>
</tr>
<tr>
<td>7: 21 21 21 21 12 12 12 10</td>
</tr>
</tbody>
</table>

---

9. /proc/meminfo

**MemTotal:** 1056499516 kB

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(Continued on next page)
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Platform Notes (Continued)

10. who -r
   run-level 3 Mar 1 14:44

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
   Default Target: Status
      multi-user: running

12. Services, from systemctl list-unit-files
   STATE UNIT FILES
   enabled YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ haveged
   irqbalance issue-generator kbsdsettings klog lvm2-monitor nsmfc-boot-connections
   postfix purge-kernels rollback rsyslog smartd sshd wicked wickedd-auto4 wickedd-dhcp4
   wickedd-dhcp6 wickedd-nanny
   enabled-runtime systemd-remount-fs
   disabled autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony
   conode-console-getty cups cups-browse debug-shell etables exchange-bmc-os-info
   firewall gpm grub2-_once haveged-switch-root hwloc-dump-hdata ipmi ipmiev
   lsmod-dump-kernel kexec-load kexec-load_lunmask man-db-create multipathd nfs nfs-blkmap
   nvmf-autoconnect rdisc rpsbind rpsmcfgcheck rsyncd serial-getty@ snmpd
   snmptrapd snap package systemd-boot-check-no-failures systemd-network-generator
   systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned udisks2
   indirect wicked

13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
   root=UUID=9bcf0374-b29f-4a4c-932e-9c0e90fb0803
   splash=silent
   mitigations=auto
   quiet

14. cpupower frequency-info
   analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 3.50 GHz.
      The governor "performance" may decide which speed to use within this range.
      boost state support: Supported: yes
      Active: yes

15. tuned-adm active
   It seems that tuned daemon is not running, preset profile is not activated.
   Preset profile: throughput-performance

16. sysctl
   kernel.numa_balancing 1
   kernel.randomize_va_space 2
   vm.compaction_proactiveness 20
   vm.dirty_background_bytes 0
   vm.dirty_background_ratio 10
   vm.dirty_bytes 0
   vm.dirty_expire_centisecs 3000
   vm.dirty_ratio 20
   vm.dirty_writeback_centisecs 500
   vm.dirtytime_expire_seconds 43200

(Continued on next page)
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Platform Notes (Continued)

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 60
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 0

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

18. /sys/kernel/mm/transparent_hugepage/khugepaged
    alloc.sleep.millisecs 60000
    defrag 1
    max_ptes_none 511
    max_ptes_shared 256
    max_ptes_swap 64
    pages_to_scan 4096
    scan.sleep.millisecs 10000

19. OS release
    From /etc/*-release /etc/*-version
    os-release SUSE Linux Enterprise Server 15 SP4

20. Disk information
    SPEC is set to: /ic23u2
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/nvme0n1p8 xfs   500G  296G  205G  60% /

21. /sys/devices/virtual/dmi/id
    Vendor: ASUSTeK COMPUTER INC.
    Product: ESC4000-E11
    Product Family: Server
    Serial: /psn/

22. 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 Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800

23. BIOS
    (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor: American Megatrends Inc.
    BIOS Version: 2101

(Continued on next page)
## Base Compiler Invocation

C benchmarks:
- icx

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

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

- **Fortran benchmarks:**
  - ifx

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
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<tbody>
<tr>
<td>500.perlbmk_r</td>
<td><code>-DSPEC_LP64 -DSPEC_LINUX_X64</code></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td><code>-DSPEC_LP64</code></td>
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<td>520.omnetpp_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td><code>-DSPEC_LP64 -DSPEC_LINUX</code></td>
</tr>
<tr>
<td>525.x264_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>541.leela_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>557.xz_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
</tbody>
</table>

### Base Optimization Flags

- **C benchmarks:**
  - `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin -lqkmalloc`

- **C++ benchmarks:**
  - `-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin -lqkmalloc`

- **Fortran benchmarks:**
### Peak Compiler Invocation

- **C benchmarks:** icx
- **C++ benchmarks:** icpx
- **Fortran benchmarks:** ifx

### 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: `-w -std=c11 -m64 -Wl,-z,muldefs -fprofile-generate(pass 1)`
  - 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`

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

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math -ftlo -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fno-alias -L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin -lqkmalloc

557.xz_r: basepeak = yes

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/Intel-ic2023p2-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-z13-V1.3.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml

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

Tested with SPEC CPU®2017 v1.1.9 on 2024-03-03 10:57:03-0500.
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