Supermicro  
SuperServer SYS-241H-TNRTTP  
(X13QEH+ , Intel Xeon Gold 6418H)

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base = 869</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r 192</td>
<td>637</td>
</tr>
<tr>
<td>502.gcc_r 192</td>
<td>751</td>
</tr>
<tr>
<td>505.mcf_r 192</td>
<td>1430</td>
</tr>
<tr>
<td>520.omnetpp_r 192</td>
<td>624</td>
</tr>
<tr>
<td>523.xalancbmk_r 192</td>
<td>1720</td>
</tr>
<tr>
<td>525.x264_r 192</td>
<td>1360</td>
</tr>
<tr>
<td>531.deepsjeng_r 192</td>
<td>604</td>
</tr>
<tr>
<td>541.leela_r 192</td>
<td>569</td>
</tr>
<tr>
<td>548.exchange2_r 192</td>
<td>1750</td>
</tr>
<tr>
<td>557.xz_r 192</td>
<td>408</td>
</tr>
</tbody>
</table>

### Hardware

**CPU Name:** Intel Xeon Gold 6418H  
**Max MHz:** 4000  
**Nominal:** 2100  
**Enabled:** 96 cores, 4 chips, 2 threads/core  
**Orderable:** 2,4 chips  
**Cache L1:** 32 KB I + 48 KB D on chip per core  
**L2:** 2 MB I+D on chip per core  
**L3:** 60 MB I+D on chip per chip  
**Other:** None  
**Memory:** 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)  
**Storage:** 1 x 2 TB SATA HDD, 7200RPM  
**Other:** None

### Software

**OS:** SUSE Linux Enterprise Server 15 SP4  
5.14.21-150400.22-default  
**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 1.2 released Mar-2023  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None  
**Power Management:** BIOS set to prefer performance at the cost of additional power usage.
Supermicro
SuperServer SYS-241H-TNRTTP
(X13QEH+, Intel Xeon Gold 6418H)

CPU2017 License: 9017
Test Sponsor: Supermicro
Tested by: Supermicro

SPECrate®2017_int_base = 869
SPECrate®2017_int_peak = Not Run

Test Date: Aug-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Seconds</th>
<th>Seconds Ratio</th>
<th>Peak Copies</th>
<th>Seconds</th>
<th>Seconds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>192</td>
<td>480</td>
<td>637</td>
<td>192</td>
<td>480</td>
<td>637</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>192</td>
<td>357</td>
<td>761</td>
<td>192</td>
<td>362</td>
<td>751</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>192</td>
<td>217</td>
<td>1430</td>
<td>192</td>
<td>216</td>
<td>1430</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>192</td>
<td>404</td>
<td>624</td>
<td>192</td>
<td>405</td>
<td>623</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>192</td>
<td>119</td>
<td>1710</td>
<td>192</td>
<td>118</td>
<td>1720</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>192</td>
<td>251</td>
<td>1340</td>
<td>192</td>
<td>241</td>
<td>1400</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>192</td>
<td>364</td>
<td>604</td>
<td>192</td>
<td>365</td>
<td>603</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>192</td>
<td>559</td>
<td>569</td>
<td>192</td>
<td>559</td>
<td>569</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>192</td>
<td>287</td>
<td>1750</td>
<td>192</td>
<td>288</td>
<td>1750</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>192</td>
<td>509</td>
<td>408</td>
<td>192</td>
<td>509</td>
<td>408</td>
</tr>
</tbody>
</table>

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.xalanchmk_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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32"
MALLOC_CONF = "retain:true"
SPEC CPU®2017 Integer Rate Result

Supermicro

SuperServer SYS-241H-TNRTTP
(X13QEH+ , Intel Xeon Gold 6418H)

SPECRate®2017_int_base = 869
SPECRate®2017_int_peak = Not Run

CPU2017 License: 9017
Test Sponsor: Supermicro
Tested by: Supermicro

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.:
umactl --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 Settings:
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Extreme Performance
DCU Streamer Prefetcher = Disable
KTI Prefetch = Enable
SNC = Enable SNC2 (2-clusters)
LLC Dead Line Alloc = Disable
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Thu Aug 24 18:23:19 2023

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

Table of contents

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

(Continued on next page)
Platform Notes (Continued)

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

2. w
   18:23:19 up 2 min, 3 users, load average: 0.50, 0.31, 0.12
   USER   TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root   tty1     -                18:22   15.00s  1.06s  0.04s -bash

3. Username
   From environment variable $USER: root

4. ulimit -a
   core file size          (blocks, -c) unlimited
   data seg size           (kbytes, -d) unlimited
   scheduling priority (-e) 0
   file size              (blocks, -f) unlimited
   pending signals          (-i) 8253912
   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
   cpu time               (seconds, -t) unlimited
   max user processes              (-u) 8253912
   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
   -bash
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 --c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=96 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base --tune Intrate
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=92 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=96 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
   --tune Intrate --size refrate Intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.002/templogs/preenv.intrate.002.0.log --lognum 002.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017

6. /proc/cpuinfo
   model name : Intel(R) Xeon(R) Gold 6418H
   vendor_id : GenuineIntel
   cpu family : 6
   model : 143
   stepping : 8
   microcode : 0x2b0001b0
   bugs : spectre_v1 spectre_v2 spec_store_bypass swaps

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

**Supermicro**

SuperServer SYS-241H-TNRTPP
(X13QEHe+, Intel Xeon Gold 6418H)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base =</th>
<th>869</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak =</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9017  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Aug-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Mar-2023</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Dec-2022</td>
</tr>
</tbody>
</table>

Platform Notes (Continued)

```plaintext
cpu cores       : 24  
siblings        : 48  
  4 physical ids (chips)  
   192 processors (hardware threads)  
   physical id 0: core ids 0-23  
   physical id 1: core ids 0-23  
   physical id 2: core ids 0-23  
   physical id 3: core ids 0-23  
   physical id 0: apicids 0-47  
   physical id 1: apicids 128-175  
   physical id 2: apicids 256-303  
   physical id 3: apicids 384-431  

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:

<table>
<thead>
<tr>
<th>Architecture:</th>
<th>x86_64</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU op-mode(s):</td>
<td>32-bit, 64-bit</td>
</tr>
<tr>
<td>Address sizes:</td>
<td>46 bits physical, 57 bits virtual</td>
</tr>
<tr>
<td>Byte Order:</td>
<td>Little Endian</td>
</tr>
<tr>
<td>CPU(s):</td>
<td>192</td>
</tr>
<tr>
<td>On-line CPU(s) list:</td>
<td>0-191</td>
</tr>
<tr>
<td>Vendor ID:</td>
<td>GenuineIntel</td>
</tr>
<tr>
<td>Model name:</td>
<td>Intel(R) Xeon(R) Gold 6418H</td>
</tr>
<tr>
<td>CPU family:</td>
<td>6</td>
</tr>
<tr>
<td>Model:</td>
<td>143</td>
</tr>
<tr>
<td>Thread(s) per core:</td>
<td>2</td>
</tr>
<tr>
<td>Core(s) per socket:</td>
<td>24</td>
</tr>
<tr>
<td>Socket(s):</td>
<td>4</td>
</tr>
<tr>
<td>Stepping:</td>
<td>8</td>
</tr>
<tr>
<td>Frequency boost:</td>
<td>enabled</td>
</tr>
<tr>
<td>CPU max MHz:</td>
<td>2101.000</td>
</tr>
<tr>
<td>CPU min MHz:</td>
<td>800.0000</td>
</tr>
<tr>
<td>BogoMIPS:</td>
<td>4200.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flags:</th>
<th>fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36clflush 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 tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_12 cat_13 cmpid_single cmpid cmp idxbdr mmiunal iavia icache lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_12 cat_13 cmpid_single cmpid cmp idxbdr mmiunal iavia icache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtualization:</td>
<td>VT-x</td>
</tr>
<tr>
<td>L1d cache:</td>
<td>4.5 MiB (96 instances)</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>3 MiB (96 instances)</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>192 MiB (96 instances)</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>240 MiB (4 instances)</td>
</tr>
<tr>
<td>NUMA node(s):</td>
<td>8</td>
</tr>
</tbody>
</table>
```

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

Copyright 2017-2024 Standard Performance Evaluation Corporation

Supermicro
SuperServer SYS-241H-TNRTTP (X13QEH+, Intel Xeon Gold 6418H)

SPECrate®2017_int_base = 869
SPECrate®2017_int_peak = Not Run

CPU2017 License: 9017
Test Sponsor: Supermicro
Test Date: Aug-2023
Tested by: Supermicro
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

NUMA node0 CPU(s): 0-11,96-107
NUMA node1 CPU(s): 12-23,108-119
NUMA node2 CPU(s): 24-35,120-131
NUMA node3 CPU(s): 36-47,132-143
NUMA node4 CPU(s): 48-59,144-155
NUMA node5 CPU(s): 60-71,156-167
NUMA node6 CPU(s): 72-83,168-179
NUMA node7 CPU(s): 84-95,180-191

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

From lscpu --cache:

NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 48K 4.5M 12 Data 1 64 1 64
L1i 32K 3M 8 Instruction 1 64 1 64
L2 2M 192M 16 Unified 2 2048 1 64
L3 60M 240M 15 Unified 3 65536 1 64

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0-11,96-107
node 0 size: 257612 MB
node 0 free: 255787 MB
node 1 cpus: 12-23,108-119
node 1 size: 258041 MB
node 1 free: 256328 MB
node 2 cpus: 24-35,120-131
node 2 size: 258007 MB
node 2 free: 257650 MB
node 3 cpus: 36-47,132-143
node 3 size: 258041 MB
node 3 free: 257744 MB
node 4 cpus: 48-59,144-155
node 4 size: 258041 MB
node 4 free: 257710 MB
node 5 cpus: 60-71,156-167
node 5 size: 258041 MB
node 5 free: 257693 MB
node 6 cpus: 72-83,168-179
node 6 size: 258041 MB
node 6 free: 257748 MB
node 7 cpus: 84-95,180-191
node 7 size: 257673 MB
node 7 free: 257353 MB
node distances:
node 0 1 2 3 4 5 6 7
0: 10 12 21 21 21 21 21 21
1: 12 10 21 21 21 21 21 21
2: 21 10 12 21 21 21 21 21
3: 21 21 10 21 21 21 21 21
4: 21 21 21 21 10 12 21 21

(Continued on next page)
Platform Notes (Continued)

5:  21  21  21  21  12  10  21  21
6:  21  21  21  21  21  21  10  12
7:  21  21  21  21  21  21  12  10

9. /proc/meminfo
   MemTotal:       2113026320 kB

10. who -r
    run-level 3 Aug 24 18:22 last=5

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

12. Services, from systemctl list-unit-files
    STATE            UNIT FILES
    enabled          YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager
                    firewalld getty@ haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early
                    klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd wicked
                    wickedd-auto4 wickedd-dhcpc4 wickedd-dhcpc6 wickedd-nanny
    enabled-runtime
    disabled         accounts-daemon appstream-sync-cache autofs autoyast-initscripts blk-availability
                    bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd console-getty cups
                    cups-browsed debug-shell ebtables exchange-bmc-os-info gpm grub2-once haveged-switch-root
                    ipmi ipmielvd iscsi-init iscsiicid iscsiiod issue-add-ssh-keys kexec-load luumnask
                    man-db-create multipathd nfs nfs-blkmap nmb ostree-remount rdisc rpcbind rpcmconfcheck
                    rsyncd rtkit-daemon serial-getty@ smartd smartd_generate_opts snmpd snmptrapd
                    speech-dispatcher systemd-boot-check-no-failures systemd-network-generator systemd-sysexect
                    systemd-time-wait-sync systemd-timesyncd udisks2 upower
                    wickedd

13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
    root=UUID=ebf0634e-4c48-4c5b-86b6-a36f333a307a7
    splash=silent
    resume=/dev/disk/by-uuid/cf02ba25-9f51-46af-b067-8adca89c27bb
    mitigations=auto
    quiet
    security=apparmor
    crashkernel=321M,high
    crashkernel=72M,low

14. cpupower frequency-info
    analyzing CPU 0:
    current policy: frequency should be within 800 MHz and 2.10 GHz.
    The governor "ondemand" may decide which speed to use within this range.
    boost state support:
    Supported: yes
    Active: yes

15. sysctl
    kernel.numa_balancing  1

(Continued on next page)
Supermicro
SuperServer SYS-241H-TNRTTP
(X13QEH+ , Intel Xeon Gold 6418H)

CPU2017 License: 9017
Test Sponsor: Supermicro
Tested by: Supermicro

SPECratenize®2017_int_base = 869
SPECratenize®2017_int_peak = Not Run

Test Date: Aug-2023
Hardware Availability: Mar-2023
Software Availability: Dec-2022

Platform Notes (Continued)

-- 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
-- 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

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

17. /sys/kernel/mm/transparent_hugepage/transparent
   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

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

19. Disk information
   SPEC is set to: /home/cpu2017
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/sda3 xfs 815G 66G 750G 8% /home

20. /sys/devices/virtual/dmi/id
    Vendor: Supermicro
    Product: Super Server
    Product Family: Family

21. 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:

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

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Supermicro**

SuperServer SYS-241H-TNRTTP (X13QEH+, Intel Xeon Gold 6418H)

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base =</th>
<th>869</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak =</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

32x SK Hynix HMCG94MEBRA123N 64 GB 2 rank 4800

-------------------------------------------------------------------------------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.2
BIOS Date: 03/17/2023
BIOS Revision: 5.29

**Compiler Version Notes**

<table>
<thead>
<tr>
<th>C</th>
<th>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)</th>
</tr>
</thead>
</table>
|         | 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.                          |

<table>
<thead>
<tr>
<th>C++</th>
<th>520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)</th>
</tr>
</thead>
</table>
|         | 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.                          |

<table>
<thead>
<tr>
<th>Fortran</th>
<th>548.exchange2_r(base)</th>
</tr>
</thead>
</table>
|         | 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 Compiler Invocation**

C benchmarks: icx

C++ benchmarks: icpx

Fortran benchmarks: ifx

**Base Portability Flags**

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r : -DSPEC_LP64

(Continued on next page)
Supermicro
SuperServer SYS-241H-TNRTPP
(X13QEH+, Intel Xeon Gold 6418H)

SPECrate®2017_int_base = 869
SPECrate®2017_int_peak = Not Run

<table>
<thead>
<tr>
<th>CPU2017 License: 9017</th>
<th>Test Date: Aug-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Supermicro</td>
<td>Hardware Availability: Mar-2023</td>
</tr>
<tr>
<td>Tested by: Supermicro</td>
<td>Software Availability: Dec-2022</td>
</tr>
</tbody>
</table>

**Base Portability Flags (Continued)**

505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbnk_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 -xsapphirerapids -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 -xsapphirerapids -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 -xsapphirerapids -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

The flags files that were used to format this result can be browsed at
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/Intel-ic2023-official-linux64.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SPR-revF.xml
<table>
<thead>
<tr>
<th>SPEC CPU®2017 Integer Rate Result</th>
<th>SPECrate®2017_int_base = 869</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermicro</td>
<td>SPECrate®2017_int_peak = Not Run</td>
</tr>
<tr>
<td>SuperServer SYS-241H-TNRTTP (X13QEH+, Intel Xeon Gold 6418H)</td>
<td></td>
</tr>
<tr>
<td>CPU2017 License: 9017</td>
<td>Test Date: Aug-2023</td>
</tr>
<tr>
<td>Test Sponsor: Supermicro</td>
<td>Hardware Availability: Mar-2023</td>
</tr>
<tr>
<td>Tested by: Supermicro</td>
<td>Software Availability: Dec-2022</td>
</tr>
</tbody>
</table>

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 v1.1.9 on 2023-08-24 21:23:18-0400.
Report generated on 2024-01-29 18:09:12 by CPU2017 PDF formatter v6716.
Originally published on 2023-09-26.