# SPEC CPU®2017 Integer Rate Result

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## KTNF

(Test Sponsor: Telecommunications Technology Association)

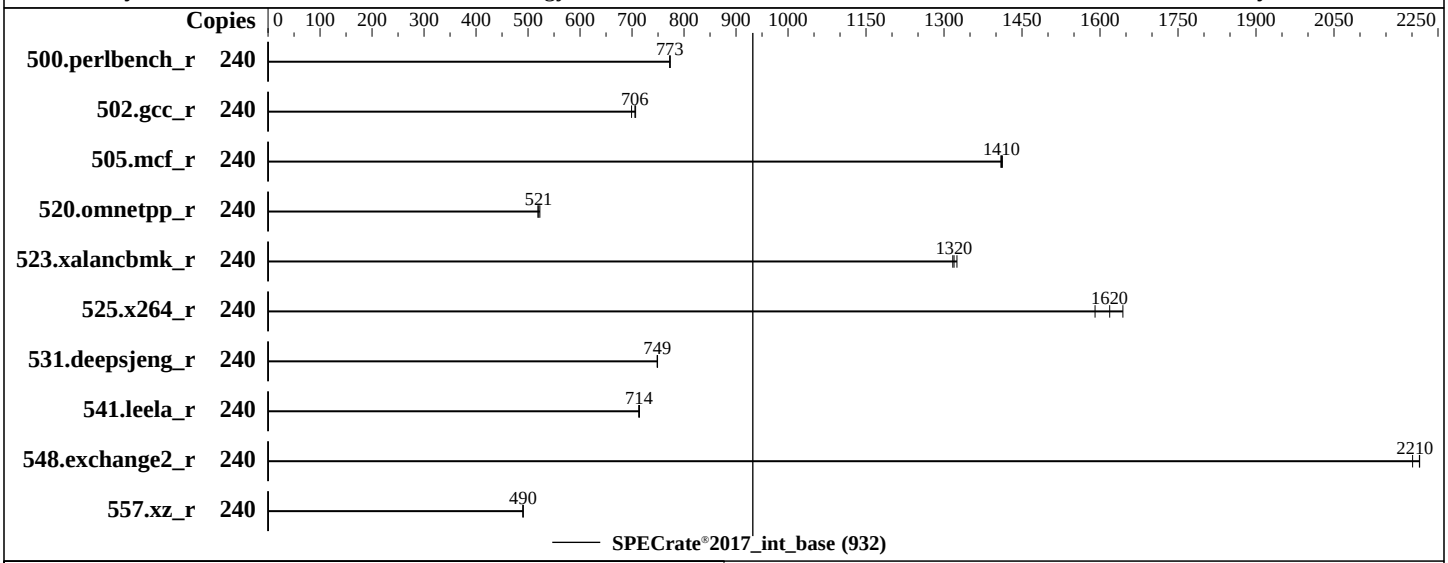
KTNF KR580S3
(1.90 GHz, Intel Xeon Platinum 8490H)

SPECrate®2017_int_base = 932

SPECrate®2017_int_peak = Not Run

**CPU2017 License:** A83
**Test Sponsor:** Telecommunications Technology Association
**Tested by:** Telecommunications Technology Association

**Test Date:** Nov-2024
**Hardware Availability:** Jun-2024
**Software Availability:** Jul-2024




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon Platinum 8490H |
| Max MHz: | 3500 |
| Nominal: | 1900 |
| Enabled: | 120 cores, 2 chips, 2 threads/core |
| Orderable: | 1,2 chips |
| Cache L1: | 32 KB I + 48 KB D on chip per core |
| L2: | 2 MB I+D on chip per core |
| L3: | 112.5 MB I+D on chip per chip |
| Other: | None |
| Memory: | 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R) |
| Storage: | 1 x 500 GB SATA HDD, 7200RPM |
| Other: | CPU Cooling: Air |

## Software

| | |
|---|---|
| OS: | Red Hat Enterprise Linux 9.0 (Plow)<br>5.14.0-70.22.1.el9_0.x86_64 |
| Compiler: | C/C++: Version 2024.2.1 of Intel oneAPI DPC++/C++ Compiler for Linux;<br>Fortran: Version 2024.2.1 of Intel Fortran Compiler for Linux; |
| Parallel: | No |
| Firmware: | Version 5.32 released Jun-2024 |
| File System: | xfs |
| System State: | Run level 5 (multi-user) |
| Base Pointers: | 64-bit |
| Peak Pointers: | Not Applicable |
| Other: | Not Applicable |
| Power Management: | BIOS and OS set to prefer performance at the cost of additional power usage. |

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## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 500.perlbench_r | 240 | 494 | 773 | **494** | **773** | 494 | 773 | | | | | | | |
| 502.gcc_r | 240 | 481 | 707 | 486 | 699 | **482** | **706** | | | | | | | |
| 505.mcf_r | 240 | 275 | 1410 | **275** | **1410** | 275 | 1410 | | | | | | | |
| 520.omnetpp_r | 240 | **605** | **521** | 607 | 519 | 602 | 523 | | | | | | | |
| 523.xalancbmk_r | 240 | 191 | 1320 | **192** | **1320** | 192 | 1320 | | | | | | | |
| 525.x264_r | 240 | 264 | 1590 | 256 | 1640 | **260** | **1620** | | | | | | | |
| 531.deepsjeng_r | 240 | 367 | 749 | 368 | 748 | **367** | **749** | | | | | | | |
| 541.leela_r | 240 | **557** | **714** | 556 | 714 | 557 | 713 | | | | | | | |
| 548.exchange2_r | 240 | 284 | 2210 | 286 | 2200 | **284** | **2210** | | | | | | | |
| 557.xz_r | 240 | 528 | 491 | **528** | **490** | 529 | 490 | | | | | | | |

**SPECrate®2017_int_base = 932**

**SPECrate®2017_int_peak = Not Run**

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

## Submit Notes

```
The config file option 'submit' was used.
```

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
     "/home/spec/SPECcpu2017-1.1.9/lib/intel64:/home/spec/SPECcpu2017-1.1.9/lib/ia32:/home/spec/SPECcpu2017
     -1.1.9/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

## General Notes

```
Binaries were compiled on a system with 2x Intel Xeon Platinum 8490H CPU + 1TiB Memory using RHEL 9.0

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.


Submitted: Wed Nov  6 20:57:30 EST 2024
Submission: cpu2017-20241105-45395.sub

Submitted: Fri Nov 15 21:42:23 EST 2024
Submission: cpu2017-20241105-45395.sub

Submitted: Mon Nov 18 19:43:39 EST 2024
Submission: cpu2017-20241105-45395.sub
```

**(Continued on next page)**

## General Notes (Continued)

```
Submitted: Mon Nov 18 19:47:31 EST 2024
Submission: cpu2017-20241105-45395.sub
```

## Platform Notes

```
 BIOS Configuration:
 VT-d = Disabled
 Patrol Scrub = Disabled
 SNC = Enable SNC4 (4-clusters)
 Engine Boost = Aggressive
 SR-IOV Support = Disabled
 BMC Configuration:
 Fan mode = Full speed mode

 Sysinfo program /home/spec/SPECcpu2017-1.1.9/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Tue Nov  5 11:35:37 2024

 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. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 250 (250-6.el9_0)
 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. sysctl
 18. /sys/kernel/mm/transparent_hugepage
 19. /sys/kernel/mm/transparent_hugepage/khugepaged
 20. OS release
 21. Disk information
 22. /sys/devices/virtual/dmi/id
 23. dmidecode
 24. BIOS
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -a
   Linux localhost.localdomain 5.14.0-70.22.1.el9_0.x86_64 #1 SMP PREEMPT Tue Aug 2 10:02:12 EDT 2022 x86_64
   x86_64 x86_64 GNU/Linux

 ------------------------------------------------------------
 2. w
    11:35:37 up 5 days,  1:56,  1 user,  load average: 0.16, 0.07, 0.01
   USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
   tta      pts/0     Thu09    7.00s  1.26s  0.17s sshd: tta [priv]
```

**(Continued on next page)**

## Platform Notes (Continued)

```
------------------------------------------------------------
3. Username
  From environment variable $USER:  spec
  From the command 'logname':       tta

------------------------------------------------------------
4. ulimit -a
  real-time non-blocking time  (microseconds, -R) unlimited
  core file size              (blocks, -c) 0
  data seg size               (kbytes, -d) unlimited
  scheduling priority                 (-e) 0
  file size                   (blocks, -f) unlimited
  pending signals                     (-i) 4124485
  max locked memory           (kbytes, -l) 800000000
  max memory size             (kbytes, -m) unlimited
  open files                          (-n) 800000000
  pipe size                (512 bytes, -p) 8
  POSIX message queues         (bytes, -q) 819200
  real-time priority                  (-r) 0
  stack size                  (kbytes, -s) 8192
  cpu time                   (seconds, -t) unlimited
  max user processes                  (-u) unlimited
  virtual memory              (kbytes, -v) unlimited
  file locks                          (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: tta [priv]
 sshd: tta@pts/0
 -bash
 su - spec
 -bash
 runcpu --action validate --define default-platform-flags --define numcopies=240 -c tta_new_peak --define
   smt-on --define cores=120 --define physicalfirst --define invoke_with_interleave --define drop_caches
   --tune base -o all intrate
 runcpu --action validate --define default-platform-flags --define numcopies=240 --configfile tta_new_peak
   --define smt-on --define cores=120 --define physicalfirst --define invoke_with_interleave --define
   drop_caches --tune base --output_format all --nopower --runmode rate --tune base --size refrate intrate
   --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.101/templogs/preenv.intrate.101.0.log --lognum 101.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/spec/SPECcpu2017-1.1.9

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Platinum 8490H
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
    microcode       : 0x2b000571
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 60
    siblings        : 120
    2 physical ids (chips)
    240 processors (hardware threads)
    physical id 0: core ids 0-59
```

**(Continued on next page)**

## Platform Notes (Continued)

```
    physical id 1: core ids 0-59
    physical id 0: apicids 0-119
    physical id 1: apicids 128-247
  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 2.37.4:
  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):                          240
  On-line CPU(s) list:             0-239
  Vendor ID:                       GenuineIntel
  Model name:                      Intel(R) Xeon(R) Platinum 8490H
  CPU family:                      6
  Model:                           143
  Thread(s) per core:              2
  Core(s) per socket:              60
  Socket(s):                       2
  Stepping:                        8
  CPU max MHz:                     3500.0000
  CPU min MHz:                     800.0000
  BogoMIPS:                        3800.00
  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 art 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_1
                                   sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand
                                   lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3
                                   invpcid_single intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
                                   tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 avx2
                                   smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                                   avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                                   xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                                   cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                                   arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku
                                   ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                                   tme avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                                   enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr avx512_fp16
                                   amx_tile flush_l1d arch_capabilities
  Virtualization:                  VT-x
  L1d cache:                       5.6 MiB (120 instances)
  L1i cache:                       3.8 MiB (120 instances)
  L2 cache:                        240 MiB (120 instances)
  L3 cache:                        225 MiB (2 instances)
  NUMA node(s):                    8
  NUMA node0 CPU(s):               0-14,120-134
  NUMA node1 CPU(s):               15-29,135-149
  NUMA node2 CPU(s):               30-44,150-164
  NUMA node3 CPU(s):               45-59,165-179
  NUMA node4 CPU(s):               60-74,180-194
  NUMA node5 CPU(s):               75-89,195-209
  NUMA node6 CPU(s):               90-104,210-224
  NUMA node7 CPU(s):               105-119,225-239
  Vulnerability Itlb multihit:     Not affected
```

**(Continued on next page)**

## 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
  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:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL   SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     5.6M   12 Data            1     64        1             64
     L1i       32K     3.8M    8 Instruction     1     64        1             64
     L2         2M     240M   16 Unified         2   2048        1             64
     L3     112.5M     225M   15 Unified         3 122880        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: 0-14,120-134
  node 0 size: 128115 MB
  node 0 free: 120126 MB
  node 1 cpus: 15-29,135-149
  node 1 size: 128981 MB
  node 1 free: 123258 MB
  node 2 cpus: 30-44,150-164
  node 2 size: 129017 MB
  node 2 free: 120467 MB
  node 3 cpus: 45-59,165-179
  node 3 size: 129017 MB
  node 3 free: 123326 MB
  node 4 cpus: 60-74,180-194
  node 4 size: 129017 MB
  node 4 free: 123358 MB
  node 5 cpus: 75-89,195-209
  node 5 size: 129017 MB
  node 5 free: 123335 MB
  node 6 cpus: 90-104,210-224
  node 6 size: 129017 MB
  node 6 free: 123326 MB
  node 7 cpus: 105-119,225-239
  node 7 size: 128997 MB
  node 7 free: 123164 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  12  12  12  21  21  21  21
    1:  12  10  12  12  21  21  21  21
    2:  12  12  10  12  21  21  21  21
    3:  12  12  12  10  21  21  21  21
    4:  21  21  21  21  10  12  12  12
    5:  21  21  21  21  12  10  12  12
    6:  21  21  21  21  12  12  10  12
    7:  21  21  21  21  12  12  12  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1055930712 kB

------------------------------------------------------------
```

**(Continued on next page)**

## Platform Notes (Continued)

```
10. who -r
  run-level 5 2024-10-31 09:40

------------------------------------------------------------
11. Systemd service manager version: systemd 250 (250-6.el9_0)
  Default Target  Status
  graphical       degraded

------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT         LOAD   ACTIVE SUB    DESCRIPTION
  * sep5.service loaded failed failed systemd script to load sep5 driver at boot time

------------------------------------------------------------
13. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                   accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker firewalld
                   gdm getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump libstoragemgmt
                   low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
                   nvmefc-boot-connections ostree-remount power-profiles-daemon qemu-guest-agent rhsmcertd
                   rsyslog rtkit-daemon selinux-autorelabel-mark sep5 smartd sshd sssd switcheroo-control
                   systemd-network-generator tuned udisks2 upower vgauthd vmtoolsd
  enabled-runtime  systemd-remount-fs
  disabled         arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown
                   canberra-system-shutdown-reboot chrony-wait cni-dhcp console-getty cpupower cups-browsed
                   dbus-daemon debug-shell dnsmasq iprdump iprinit iprupdate iscsid iscsiuio kpatch kvm_stat
                   ledmon man-db-restart-cache-update nftables nvmf-autoconnect podman podman-auto-update
                   podman-restart psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmdb-rebuild
                   serial-getty@ speech-dispatcherd sshd-keygen@ systemd-boot-check-no-failures
                   systemd-pstore systemd-sysext wpa_supplicant
  indirect         spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.22.1.el9_0.x86_64
  root=/dev/mapper/rhel-root
  ro
  crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
  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 3.50 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

------------------------------------------------------------
```

**(Continued on next page)**

## Platform Notes (Continued)

```
17. 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
  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

------------------------------------------------------------
18. /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

------------------------------------------------------------
19. /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

------------------------------------------------------------
20. OS release
  From /etc/*-release /etc/*-version
  os-release     Red Hat Enterprise Linux 9.0 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
  system-release Red Hat Enterprise Linux release 9.0 (Plow)

------------------------------------------------------------
21. Disk information
SPEC is set to: /home/spec/SPECcpu2017-1.1.9
  Filesystem            Type  Size  Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs   390G   69G  322G  18% /home

------------------------------------------------------------
22. /sys/devices/virtual/dmi/id
    Vendor:         KTNF Co.,Ltd.
    Product:        KM-P680
    Product Family: Family

------------------------------------------------------------
23. dmidecode
  Additional information from dmidecode 3.3 follows.  WARNING: Use caution when you interpret this section.
```

(Continued on next page)

## Platform Notes (Continued)

```
   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-CQKDS 64 GB 2 rank 4800


 ------------------------------------------------------------
 24. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       American Megatrends International, LLC.
    BIOS Version:      P680KTFPS.29
    BIOS Date:         06/04/2024
    BIOS Revision:     5.32
```

## Compiler Version Notes

```
==============================================================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.2.1 Build 20240711
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++     | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.2.1 Build 20240711
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran | 548.exchange2_r(base)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.2.1 Build 20240711
Copyright (C) 1985-2024 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`
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 -xsapphirerapids -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -L/home/spec/SPECcpu2017-1.1.9/lib/intel64 -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/spec/SPECcpu2017-1.1.9/lib/intel64 -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/home/spec/SPECcpu2017-1.1.9/lib/intel64 -lqkmalloc`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/KTNF-Platform-Flags-Version-KM-P680-10B1-SA2.html`
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.2024-12-02.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/KTNF-Platform-Flags-Version-KM-P680-10B1-SA2.xml`
`http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.2024-12-02.xml`


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