# SPEC CPU®2017 Integer Rate Result

## IEIT Systems Co., Ltd.

## NF5180M7 (Intel Xeon Silver 4510)

$SPECrate®2017\_int\_base = 243$

$SPECrate®2017\_int\_peak = 251$
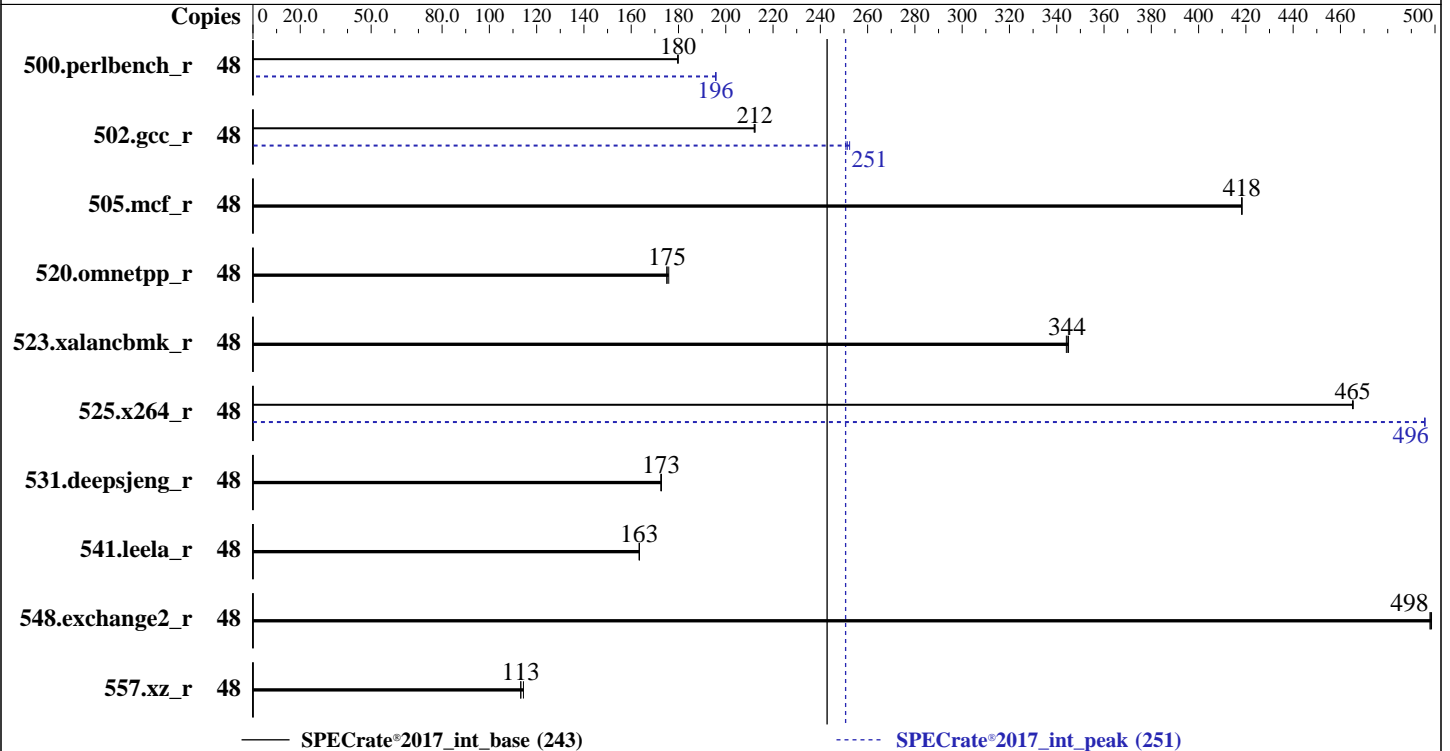
**CPU2017 License:** 3358     **Test Date:** Feb-2024
**Test Sponsor:** IEIT Systems Co., Ltd.     **Hardware Availability:** Dec-2023
**Tested by:** IEIT Systems Co., Ltd.     **Software Availability:** Dec-2023

| Benchmark | Copies | Base | Peak |
|-----------|--------|------|------|
| 500.perlbench_r | 48 | 180 | 196 |
| 502.gcc_r | 48 | 212 | 251 |
| 505.mcf_r | 48 | 418 | |
| 520.omnetpp_r | 48 | 175 | |
| 523.xalancbmk_r | 48 | 344 | |
| 525.x264_r | 48 | 465 | 496 |
| 531.deepsjeng_r | 48 | 173 | |
| 541.leela_r | 48 | 163 | |
| 548.exchange2_r | 48 | 498 | |
| 557.xz_r | 48 | 113 | |

SPECrate®2017_int_base (243)     SPECrate®2017_int_peak (251)

## Hardware

CPU Name: Intel Xeon Silver 4510
Max MHz: 4100
Nominal: 2400
Enabled: 24 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: 30 MB I+D on chip per chip
Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-5600B-R, running at 4400)
Storage: 1 x 3.84 TB NVME SSD
Other: None

## Software

OS: SUSE Linux Enterprise Server 15 SP5
5.14.21-150500.53-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 05.13.00 released Nov-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 set to prefer performance at the cost of additional power usage.

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| | |
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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 | 48 | 425 | 180 | 425 | 180 | **425** | **180** | 48 | **390** | **196** | 390 | 196 | 390 | 196 |
| 502.gcc_r | 48 | **320** | **212** | 321 | 212 | 320 | 212 | 48 | 269 | 252 | 271 | 251 | **270** | **251** |
| 505.mcf_r | 48 | **185** | **418** | 185 | 418 | 185 | 418 | 48 | **185** | **418** | 185 | 418 | 185 | 418 |
| 520.omnetpp_r | 48 | 358 | 176 | 360 | 175 | **359** | **175** | 48 | 358 | 176 | 360 | 175 | **359** | **175** |
| 523.xalancbmk_r | 48 | **147** | **344** | 147 | 344 | 147 | 345 | 48 | **147** | **344** | 147 | 344 | 147 | 345 |
| 525.x264_r | 48 | **181** | **465** | 181 | 465 | 181 | 465 | 48 | 170 | 496 | **170** | **496** | 170 | 496 |
| 531.deepsjeng_r | 48 | 318 | 173 | 319 | 173 | **318** | **173** | 48 | 318 | 173 | 319 | 173 | **318** | **173** |
| 541.leela_r | 48 | **486** | **163** | 486 | 163 | 486 | 163 | 48 | **486** | **163** | 486 | 163 | 486 | 163 |
| 548.exchange2_r | 48 | **253** | **498** | 252 | 499 | 253 | 498 | 48 | **253** | **498** | 252 | 499 | 253 | 498 |
| 557.xz_r | 48 | 453 | 114 | 458 | 113 | **458** | **113** | 48 | 453 | 114 | 458 | 113 | **458** | **113** |
| **SPECrate®2017_int_base =** | **243** | | | | | | | | | | | | | |
| **SPECrate®2017_int_peak =** | **251** | | | | | | | | | | | | | |

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"
```

## 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"
```

## 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.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
```

**(Continued on next page)**

Standard Performance Evaluation Corporation (info@spec.org) https://www.spec.org/

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## General Notes (Continued)

```
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
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

## Platform Notes

```
BIOS configuration:
ENERGY_PERF_BIAS_CFG mode set to Performance
Hardware Prefetch set to Disable
VT Support set to Disable
Sub NUMA Cluster (SNC) set to SNC2

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Tue Feb 27 05:44:54 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 249 (249.16+suse.171.gdad0071f15)
12. Services, from systemctl 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
---------------------------------------------------------


---------------------------------------------------------
1. uname -a
  Linux localhost.localdomain 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023
  (b630043) x86_64 x86_64 x86_64 GNU/Linux


---------------------------------------------------------
2. w
  05:44:54 up 3 min,  1 user,  load average: 0.05, 0.12, 0.06
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                05:43    7.00s  1.05s  0.01s -bash

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

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## Platform Notes (Continued)

```
  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) 4124614
    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) 4124614
    virtual memory          (kbytes, -v) unlimited
    file locks                      (-x) unlimited


    --------------------------------------------------------------
  5. sysinfo process ancestry
   /usr/lib/systemd/systemd --switched-root --system --deserialize 29
   login -- root
   -bash
   -bash
   runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 -c
     ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=24 --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=48 --configfile
     ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=24 --define physicalfirst
     --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
     --runmode rate --tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile
     $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
  $SPEC = /home/cpu2017


    --------------------------------------------------------------
  6. /proc/cpuinfo
     model name        : INTEL(R) XEON(R) SILVER 4510
     vendor_id         : GenuineIntel
     cpu family        : 6
     model             : 143
     stepping          : 8
     microcode         : 0x2b000461
     bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
     cpu cores         : 12
     siblings          : 24
     2 physical ids (chips)
     48 processors (hardware threads)
     physical id 0: core ids 0-11
     physical id 1: core ids 0-11
     physical id 0: apicids 0-23
     physical id 1: apicids 64-87
    Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
    virtualized systems.  Use the above data carefully.


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

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## Platform Notes (Continued)

```
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):                  48
  On-line CPU(s) list:     0-47
  Vendor ID:               GenuineIntel
  Model name:              INTEL(R) XEON(R) SILVER 4510
  CPU family:              6
  Model:                   143
  Thread(s) per core:      2
  Core(s) per socket:      12
  Socket(s):               2
  Stepping:                8
  CPU max MHz:             4100.0000
  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 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 fsgsbase
                           tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm 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
  L1d cache:               1.1 MiB (24 instances)
  L1i cache:               768 KiB (24 instances)
  L2 cache:                48 MiB (24 instances)
  L3 cache:                60 MiB (2 instances)
  NUMA node(s):            4
  NUMA node0 CPU(s):       0-5,24-29
  NUMA node1 CPU(s):       6-11,30-35
  NUMA node2 CPU(s):       12-17,36-41
  NUMA node3 CPU(s):       18-23,42-47
  Vulnerability Itlb multihit:   Not affected
  Vulnerability L1tf:            Not affected
  Vulnerability Mds:             Not affected
  Vulnerability Meltdown:        Not affected
  Vulnerability Mmio stale data: Not affected
  Vulnerability Retbleed:        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, PBRSB-eIBRS SW
                                 sequence
  Vulnerability Srbds:           Not affected
  Vulnerability Tsx async abort: Not affected

From lscpu --cache:
```

**(Continued on next page)**

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## Platform Notes (Continued)

```
      NAME ONE-SIZE ALL-SIZE WAYS TYPE         LEVEL  SETS PHY-LINE COHERENCY-SIZE
      L1d       48K     1.1M   12 Data             1    64        1             64
      L1i       32K     768K    8 Instruction      1    64        1             64
      L2         2M      48M   16 Unified          2  2048        1             64
      L3        30M      60M   15 Unified          3 32768        1             64


    ----------------------------------------------------------------
    8. numactl --hardware
    NOTE: a numactl 'node' might or might not correspond to a physical chip.
      available: 4 nodes (0-3)
      node 0 cpus: 0-5,24-29
      node 0 size: 257540 MB
      node 0 free: 251417 MB
      node 1 cpus: 6-11,30-35
      node 1 size: 258010 MB
      node 1 free: 257548 MB
      node 2 cpus: 12-17,36-41
      node 2 size: 258044 MB
      node 2 free: 256223 MB
      node 3 cpus: 18-23,42-47
      node 3 size: 257581 MB
      node 3 free: 256656 MB
      node distances:
      node   0   1   2   3
        0:  10  12  21  21
        1:  12  10  21  21
        2:  21  21  10  12
        3:  21  21  12  10


    ----------------------------------------------------------------
    9. /proc/meminfo
      MemTotal:       1055925704 kB


    ----------------------------------------------------------------
    10. who -r
      run-level 3 Feb 27 05:41


    ----------------------------------------------------------------
    11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
      Default Target  Status
      multi-user      running


    ----------------------------------------------------------------
    12. Services, from systemctl list-unit-files
      STATE           UNIT FILES
      enabled         ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online apparmor
                      auditd cron firewalld getty@ irqbalance issue-generator kbdsettings kdump kdump-early
                      nvmefc-boot-connections postfix purge-kernels rollback sshd systemd-pstore wicked
                      wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant
      enabled-runtime systemd-remount-fs
      disabled        boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell dnsmasq ebtables
                      exchange-bmc-os-info grub2-once haveged haveged-switch-root ipmievd issue-add-ssh-keys
                      kexec-load lunmask nfs nfs-blkmap nvmf-autoconnect rpcbind rpmconfigcheck serial-getty@
                      systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                      systemd-time-wait-sync systemd-timesyncd wpa_supplicant@
      indirect        wickedd


    ----------------------------------------------------------------
    13. Linux kernel boot-time arguments, from /proc/cmdline
      BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
```

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## Platform Notes (Continued)

```
  root=UUID=a59515e6-248a-4127-a0b3-55e3eb914592
  splash=silent
  resume=/dev/disk/by-uuid/6c324f52-0c62-433d-ac4d-77e32d920d61
  mitigations=auto
  quiet
  security=apparmor
  crashkernel=451M,high
  crashkernel=72M,low


  ------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 0:
    current policy: frequency should be within 800 MHz and 4.10 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes


  ------------------------------------------------------------
15. 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


  ------------------------------------------------------------
16. /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


  ------------------------------------------------------------
17. /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


  ------------------------------------------------------------
18. OS release
```

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## Platform Notes (Continued)

```
    From /etc/*-release /etc/*-version
    os-release SUSE Linux Enterprise Server 15 SP5


    ----------------------------------------------------------
    19. Disk information
    SPEC is set to: /home/cpu2017
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/nvme0n1p3 xfs   2.5T   68G  2.5T   3% /home


    ----------------------------------------------------------
    20. /sys/devices/virtual/dmi/id
        Vendor:          IEIT
        Product:         NF5180-M7-A0-R0-00
        Product Family:  Not specified
        Serial:          000000000


    ----------------------------------------------------------
    21. dmidecode
      Additional information from dmidecode 3.4 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 M321R8GA0PB0-CWMXH 64 GB 2 rank 5600, configured at 4400



    ----------------------------------------------------------
    22. BIOS
    (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:      American Megatrends International, LLC.
      BIOS Version:     05.13.00
      BIOS Date:        11/30/2023
```

## Compiler Version Notes

```
==================================================================================================
C     | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x
Copyright (C) 1985-2023 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 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------


==================================================================================================
C     | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x
Copyright (C) 1985-2023 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)
```

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## Compiler Version Notes (Continued)

```
        | 557.xz_r(base, peak)
-----------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 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 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------------


=========================================================================================
Fortran | 548.exchange2_r(base, peak)
-----------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 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`

## IEIT Systems Co., Ltd.

SPECrate®2017_int_base = 243

## NF5180M7 (Intel Xeon Silver 4510)

SPECrate®2017_int_peak = 251

**CPU2017 License:** 3358
**Test Sponsor:** IEIT Systems Co., Ltd.
**Tested by:** IEIT Systems Co., Ltd.

**Test Date:** Feb-2024
**Hardware Availability:** Dec-2023
**Software Availability:** Dec-2023

# 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:
```
-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/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc
```

# 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`

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## IEIT Systems Co., Ltd.

NF5180M7 (Intel Xeon Silver 4510)

SPECrate®2017_int_base = 243

SPECrate®2017_int_peak = 251

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**Software Availability:** Dec-2023

# Peak Portability Flags (Continued)

557.xz_r: `-DSPEC_LP64`

# Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-w -std=c11 -m64 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-fno-strict-overflow`
`-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/ia32_lin`
`-std=gnu89 -Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast`
`-ffast-math -flto -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`

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## IEIT Systems Co., Ltd.

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| | | | | |
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# Peak Optimization Flags (Continued)

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
  http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.4.html

You can also download the XML flags sources by saving the following links:
  http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml
  http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.4.xml

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

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