SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Supermicro
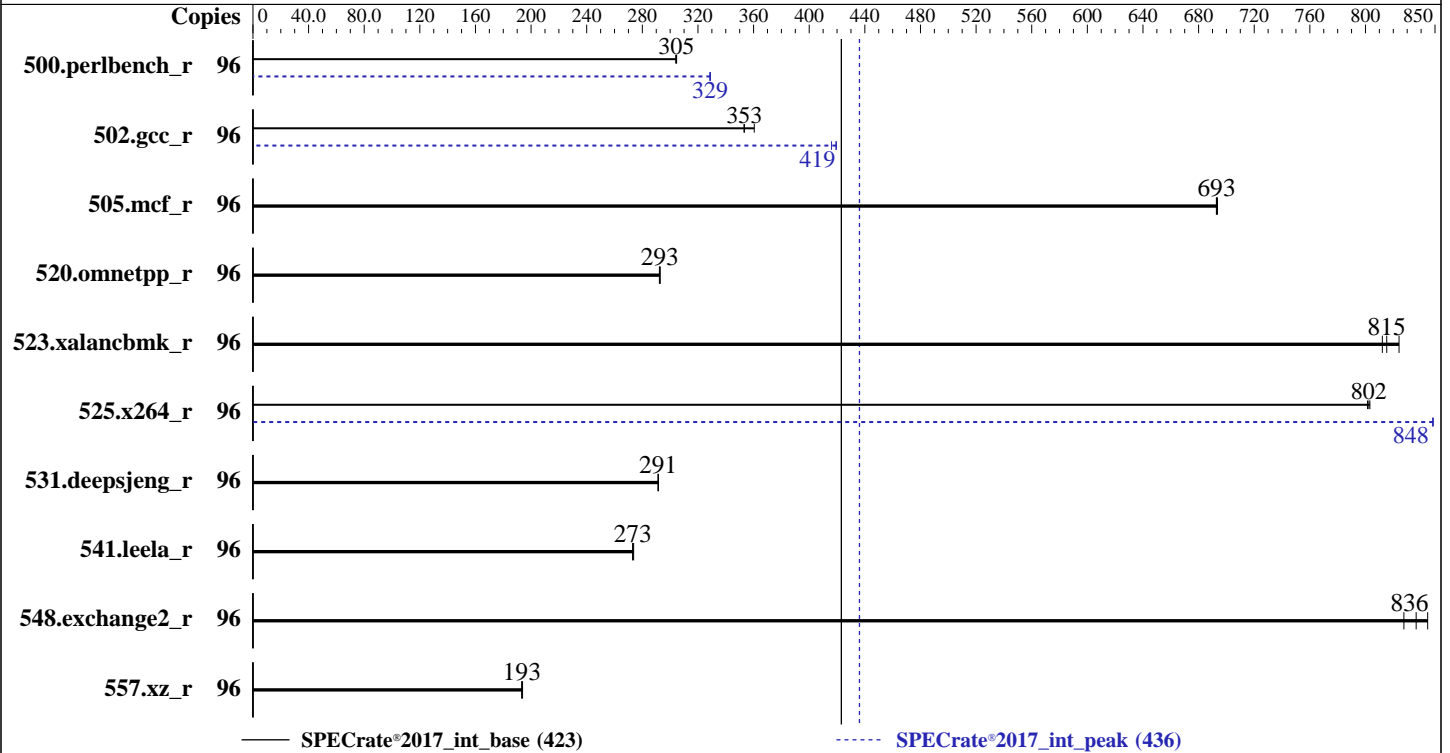
SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

$SPECrate^{®}2017\_int\_base = 423$

$SPECrate^{®}2017\_int\_peak = 436$

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2023
Hardware Availability: Jan-2023
Software Availability: Jun-2022

Copies	
500.perlbench_r	96 — 305 / 329
502.gcc_r	96 — 353 / 419
505.mcf_r	96 — 693
520.omnetpp_r	96 — 293
523.xalancbmk_r	96 — 815
525.x264_r	96 — 802 / 848
531.deepsjeng_r	96 — 291
541.leela_r	96 — 273
548.exchange2_r	96 — 836
557.xz_r	96 — 193

——— **SPECrate®2017_int_base (423)**   - - - - **SPECrate®2017_int_peak (436)**

Hardware

CPU Name: Intel Xeon Gold 5418Y
 Max MHz: 3800
 Nominal: 2000
Enabled: 48 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: 45 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 960 GB NVMe SSD
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 1.1 released Jan-2023
File System: btrfs
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.

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

$SPECrate®2017\_int\_base = 423$

$SPECrate®2017\_int\_peak = 436$

CPU2017 License: 001176	**Test Date:**	Apr-2023
Test Sponsor: Supermicro	**Hardware Availability:**	Jan-2023
Tested by: Supermicro	**Software Availability:**	Jun-2022

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	**502**	**305**	502	305	503	304	96	465	329	**465**	**329**	465	329
502.gcc_r	96	385	353	**385**	**353**	377	360	96	**324**	**419**	327	416	324	420
505.mcf_r	96	224	694	**224**	**693**	224	693	96	224	694	**224**	**693**	224	693
520.omnetpp_r	96	431	292	430	293	**430**	**293**	96	431	292	430	293	**430**	**293**
523.xalancbmk_r	96	125	812	**124**	**815**	123	824	96	125	812	**124**	**815**	123	824
525.x264_r	96	209	803	**209**	**802**	210	801	96	198	849	**198**	**848**	198	848
531.deepsjeng_r	96	**378**	**291**	378	291	377	291	96	**378**	**291**	378	291	377	291
541.leela_r	96	582	273	**582**	**273**	581	274	96	582	273	**582**	**273**	581	274
548.exchange2_r	96	**301**	**836**	304	828	298	845	96	**301**	**836**	304	828	298	845
557.xz_r	96	536	193	535	194	**536**	**193**	96	536	193	535	194	**536**	**193**
SPECrate®2017_int_base =		**423**												
SPECrate®2017_int_peak =				**436**										

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

Compiler Notes

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

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

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

Submit Notes

```
  The numactl mechanism was used to bind copies to processors. The config file option 'submit'
  was used to generate numactl commands to bind each copy to a specific processor.
  For details, please see the config file.
```

Operating System Notes

```
  Stack size set to unlimited using "ulimit -s unlimited"
```

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"
```

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

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2023
Hardware Availability: Jan-2023
Software Availability: Jun-2022

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)
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 Settings:
 Hyper-Threading [ALL] = Enable
 Power Technology = Custom
 Power Performance Tuning = BIOS Controls EPB
 ENERGY_PERF_BIAS_CFG mode = Extreme Performance
 DCU Streamer Prefetcher = Disable
 KTI Prefetch = Enable
 SNC = Enable SNC4 (4-clusters)
 LLC Dead Line Alloc = Disable

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on 135-59 Thu Apr  6 18:08:43 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. 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. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2023
Hardware Availability: Jan-2023
Software Availability: Jun-2022

Platform Notes (Continued)

```
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
   Linux 135-59 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
    18:08:43 up 8 min,  3 users,  load average: 0.04, 0.18, 0.15
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                18:02    2.00s  1.29s  0.00s -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) 4125304
   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) 4125304
   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=96 -c
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=48 --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=96 --configfile
   ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=48 --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) Gold 5418Y
     vendor_id       : GenuineIntel
```

(Continued on next page)

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176

Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Apr-2023

Hardware Availability: Jan-2023

Software Availability: Jun-2022

Platform Notes (Continued)

```
      cpu family     : 6
      model          : 143
      stepping       : 8
      microcode      : 0x2b000161
      bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
      cpu cores      : 24
      siblings       : 48
      2 physical ids (chips)
      96 processors (hardware threads)
      physical id 0: core ids 0-23
      physical id 1: core ids 0-23
      physical id 0: apicids 0-47
      physical id 1: apicids 128-175
  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):                  96
    On-line CPU(s) list:     0-95
    Vendor ID:               GenuineIntel
    Model name:              Intel(R) Xeon(R) Gold 5418Y
    CPU family:              6
    Model:                   143
    Thread(s) per core:      2
    Core(s) per socket:      24
    Socket(s):               2
    Stepping:                8
    BogoMIPS:                4000.00
    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 cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                             vnmi flexpriority ept vpid ept_ad 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 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:               2.3 MiB (48 instances)
    L1i cache:               1.5 MiB (48 instances)
    L2 cache:                96 MiB (48 instances)
    L3 cache:                90 MiB (2 instances)
    NUMA node(s):            4
    NUMA node0 CPU(s):       0-11,48-59
    NUMA node1 CPU(s):       12-23,60-71
```

(Continued on next page)

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2023
Hardware Availability: Jan-2023
Software Availability: Jun-2022

Platform Notes (Continued)

```
  NUMA node2 CPU(s):             24-35,72-83
  NUMA node3 CPU(s):             36-47,84-95
  Vulnerability Itlb multihit:   Not affected
  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:
    NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
    L1d      48K     2.3M   12 Data           1    64       1            64
    L1i      32K     1.5M    8 Instruction    1    64       1            64
    L2        2M      96M   16 Unified        2  2048       1            64
    L3       45M      90M   15 Unified        3 49152       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: 0-11,48-59
  node 0 size: 257609 MB
  node 0 free: 256454 MB
  node 1 cpus: 12-23,60-71
  node 1 size: 258041 MB
  node 1 free: 254962 MB
  node 2 cpus: 24-35,72-83
  node 2 size: 258007 MB
  node 2 free: 257379 MB
  node 3 cpus: 36-47,84-95
  node 3 size: 257691 MB
  node 3 free: 257350 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:      1056102676 kB


------------------------------------------------------------
10. who -r
  run-level 3 Apr 6 18:02 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
```

(Continued on next page)

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

Platform Notes (Continued)

```
                        klog lvm2-monitor nscd nvmefc-boot-connections postfix purge-kernels rollback rsyslog
                        smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
    enabled-runtime     systemd-remount-fs
    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 ipmievd iscsi-init iscsid iscsiuio issue-add-ssh-keys kexec-load lunmask
                        man-db-create multipathd nfs nfs-blkmap nmb nvmf-autoconnect ostree-remount rdisc rpcbind
                        rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd
                        speech-dispatcherd systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                        systemd-time-wait-sync systemd-timesyncd udisks2 upower
    indirect            wickedd

    ----------------------------------------------------------------
    13. Linux kernel boot-time arguments, from /proc/cmdline
      BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
      root=UUID=b5df962a-4957-42c3-b2bd-b197d711db40
      splash=silent
      mitigations=auto
      quiet
      security=apparmor
      crashkernel=321M,high
      crashkernel=72M,low

    ----------------------------------------------------------------
    14. cpupower frequency-info
      analyzing CPU 0:
        Unable to determine current policy
        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
```

(Continued on next page)

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176	**Test Date:** Apr-2023
Test Sponsor: Supermicro	**Hardware Availability:** Jan-2023
Tested by: Supermicro	**Software Availability:** Jun-2022

Platform Notes (Continued)

```
   ----------------------------------------------------------
   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
     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/nvme0n1p3 btrfs  891G  8.3G  882G   1% /home

   ----------------------------------------------------------
   20. /sys/devices/virtual/dmi/id
       Vendor:         Supermicro
       Product:        Super Server
       Product Family: Family
       Serial:         0123456789

   ----------------------------------------------------------
   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:
       16x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800, configured at 4400


   ----------------------------------------------------------
   22. BIOS
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:      American Megatrends International, LLC.
     BIOS Version:     1.1
     BIOS Date:        01/20/2023
     BIOS Revision:    5.29
```

Compiler Version Notes

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


==========================================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_r(base, peak)
```

(Continued on next page)

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


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


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


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


==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

Base 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-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2023
Hardware Availability: Jan-2023
Software Availability: Jun-2022

Base Portability Flags (Continued)

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/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
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

C++ benchmarks:
```
icpx
```

Fortran benchmarks:
```
ifx
```

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

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176   **Test Date:** Apr-2023
Test Sponsor: Supermicro   **Hardware Availability:** Jan-2023
Tested by: Supermicro   **Software Availability:** Jun-2022

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)
`-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/usr/local/intel/compiler/2023.0.0/linux/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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

557.xz_r: `basepeak = yes`

C++ benchmarks:

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

Supermicro

SuperServer SYS-221H-TN24R
(X13DEM , Intel Xeon Gold 5418Y)

SPECrate®2017_int_base = 423

SPECrate®2017_int_peak = 436

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2023
Hardware Availability: Jan-2023
Software Availability: Jun-2022

Peak Optimization Flags (Continued)

520.omnetpp_r: `basepeak = yes`

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SPR-revE.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-revE.xml`

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 2023-04-06 21:08:43-0400.
Report generated on 2024-01-29 18:02:45 by CPU2017 PDF formatter v6716.
Originally published on 2023-08-16.