SPEC CPU®2017 Integer Rate Result
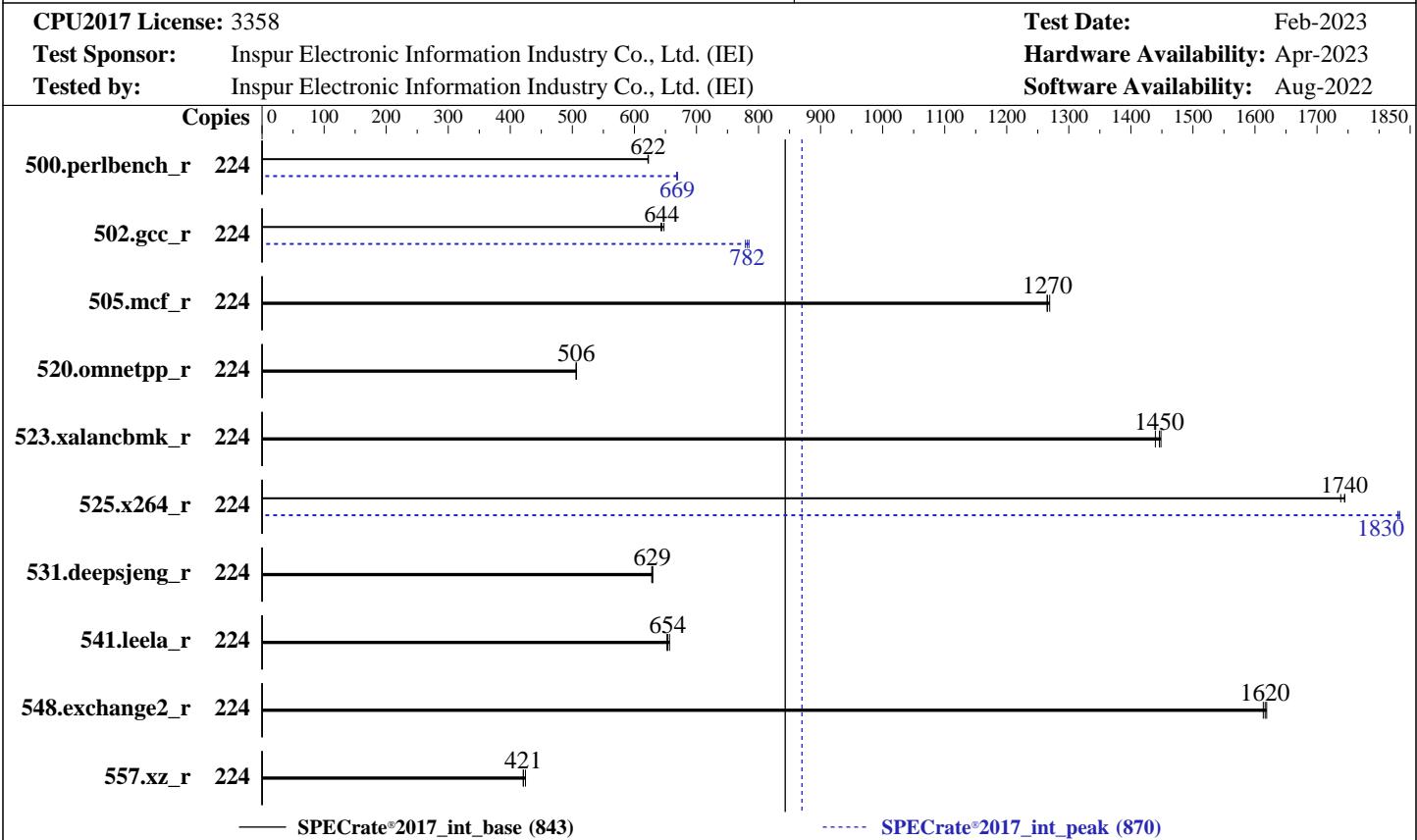
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Inspur Electronic Information Industry Co., Ltd. (IEI)

I24M7 (Intel Xeon Platinum 8480+)

$SPECrate^{®}2017\_int\_base = 843$

$SPECrate^{®}2017\_int\_peak = 870$

CPU2017 License: 3358

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Test Date: Feb-2023

Hardware Availability: Apr-2023

Software Availability: Aug-2022

Benchmark	Copies	base	peak
500.perlbench_r	224	622	669
502.gcc_r	224	644	782
505.mcf_r	224	1270	
520.omnetpp_r	224	506	
523.xalancbmk_r	224	1450	
525.x264_r	224	1740	1830
531.deepsjeng_r	224	629	
541.leela_r	224	654	
548.exchange2_r	224	1620	
557.xz_r	224	421	

— SPECrate®2017_int_base (843)   ----- SPECrate®2017_int_peak (870)

Hardware

CPU Name: Intel Xeon Platinum 8480+
 Max MHz: 3800
 Nominal: 2000
Enabled: 112 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: 105 MB I+D on chip per chip
 Other: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 480 GB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
5.14.0-70.22.1.el9_0.x86_64

Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;

Parallel: No
Firmware: Version 00.01.20 released Aug-2022
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

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Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
500.perlbench_r	224	573	622	**573**	**622**	574	622	224	**533**	**669**	534	668	533	669
502.gcc_r	224	493	643	490	648	**492**	**644**	224	404	785	**406**	**782**	407	779
505.mcf_r	224	286	1260	**286**	**1270**	285	1270	224	286	1260	**286**	**1270**	285	1270
520.omnetpp_r	224	581	506	**580**	**506**	580	506	224	581	506	**580**	**506**	580	506
523.xalancbmk_r	224	**164**	**1450**	163	1450	164	1440	224	**164**	**1450**	163	1450	164	1440
525.x264_r	224	**225**	**1740**	226	1740	225	1740	224	214	1830	**214**	**1830**	214	1830
531.deepsjeng_r	224	408	630	**408**	**629**	409	628	224	408	630	**408**	**629**	409	628
541.leela_r	224	565	657	**567**	**654**	568	653	224	565	657	**567**	**654**	568	653
548.exchange2_r	224	363	1620	**363**	**1620**	364	1610	224	363	1620	**363**	**1620**	364	1610
557.xz_r	224	570	425	**575**	**421**	575	421	224	570	425	**575**	**421**	575	421
SPECrate®2017_int_base =	**843**													
SPECrate®2017_int_peak =	**870**													

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/

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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 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 SNC4

Sysinfo program /home/CPU2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Wed Apr  6 20:00:36 2022

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. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
```

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Platform Notes (Continued)

```
   23. 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
      20:00:36 up 0 min,  1 user,  load average: 0.31, 0.09, 0.03
     USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
     root     tty1      20:00   12.00s 1.12s  0.01s sh
     reportable-ic2022.1-lin-core-avx512-rate-smt-on-20220316.sh

   -----------------------------------------------------------
   3. Username
     From environment variable $USER:  root

   -----------------------------------------------------------
   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) 2062216
     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) 2062216
     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
    sh reportable-ic2022.1-lin-core-avx512-rate-smt-on-20220316.sh
    runcpu --nobuild --action validate --define default-platform-flags --define numcopies=224 -c
      ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=112 --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=224 --configfile
      ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=112 --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/CPU2017.005/templogs/preenv.intrate.005.0.log --lognum 005.0 --from_runcpu 2
    specperl $SPEC/bin/sysinfo
   $SPEC = /home/CPU2017

   -----------------------------------------------------------
   6. /proc/cpuinfo
       model name        : Intel(R) Xeon(R) Platinum 8480+
       vendor_id         : GenuineIntel
```

(Continued on next page)

Inspur Electronic Information Industry Co., Ltd.
(IEI)

SPECrate®2017_int_base = 843

I24M7 (Intel Xeon Platinum 8480+)

SPECrate®2017_int_peak = 870

CPU2017 License: 3358   **Test Date:**   Feb-2023
Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)   **Hardware Availability:** Apr-2023
Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)   **Software Availability:** Aug-2022

Platform Notes (Continued)

```
   cpu family     : 6
   model          : 143
   stepping       : 6
   microcode      : 0xab000020
   bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores      : 56
   siblings       : 112
   2 physical ids (chips)
   224 processors (hardware threads)
   physical id 0: core ids 0-55
   physical id 1: core ids 0-55
   physical id 0: apicids 0-111
   physical id 1: apicids 128-239
 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:         52 bits physical, 57 bits virtual
   Byte Order:            Little Endian
   CPU(s):                224
   On-line CPU(s) list:   0-223
   Vendor ID:             GenuineIntel
   BIOS Vendor ID:        Intel(R) Corporation
   Model name:            Intel(R) Xeon(R) Platinum 8480+
   BIOS Model name:       Intel(R) Xeon(R) Platinum 8480+
   CPU family:            6
   Model:                 143
   Thread(s) per core:    2
   Core(s) per socket:    56
   Socket(s):             2
   Stepping:              6
   CPU max MHz:           3800.0000
   CPU min MHz:           800.0000
   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 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 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
   L1d cache:             5.3 MiB (112 instances)
   L1i cache:             3.5 MiB (112 instances)
   L2 cache:              224 MiB (112 instances)
   L3 cache:              210 MiB (2 instances)
```

(Continued on next page)

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Platform Notes (Continued)

```
  NUMA node(s):                8
  NUMA node0 CPU(s):           0-13,112-125
  NUMA node1 CPU(s):           14-27,126-139
  NUMA node2 CPU(s):           28-41,140-153
  NUMA node3 CPU(s):           42-55,154-167
  NUMA node4 CPU(s):           56-69,168-181
  NUMA node5 CPU(s):           70-83,182-195
  NUMA node6 CPU(s):           84-97,196-209
  NUMA node7 CPU(s):           98-111,210-223
  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
  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     5.3M   12 Data          1     64    1           64
      L1i      32K     3.5M    8 Instruction   1     64    1           64
      L2        2M     224M   16 Unified       2   2048    1           64
      L3      105M     210M   15 Unified       3 114688    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: 0-13,112-125
    node 0 size: 64107 MB
    node 0 free: 63679 MB
    node 1 cpus: 14-27,126-139
    node 1 size: 64505 MB
    node 1 free: 64272 MB
    node 2 cpus: 28-41,140-153
    node 2 size: 64505 MB
    node 2 free: 64270 MB
    node 3 cpus: 42-55,154-167
    node 3 size: 64505 MB
    node 3 free: 64277 MB
    node 4 cpus: 56-69,168-181
    node 4 size: 64469 MB
    node 4 free: 64001 MB
    node 5 cpus: 70-83,182-195
    node 5 size: 64505 MB
    node 5 free: 64265 MB
    node 6 cpus: 84-97,196-209
    node 6 size: 64505 MB
    node 6 free: 64254 MB
    node 7 cpus: 98-111,210-223
    node 7 size: 64486 MB
    node 7 free: 63608 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
```

(Continued on next page)

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Platform Notes (Continued)

```
    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:       527967896 kB


  ------------------------------------------------------------
  10. who -r
     run-level 3 Apr 6 20:00


  ------------------------------------------------------------
  11. Systemd service manager version: systemd 250 (250-6.el9_0)
     Default Target  Status
     multi-user      running


  ------------------------------------------------------------
  12. Services, from systemctl list-unit-files
     STATE             UNIT FILES
     enabled           NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
                       dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor mdmonitor microcode
                       nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd
                       systemd-network-generator tuned udisks2 upower
     enabled-runtime   systemd-remount-fs
     disabled          blk-availability canberra-system-bootup canberra-system-shutdown
                       canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell kvm_stat
                       man-db-restart-cache-update nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@
                       sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
     indirect          sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo


  ------------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
     BOOT_IMAGE=(hd0,gpt4)/vmlinuz-5.14.0-70.22.1.el9_0.x86_64
     root=/dev/mapper/rhel-root
     ro
     resume=/dev/mapper/rhel-swap
     rd.lvm.lv=rhel/root
     rd.lvm.lv=rhel/swap


  ------------------------------------------------------------
  14. cpupower frequency-info
     analyzing CPU 0:
       current policy: frequency should be within 800 MHz and 3.80 GHz.
                       The governor "performance" may decide which speed to use
                       within this range.
     boost state support:
       Supported: yes
       Active: yes


  ------------------------------------------------------------
  15. tuned-adm active
     Current active profile: throughput-performance


  ------------------------------------------------------------
  16. sysctl
     kernel.numa_balancing             1
     kernel.randomize_va_space         2
     vm.compaction_proactiveness      20
```

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Platform Notes (Continued)

```
   vm.dirty_background_bytes           0
   vm.dirty_background_ratio          10
   vm.dirty_bytes                      0
   vm.dirty_expire_centisecs        3000
   vm.dirty_ratio                     40
   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                      10
   vm.watermark_boost_factor       15000
   vm.watermark_scale_factor          10
   vm.zone_reclaim_mode                0


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


   --------------------------------------------------------------
18. /sys/kernel/mm/transparent_hugepage/khugepaged
   alloc_sleep_millisecs   60000
   defrag                      1
   max_ptes_none             511
   max_ptes_shared           256
   max_ptes_swap              64
   pages_to_scan            4096
   scan_sleep_millisecs    10000


   --------------------------------------------------------------
19. OS release
   From /etc/*-release /etc/*-version
   os-release     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)


   --------------------------------------------------------------
20. Disk information
SPEC is set to: /home/CPU2017
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   150G   52G   98G  35% /home


   --------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
      Product Family: Not specified
      Serial:         Not Filled


   --------------------------------------------------------------
22. dmidecode
   Additional information from dmidecode 3.3 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 M321R4GA3BB6-CQKEG 32 GB 2 rank 4800
```

(Continued on next page)

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Platform Notes (Continued)

```
    ---------------------------------------------------------
    23. BIOS
    (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:        American Megatrends International, LLC.
      BIOS Version:       00.01.20
      BIOS Date:          08/31/2022
```

Compiler Version Notes

```
==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2022.1.0 Build 20220316
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 2022.1.0 Build 20220316
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------------------------------------------------------------------------------


==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2022.1.0 Build 20220316
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------------------------------------------------------------------------------


==============================================================================
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)
------------------------------------------------------------------------------
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------------------------------------------------------------------------------


==============================================================================
C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
        | 541.leela_r(base, peak)
------------------------------------------------------------------------------
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------------------------------------------------------------------------------


==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
```

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

Inspur Electronic Information Industry Co., Ltd. (IEI)

I24M7 (Intel Xeon Platinum 8480+)

SPECrate®2017_int_base = 843

SPECrate®2017_int_peak = 870

CPU2017 License: 3358
Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)
Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Test Date: Feb-2023
Hardware Availability: Apr-2023
Software Availability: Aug-2022

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 -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

C++ benchmarks:
```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Fortran benchmarks:
```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmalloc
```

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CPU2017 License: 3358
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Test Date: Feb-2023
Hardware Availability: Apr-2023
Software Availability: Aug-2022

Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-w -std=c11 -m64 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX512`
`-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-strict-overflow`
`-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/ia32_lin`
`-std=gnu89 -Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX512`
`-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -L/usr/local/jemalloc32-5.0.1/lib`
`-ljemalloc`

(Continued on next page)

Inspur Electronic Information Industry Co., Ltd. (IEI)

SPECrate®2017_int_base = 843

I24M7 (Intel Xeon Platinum 8480+)

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CPU2017 License: 3358

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Test Date: Feb-2023

Hardware Availability: Apr-2023

Software Availability: Aug-2022

Peak Optimization Flags (Continued)

505.mcf_r: `basepeak = yes`

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fno-alias -L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin -lqkmalloc`

557.xz_r: `basepeak = yes`

C++ benchmarks:

520.omnetpp_r: `basepeak = yes`

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.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/Inspur-Platform-Settings-intel-V3.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 2022-04-06 20:00:35-0400.
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