SPEC CPU®2017 Integer Rate Result

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Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

$SPECrate^®2017\_int\_base = 945$

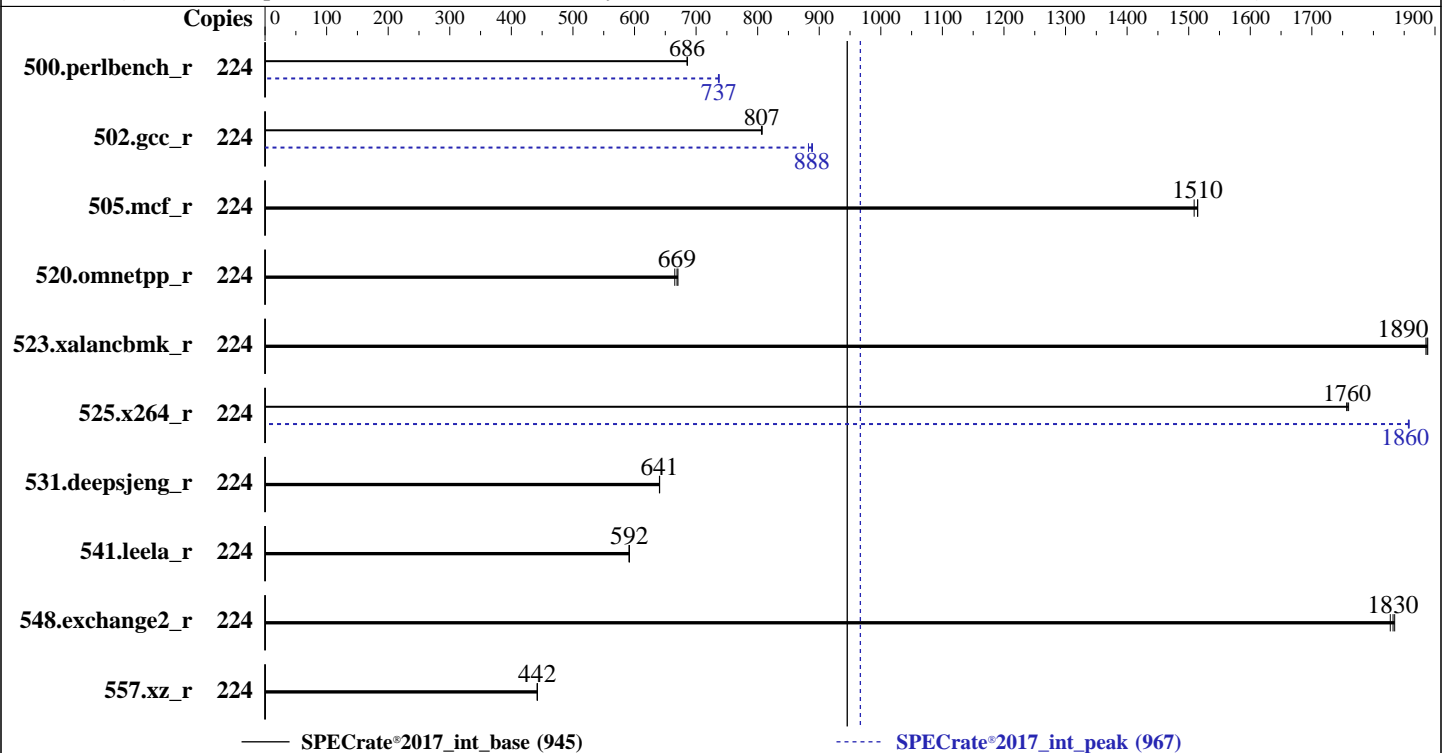$SPECrate^®2017\_int\_peak = 967$

CPU2017 License: 3358

Test Sponsor: Inspur Electronic Information Industry Co., Ltd.

Tested by: Inspur Electronic Information Industry Co., Ltd.

Test Date: Aug-2023

Hardware Availability: Apr-2023

Software Availability: Dec-2022

Benchmark	Copies	Base	Peak
500.perlbench_r	224	686	737
502.gcc_r	224	807	888
505.mcf_r	224	1510	
520.omnetpp_r	224	669	
523.xalancbmk_r	224	1890	
525.x264_r	224	1760	1860
531.deepsjeng_r	224	641	
541.leela_r	224	592	
548.exchange2_r	224	1830	
557.xz_r	224	442	

SPECrate®2017_int_base (945)
SPECrate®2017_int_peak (967)

Hardware

CPU Name: Intel Xeon Platinum 8450H
 Max MHz: 3500
 Nominal: 2000
Enabled: 48 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 75 MB I+D on chip per chip
 Other: None
Memory: 1 TB (32 x 32 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 1 TB NVME SSD
Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow) 5.14.0-70.13.1.el9_0.x86_64

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 03.00.00 released Dec-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							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	224	**520**	**686**	520	686	520	685	224	484	736	484	738	**484**	**737**
502.gcc_r	224	393	806	393	807	**393**	**807**	224	359	883	**357**	**888**	357	889
505.mcf_r	224	**239**	**1510**	240	1510	239	1510	224	**239**	**1510**	240	1510	239	1510
520.omnetpp_r	224	**439**	**669**	438	671	442	665	224	**439**	**669**	438	671	442	665
523.xalancbmk_r	224	125	1890	125	1890	**125**	**1890**	224	125	1890	125	1890	**125**	**1890**
525.x264_r	224	**223**	**1760**	223	1760	223	1760	224	**211**	**1860**	211	1860	211	1860
531.deepsjeng_r	224	**401**	**641**	401	641	401	640	224	**401**	**641**	401	641	401	640
541.leela_r	224	628	591	**627**	**592**	627	592	224	628	591	**627**	**592**	627	592
548.exchange2_r	224	**320**	**1830**	321	1830	320	1830	224	**320**	**1830**	321	1830	320	1830
557.xz_r	224	547	442	547	442	**547**	**442**	224	547	442	547	442	**547**	**442**

SPECrate®2017_int_base =	**945**
SPECrate®2017_int_peak =	**967**

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"
```

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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

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 SNC2

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Fri Aug 25 04:51:48 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 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. 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
23. BIOS
----------------------------------------------------------
```

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Platform Notes (Continued)

```
          ----------------------------------------------------------
          1. uname -a
            Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
            x86_64 x86_64 GNU/Linux

          ----------------------------------------------------------
          2. w
             04:51:48 up 16:41,  1 user,  load average: 0.62, 0.60, 0.64
            USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
            root     tty1       Thu12   12.00s 1.36s  0.02s sh
            reportable-ic2023.0-lin-sapphirerapids-rate-smt-on-20221201.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) 4126460
            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) 4126460
            virtual memory              (kbytes, -v) unlimited
            file locks                          (-x) unlimited

          ----------------------------------------------------------
          5. sysinfo process ancestry
           /usr/lib/systemd/systemd --switched-root --system --deserialize 28
           login -- root
           -bash
           sh reportable-ic2023.0-lin-sapphirerapids-rate-smt-on-20221201.sh
           runcpu --nobuild --action validate --define default-platform-flags --define numcopies=224 -c
             ic2023.0-lin-sapphirerapids-rate-20221201.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
             ic2023.0-lin-sapphirerapids-rate-20221201.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/CPU2017.010/templogs/preenv.intrate.010.0.log --lognum 010.0 --from_runcpu 2
           specperl $SPEC/bin/sysinfo
          $SPEC = /home/cpu2017

          ----------------------------------------------------------
          6. /proc/cpuinfo
              model name      : Intel(R) Xeon(R) Platinum 8450H
              vendor_id       : GenuineIntel
              cpu family      : 6
              model           : 143
```

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Platform Notes (Continued)

```
     stepping        : 6
     microcode       : 0x2b000130
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
     cpu cores       : 28
     siblings        : 56
     4 physical ids (chips)
     224 processors (hardware threads)
     physical id 0: core ids 0-27
     physical id 1: core ids 0-27
     physical id 2: core ids 0-27
     physical id 3: core ids 0-27
     physical id 0: apicids 0-55
     physical id 1: apicids 128-183
     physical id 2: apicids 256-311
     physical id 3: apicids 384-439
  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 8450H
    BIOS Model name:           Intel(R) Xeon(R) Platinum 8450H
    CPU family:                6
    Model:                     143
    Thread(s) per core:        2
    Core(s) per socket:        28
    Socket(s):                 4
    Stepping:                  6
    CPU max MHz:               3500.0000
    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 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)
```

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Platform Notes (Continued)

```
   L2 cache:                    224 MiB (112 instances)
   L3 cache:                    300 MiB (4 instances)
   NUMA node(s):                16
   NUMA node0 CPU(s):           0-6,112-118
   NUMA node1 CPU(s):           7-13,119-125
   NUMA node2 CPU(s):           14-20,126-132
   NUMA node3 CPU(s):           21-27,133-139
   NUMA node4 CPU(s):           28-34,140-146
   NUMA node5 CPU(s):           35-41,147-153
   NUMA node6 CPU(s):           42-48,154-160
   NUMA node7 CPU(s):           49-55,161-167
   NUMA node8 CPU(s):           56-62,168-174
   NUMA node9 CPU(s):           63-69,175-181
   NUMA node10 CPU(s):          70-76,182-188
   NUMA node11 CPU(s):          77-83,189-195
   NUMA node12 CPU(s):          84-90,196-202
   NUMA node13 CPU(s):          91-97,203-209
   NUMA node14 CPU(s):          98-104,210-216
   NUMA node15 CPU(s):          105-111,217-223
   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       75M     300M   15 Unified        3 81920       1            64


   -------------------------------------------------------------
 8. numactl --hardware
 NOTE: a numactl 'node' might or might not correspond to a physical chip.
   available: 16 nodes (0-15)
   node 0 cpus: 0-6,112-118
   node 0 size: 64077 MB
   node 0 free: 57758 MB
   node 1 cpus: 7-13,119-125
   node 1 size: 64508 MB
   node 1 free: 61387 MB
   node 2 cpus: 14-20,126-132
   node 2 size: 64508 MB
   node 2 free: 61413 MB
   node 3 cpus: 21-27,133-139
   node 3 size: 64508 MB
   node 3 free: 61414 MB
   node 4 cpus: 28-34,140-146
   node 4 size: 64508 MB
   node 4 free: 61383 MB
   node 5 cpus: 35-41,147-153
   node 5 size: 64508 MB
   node 5 free: 61414 MB
   node 6 cpus: 42-48,154-160
   node 6 size: 64508 MB
```

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Platform Notes (Continued)

```
   node 6 free: 61399 MB
   node 7 cpus: 49-55,161-167
   node 7 size: 64508 MB
   node 7 free: 61418 MB
   node 8 cpus: 56-62,168-174
   node 8 size: 64508 MB
   node 8 free: 61429 MB
   node 9 cpus: 63-69,175-181
   node 9 size: 64508 MB
   node 9 free: 61402 MB
   node 10 cpus: 70-76,182-188
   node 10 size: 64508 MB
   node 10 free: 61448 MB
   node 11 cpus: 77-83,189-195
   node 11 size: 64508 MB
   node 11 free: 61441 MB
   node 12 cpus: 84-90,196-202
   node 12 size: 64508 MB
   node 12 free: 61451 MB
   node 13 cpus: 91-97,203-209
   node 13 size: 64472 MB
   node 13 free: 61384 MB
   node 14 cpus: 98-104,210-216
   node 14 size: 64508 MB
   node 14 free: 61462 MB
   node 15 cpus: 105-111,217-223
   node 15 size: 64489 MB
   node 15 free: 61435 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  12  12  12  21  21  21  21  21  21  21  21  21  21  21  21
     1:  12  10  12  12  21  21  21  21  21  21  21  21  21  21  21  21
     2:  12  12  10  12  21  21  21  21  21  21  21  21  21  21  21  21
     3:  12  12  12  10  21  21  21  21  21  21  21  21  21  21  21  21
     4:  21  21  21  21  10  12  12  12  21  21  21  21  21  21  21  21
     5:  21  21  21  21  12  10  12  12  21  21  21  21  21  21  21  21
     6:  21  21  21  21  12  12  10  12  21  21  21  21  21  21  21  21
     7:  21  21  21  21  12  12  12  10  21  21  21  21  21  21  21  21
     8:  21  21  21  21  21  21  21  21  10  12  12  12  21  21  21  21
     9:  21  21  21  21  21  21  21  21  12  10  12  12  21  21  21  21
    10:  21  21  21  21  21  21  21  21  12  12  10  12  21  21  21  21
    11:  21  21  21  21  21  21  21  21  12  12  12  10  21  21  21  21
    12:  21  21  21  21  21  21  21  21  21  21  21  21  10  12  12  12
    13:  21  21  21  21  21  21  21  21  21  21  21  21  12  10  12  12
    14:  21  21  21  21  21  21  21  21  21  21  21  21  12  12  10  12
    15:  21  21  21  21  21  21  21  21  21  21  21  21  12  12  12  10

   ------------------------------------------------------------
   9. /proc/meminfo
      MemTotal:       1056414792 kB


   ------------------------------------------------------------
   10. who -r
      run-level 3 Aug 24 12:10


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

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Platform Notes (Continued)

```
-----------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                            LOAD   ACTIVE SUB    DESCRIPTION
  * dnf-makecache.service           loaded failed failed dnf makecache
  * NetworkManager-wait-online.service loaded failed failed Network Manager Wait Online


-----------------------------------------------------------
13. 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 microcode nis-domainname
                    rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd systemd-network-generator 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


-----------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-70.13.1.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


-----------------------------------------------------------
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. 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
```

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Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

$SPECrate^{®}2017\_int\_base = 945$

$SPECrate^{®}2017\_int\_peak = 967$

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

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

Platform Notes (Continued)

```
   -----------------------------------------------------------
   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   819G  155G  664G  19% /home


   -----------------------------------------------------------
   21. /sys/devices/virtual/dmi/id
     Vendor:         IEI
     Product:        NF8480-M7-A0-R0-00
     Product Family: Not specified
     Serial:         380251A12


   -----------------------------------------------------------
   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:
       32x Micron MTC20F2085S1RC48BA1 32 GB 2 rank 4800



   -----------------------------------------------------------
   23. BIOS
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:    American Megatrends International, LLC.
     BIOS Version:   03.00.00
     BIOS Date:      12/16/2022
```

Compiler Version Notes

```
   ==========================================================================================
   C      | 502.gcc_r(peak)
   ------------------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
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        | 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

SPEC CPU®2017 Integer Rate Result

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Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

SPECrate®2017_int_base = 945

SPECrate®2017_int_peak = 967

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/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
```

SPEC CPU®2017 Integer Rate Result

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Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

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SPECrate®2017_int_peak = 967

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

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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/Inspur-Platform-Settings-intel-V3.3.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-V3.3.xml`

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

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