SPEC CPU®2017 Integer Rate Result

New H3C Technologies Co., Ltd.

H3C UniServer R4900 G6 (Intel Xeon Silver 4516Y+)

$SPECrate^{®}2017\_int\_base =$ 439

$SPECrate^{®}2017\_int\_peak =$ Not Run

CPU2017 License: 9066
Test Sponsor: New H3C Technologies Co., Ltd.
Tested by: New H3C Technologies Co., Ltd.

Test Date: Jul-2024
Hardware Availability: Oct-2023
Software Availability: Mar-2024

Copies		
500.perlbench_r	96	346
502.gcc_r	96	393
505.mcf_r	96	719
520.omnetpp_r	96	310
523.xalancbmk_r	96	576
525.x264_r	96	899
531.deepsjeng_r	96	310
541.leela_r	96	287
548.exchange2_r	96	896
557.xz_r	96	211

SPECrate®2017_int_base (439)

Hardware

CPU Name: Intel Xeon Silver 4516Y+
 Max MHz: 3700
 Nominal: 2200
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 PC5-5600B-R, running at 4400)
Storage: 1 x 6.4 TB NVME SSD
Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.2 (Plow) 5.14.0-284.11.1.el9_2.x86_64
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 6.10.38P60 released Apr-2024 BIOS
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.

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

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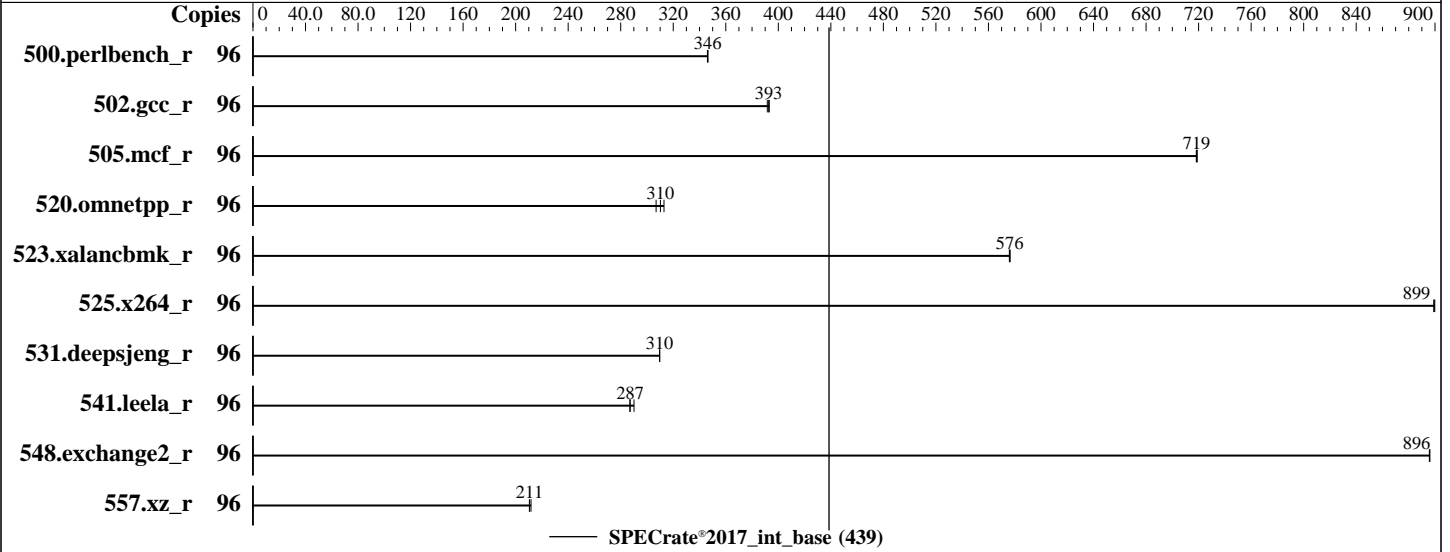
SPECrate®2017_int_peak = Not Run

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Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	441	346	**441**	**346**	442	346							
502.gcc_r	96	347	392	346	393	**346**	**393**							
505.mcf_r	96	216	718	**216**	**719**	216	719							
520.omnetpp_r	96	**406**	**310**	402	313	410	307							
523.xalancbmk_r	96	**176**	**576**	176	576	176	576							
525.x264_r	96	**187**	**899**	187	900	187	899							
531.deepsjeng_r	96	355	310	**355**	**310**	355	310							
541.leela_r	96	**554**	**287**	554	287	548	290							
548.exchange2_r	96	281	896	**281**	**896**	281	896							
557.xz_r	96	490	212	**492**	**211**	493	210							
SPECrate®2017_int_base =		**439**												
SPECrate®2017_int_peak =		**Not Run**												

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

Submit Notes

    The 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/speccpu/lib/intel64:/home/speccpu/lib/ia32:/home/speccpu/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)
    is mitigated in the system as tested and documented.

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Platform Notes

```
 BIOS Settings:
 SNC = Enable SNC2 (2-clusters)
 Power Performance Tuning = BIOS Controls EPB
 ENERGY_PERF_BIAS_CFG mode = Performance

 Sysinfo program /home/speccpu/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Wed Jul 31 05:23:06 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. Systemd service manager version: systemd 252 (252-13.el9_2)
 11. Services, from systemctl list-unit-files
 12. Linux kernel boot-time arguments, from /proc/cmdline
 13. cpupower frequency-info
 14. tuned-adm active
 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 5.14.0-284.11.1.el9_2.x86_64 #1 SMP PREEMPT_DYNAMIC Wed Apr 12 10:45:03 EDT
   2023 x86_64 x86_64 x86_64 GNU/Linux


 ------------------------------------------------------------
 2. w
   05:23:06 up 16 min,  3 users,  load average: 0.63, 14.54, 11.72
   USER     TTY         LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1        05:09   17.00s  1.05s  0.01s sh intrate.sh
   root     pts/0       05:11    9:30   1.24s  0.00s sh 4516Y+.sh
   root     pts/1       05:20    2:42   0.01s  0.01s -bash


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

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SPECrate®2017_int_base =   439

SPECrate®2017_int_peak = Not Run

Platform Notes (Continued)

```
   scheduling priority             (-e) 0
   file size             (blocks, -f) unlimited
   pending signals                 (-i) 4126555
   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) 4126555
   virtual memory        (kbytes, -v) unlimited
   file locks                      (-x) unlimited


  --------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
 login -- root
 -bash
 sh intrate.sh
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=96 -c
   ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=48 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base -o all intrate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=96 --configfile
   ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=48 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
   rate --tune base --size refrate intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/speccpu


  --------------------------------------------------------
6. /proc/cpuinfo
   model name      : INTEL(R) XEON(R) SILVER 4516Y+
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 207
   stepping        : 2
   microcode       : 0x21000200
   bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
   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 2.37.4:
  Architecture:              x86_64
  CPU op-mode(s):            32-bit, 64-bit
  Address sizes:             52 bits physical, 57 bits virtual
  Byte Order:                Little Endian
```

(Continued on next page)

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Platform Notes (Continued)

```
CPU(s):                     96
On-line CPU(s) list:        0-95
Vendor ID:                  GenuineIntel
BIOS Vendor ID:             Intel(R) Corporation
Model name:                 INTEL(R) XEON(R) SILVER 4516Y+
BIOS Model name:            INTEL(R) XEON(R) SILVER 4516Y+
CPU family:                 6
Model:                      207
Thread(s) per core:         2
Core(s) per socket:         24
Socket(s):                  2
Stepping:                   2
CPU max MHz:                3700.0000
CPU min MHz:                800.0000
BogoMIPS:                   4400.00
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 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 avx_vnni
                            avx512_bf16 wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
                            hwp_pkg_req hfi 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 ibt amx_bf16 avx512_fp16 amx_tile amx_int8
                            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
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 Mmio stale data: Not affected
Vulnerability Retbleed:        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, PBRSB-eIBRS SW
                               sequence
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
```

(Continued on next page)

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Platform Notes (Continued)

```
    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: 257618 MB
  node 0 free: 255200 MB
  node 1 cpus: 12-23,60-71
  node 1 size: 258042 MB
  node 1 free: 256024 MB
  node 2 cpus: 24-35,72-83
  node 2 size: 258003 MB
  node 2 free: 255644 MB
  node 3 cpus: 36-47,84-95
  node 3 size: 258037 MB
  node 3 free: 255924 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:       1056462348 kB

'who -r' did not return a run level


    -----------------------------------------------------------
10. Systemd service manager version: systemd 252 (252-13.el9_2)
  Default Target  Status
  multi-user      starting


    -----------------------------------------------------------
11. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                  accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker firewalld
                  gdm getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump libstoragemgmt
                  lm_sensors low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd
                  nis-domainname nvmefc-boot-connections ostree-remount pmcd pmie pmlogger
                  power-profiles-daemon qemu-guest-agent rhsmcertd rpcbind rsyslog rtkit-daemon
                  selinux-autorelabel-mark smartd sshd sssd switcheroo-control sysstat systemd-boot-update
                  systemd-network-generator tuned udisks2 upower vgauthd vmtoolsd
  enabled-runtime systemd-remount-fs
  disabled        arp-ethers autofs blk-availability brltty canberra-system-bootup canberra-system-shutdown
                  canberra-system-shutdown-reboot chrony-wait cni-dhcp console-getty cpupower cups-browsed
                  dbus-daemon debug-shell dnf-system-upgrade dnsmasq fancontrol fcoe grafana-server gssproxy
                  httpd httpd@ ibacm iprdump iprinit iprupdate ipsec iscsid iscsiuio kpatch kvm_stat ledmon
                  lldpad man-db-restart-cache-update nfs-blkmap nfs-server nftables nmb nvmf-autoconnect
                  ostree-readonly-sysroot-migration pesign pmfind pmie_farm pmlogger_farm pmproxy podman
                  podman-auto-update podman-clean-transient podman-kube@ podman-restart postfix powertop
                  psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmdb-rebuild rrdcached saslauthd
                  selinux-check-proper-disable serial-getty@ smb snmpd snmptrapd speech-dispatcherd
                  srp_daemon srp_daemon_port@ sshd-keygen@ systemd-boot-check-no-failures systemd-pstore
                  systemd-sysext target targetclid tog-pegasus trace-cmd vsftpd wpa_supplicant
```

(Continued on next page)

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Platform Notes (Continued)

```
    indirect           pcscd spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
                       systemd-sysupdate systemd-sysupdate-reboot vsftpd@


    -----------------------------------------------------------
12. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-284.11.1.el9_2.x86_64
    root=/dev/mapper/rhel-root
    ro
    resume=/dev/mapper/rhel-swap
    rd.lvm.lv=rhel/root
    rd.lvm.lv=rhel/swap
    rhgb
    quiet
    nohz_full=1-143
    rcu_nocbs=1-143
    console=tty0


    -----------------------------------------------------------
13. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 3.70 GHz.
                      The governor "performance" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes


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


    -----------------------------------------------------------
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                   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


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

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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     Red Hat Enterprise Linux 9.2 (Plow)
       redhat-release Red Hat Enterprise Linux release 9.2 (Plow)
       system-release Red Hat Enterprise Linux release 9.2 (Plow)

     ----------------------------------------------------------
     19. Disk information
     SPEC is set to: /home/speccpu
       Filesystem              Type  Size  Used Avail Use% Mounted on
       /dev/mapper/rhel-home xfs   5.8T  137G  5.7T   3% /home

     ----------------------------------------------------------
     20. /sys/devices/virtual/dmi/id
         Vendor:         New H3C Technologies Co., Ltd.
         Product:        H3C UniServer R4900 G6
         Product Family: Rack
         Serial:         210235A1Q74900060001

     ----------------------------------------------------------
     21. 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 Hynix HMCG94AGBRA179N 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:     6.10.38P60
         BIOS Date:        04/03/2024
         BIOS Revision:    5.32
```

Compiler Version Notes

```
==============================================================================
C        | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


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

(Continued on next page)

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Compiler Version Notes (Continued)

```
----------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------


============================================================================
Fortran | 548.exchange2_r(base)
----------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
----------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc`

(Continued on next page)

New H3C Technologies Co., Ltd.

H3C UniServer R4900 G6 (Intel Xeon Silver 4516Y+)

SPECrate®2017_int_base =   439

SPECrate®2017_int_peak = Not Run

CPU2017 License:	9066	**Test Date:**	Jul-2024
Test Sponsor:	New H3C Technologies Co., Ltd.	**Hardware Availability:**	Oct-2023
Tested by:	New H3C Technologies Co., Ltd.	**Software Availability:**	Mar-2024

Base Optimization Flags (Continued)

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/opt/intel/oneapi/compiler/2024.1/lib -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/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc
```

The flags files that were used to format this result can be browsed at
```
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevE.html
```

You can also download the XML flags sources by saving the following links:
```
http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevE.xml
```

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

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