SPEC CPU®2017 Floating Point Rate Result

New H3C Technologies Co., Ltd.

H3C UniServer R3900 G7 (Intel Xeon 6972P)

SPECrate®2017_fp_base = 1160

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 9066	**Test Date:** Oct-2024
Test Sponsor: New H3C Technologies Co., Ltd.	**Hardware Availability:** Jun-2025
Tested by: New H3C Technologies Co., Ltd.	**Software Availability:** Apr-2024

Copies

Benchmark	Copies	Result
503.bwaves_r	192	4910
507.cactuBSSN_r	192	1360
508.namd_r	192	719
510.parest_r	192	685
511.povray_r	192	1180
519.lbm_r	192	539
521.wrf_r	192	912
526.blender_r	192	1050
527.cam4_r	192	1250
538.imagick_r	192	4340
544.nab_r	192	1590
549.fotonik3d_r	192	760
554.roms_r	192	513

SPECrate®2017_fp_base (1160)

Hardware

CPU Name: Intel Xeon 6972P
 Max MHz: 3900
 Nominal: 2400
Enabled: 96 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 64 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 480 MB I+D on chip per chip
 Other: None
Memory: 768 GB (12 x 64 GB 4Rx8 PC5-12800B-R, running at 8800)
Storage: 1 x 3.84 TB NVME SSD
Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux 9.4 (Plow)
 5.14.0-427.13.1.el9_4.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 7.10.01P91 released Sep-2024 BIOS
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator V5.0.1
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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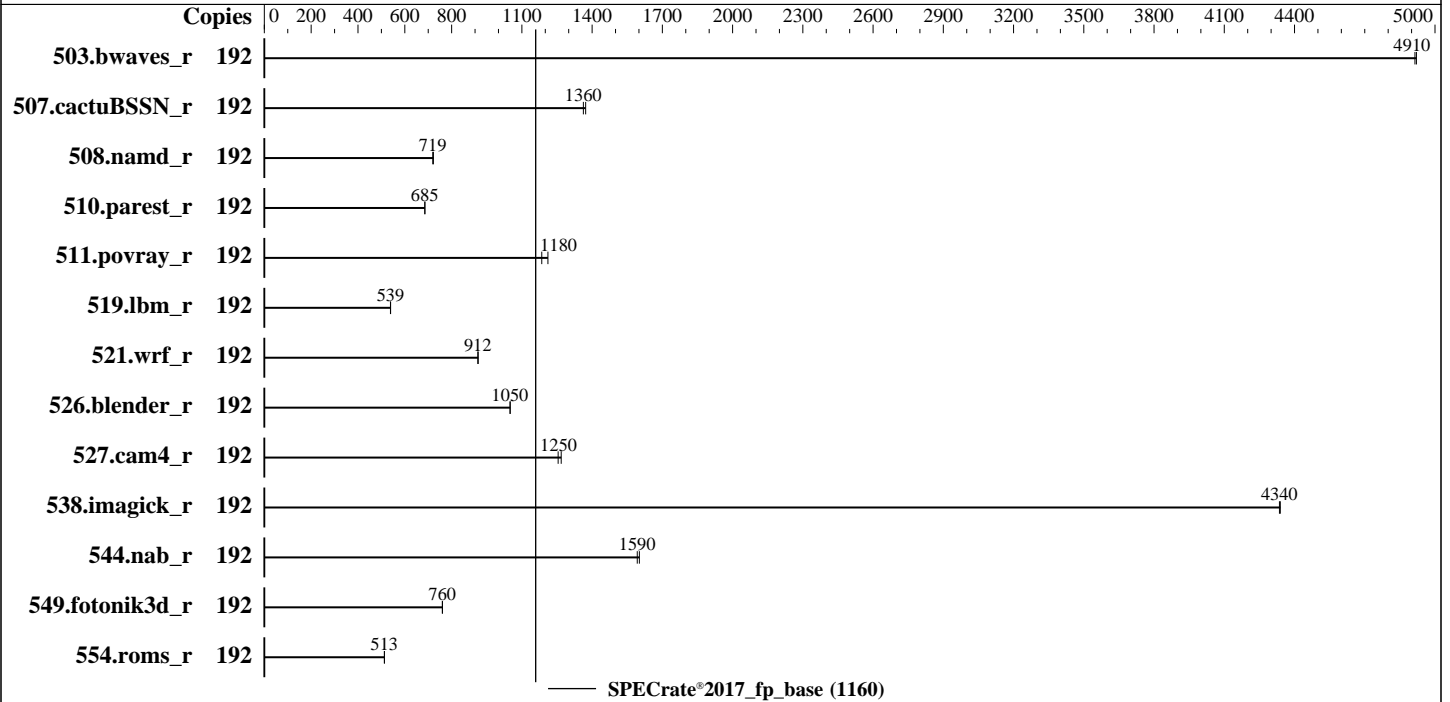
SPECrate®2017_fp_peak = Not Run

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Hardware Availability: Jun-2025

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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
503.bwaves_r	192	391	4920	**392**	**4910**									
507.cactuBSSN_r	192	177	1370	**178**	**1360**									
508.namd_r	192	**254**	**719**	253	722									
510.parest_r	192	732	686	**733**	**685**									
511.povray_r	192	**378**	**1180**	370	1210									
519.lbm_r	192	375	539	**376**	**539**									
521.wrf_r	192	**472**	**912**	471	913									
526.blender_r	192	**279**	**1050**	278	1050									
527.cam4_r	192	**268**	**1250**	265	1270									
538.imagick_r	192	110	4340	**110**	**4340**									
544.nab_r	192	202	1600	**203**	**1590**									
549.fotonik3d_r	192	**984**	**760**	983	761									
554.roms_r	192	595	513	**595**	**513**									

SPECrate®2017_fp_base = 1160

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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/je5.0.1-64"
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.

(Continued on next page)

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Test Date: Oct-2024
Hardware Availability: Jun-2025
Software Availability: Apr-2024

General Notes (Continued)

```
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:
 LLC dead line alloc = Disabled
 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 Mon Oct  7 12:02:12 2024

 SUT (System Under Test) info as seen by some common utilities.

 -----------------------------------------------------------
 Table of contents
 -----------------------------------------------------------
  1. uname -a
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 252 (252-32.el9_4)
 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
 23. BIOS
 -----------------------------------------------------------


 -----------------------------------------------------------
 1. uname -a
   Linux localhost.localdomain 5.14.0-427.13.1.el9_4.x86_64 #1 SMP PREEMPT_DYNAMIC Wed Apr 10 10:29:16 EDT
   2024 x86_64 x86_64 x86_64 GNU/Linux


 -----------------------------------------------------------
 2. w
   12:02:12 up  2:19,  2 users,  load average: 0.21, 31.17, 105.76
    USER     TTY      LOGIN@   IDLE   JCPU   PCPU WHAT
    root     pts/0    09:43   20.00s  0.95s  0.00s sh intrate.sh
```

(Continued on next page)

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Platform Notes (Continued)

```
   root     pts/1    10:17   46:27   0.05s  0.05s -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
     scheduling priority              (-e) 0
     file size                   (blocks, -f) unlimited
     pending signals                  (-i) 3092007
     max locked memory           (kbytes, -l) 8192
     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) 3092007
     virtual memory              (kbytes, -v) unlimited
     file locks                       (-x) unlimited


   ----------------------------------------------------------
   5. sysinfo process ancestry
    /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
    sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
    sshd: root [priv]
    sshd: root@pts/0
    -bash
    sh intrate.sh
    runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 -c
      ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define peakfpcopies=96 --define
      physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base -o all fprate
      -n 2
    runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 --configfile
      ic2024.1-lin-sierraforest-rate-20240308.cfg --define smt-on --define peakfpcopies=96 --define
      physicalfirst --define invoke_with_interleave --define drop_caches --reportable --tune base
      --output_format all --iterations 2 --nopower --runmode rate --tune base --size refrate fprate --nopreenv
      --note-preenv --logfile $SPEC/tmp/CPU2017.057/templogs/preenv.fprate.057.0.log --lognum 057.0
      --from_runcpu 2
    specperl $SPEC/bin/sysinfo
   $SPEC = /home/speccpu


   ----------------------------------------------------------
   6. /proc/cpuinfo
     model name      : Intel(R) Xeon(R) 6972P
     vendor_id       : GenuineIntel
     cpu family      : 6
     model           : 173
     stepping        : 1
     microcode       : 0x810002e0
     bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
     cpu cores       : 96
     siblings        : 192
     1 physical ids (chips)
     192 processors (hardware threads)
```

(Continued on next page)

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Platform Notes (Continued)

```
    physical id 0: core ids 0-31,64-95,128-159
    physical id 0: apicids 0-63,128-191,256-319
  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):                          192
    On-line CPU(s) list:             0-191
    Vendor ID:                       GenuineIntel
    BIOS Vendor ID:                  Intel(R) Corporation
    Model name:                      Intel(R) Xeon(R) 6972P
    BIOS Model name:                 Intel(R) Xeon(R) 6972P
    CPU family:                      6
    Model:                           173
    Thread(s) per core:              2
    Core(s) per socket:              96
    Socket(s):                       1
    Stepping:                        1
    CPU(s) scaling MHz:              81%
    CPU max MHz:                     3900.0000
    CPU min MHz:                     800.0000
    BogoMIPS:                        4800.00
    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 cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                                     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
                                     split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts
                                     hwp hwp_act_window hwp_epp hwp_pkg_req hfi vnmi 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:                       4.5 MiB (96 instances)
    L1i cache:                       6 MiB (96 instances)
    L2 cache:                        192 MiB (96 instances)
    L3 cache:                        480 MiB (1 instance)
    NUMA node(s):                    3
    NUMA node0 CPU(s):               0-31,96-127
    NUMA node1 CPU(s):               32-63,128-159
    NUMA node2 CPU(s):               64-95,160-191
    Vulnerability Gather data sampling: Not affected
    Vulnerability Itlb multihit:     Not affected
    Vulnerability L1tf:              Not affected
```

(Continued on next page)

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Platform Notes (Continued)

```
  Vulnerability Mds:                 Not affected
  Vulnerability Meltdown:            Not affected
  Vulnerability Mmio stale data:     Not affected
  Vulnerability Retbleed:            Not affected
  Vulnerability Spec rstack overflow: 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 / Automatic IBRS, IBPB conditional, RSB filling,
                                     PBRSB-eIBRS Not affected
  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     4.5M   12 Data            1     64       1              64
      L1i      64K       6M   16 Instruction     1     64       1              64
      L2        2M     192M   16 Unified         2   2048       1              64
      L3      480M     480M   16 Unified         3 491520       1              64


  ------------------------------------------------------------
  8. numactl --hardware
  NOTE: a numactl 'node' might or might not correspond to a physical chip.
    available: 3 nodes (0-2)
    node 0 cpus: 0-31,96-127
    node 0 size: 257037 MB
    node 0 free: 239181 MB
    node 1 cpus: 32-63,128-159
    node 1 size: 258031 MB
    node 1 free: 244657 MB
    node 2 cpus: 64-95,160-191
    node 2 size: 257974 MB
    node 2 free: 244530 MB
    node distances:
    node   0   1   2
      0:  10  12  12
      1:  12  10  12
      2:  12  12  10


  ------------------------------------------------------------
  9. /proc/meminfo
    MemTotal:       791597656 kB


  ------------------------------------------------------------
  10. who -r
    run-level 3 Oct 7 09:43


  ------------------------------------------------------------
  11. Systemd service manager version: systemd 252 (252-32.el9_4)
    Default Target  Status
    multi-user      running


  ------------------------------------------------------------
  12. Services, from systemctl list-unit-files
    STATE           UNIT FILES
    enabled         NetworkManager NetworkManager-dispatcher NetworkManager-wait-online atd auditd bluetooth
                    chronyd crond dbus-broker firewalld getty@ insights-client-boot irqbalance iscsi-onboot
                    iscsi-starter kdump libstoragemgmt low-memory-monitor lvm2-monitor mcelog mdmonitor
                    microcode multipathd nis-domainname nvmefc-boot-connections rhsmcertd rsyslog rtkit-daemon
                    selinux-autorelabel-mark smartd sshd sssd systemd-boot-update systemd-network-generator
                    tuned udisks2 upower
```

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Platform Notes (Continued)

```
  enabled-runtime  systemd-remount-fs
  disabled         arp-ethers blk-availability canberra-system-bootup canberra-system-shutdown
                   canberra-system-shutdown-reboot chrony-wait chronyd-restricted console-getty cpupower
                   debug-shell dnf-system-upgrade iprdump iprinit iprupdate ipsec iscsi-init iscsid iscsiuio
                   kpatch kvm_stat ledmon man-db-restart-cache-update nftables nvmf-autoconnect pesign psacct
                   rdisc rhcd rhsm rhsm-facts rpmdb-rebuild selinux-check-proper-disable serial-getty@
                   sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
  indirect         iscsi sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate
                   systemd-sysupdate-reboot

  -------------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-427.13.1.el9_4.x86_64
    root=/dev/mapper/rhel-root
    ro
    crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
    resume=/dev/mapper/rhel-swap
    rd.lvm.lv=rhel/root
    rd.lvm.lv=rhel/swap
    rhgb
    quiet

  -------------------------------------------------------------
  14. cpupower frequency-info
    analyzing CPU 149:
      current policy: frequency should be within 800 MHz and 3.90 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
    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
```

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Platform Notes (Continued)

```
  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 9.4 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.4 (Plow)
  system-release Red Hat Enterprise Linux release 9.4 (Plow)


   -------------------------------------------------------------
20. Disk information
SPEC is set to: /home/speccpu
  Filesystem             Type  Size  Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs   3.5T  343G  3.1T  10% /home


   -------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         New H3C Technologies Co., Ltd.
    Product:        H3C UniServer R3900 G7
    Serial:         210235A526H249000010


   -------------------------------------------------------------
22. dmidecode
  Additional information from dmidecode 3.5 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:
    12x Hynix HMCG98BDJHA381N 64 GB 4 rank 12800, configured at 8800



   -------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
  BIOS Vendor:      American Megatrends International, LLC.
  BIOS Version:     7.10.01P91
  BIOS Date:        09/25/2024
  BIOS Revision:    5.35
  Firmware Revision: 1.16
```

Compiler Version Notes

```
================================================================================
C               | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
--------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
```

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Compiler Version Notes (Continued)

```
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C++             | 508.namd_r(base) 510.parest_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++, C          | 511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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------------------------------------------------------------------------------

==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base)
------------------------------------------------------------------------------
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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------------------------------------------------------------------------------

==============================================================================
Fortran         | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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==============================================================================
Fortran, C      | 521.wrf_r(base) 527.cam4_r(base)
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
icx
```

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

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SPEC CPU®2017 Floating Point Rate Result

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New H3C Technologies Co., Ltd.

H3C UniServer R3900 G7 (Intel Xeon 6972P)

SPECrate®2017_fp_base =   1160

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 9066		**Test Date:**	Oct-2024
Test Sponsor: New H3C Technologies Co., Ltd.		**Hardware Availability:** Jun-2025
Tested by: New H3C Technologies Co., Ltd.		**Software Availability:** Apr-2024

Base Compiler Invocation (Continued)

Fortran benchmarks:
`ifx`

Benchmarks using both Fortran and C:
`ifx icx`

Benchmarks using both C and C++:
`icpx icx`

Benchmarks using Fortran, C, and C++:
`icpx icx ifx`

Base Portability Flags

503.bwaves_r: `-DSPEC_LP64`
507.cactuBSSN_r: `-DSPEC_LP64`
508.namd_r: `-DSPEC_LP64`
510.parest_r: `-DSPEC_LP64`
511.povray_r: `-DSPEC_LP64`
519.lbm_r: `-DSPEC_LP64`
521.wrf_r: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
526.blender_r: `-DSPEC_LP64 -DSPEC_LINUX -funsigned-char`
527.cam4_r: `-DSPEC_LP64 -DSPEC_CASE_FLAG`
538.imagick_r: `-DSPEC_LP64`
544.nab_r: `-DSPEC_LP64`
549.fotonik3d_r: `-DSPEC_LP64`
554.roms_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
`-Wno-implicit-int -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib`

C++ benchmarks:
`-w -std=c++14 -m64 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math`
`-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc`
`-L/usr/local/jemalloc64-5.0.1/lib`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math -flto`

(Continued on next page)

New H3C Technologies Co., Ltd.

SPECrate®2017_fp_base = 1160

H3C UniServer R3900 G7 (Intel Xeon 6972P)

SPECrate®2017_fp_peak = Not Run

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

Test Date: Oct-2024
Hardware Availability: Jun-2025
Software Availability: Apr-2024

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both Fortran and C:
```
-w -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:
```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:
```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsierraforest -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

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
```

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

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