SPEC CPU®2017 Floating Point Speed Result

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New H3C Technologies Co., Ltd.

$SPECspeed®2017\_fp\_base = 174$

H3C UniServer R4900 G6 (Intel Xeon Gold 6434)

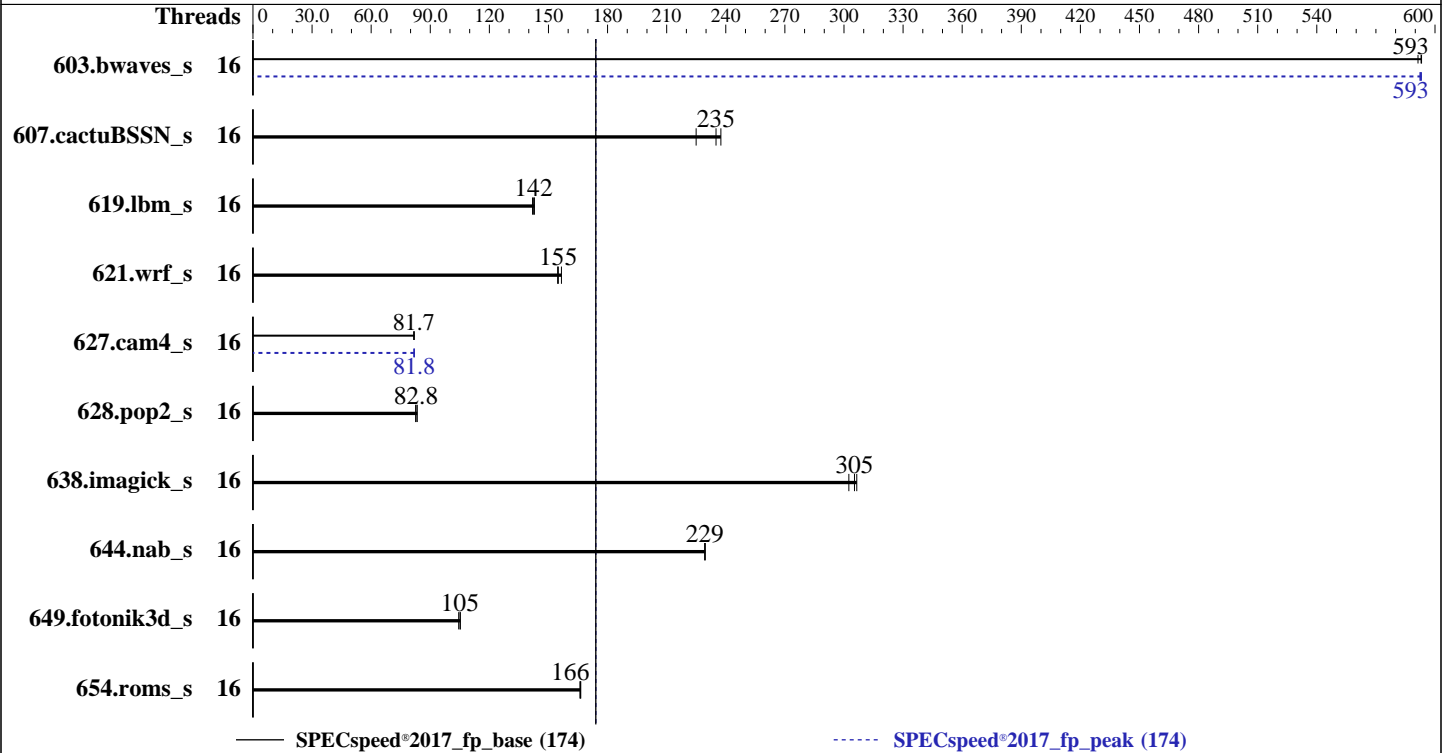$SPECspeed®2017\_fp\_peak = 174$

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

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

Threads

Benchmark	Threads	Result
603.bwaves_s	16	593 / 593
607.cactuBSSN_s	16	235
619.lbm_s	16	142
621.wrf_s	16	155
627.cam4_s	16	81.7 / 81.8
628.pop2_s	16	82.8
638.imagick_s	16	305
644.nab_s	16	229
649.fotonik3d_s	16	105
654.roms_s	16	166

Scale: 0 30.0 60.0 90.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 600

——— SPECspeed®2017_fp_base (174)   ------ SPECspeed®2017_fp_peak (174)

Hardware

CPU Name: Intel Xeon Gold 6434
  Max MHz: 4100
  Nominal: 3700
Enabled: 16 cores, 2 chips
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: 22.5 MB I+D on chip per chip
  Other: None
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)
Storage: 1 x 480GB 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: Yes
Firmware: Version 5.29 released Jan-2023 BIOS
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 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					
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	16	99.5	593	99.8	591	**99.5**	**593**	16	99.6	592	99.5	593	**99.6**	**593**
607.cactuBSSN_s	16	70.2	238	74.1	225	**70.9**	**235**	16	70.2	238	74.1	225	**70.9**	**235**
619.lbm_s	16	**36.8**	**142**	36.9	142	36.7	143	16	**36.8**	**142**	36.9	142	36.7	143
621.wrf_s	16	84.5	157	**85.3**	**155**	85.5	155	16	84.5	157	**85.3**	**155**	85.5	155
627.cam4_s	16	108	81.9	**109**	**81.7**	109	81.7	16	109	81.7	**108**	**81.8**	108	82.0
628.pop2_s	16	144	82.6	142	83.4	**143**	**82.8**	16	144	82.6	142	83.4	**143**	**82.8**
638.imagick_s	16	47.1	306	**47.2**	**305**	47.7	302	16	47.1	306	**47.2**	**305**	47.7	302
644.nab_s	16	76.1	230	76.2	229	**76.2**	**229**	16	76.1	230	76.2	229	**76.2**	**229**
649.fotonik3d_s	16	86.6	105	87.3	104	**86.7**	**105**	16	86.6	105	87.3	104	**86.7**	**105**
654.roms_s	16	94.6	166	**94.7**	**166**	94.9	166	16	94.6	166	**94.7**	**166**	94.9	166
SPECspeed®2017_fp_base =		**174**										
SPECspeed®2017_fp_peak =		**174**										

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

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:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/speccpu/lib/intel64:/home/speccpu/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Redhat Enterprise Linux 8.0
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.
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
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
```

(Continued on next page)

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

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General Notes (Continued)

sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases

Platform Notes

```
BIOS Settings:
 Set Enable LP [Global] to Single LP
 Set Patrol Scrub to Disabled

 Sysinfo program /home/speccpu/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Sat Feb 11 06:40:51 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 (250-11.el9)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. 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
```

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H3C UniServer R4900 G6 (Intel Xeon Gold 6434) $SPECspeed®2017\_fp\_peak = 174$

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Test Sponsor: New H3C Technologies Co., Ltd.   **Hardware Availability:** Jan-2023
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Platform Notes (Continued)

```
     ----------------------------------------------------------
     2. w
       06:40:51 up  3:26,  1 user,  load average: 5.71, 5.29, 3.17
       USER     TTY         LOGIN@   IDLE   JCPU   PCPU WHAT
       root     tty1        03:18    3:19m  0.74s  0.00s -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) 2060500
       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) 2060500
       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
      -bash
      runcpu --nobuild --action validate --define default-platform-flags -c
        ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=16 --tune base,peak -o all --define drop_caches
         fpspeed
      runcpu --nobuild --action validate --define default-platform-flags --configfile
        ic2022.1-lin-core-avx512-speed-20220316.cfg --define cores=16 --tune base,peak --output_format all
        --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
        --note-preenv --logfile $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0
        --from_runcpu 2
      specperl $SPEC/bin/sysinfo
     $SPEC = /home/speccpu
```

(Continued on next page)

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Platform Notes (Continued)

```
         -------------------------------------------------------------
6. /proc/cpuinfo
      model name         : Intel(R) Xeon(R) Gold 6434
      vendor_id          : GenuineIntel
      cpu family         : 6
      model              : 143
      stepping           : 7
      microcode          : 0x2b000111
      bugs               : spectre_v1 spectre_v2 spec_store_bypass swapgs
      cpu cores          : 8
      siblings           : 8
      2 physical ids (chips)
      16 processors (hardware threads)
      physical id 0: core ids 0-7
      physical id 1: core ids 0-7
      physical id 0: apicids 0,2,4,6,8,10,12,14
      physical id 1: apicids 128,130,132,134,136,138,140,142
    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):                  16
   On-line CPU(s) list:     0-15
   Vendor ID:               GenuineIntel
   BIOS Vendor ID:          Intel(R) Corporation
   Model name:              Intel(R) Xeon(R) Gold 6434
   BIOS Model name:         Intel(R) Xeon(R) Gold 6434
   CPU family:              6
   Model:                   143
   Thread(s) per core:      1
   Core(s) per socket:      8
   Socket(s):               2
   Stepping:                7
   CPU max MHz:             4100.0000
   CPU min MHz:             800.0000
   BogoMIPS:                7400.00
   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
```

(Continued on next page)

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Platform Notes (Continued)

```
                        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 intel_ppin 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 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
  Virtualization:              VT-x
  L1d cache:                   768 KiB (16 instances)
  L1i cache:                   512 KiB (16 instances)
  L2 cache:                    32 MiB (16 instances)
  L3 cache:                    45 MiB (2 instances)
  NUMA node(s):                2
  NUMA node0 CPU(s):           0-7
  NUMA node1 CPU(s):           8-15
  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     768K  12 Data            1     64        1             64
     L1i       32K     512K   8 Instruction     1     64        1             64
     L2         2M      32M  16 Unified         2   2048        1             64
     L3      22.5M      45M  15 Unified         3  24576        1             64


  ---------------------------------------------------------------
  8. numactl --hardware
  NOTE: a numactl 'node' might or might not correspond to a physical chip.
    available: 2 nodes (0-1)
    node 0 cpus: 0-7
    node 0 size: 257187 MB
    node 0 free: 250389 MB
    node 1 cpus: 8-15
```

(Continued on next page)

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Platform Notes (Continued)

```
   node 1 size: 257998 MB
   node 1 free: 256551 MB
   node distances:
   node   0   1
     0:  10  21
     1:  21  10


  -----------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       527550328 kB


  -----------------------------------------------------------
  10. who -r
    run-level 3 Feb 11 03:14


  -----------------------------------------------------------
  11. Systemd service manager version: systemd 250 (250-11.el9)
    Default Target  Status
    multi-user      running


  -----------------------------------------------------------
  12. 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
                      low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
                      nvmefc-boot-connections ostree-remount power-profiles-daemon qemu-guest-agent rhsmcertd
                      rsyslog rtkit-daemon selinux-autorelabel-mark smartd sshd sssd switcheroo-control
                      systemd-network-generator udisks2 upower vgauthd vmtoolsd
    enabled-runtime   systemd-remount-fs
    disabled          arp-ethers 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 dnsmasq iprdump iprinit iprupdate iscsid iscsiuio kpatch kvm_stat
                      ledmon man-db-restart-cache-update ndctl-monitor nftables numad nvmf-autoconnect podman
                      podman-auto-update podman-restart psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts
                      rpmdb-rebuild serial-getty@ speech-dispatcherd sshd-keygen@ systemd-boot-check-no-failures
                      systemd-pstore systemd-sysext wpa_supplicant
    indirect          spice-vdagentd 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=(hd1,gpt2)/vmlinuz-5.14.0-70.22.1.el9_0.x86_64
    root=/dev/mapper/rhel-root
    ro
    crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
    resume=/dev/mapper/rhel-swap
```

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Platform Notes (Continued)

```
    rd.lvm.lv=rhel/root
    rd.lvm.lv=rhel/swap
    rhgb
    quiet


  -------------------------------------------------------------
  14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 4.10 GHz.
                      The governor "performance" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes


  -------------------------------------------------------------
  15. sysctl
    kernel.numa_balancing              1
    kernel.randomize_va_space          2
    vm.compaction_proactiveness       20
    vm.dirty_background_bytes          0
    vm.dirty_background_ratio         10
    vm.dirty_bytes                     0
    vm.dirty_expire_centisecs       3000
    vm.dirty_ratio                    20
    vm.dirty_writeback_centisecs     500
    vm.dirtytime_expire_seconds    43200
    vm.extfrag_threshold             500
    vm.min_unmapped_ratio              1
    vm.nr_hugepages                    0
    vm.nr_hugepages_mempolicy          0
    vm.nr_overcommit_hugepages         0
    vm.swappiness                     60
    vm.watermark_boost_factor      15000
    vm.watermark_scale_factor         10
    vm.zone_reclaim_mode               0


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


  -------------------------------------------------------------
  17. /sys/kernel/mm/transparent_hugepage/khugepaged
    alloc_sleep_millisecs   60000
```

(Continued on next page)

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Platform Notes (Continued)

```
   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 9.0 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
  system-release Red Hat Enterprise Linux release 9.0 (Plow)


  ----------------------------------------------------------
19. Disk information
SPEC is set to: /home/speccpu
  Filesystem              Type  Size  Used Avail Use% Mounted on
  /dev/mapper/rhel-home xfs   372G   37G  336G  10% /home


  ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Product Family: Rack


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



  ----------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:      American Megatrends International, LLC.
   BIOS Version:     6.00.08
   BIOS Date:        01/09/2023
   BIOS Revision:    5.29
```

Compiler Version Notes

```
==============================================================================
C                | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
```

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Compiler Version Notes (Continued)

```
                      | 644.nab_s(base, peak)
-------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
-------------------------------------------------------------------------


==========================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
-------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2022.1.0 Build 20220316
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
  2022.1.0 Build 20220316
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-------------------------------------------------------------------------


==========================================================================
Fortran         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
                | 654.roms_s(base, peak)
-------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
  2022.1.0 Build 20220316
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-------------------------------------------------------------------------


==========================================================================
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
                | 628.pop2_s(base, peak)
-------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
  2022.1.0 Build 20220316
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
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-------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

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SPEC CPU®2017 Floating Point Speed Result

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New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 174

H3C UniServer R4900 G6 (Intel Xeon Gold 6434)

SPECspeed®2017_fp_peak = 174

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

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

Base Compiler Invocation (Continued)

Fortran benchmarks:
`ifx`

Benchmarks using both Fortran and C:
`ifx icx`

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

Base Portability Flags

603.bwaves_s: `-DSPEC_LP64`
607.cactuBSSN_s: `-DSPEC_LP64`
619.lbm_s: `-DSPEC_LP64`
621.wrf_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
627.cam4_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG`
628.pop2_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl`
638.imagick_s: `-DSPEC_LP64`
644.nab_s: `-DSPEC_LP64`
649.fotonik3d_s: `-DSPEC_LP64`
654.roms_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Fortran benchmarks:
`-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Benchmarks using both Fortran and C:
`-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte -auto`

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New H3C Technologies Co., Ltd.

H3C UniServer R4900 G6 (Intel Xeon Gold 6434)

SPECspeed®2017_fp_base = 174

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
```
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak Compiler Invocation

C benchmarks:
```
icx
```

Fortran benchmarks:
```
ifx
```

Benchmarks using both Fortran and C:
```
ifx icx
```

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

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

619.lbm_s: `basepeak = yes`

638.imagick_s: `basepeak = yes`

644.nab_s: `basepeak = yes`

Fortran benchmarks:

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 174

H3C UniServer R4900 G6 (Intel Xeon Gold 6434)

SPECspeed®2017_fp_peak = 174

CPU2017 License: 9066		**Test Date:**	Feb-2023
Test Sponsor:	New H3C Technologies Co., Ltd.	**Hardware Availability:**	Jan-2023
Tested by:	New H3C Technologies Co., Ltd.	**Software Availability:**	Aug-2022

Peak Optimization Flags (Continued)

603.bwaves_s: `-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

649.fotonik3d_s: `basepeak = yes`

654.roms_s: `basepeak = yes`

Benchmarks using both Fortran and C:

621.wrf_s: `basepeak = yes`

627.cam4_s: `-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

628.pop2_s: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.html
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevA.html

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevA.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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