SPEC CPU®2017 Floating Point Speed Result

New H3C Technologies Co., Ltd.

$SPECspeed®2017\_fp\_base =$ **303**

H3C UniServer R4900 G7 (Intel Xeon 6756E)
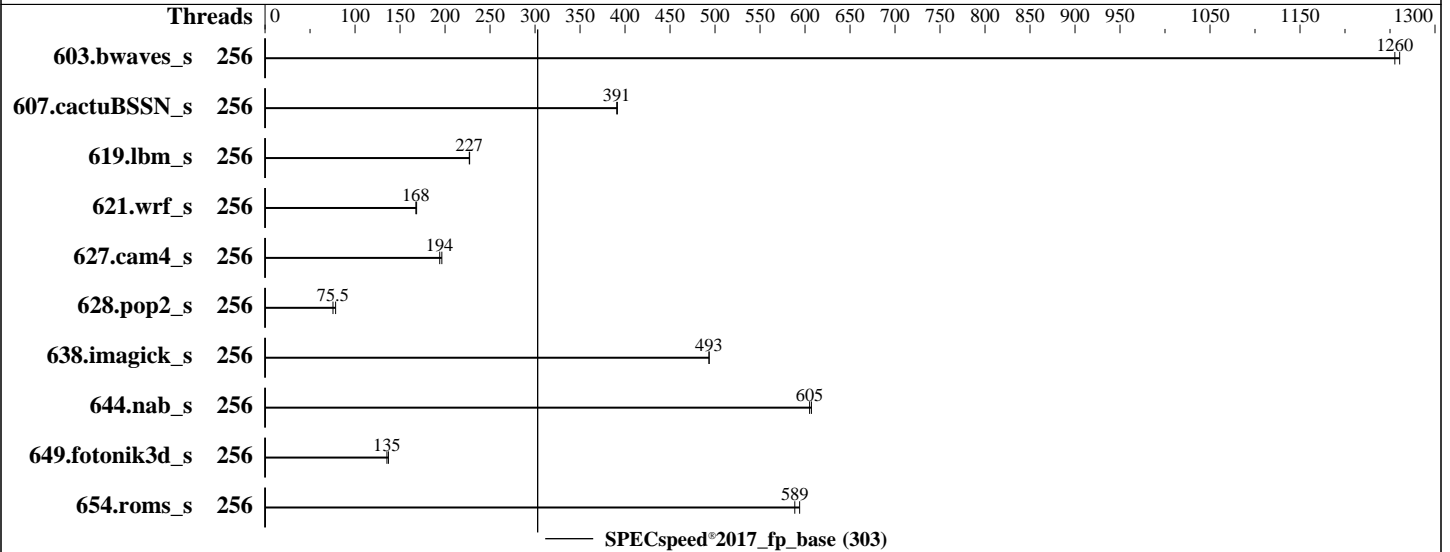
$SPECspeed®2017\_fp\_peak =$ **Not Run**

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

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

Threads

Benchmark	Threads	Result
603.bwaves_s	256	1260
607.cactuBSSN_s	256	391
619.lbm_s	256	227
621.wrf_s	256	168
627.cam4_s	256	194
628.pop2_s	256	75.5
638.imagick_s	256	493
644.nab_s	256	605
649.fotonik3d_s	256	135
654.roms_s	256	589

SPECspeed®2017_fp_base (303)

Hardware

CPU Name: Intel Xeon 6756E
 Max MHz: 2600
 Nominal: 1800
Enabled: 256 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 4 MB I+D on chip per core
 L3: 96 MB I+D on chip per chip
 Other: None
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-6400B-R)
Storage: 1 x 1.92 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: Yes
Firmware: Version 7.00.02 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.

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SPECspeed®2017_fp_peak = Not Run

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	256	**47.0**	**1260**	46.8	1260									
607.cactuBSSN_s	256	**42.7**	**391**	42.6	392									
619.lbm_s	256	**23.1**	**227**	23.0	227									
621.wrf_s	256	78.5	168	**78.9**	**168**									
627.cam4_s	256	**45.7**	**194**	45.1	196									
628.pop2_s	256	151	78.4	**157**	**75.5**									
638.imagick_s	256	29.2	493	**29.2**	**493**									
644.nab_s	256	**28.9**	**605**	28.8	607									
649.fotonik3d_s	256	**67.3**	**135**	66.5	137									
654.roms_s	256	26.5	594	**26.7**	**589**									
SPECspeed®2017_fp_base =			**303**											
SPECspeed®2017_fp_peak =			**Not Run**											

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,1,0"
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
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
```

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

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 Thu Oct 10 03:39:29 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
     03:39:29 up  1:54,  1 user,  load average: 4.08, 5.60, 3.37
    USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1       01:46    1:48m  1.46s  0.00s sh speed.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
```

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base =   303

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CPU2017 License: 9066   **Test Date:** Oct-2024
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Platform Notes (Continued)

```
   file size              (blocks, -f) unlimited
   pending signals              (-i) 2059593
   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) 2059593
   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 speed.sh
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=256 --tune base -o all --define smt-on
   --define drop_caches fpspeed -n 2
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2024.1-lin-sierraforest-speed-20240308.cfg --define cores=256 --tune base --output_format all --define
   smt-on --define drop_caches --iterations 2 --nopower --runmode speed --tune base --size refspeed fpspeed
   --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.018/templogs/preenv.fpspeed.018.0.log --lognum 018.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/speccpu


   ----------------------------------------------------------
6. /proc/cpuinfo
   model name      : Intel(R) Xeon(R) 6756E
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 175
   stepping        : 3
   microcode       : 0x13000211
   bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores       : 128
   siblings        : 128
   2 physical ids (chips)
   256 processors (hardware threads)
   physical id 0: core ids 0-127
   physical id 1: core ids 0-127
   physical id 0: apicids
   0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72
   ,74,76,78,80,82,84,86,88,90,92,94,96,98,100,102,104,106,108,110,112,114,116,118,120,122,124,126,128,130,1
   32,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,18
   4,186,188,190,192,194,196,198,200,202,204,206,208,210,212,214,216,218,220,222,224,226,228,230,232,234,236
   ,238,240,242,244,246,248,250,252,254
   physical id 1: apicids
   512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,5
   64,566,568,570,572,574,576,578,580,582,584,586,588,590,592,594,596,598,600,602,604,606,608,610,612,614,61
   6,618,620,622,624,626,628,630,632,634,636,638,640,642,644,646,648,650,652,654,656,658,660,662,664,666,668
   ,670,672,674,676,678,680,682,684,686,688,690,692,694,696,698,700,702,704,706,708,710,712,714,716,718,720,
   722,724,726,728,730,732,734,736,738,740,742,744,746,748,750,752,754,756,758,760,762,764,766
   Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
   virtualized systems.  Use the above data carefully.
```

(Continued on next page)

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

Platform Notes (Continued)

```
-------------------------------------------------------------
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, 48 bits virtual
  Byte Order:                Little Endian
  CPU(s):                    256
  On-line CPU(s) list:       0-255
  Vendor ID:                 GenuineIntel
  BIOS Vendor ID:            Intel(R) Corporation
  Model name:                Intel(R) Xeon(R) 6756E
  BIOS Model name:           Intel(R) Xeon(R) 6756E
  CPU family:                6
  Model:                     175
  Thread(s) per core:        1
  Core(s) per socket:        128
  Socket(s):                 2
  Stepping:                  3
  CPU(s) scaling MHz:        100%
  CPU max MHz:               2600.0000
  CPU min MHz:               800.0000
  BogoMIPS:                  3600.00
  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 rdseed adx smap clflushopt clwb intel_pt sha_ni
                             xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                             cqm_mbm_local split_lock_detect avx_vnni lam wbnoinvd dtherm ida arat
                             pln pts hwp hwp_act_window hwp_epp hwp_pkg_req vnmi umip pku ospke
                             waitpkg gfni vaes vpclmulqdq tme rdpid bus_lock_detect cldemote movdiri
                             movdir64b enqcmd fsrm md_clear serialize pconfig arch_lbr ibt flush_l1d
                             arch_capabilities
  Virtualization:            VT-x
  L1d cache:                 8 MiB (256 instances)
  L1i cache:                 16 MiB (256 instances)
  L2 cache:                  256 MiB (64 instances)
  L3 cache:                  192 MiB (2 instances)
  NUMA node(s):              2
  NUMA node0 CPU(s):         0-127
  NUMA node1 CPU(s):         128-255
  Vulnerability Gather data sampling: Not affected
  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 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,
```

(Continued on next page)

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Platform Notes (Continued)

```
                             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       32K       8M    8 Data             1     64        1             64
      L1i       64K      16M    8 Instruction      1    128        1             64
      L2         4M     256M   16 Unified          2   4096        1             64
      L3        96M     192M   12 Unified          3 131072        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: 0-127
    node 0 size: 257001 MB
    node 0 free: 255298 MB
    node 1 cpus: 128-255
    node 1 size: 257960 MB
    node 1 free: 253665 MB
    node distances:
    node   0   1
      0:  10  21
      1:  21  10


  -------------------------------------------------------------
  9. /proc/meminfo
    MemTotal:       527320952 kB


  -------------------------------------------------------------
  10. who -r
    run-level 3 Oct 10 01:45


  -------------------------------------------------------------
  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         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-onboot iscsi-starter 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 virtqemud 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 chronyd-restricted cni-dhcp console-getty
                    cpupower cups-browsed dbus-daemon debug-shell dnf-system-upgrade dnsmasq dovecot
                    fancontrol fcoe grafana-server gssproxy httpd httpd@ ibacm iprdump iprinit iprupdate ipsec
                    iscsi-init iscsid iscsiuio kpatch kvm_stat ledmon libvirt-guests libvirtd lldpad
                    man-db-restart-cache-update named named-chroot netavark-dhcp-proxy
                    netavark-firewalld-reload nfs-blkmap nfs-server nftables nmb numad nvmf-autoconnect
                    ostree-readonly-sysroot-migration ostree-state-overlay@ pesign pmfind pmie_farm
                    pmlogger_farm pmproxy podman podman-auto-update podman-clean-transient podman-kube@
```

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Platform Notes (Continued)

```
                    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 spamassassin speech-dispatcherd srp_daemon srp_daemon_port@ sshd-keygen@
                    systemd-boot-check-no-failures systemd-nspawn@ systemd-pstore systemd-sysext target
                    targetclid tog-pegasus trace-cmd virtinterfaced virtlockd virtlogd virtnetworkd
                    virtnodedevd virtnwfilterd virtproxyd virtsecretd virtstoraged vsftpd wpa_supplicant
  indirect          iscsi pcscd spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh
                    sssd-sudo systemd-sysupdate systemd-sysupdate-reboot vsftpd@


-----------------------------------------------------------
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 191:
    current policy: frequency should be within 800 MHz and 2.60 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
  defrag          always defer defer+madvise [madvise] never
```

(Continued on next page)

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Platform Notes (Continued)

```
    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   1.8T  256G  1.5T  15% /home


  --------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         New H3C Technologies Co., Ltd.
    Product:        H3C UniServer R4900 G7
    Serial:         210235A51GH249000025


  --------------------------------------------------------------
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:
    16x Hynix HMCG88AHBRA290N 32 GB 2 rank 6400


  --------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
  BIOS Vendor:      American Megatrends International, LLC.
  BIOS Version:     7.00.02
  BIOS Date:        09/14/2024
  BIOS Revision:    5.35
  Firmware Revision: 1.16
```

Compiler Version Notes

```
==============================================================================================
C              | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(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.
```

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New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 303

H3C UniServer R4900 G7 (Intel Xeon 6756E)

SPECspeed®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-2024
Software Availability: Apr-2024

Compiler Version Notes (Continued)

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

================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base)
--------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------


================================================================================
Fortran         | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
--------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------


================================================================================
Fortran, C      | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
--------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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--------------------------------------------------------------------------------
```

Base 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`

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`

(Continued on next page)

New H3C Technologies Co., Ltd.

H3C UniServer R4900 G7 (Intel Xeon 6756E)

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Tested by:　　New H3C Technologies Co., Ltd.　　　**Software Availability:**　Apr-2024

Base Portability Flags (Continued)

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

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

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 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int`
`-nostandard-realloc-lhs -align array32byte -auto`
`-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

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`

SPEC CPU®2017 Floating Point Speed Result
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H3C UniServer R4900 G7 (Intel Xeon 6756E)

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Tested with SPEC CPU®2017 v1.1.9 on 2024-10-10 03:39:28-0400.
Report generated on 2024-11-06 12:21:23 by CPU2017 PDF formatter v6716.
Originally published on 2024-11-05.