SPEC CPU®2017 Integer Rate Result

New H3C Technologies Co., Ltd.

H3C UniServer R4900 G6 (Intel Xeon Platinum 8558)

$SPECrate®2017\_int\_base = 861$

$SPECrate®2017\_int\_peak = 890$

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: May-2024

Hardware Availability: Oct-2023

Software Availability: Dec-2023

Benchmark results (Copies 192 for all):

Benchmark	base	peak
500.perlbench_r	690	756
502.gcc_r	729	885
505.mcf_r	1350	
520.omnetpp_r	532	
523.xalancbmk_r	1230	
525.x264_r	1740	1830
531.deepsjeng_r	609	
541.leela_r	600	
548.exchange2_r	1830	
557.xz_r	431	

— SPECrate®2017_int_base (861)   ----- SPECrate®2017_int_peak (890)

Hardware

CPU Name: Intel Xeon Platinum 8558
  Max MHz: 4000
  Nominal: 2100
Enabled: 96 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: 260 MB I+D on chip per chip
  Other: None
Memory: 512 GB (16 x 32 GB 2Rx8 PC5-5600B-R, running at 5200)
Storage: 1 x 1.92 TB SSD
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP5
5.14.21-150500.53-default
Compiler: C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2024.0.2 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: Version 6.10.38 released Mar-2024 BIOS
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost of
additional power usage.

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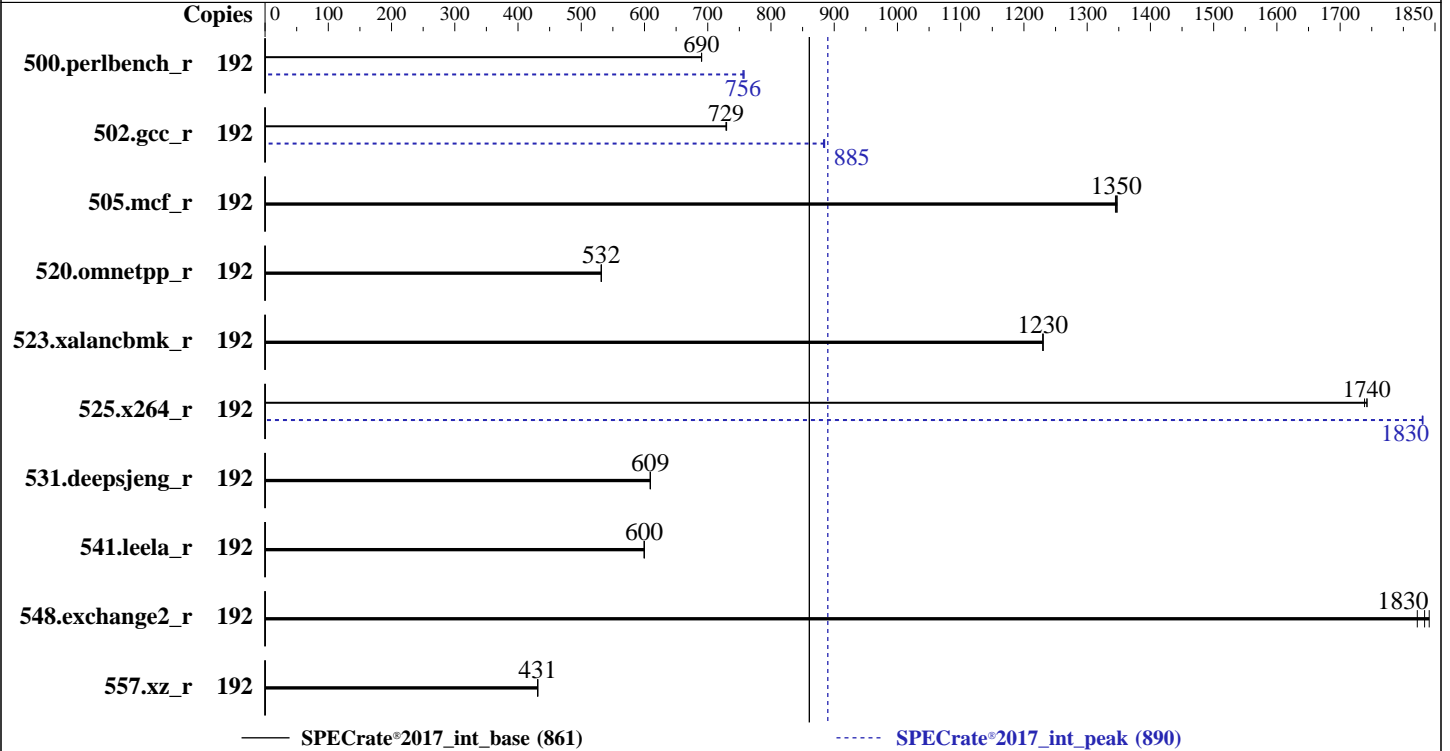|	
CPU2017 License: 9066	**Test Date:** May-2024
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Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	192	443	690	443	690	**443**	**690**	192	403	758	**404**	**756**	404	756
502.gcc_r	192	373	729	373	730	**373**	**729**	192	**307**	**885**	308	883	307	885
505.mcf_r	192	230	1350	**230**	**1350**	231	1340	192	230	1350	**230**	**1350**	231	1340
520.omnetpp_r	192	**474**	**532**	474	532	474	532	192	**474**	**532**	474	532	474	532
523.xalancbmk_r	192	165	1230	**165**	**1230**	165	1230	192	165	1230	**165**	**1230**	165	1230
525.x264_r	192	193	1740	193	1740	**193**	**1740**	192	184	1830	184	1830	**184**	**1830**
531.deepsjeng_r	192	361	609	361	609	**361**	**609**	192	361	609	361	609	**361**	**609**
541.leela_r	192	530	600	**530**	**600**	530	600	192	530	600	**530**	**600**	530	600
548.exchange2_r	192	273	1840	**274**	**1830**	276	1820	192	273	1840	**274**	**1830**	276	1820
557.xz_r	192	481	431	481	431	**481**	**431**	192	481	431	481	431	**481**	**431**

SPECrate®2017_int_base = 861

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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/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.

(Continued on next page)

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General Notes (Continued)

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

 Sysinfo program /home/speccpu/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Wed May 15 17:41:18 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 249 (249.16+suse.171.gdad0071f15)
 12. Failed units, from systemctl list-units --state=failed
 13. Services, from systemctl list-unit-files
 14. Linux kernel boot-time arguments, from /proc/cmdline
 15. cpupower frequency-info
 16. tuned-adm active
 17. sysctl
 18. /sys/kernel/mm/transparent_hugepage
 19. /sys/kernel/mm/transparent_hugepage/khugepaged
 20. OS release
 21. Disk information
 22. /sys/devices/virtual/dmi/id
 23. dmidecode
 24. BIOS
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -a
   Linux localhost.localdomain 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023
   (b630043) x86_64 x86_64 x86_64 GNU/Linux

 ------------------------------------------------------------
 2. w
    17:41:18 up 5 min,  2 users,  load average: 0.05, 0.27, 0.16
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                17:36    5:00   0.04s  0.04s -bash
   root     pts/0    172.16.53.190    17:36   11.00s  0.87s  0.01s /bin/sh
   ./reportable-ic2024.0.2-lin-sapphirerapids-rate-smt-on-20231213.sh
```

(Continued on next page)

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Platform Notes (Continued)

```
      -------------------------------------------------------------
      3. Username
        From environment variable $USER:  root


      -------------------------------------------------------------
      4. ulimit -a
        core file size          (blocks, -c) unlimited
        data seg size           (kbytes, -d) unlimited
        scheduling priority             (-e) 0
        file size               (blocks, -f) unlimited
        pending signals                 (-i) 2060327
        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) 2060327
        virtual memory          (kbytes, -v) unlimited
        file locks                      (-x) unlimited


      -------------------------------------------------------------
      5. sysinfo process ancestry
       /usr/lib/systemd/systemd --switched-root --system --deserialize 29
       sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
       sshd: root@pts/0
       -bash
       /bin/sh ./reportable-ic2024.0.2-lin-sapphirerapids-rate-smt-on-20231213.sh
       runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 -c
         ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=96 --define physicalfirst
         --define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
       runcpu --nobuild --action validate --define default-platform-flags --define numcopies=192 --configfile
         ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=96 --define physicalfirst
         --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
         --runmode rate --tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile
         $SPEC/tmp/CPU2017.075/templogs/preenv.intrate.075.0.log --lognum 075.0 --from_runcpu 2
       specperl $SPEC/bin/sysinfo
      $SPEC = /home/speccpu


      -------------------------------------------------------------
      6. /proc/cpuinfo
          model name      : INTEL(R) XEON(R) PLATINUM 8558
          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       : 48
          siblings        : 96
          2 physical ids (chips)
          192 processors (hardware threads)
          physical id 0: core ids 0-47
          physical id 1: core ids 0-47
          physical id 0: apicids 0-95
          physical id 1: apicids 128-223
        Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
        virtualized systems.  Use the above data carefully.
```

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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, 57 bits virtual
            Byte Order:              Little Endian
            CPU(s):                  192
            On-line CPU(s) list:     0-191
            Vendor ID:               GenuineIntel
            Model name:              INTEL(R) XEON(R) PLATINUM 8558
            CPU family:              6
            Model:                   207
            Thread(s) per core:      2
            Core(s) per socket:      48
            Socket(s):               2
            Stepping:                2
            CPU max MHz:             4000.0000
            CPU min MHz:             800.0000
            BogoMIPS:                4200.00
            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 hle avx2 smep
                                     bmi2 erms invpcid rtm 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 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:               4.5 MiB (96 instances)
            L1i cache:               3 MiB (96 instances)
            L2 cache:                192 MiB (96 instances)
            L3 cache:                520 MiB (2 instances)
            NUMA node(s):            4
            NUMA node0 CPU(s):       0-23,96-119
            NUMA node1 CPU(s):       24-47,120-143
            NUMA node2 CPU(s):       48-71,144-167
            NUMA node3 CPU(s):       72-95,168-191
            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 and seccomp
            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
```

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Platform Notes (Continued)

```
  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       32K       3M    8 Instruction      1     64        1             64
    L2         2M     192M   16 Unified          2   2048        1             64
    L3       260M     520M   20 Unified          3 212992        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: 0-23,96-119
  node 0 size: 128515 MB
  node 0 free: 127834 MB
  node 1 cpus: 24-47,120-143
  node 1 size: 128977 MB
  node 1 free: 128304 MB
  node 2 cpus: 48-71,144-167
  node 2 size: 129011 MB
  node 2 free: 128583 MB
  node 3 cpus: 72-95,168-191
  node 3 size: 128600 MB
  node 3 free: 127951 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:      527468064 kB

----------------------------------------------------------
10. who -r
   run-level 3 May 15 17:36

----------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
   Default Target  Status
   multi-user      degraded

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

----------------------------------------------------------
13. Services, from systemctl list-unit-files
   STATE           UNIT FILES
   enabled         ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online apparmor
                   auditd cron firewalld getty@ irqbalance issue-generator kbdsettings kdump kdump-early
                   postfix purge-kernels rollback sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4
                   wickedd-dhcp6 wickedd-nanny wpa_supplicant
   enabled-runtime systemd-remount-fs
   disabled        boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell dnsmasq ebtables
```

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Platform Notes (Continued)

```
                    grub2-once haveged haveged-switch-root issue-add-ssh-keys kexec-load lunmask nfs
                    nfs-blkmap rpcbind rpmconfigcheck serial-getty@ systemd-boot-check-no-failures
                    systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd tuned
                    wpa_supplicant@
  indirect          wickedd

       ----------------------------------------------------------------
    14. Linux kernel boot-time arguments, from /proc/cmdline
       BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
       root=UUID=8941a345-b7dd-4a3e-98f3-0af9eb97f32e
       splash=silent
       resume=/dev/disk/by-uuid/06a94d0a-0f9e-4e93-848f-045322d8f16d
       mitigations=auto
       quiet
       security=apparmor
       crashkernel=373M,high
       crashkernel=72M,low
       transparent_hugepage=always

       ----------------------------------------------------------------
    15. cpupower frequency-info
       analyzing CPU 0:
          current policy: frequency should be within 800 MHz and 4.00 GHz.
                          The governor "performance" may decide which speed to use
                          within this range.
          boost state support:
            Supported: yes
            Active: yes

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

       ----------------------------------------------------------------
    17. 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                 1
       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


       ----------------------------------------------------------------
    18. /sys/kernel/mm/transparent_hugepage
       defrag          always defer defer+madvise [madvise] never
       enabled         [always] madvise never
       hpage_pmd_size  2097152
```

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Platform Notes (Continued)

```
    shmem_enabled   always within_size advise [never] deny force


   --------------------------------------------------------------
   19. /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


   --------------------------------------------------------------
   20. OS release
     From /etc/*-release /etc/*-version
     os-release SUSE Linux Enterprise Server 15 SP5


   --------------------------------------------------------------
   21. Disk information
   SPEC is set to: /home/speccpu
     Filesystem      Type  Size  Used Avail Use% Mounted on
     /dev/sda3       xfs   1.5T   63G  1.4T   5% /home


   --------------------------------------------------------------
   22. /sys/devices/virtual/dmi/id
       Vendor:         H3C
       Product:        H3C UniServer R4900 G6
       Product Family: Rack
       Serial:         N/A


   --------------------------------------------------------------
   23. dmidecode
     Additional information from dmidecode 3.4 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:
       5x Samsung M321R4GA3PB0-CWMJH 32 GB 2 rank 5600, configured at 5200
       7x Samsung M321R4GA3PB0-CWMKH 32 GB 2 rank 5600, configured at 5200
       4x Samsung M321R4GA3PB0-CWMXH 32 GB 2 rank 5600, configured at 5200


   --------------------------------------------------------------
   24. BIOS
   (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:       American Megatrends International, LLC.
      BIOS Version:      6.10.38
      BIOS Date:         03/23/2024
      BIOS Revision:     5.32
```

Compiler Version Notes

```
==================================================================================================
C      | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
==============================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
         | 557.xz_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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------------------------------------------------------------------------------


==============================================================================
C++      | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
         | 541.leela_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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------------------------------------------------------------------------------


==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

SPEC CPU®2017 Integer Rate Result

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New H3C Technologies Co., Ltd.

H3C UniServer R4900 G6 (Intel Xeon Platinum 8558)

$SPECrate^{®}2017\_int\_base = 861$

$SPECrate^{®}2017\_int\_peak = 890$

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

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/2024.0/lib -lqkmalloc

C++ benchmarks:
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.0/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/2024.0/lib -lqkmalloc

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

New H3C Technologies Co., Ltd.

H3C UniServer R4900 G6 (Intel Xeon Platinum 8558)

SPECrate®2017_int_base = 861

SPECrate®2017_int_peak = 890

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

Test Date: May-2024
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Peak Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Peak Optimization Flags

C benchmarks:

500.perlbench_r: `-w -std=c11 -m64 -Wl,-z,muldefs`
`-fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-fno-strict-overflow`
`-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc`

502.gcc_r: `-m32 -L/opt/intel/oneapi/compiler/2024.0/lib32 -std=gnu89`
`-Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX2`(pass 1)
`-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse`
`-funroll-loops -qopt-mem-layout-trans=4`
`-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc`

505.mcf_r: basepeak = yes

525.x264_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast`
`-ffast-math -flto -mfpmath=sse -funroll-loops`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc`

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

(Continued on next page)

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New H3C Technologies Co., Ltd.

SPECrate®2017_int_base = 861

H3C UniServer R4900 G6 (Intel Xeon Platinum 8558)

SPECrate®2017_int_peak = 890

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

Peak Optimization Flags (Continued)

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `basepeak = yes`

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

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

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