## SPEC CPU®2017 Integer Rate Result

**New H3C Technologies Co., Ltd.**

### SPEC CPU®2017 Integer Rate Result

**H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)**

---

**SPECrate®2017_int_base = 319**

**SPECrate®2017_int_peak = 332**

---

**CPU2017 License:** 9066  
**Test Date:** Aug-2021

**Test Sponsor:** New H3C Technologies Co., Ltd.  
**Hardware Availability:** Jun-2019

**Tested by:** New H3C Technologies Co., Ltd.  
**Software Availability:** Dec-2020

---

### Hardware

**CPU Name:** Intel Xeon Platinum 8276  
**Max MHz:** 4000  
**Nominal:** 2200  
**Enabled:** 56 cores, 2 chips, 2 threads/core  
**Orderable:** 1.2 chips  
**Cache L1:** 32 KB I + 32 KB D on chip per core  
**L2:** 1 MB I+D on chip per core  
**L3:** 38.5 MB I+D on chip per chip  
**Other:** None  
**Memory:** 384 GB (12 x 32 GB 2Rx8 PC4-2933Y-R)  
**Storage:** 1.6 TB SSD NVME  
**Other:** None

---

### Software

**OS:** Red Hat Enterprise Linux release 8.2 (Ootpa)  
4.18.0-193.el8.x86_64  
**Compiler:** C/C++: Version 2021.1 of Intel oneAPI DPC++/C++  
Classic Build 20201112 for Linux;  
Fortran: Version 2021.1 of Intel Fortran Compiler  
Classic Build 20201112 for Linux;  
C/C++: Version 2021.1 of Intel C/C++ Compiler  
Classic Build 20201112 for Linux  
**Parallel:** No  
**Firmware:** Version 2.00.48 released Mar-2021 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 set to prefer performance at the cost of additional power usage

---

### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>112</td>
<td>266</td>
<td>507</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>112</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>112</td>
<td>284</td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>112</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td>112</td>
<td></td>
<td>672</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>112</td>
<td>257</td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>112</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>112</td>
<td></td>
<td>619</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>112</td>
<td>193</td>
<td></td>
</tr>
</tbody>
</table>

---

**Notes:**

- **Hardware**
  - CPU Name: Intel Xeon Platinum 8276
  - Max MHz: 4000
  - Nominal: 2200
  - Enabled: 56 cores, 2 chips, 2 threads/core
  - Orderable: 1.2 chips
  - Cache L1: 32 KB I + 32 KB D on chip per core
  - L2: 1 MB I+D on chip per core
  - L3: 38.5 MB I+D on chip per chip
  - Other: None
  - Memory: 384 GB (12 x 32 GB 2Rx8 PC4-2933Y-R)
  - Storage: 1.6 TB SSD NVME
  - Other: None

- **Software**
  - OS: Red Hat Enterprise Linux release 8.2 (Ootpa)  
  4.18.0-193.el8.x86_64  
  - Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++  
  Classic Build 20201112 for Linux;  
  Fortran: Version 2021.1 of Intel Fortran Compiler  
  Classic Build 20201112 for Linux;  
  C/C++: Version 2021.1 of Intel C/C++ Compiler  
  Classic Build 20201112 for Linux  
  - Parallel: No  
  - Firmware: Version 2.00.48 released Mar-2021 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 set to prefer performance at the cost of additional power usage

---

**Acknowledgments:**

- **New H3C Technologies Co., Ltd.**

---

**Contact Information:**

- **Standard Performance Evaluation Corporation**
  - info@spec.org
  - https://www.spec.org/
New H3C Technologies Co., Ltd. | SPECrate\textsuperscript{®}2017\_int\_base = 319
---|---
H3C UniServer R4900 G3 (Intel Xeon Platinum 8276) | SPECrate\textsuperscript{®}2017\_int\_peak = 332

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>112</td>
<td>773</td>
<td>231</td>
<td>773</td>
<td>231</td>
<td>774</td>
<td>230</td>
<td>112</td>
<td>670</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>112</td>
<td>685</td>
<td>232</td>
<td>674</td>
<td>235</td>
<td>668</td>
<td>237</td>
<td>112</td>
<td>558</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>112</td>
<td>356</td>
<td>509</td>
<td>357</td>
<td>507</td>
<td>359</td>
<td>504</td>
<td>112</td>
<td>356</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>112</td>
<td>761</td>
<td>193</td>
<td>761</td>
<td>193</td>
<td>761</td>
<td>193</td>
<td>112</td>
<td>761</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>112</td>
<td>295</td>
<td>401</td>
<td>295</td>
<td>400</td>
<td>296</td>
<td>400</td>
<td>112</td>
<td>295</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>112</td>
<td>292</td>
<td>672</td>
<td>291</td>
<td>675</td>
<td>293</td>
<td>669</td>
<td>112</td>
<td>281</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>112</td>
<td>499</td>
<td>257</td>
<td>499</td>
<td>257</td>
<td>499</td>
<td>257</td>
<td>112</td>
<td>499</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>112</td>
<td>748</td>
<td>248</td>
<td>749</td>
<td>248</td>
<td>745</td>
<td>249</td>
<td>112</td>
<td>748</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>112</td>
<td>474</td>
<td>619</td>
<td>475</td>
<td>618</td>
<td>474</td>
<td>619</td>
<td>112</td>
<td>474</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>112</td>
<td>625</td>
<td>193</td>
<td>626</td>
<td>193</td>
<td>625</td>
<td>194</td>
<td>112</td>
<td>618</td>
</tr>
</tbody>
</table>

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 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1
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.

(Continued on next page)
## SPEC CPU®2017 Integer Rate Result

### General Notes (Continued)

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:

```bash
sync; echo 3> /proc/sys/vm/drop_caches
```

runcpu command invoked through numactl i.e.:

```bash
numactl --interleave=all runcpu <etc>
```

jemalloc, a general purpose malloc implementation

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5


---

## Platform Notes

BIOS settings:
Set SNC to Enabled
Set IMC Interleaving to 1-way Interleave

Sysinfo program /home/speccpu/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16a6046d6d
running on localhost.localdomain Wed Aug 4 19:38:04 2021

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo

```bash
model name : Intel(R) Xeon(R) Platinum 8276 CPU @ 2.20GHz
2 "physical id"s (chips)
112 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 28
siblings : 56
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 23 25 26 27 28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
```

From lscpu from util-linux 2.32.1:

```bash
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 112
On-line CPU(s) list: 0-111
Thread(s) per core: 2
```

---

(Continued on next page)
New H3C Technologies Co., Ltd.  
H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)

**SPEC CPU®2017 Integer Rate Result**

**Copyright 2017-2021 Standard Performance Evaluation Corporation**

**SPECrate®2017_int_base** = 319

**SPECrate®2017_int_peak** = 332

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

**Test Date**: Aug-2021  
**Hardware Availability**: Jun-2019  
**Software Availability**: Dec-2020

---

**Platform Notes (Continued)**

- **Core(s) per socket**: 28  
- **Socket(s)**: 2  
- **NUMA node(s)**: 4  
- **Vendor ID**: GenuineIntel  
- **CPU family**: 6  
- **Model**: 85  
- **Model name**: Intel(R) Xeon(R) Platinum 8276 CPU @ 2.20GHz  
- **Stepping**: 5  
- **CPU MHz**: 2997.576  
- **CPU max MHz**: 4000.0000  
- **CPU min MHz**: 1000.0000  
- **BogoMIPS**: 4400.00  
- **Virtualization**: VT-x  
- **L1d cache**: 32K  
- **L1i cache**: 32K  
- **L2 cache**: 1024K  
- **L3 cache**: 39424K  
- **NUMA node0 CPU(s)**: 0-3,7-9,14-17,21-23,56-59,63-65,70-73,77-79  
- **NUMA node1 CPU(s)**: 4-6,10-13,18-20,24-27,60-62,66-69,74-76,80-83  
- **NUMA node2 CPU(s)**: 28-31,35-37,42-45,49-51,84-87,91-93,98-101,105-107  
- **NUMA node3 CPU(s)**: 32-34,38-41,46-48,52-55,88-90,94-97,102-104,108-111  
- **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_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 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 cdp_l3 invpcid_single intel_pni ssbd mbn ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bm1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm新陈_total cqmSFMLon_dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke md_clear flush_lld arch_capabilities

```
/proc/cpuinfo cache data
  cache size : 39424 KB
```

From numactl --hardware  
**WARNING**: a numactl 'node' might or might not correspond to a physical chip.  
available: 4 nodes (0-3)  
node 0 cpus: 0 1 2 3 7 8 9 14 15 16 17 21 22 23 56 57 58 59 63 64 65 70 71 72 73 77 78 79  
node 0 size: 95089 MB  
node 0 free: 94606 MB  
node 1 cpus: 4 5 6 10 11 12 13 18 19 20 24 25 26 27 60 61 62 66 67 68 69 74 75 76 80 81  
node 1 size: 96761 MB

(Continued on next page)
Platform Notes (Continued)

node 1 free: 96423 MB
node 2 cpus: 28 29 30 31 35 36 42 43 44 45 49 50 51 84 85 86 87 91 92 93 98 99 100
101 105 106 107
node 2 size: 96734 MB
node 2 free: 95508 MB
node 3 cpus: 32 33 34 38 39 40 41 46 47 48 52 53 54 55 88 89 90 94 95 96 97 102 103 104
108 109 110 111
node 3 size: 96761 MB
node 3 free: 96367 MB
node distances:
node 0 1 2 3
0: 10 11 21 21
1: 11 10 21 21
2: 21 21 10 11
3: 21 21 11 10

From /proc/meminfo
MemTotal: 394594796 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
/sbin/tuned-adm active
Current active profile: accelerator-performance
/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.2 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.2"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

uname -a:
Linux localhost.localdomain 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 2020
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

(Continued on next page)
New H3C Technologies Co., Ltd.  SPECrate®2017_int_base = 319
H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)  SPECrate®2017_int_peak = 332

CPU2017 License: 9066
Test Sponsor: New H3C Technologies Co., Ltd.
Tested by: New H3C Technologies Co., Ltd.
Test Date: Aug-2021
Hardware Availability: Jun-2019
Software Availability: Dec-2020

Platform Notes (Continued)

CVE-2018-12207 (iTLB Multihit):
CVE-2018-3620 (L1 Terminal Fault):
Microarchitectural Data Sampling:
CVE-2017-5754 (Meltdown):
CVE-2018-3639 (Speculative Store Bypass):
CVE-2017-5753 (Spectre variant 1):
CVE-2017-5715 (Spectre variant 2):
CVE-2020-0543 (Special Register Buffer Data Sampling): No status reported
CVE-2019-11135 (TSX Asynchronous Abort):
KVM: Mitigation: Split huge pages
        Not affected
Microarchitectural Data Sampling:
Not affected
Mitigation: Clear CPU buffers; SMT vulnerable
CVE-2017-5754 (Meltdown):
Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass):
Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5753 (Spectre variant 1):
Mitigation: Full generic retpoline, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling
CVE-2017-5715 (Spectre variant 2):
Mitigation: Clear CPU buffers; SMT vulnerable

SPEC is set to: /home/spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 1.5T 125G 1.3T 9% /home

From /sys/devices/virtual/dmi/id
Vendor: New H3C Technologies Co., Ltd.
Product: UniServer R4900 G3
Product Family: Rack
Serial: 210235A3TKH193000008
Additional information from dmidecode 3.2 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 Micron 18ASF4G72PDZ-2G9E1 32 GB 2 rank 2933
12x NO DIMM NO DIMM

BIOS:
BIOS Vendor: American Megatrends Inc.
BIOS Version: 2.00.48
BIOS Date: 03/10/2021
BIOS Revision: 5.14

(End of data from sysinfo program)
New H3C Technologies Co., Ltd.

H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

SPEC CPU®2017_int_base = 319
SPEC CPU®2017_int_peak = 332

CPU2017 License: 9066
Test Sponsor: New H3C Technologies Co., Ltd.
Test Date: Aug-2021
Hardware Availability: Jun-2019
Tested by: New H3C Technologies Co., Ltd.
Software Availability: Dec-2020

Compiler Version Notes

==============================================================================
C       | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
| 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
| 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113

(Continued on next page)
## Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
(defvar (C) 500.perlbench_r(peak) 557.xz_r(peak)
 Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
   64, Version 2021.1 Build 20201112_000000
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
(defvar (C) 502.gcc_r(peak)
 Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version
   2021.1 Build 20201113
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
(defvar (C) 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
 | 525.x264_r(base, peak) 557.xz_r(base)
 Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
   Version 2021.1 Build 20201113
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
(defvar (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 2021.1 Build 20201113
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
(defvar (Fortran) 548.exchange2_r(base, peak)
 Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
   Intel(R) 64, Version 2021.1 Build 20201112_000000
 Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```
New H3C Technologies Co., Ltd. H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)

**SPEC CPU®2017 Integer Rate Result**

| SPECrate®2017_int_base = 319 |
| SPECrate®2017_int_peak = 332 |

**CPU2017 License:** 9066  
**Test Sponsor:** New H3C Technologies Co., Ltd.  
**Tested by:** New H3C Technologies Co., Ltd.  
**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2019  
**Software Availability:** Dec-2020

---

**Base Compiler Invocation**

C benchmarks:
- icx

C++ benchmarks:
- icpx

Fortran benchmarks:
- ifort

---

**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 -xCORE-AVX512 -O3 -ffast-math  
- -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
- -mbranches-within-32B-boundaries  
- -L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin  
- -lqkmalloc

C++ benchmarks:
- -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto  
- -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
- -mbranches-within-32B-boundaries  
- -L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin  
- -lqkmalloc

Fortran benchmarks:
- -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div  
- -qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte  
- -auto -mbranches-within-32B-boundaries

(Continued on next page)
New H3C Technologies Co., Ltd. | SPEC CPU®2017 Integer Rate Result
H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)

SPECrust®2017_int_base = 319
SPECrust®2017_int_peak = 332

CPU2017 License: 9066
Test Sponsor: New H3C Technologies Co., Ltd.
Tested by: New H3C Technologies Co., Ltd.
Test Date: Aug-2021
Hardware Availability: Jun-2019
Software Availability: Dec-2020

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- lqkmalloc

Peak Compiler Invocation

C benchmarks (except as noted below):
icc
500.perlbmch_r: icc
557.xz_r: icc

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

Peak Portability Flags

500.perlbmch_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.perlbmch_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -fno-strict-overflow
-mbranches-within-32B-boundaries

(Continued on next page)
SPEC CPU®2017 Integer Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd. SPECrate®2017_int_base = 319
H3C UniServer R4900 G3 (Intel Xeon Platinum 8276) SPECrate®2017_int_peak = 332

CPU2017 License: 9066
Test Sponsor: New H3C Technologies Co., Ltd.
Tested by: New H3C Technologies Co., Ltd.
Test Date: Aug-2021
Hardware Availability: Jun-2019
Software Availability: Dec-2020

Peak Optimization Flags (Continued)

500.perlbench_r (continued):
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass1)
-fprofile-use=default.profdata(pass2) -xCORE-AVX512 -flto
-Ofast(pass1) -O3 -ffast-math -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto
-03 -ffast-math -qopt-mem-layout-trans=4 -fno-alias
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -03 -no-prec-div
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
520.omnetpp_r: basepeak = yes
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/New_H3C-Platform-Settings-V1.4-CLX-RevB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.4-CLX-RevB.xml
<table>
<thead>
<tr>
<th>New H3C Technologies Co., Ltd.</th>
<th>H3C UniServer R4900 G3 (Intel Xeon Platinum 8276)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_base = 319</td>
<td>SPECrate®2017_int_peak = 332</td>
</tr>
</tbody>
</table>

| CPU2017 License: 9066         | Test Date: Aug-2021                             |
| Test Sponsor: New H3C Technologies Co., Ltd. | Hardware Availability: Jun-2019 |
| Tested by: New H3C Technologies Co., Ltd. | Software Availability: Dec-2020 |

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.8 on 2021-08-04 07:38:03-0400.
Report generated on 2021-09-01 14:17:19 by CPU2017 PDF formatter v6442.
Originally published on 2021-08-31.