



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

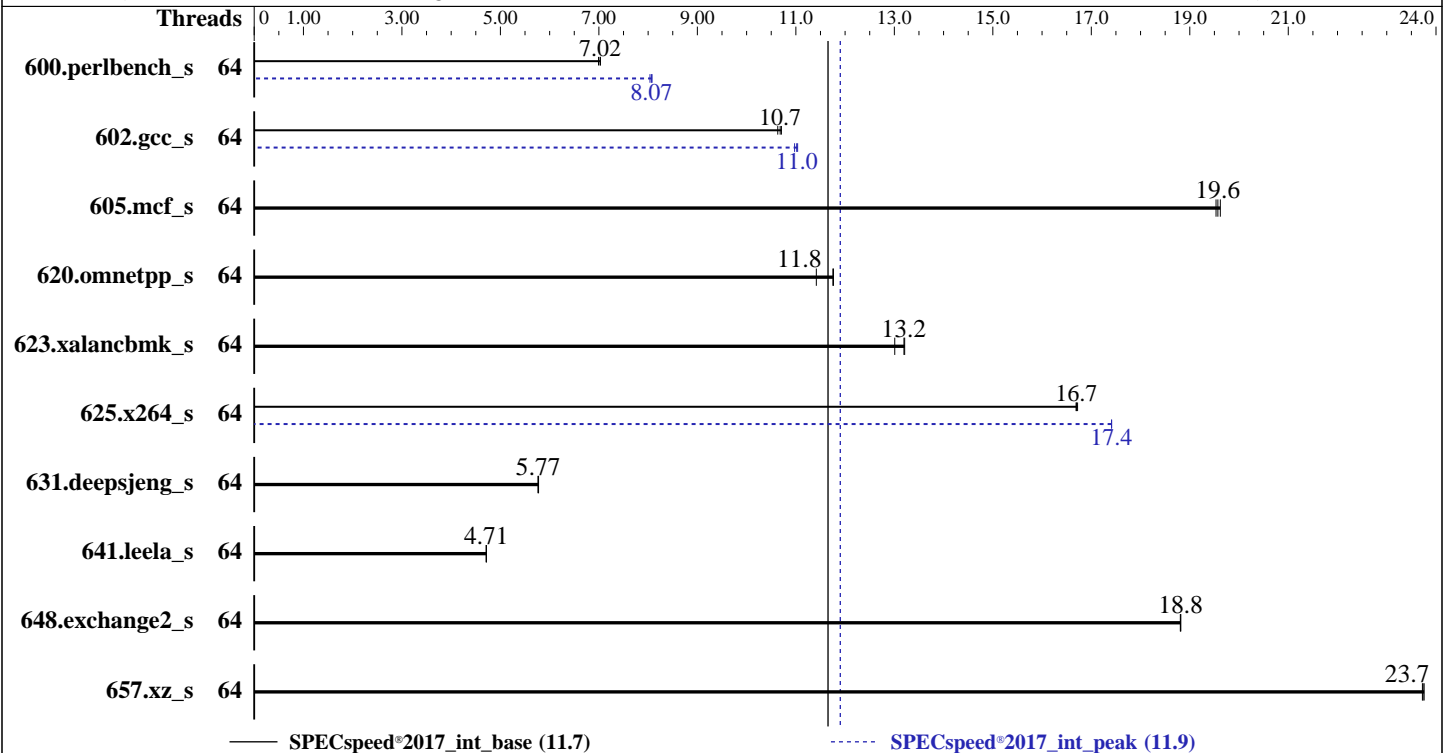
Test Date: Nov-2021

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Sep-2020

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Jan-2021



Hardware

CPU Name: Intel Xeon Platinum 8358P
 Max MHz: 3400
 Nominal: 2600
 Enabled: 64 cores, 2 chips
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 1.25 MB I+D on chip per core
 L3: 48 MB I+D on chip per chip
 Other: None
 Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200V-R)
 Storage: 1 x 480GB SATA SSD
 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++ Compiler Build 20201113 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: Yes
 Firmware: Version 5.34 released Sep-2021 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.



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	64	252	7.03	254	6.99	<u>253</u>	<u>7.02</u>	64	220	8.08	221	8.04	<u>220</u>	<u>8.07</u>
602.gcc_s	64	372	10.7	<u>373</u>	<u>10.7</u>	375	10.6	64	<u>361</u>	<u>11.0</u>	361	11.0	363	11.0
605.mcf_s	64	<u>241</u>	<u>19.6</u>	241	19.6	242	19.5	64	<u>241</u>	<u>19.6</u>	241	19.6	242	19.5
620.omnetpp_s	64	139	11.8	143	11.4	<u>139</u>	<u>11.8</u>	64	139	11.8	143	11.4	<u>139</u>	<u>11.8</u>
623.xalancbmk_s	64	<u>107</u>	<u>13.2</u>	109	13.0	107	13.2	64	<u>107</u>	<u>13.2</u>	109	13.0	107	13.2
625.x264_s	64	105	16.7	<u>106</u>	<u>16.7</u>	106	16.7	64	101	17.4	<u>101</u>	<u>17.4</u>	101	17.4
631.deepsjeng_s	64	<u>248</u>	<u>5.77</u>	249	5.76	248	5.78	64	<u>248</u>	<u>5.77</u>	249	5.76	248	5.78
641.leela_s	64	362	4.71	<u>362</u>	<u>4.71</u>	362	4.72	64	362	4.71	<u>362</u>	<u>4.71</u>	362	4.72
648.exchange2_s	64	<u>156</u>	<u>18.8</u>	156	18.8	156	18.8	64	<u>156</u>	<u>18.8</u>	156	18.8	156	18.8
657.xz_s	64	260	23.8	261	23.7	<u>260</u>	<u>23.7</u>	64	260	23.8	261	23.7	<u>260</u>	<u>23.7</u>

SPECspeed®2017_int_base = **11.7**

SPECspeed®2017_int_peak = **11.9**

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,scatter"
LD_LIBRARY_PATH = "/home/speccpu/lib/intel64:/home/speccpu/je5.0.1-64"
MALLOCONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB 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)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

General Notes (Continued)

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

Platform Notes

BIOS Settings:

Set Hyper-Threading to Disabled
Set Energy Performance BIAS to Performance
Set Patrol Scrub to Disabled

Sysinfo program /home/speccpu/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost.localdomain Sun Nov 21 17:29:21 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

```
model name      : Intel(R) Xeon(R) Platinum 8358P CPU @ 2.60GHz
 2 "physical id"s (chips)
 64 "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    : 32
  siblings    : 32
 physical 0:   cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
                25 26 27 28 29 30 31
 physical 1:   cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
                25 26 27 28 29 30 31
```

From lscpu from util-linux 2.32.1:

```
Architecture:    x86_64
CPU op-mode(s):  32-bit, 64-bit
Byte Order:      Little Endian
CPU(s):          64
On-line CPU(s) list: 0-63
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s):       2
NUMA node(s):   2
Vendor ID:       GenuineIntel
CPU family:      6
Model:           106
Model name:      Intel(R) Xeon(R) Platinum 8358P CPU @ 2.60GHz
Stepping:        6
CPU MHz:         2610.370
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Platform Notes (Continued)

```

CPU max MHz:      3400.0000
CPU min MHz:      800.0000
BogoMIPS:         5200.00
Virtualization:   VT-x
L1d cache:        48K
L1i cache:        32K
L2 cache:         1280K
L3 cache:         49152K
NUMA node0 CPU(s): 0-31
NUMA node1 CPU(s): 32-63
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
aperfperf 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 invpcid_single ssbd
mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid 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 wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni
avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d
arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 49152 KB

```

From numactl --hardware

WARNING: a numactl 'node' might or might not correspond to a physical chip.

```

available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31
node 0 size: 257347 MB
node 0 free: 256276 MB
node 1 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56
57 58 59 60 61 62 63
node 1 size: 258038 MB
node 1 free: 257704 MB
node distances:
node  0  1
  0:  10  20
  1:  20  10

```

From /proc/meminfo

```

MemTotal:      527755344 kB
HugePages_Total:      0

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Platform Notes (Continued)

Hugepagesize: 2048 kB

/sbin/tuned-adm active

Current active profile: throughput-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:

CVE-2018-12207 (iTLB Multihit):

Not affected

CVE-2018-3620 (L1 Terminal Fault):

Not affected

Microarchitectural Data Sampling:

Not affected

CVE-2017-5754 (Meltdown):

Not affected

CVE-2018-3639 (Speculative Store Bypass):

Mitigation: Speculative Store Bypass disabled via prctl and seccomp

CVE-2017-5753 (Spectre variant 1):

Mitigation: usercopy/swapgs barriers and __user pointer sanitization

CVE-2017-5715 (Spectre variant 2):

Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling):

No status reported

CVE-2019-11135 (TSX Asynchronous Abort):

Not affected

run-level 3 Nov 21 17:27

SPEC is set to: /home/speccpu

Filesystem Type Size Used Avail Use% Mounted on

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Platform Notes (Continued)

/dev/mapper/rhel-home xfs 392G 63G 329G 17% /home

From /sys/devices/virtual/dmi/id

Vendor: H3C
Product: RS33M2C9S
Product Family: Rack

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:
16x Hynix HMA84GR7DJR4N-XN 32 GB 2 rank 3200
16x NO DIMM NO DIMM

BIOS:
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 5.34
BIOS Date: 09/11/2021
BIOS Revision: 5.22

(End of data from sysinfo program)

Compiler Version Notes

=====
C | 600.perlbench_s(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 | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)
| 625.x264_s(base, peak) 657.xz_s(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.
=====

=====
C | 600.perlbench_s(peak)
=====

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Compiler Version Notes (Continued)

64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
=====  
C      | 600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)  
      | 625.x264_s(base, peak) 657.xz_s(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.

```
=====  
C++   | 620.omnetpp_s(base, peak) 623.xalanbmk_s(base, peak)  
      | 631.deepsjeng_s(base, peak) 641.leela_s(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.

```
=====  
Fortran | 648.exchange2_s(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.

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Base Portability Flags

```
600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-DSPEC_OPENMP -std=c11 -m64 -fiopenmp -Wl,-z,muldefs -xCORE-AVX512
-O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

C++ benchmarks:

```
-DSPEC_OPENMP -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:

```
-m64 -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
```

Peak Compiler Invocation

C benchmarks (except as noted below):

icx

600.perlbench_s: icc

C++ benchmarks:

icpx

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Peak Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -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
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX512 -flto
-Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
605.mcf_s: basepeak = yes
```

```
625.x264_s: -DSPEC_OPENMP -fiopenmp -std=c11 -m64 -Wl,-z,muldefs
-xCORE-AVX512 -flto -O3 -ffast-math
-qopt-mem-layout-trans=4 -fno-alias
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
657.xz_s: basepeak = yes
```

C++ benchmarks:

```
620.omnetpp_s: basepeak = yes
```

```
623.xalancbmk_s: basepeak = yes
```

```
631.deepsjeng_s: basepeak = yes
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_int_base = 11.7

H3C UniServer R4900 G5 (Intel Xeon Platinum 8358P)

SPECspeed®2017_int_peak = 11.9

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2021

Hardware Availability: Sep-2020

Software Availability: Jan-2021

Peak Optimization Flags (Continued)

641.leela_s:basepeak = yes

Fortran benchmarks:

648.exchange2_s:basepeak = yes

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html

http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-CPX-RevD.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-V1.0-CPX-RevD.xml

SPEC CPU and SPECspeed 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 2021-11-21 04:29:20-0500.

Report generated on 2021-12-07 16:58:50 by CPU2017 PDF formatter v6442.

Originally published on 2021-12-07.