



SPEC® CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECSpeed2017_int_base = 10.5

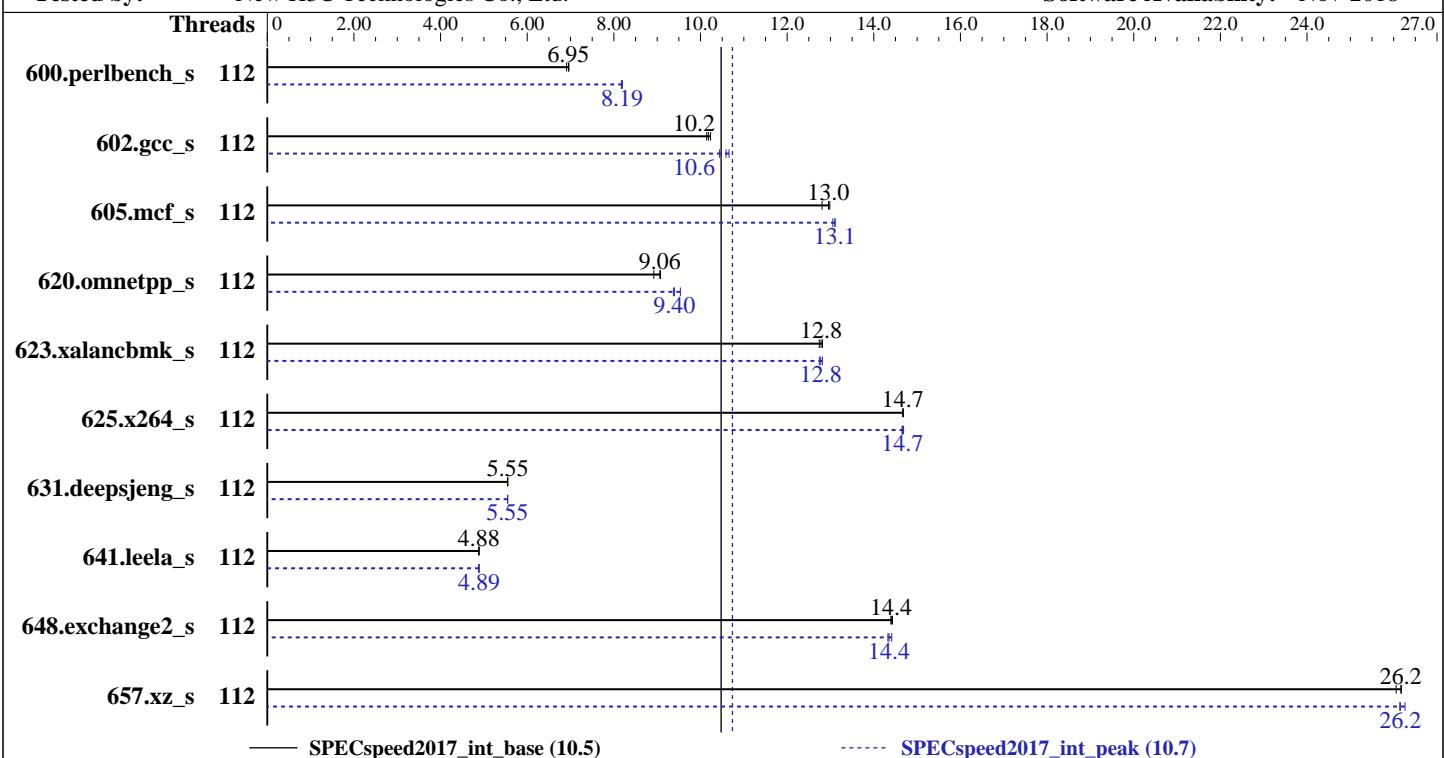
SPECSpeed2017_int_peak = 10.7

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

Test Date: May-2019

Hardware Availability: Apr-2019

Software Availability: Nov-2018



Hardware		Software	
CPU Name:	Intel Xeon Platinum 8280L	OS:	Red Hat Enterprise Linux Server release 7.6 (Maipo)
Max MHz.:	4000		3.10.0-957.10.1.el7.x86_64
Nominal:	2700	Compiler:	C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux;
Enabled:	112 cores, 4 chips		Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux
Orderable:	1,2,3,4 Chips	Parallel:	Yes
Cache L1:	32 KB I + 32 KB D on chip per core	Firmware:	Version 2.00.24 released Mar-2019BIOS
L2:	1 MB I+D on chip per core	File System:	xfs
L3:	38.5 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other:	None	Base Pointers:	64-bit
Memory:	384 GB (24 x 16 GB 2Rx8 PC4-2933V-R)	Peak Pointers:	64-bit
Storage:	1 x 480GB SATA SSD	Other:	jemalloc memory allocator V5.0.1
Other:	None		



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Results Table

Benchmark	Base								Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	112	257	6.91	255	6.95	255	6.96	112	217	8.17	217	8.19	217	8.19		
602.gcc_s	112	391	10.2	393	10.1	389	10.2	112	381	10.4	374	10.7	376	10.6		
605.mcf_s	112	364	13.0	364	13.0	369	12.8	112	360	13.1	360	13.1	362	13.1		
620.omnetpp_s	112	180	9.07	180	9.06	183	8.92	112	174	9.40	174	9.37	171	9.54		
623.xalancbmk_s	112	111	12.8	111	12.7	111	12.8	112	111	12.8	111	12.7	111	12.8		
625.x264_s	112	120	14.7	120	14.7	120	14.7	112	120	14.7	120	14.7	120	14.7		
631.deepsjeng_s	112	258	5.55	258	5.55	258	5.55	112	258	5.55	258	5.55	258	5.55		
641.leela_s	112	349	4.89	349	4.88	349	4.88	112	349	4.89	349	4.89	349	4.88		
648.exchange2_s	112	204	14.4	204	14.4	204	14.4	112	205	14.3	205	14.4	204	14.4		
657.xz_s	112	236	26.2	236	26.2	237	26.1	112	236	26.1	235	26.3	236	26.2		
SPECspeed2017_int_base = 10.5								SPECspeed2017_int_peak = 10.7								

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"

General Notes

Environment variables set by runcpu before the start of the run:

KMP_AFFINITY = "granularity=fine,scatter"

LD_LIBRARY_PATH = "/home/speccpu/lib/ia32:/home/speccpu/lib/intel64:/home/speccpu/je5.0.1-32:/home/speccpu/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5

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.

Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2018-3620 (Foreshadow-NG) 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

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECSpeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECSpeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

General Notes (Continued)

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

Platform Notes

BIOS Settings:

Set SNC to disabled

Set Hyper-Threading to disabled

Set Power Supply Mode to Performance

Set Autonomous Core C-State to enabled

Set Hardware Prefetch to disabled

Set Adjacent Cache Prefetch to disabled

Sysinfo program /home/speccpu/bin/sysinfo

Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9

running on localhost.localdomain Mon May 27 09:37:04 2019

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 8280L CPU @ 2.70GHz
        4 "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   : 28
    physical 0: 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
    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
    physical 2: 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
    physical 3: 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:

```
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:   1
Core(s) per socket:   28
Socket(s):             4
NUMA node(s):          4
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Platform Notes (Continued)

```

Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8280L CPU @ 2.70GHz
Stepping: 6
CPU MHz: 999.975
CPU max MHz: 4000.0000
CPU min MHz: 1000.0000
BogoMIPS: 5400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s): 0-27
NUMA node1 CPU(s): 28-55
NUMA node2 CPU(s): 56-83
NUMA node3 CPU(s): 84-111
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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmpfperf eagerfpu 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 epb cat_l3 cdp_l3 intel_pt ssbd mba
ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase
tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqmq mpx rdt_a avx512f avx512dq
rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1
cqmq_llc cqmq_occup_llc cqmq_mbm_total cqmq_mbm_local dtherm ida arat pln pts hwp
hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni spec_ctrl intel_stibp
flush_l1d 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 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
node 0 size: 96913 MB
node 0 free: 93058 MB
node 1 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55
node 1 size: 98304 MB
node 1 free: 95127 MB
node 2 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
81 82 83
node 2 size: 98304 MB

```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Platform Notes (Continued)

```
node 2 free: 93633 MB
node 3 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105
106 107 108 109 110 111
node 3 size: 98304 MB
node 3 free: 95404 MB
node distances:
node   0   1   2   3
  0: 10 21 21 21
  1: 21 10 21 21
  2: 21 21 10 21
  3: 21 21 21 10

From /proc/meminfo
MemTotal:           394618472 kB
HugePages_Total:        0
Hugepagesize:         2048 kB

From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.6 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VARIANT="Server"
  VARIANT_ID="server"
  VERSION_ID="7.6"
  PRETTY_NAME="OpenShift Enterprise"
redhat-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.6:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-957.10.1.el7.x86_64 #1 SMP Thu Feb 7 07:12:53 UTC
2019 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown):          Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: Load fences, __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS

run-level 3 May 27 05:08 last=5

SPEC is set to: /home/speccpu
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   392G  133G  260G  34% /home
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Platform Notes (Continued)

Additional information from dmidecode 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.

BIOS American Megatrends Inc. 2.00.24 03/08/2019

Memory:

24x Hynix HMA82GR7CJR8N-WM 16 GB 2 rank 2933

24x NO DIMM NO DIMM

(End of data from sysinfo program)

Compiler Version Notes

=====

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

=====

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018

Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====

CC 600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)

=====

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018

Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====

CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base,
peak) 641.leela_s(base, peak)

=====

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018

Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

=====

CXXC 620.omnetpp_s(peak)

=====

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018

Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Compiler Version Notes (Continued)

=====

FC 648.exchange2_s(base, peak)

=====

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:

icc -m64 -std=c11

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

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:

-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Base Optimization Flags (Continued)

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
-lqkmalloc
```

Fortran benchmarks:

```
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4  
-nostandard-realloc-lhs
```

Peak Compiler Invocation

C benchmarks:

```
icc -m64 -std=c11
```

C++ benchmarks:

```
icpc -m64
```

Fortran benchmarks:

```
ifort -m64
```

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) -O2  
-xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3  
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP -fno-strict-overflow  
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

```
602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2  
-xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3  
-no-prec-div -DSPEC_SUPPRESS_OPENMP  
-L/usr/local/je5.0.1-64/lib -ljemalloc
```

(Continued on next page)



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECspeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

Peak Optimization Flags (Continued)

605.mcf_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

625.x264_s: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

657.xz_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:

620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkalloc

623.xalancbmk_s: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkalloc

631.deepsjeng_s: Same as 623.xalancbmk_s

641.leela_s: Same as 623.xalancbmk_s

Fortran benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.html>
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.3-SKL-RevD.html

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.xml>
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.3-SKL-RevD.xml



SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECSpeed2017_int_base = 10.5

H3C UniServer R6700 G3 (Intel Xeon Platinum 8280L)

SPECSpeed2017_int_peak = 10.7

CPU2017 License: 9066

Test Date: May-2019

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Apr-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2018

SPEC is a registered trademark 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 CPU2017 v1.0.5 on 2019-05-26 21:37:03-0400.

Report generated on 2019-06-11 17:20:27 by CPU2017 PDF formatter v6067.

Originally published on 2019-06-11.