



# SPEC CPU®2017 Integer Speed Result

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## New H3C Technologies Co., Ltd.

SPECspeed®2017\_int\_base = 14.8

### H3C UniServer R6700 G6 (Intel Xeon Platinum 8460H)

SPECspeed®2017\_int\_peak = 15.0

CPU2017 License: 9066

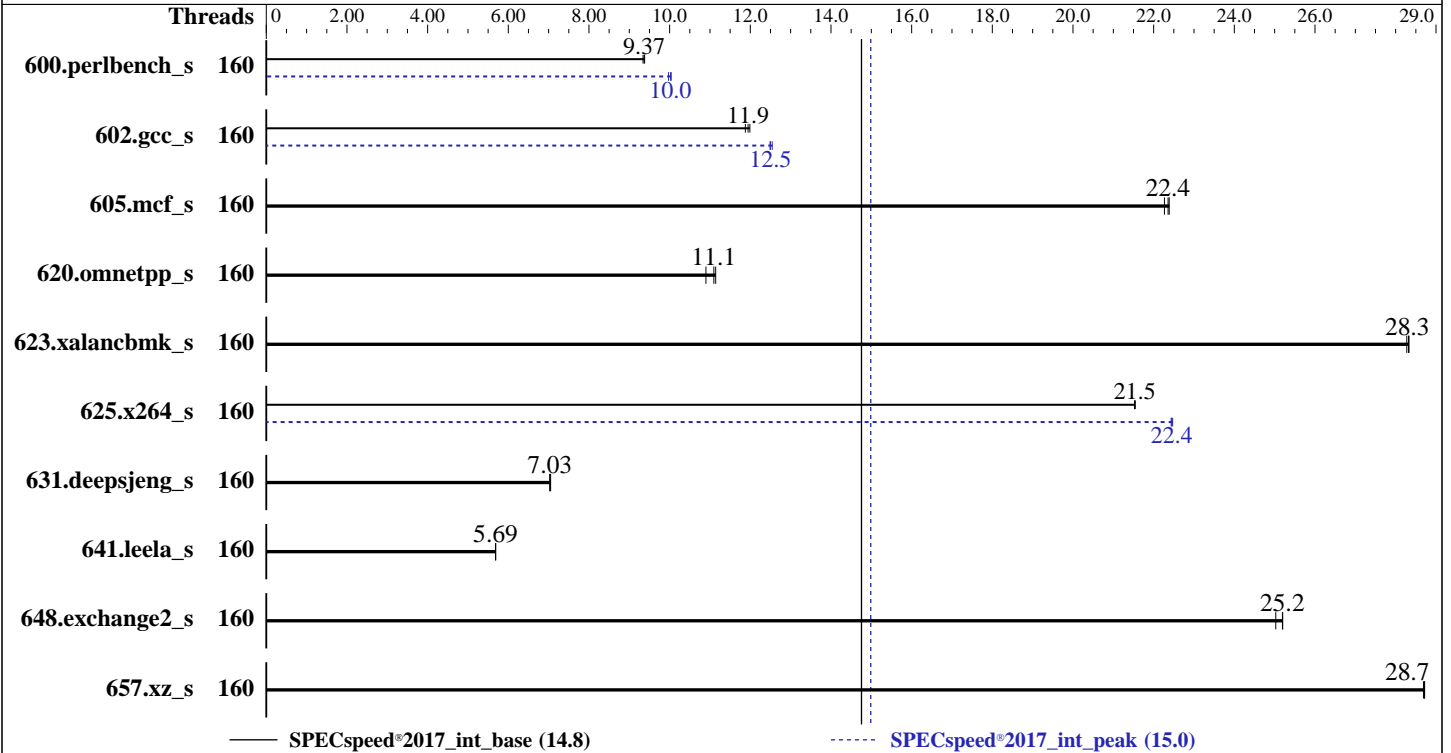
Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jul-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Platinum 8460H  
 Max MHz: 3800  
 Nominal: 2200  
 Enabled: 160 cores, 4 chips  
 Orderable: 1,2,3,4 chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 105 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (32 x 32 GB 2Rx8 PC5-4800B-R)  
 Storage: 1 x 7.68 TB NVME SSD  
 Other: None

### Software

OS: Red Hat Enterprise Linux 9.0 (Plow)  
 5.14.0-70.22.1.el9\_0.x86\_64  
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2023.0 of Intel Fortran Compiler  
 for Linux;  
 Parallel: Yes  
 Firmware: Version 5.29 released Jun-2023 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.



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## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	160	189	9.38	<b><u>189</u></b>	<b><u>9.37</u></b>	190	9.34	160	178	9.97	<b><u>177</u></b>	<b><u>10.0</u></b>	177	10.0
602.gcc_s	160	332	12.0	335	11.9	<b><u>333</u></b>	<b><u>11.9</u></b>	160	319	12.5	<b><u>319</u></b>	<b><u>12.5</u></b>	317	12.5
605.mcf_s	160	211	22.4	212	22.3	<b><u>211</u></b>	<b><u>22.4</u></b>	160	211	22.4	212	22.3	<b><u>211</u></b>	<b><u>22.4</u></b>
620.omnetpp_s	160	146	11.1	150	10.9	<b><u>147</u></b>	<b><u>11.1</u></b>	160	146	11.1	150	10.9	<b><u>147</u></b>	<b><u>11.1</u></b>
623.xalancbmk_s	160	50.1	28.3	50.0	28.3	<b><u>50.0</u></b>	<b><u>28.3</u></b>	160	50.1	28.3	50.0	28.3	<b><u>50.0</u></b>	<b><u>28.3</u></b>
625.x264_s	160	82.0	21.5	<b><u>81.9</u></b>	<b><u>21.5</u></b>	81.9	21.5	160	78.6	22.4	78.5	22.5	<b><u>78.6</u></b>	<b><u>22.4</u></b>
631.deepsjeng_s	160	203	7.05	204	7.03	<b><u>204</u></b>	<b><u>7.03</u></b>	160	203	7.05	204	7.03	<b><u>204</u></b>	<b><u>7.03</u></b>
641.leela_s	160	<b><u>300</u></b>	<b><u>5.69</u></b>	300	5.69	300	5.68	160	<b><u>300</u></b>	<b><u>5.69</u></b>	300	5.69	300	5.68
648.exchange2_s	160	117	25.2	117	25.0	<b><u>117</u></b>	<b><u>25.2</u></b>	160	117	25.2	117	25.0	<b><u>117</u></b>	<b><u>25.2</u></b>
657.xz_s	160	215	28.7	215	28.7	<b><u>215</u></b>	<b><u>28.7</u></b>	160	215	28.7	215	28.7	<b><u>215</u></b>	<b><u>28.7</u></b>

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk\_r / 623.xalancbmk\_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 [https://www.spec.org/cpu2017/Docs/runrules.html#rule\\_1.4](https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4)), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

## 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"  
MALLOC\_CONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4  
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

(Continued on next page)



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## General Notes (Continued)

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

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

## Platform Notes

BIOS Settings:

Set Enable LP [Global] to Single LP

Set Patrol Scrub to Disabled

Set Power Performance Tuning to BIOS Controls EFB

Set ENERGY\_PERF\_BIAS\_CFG\_mode to Performance

Set LLC Prefetch to Disabled

Set FB Thread Slicing to Enabled

Sysinfo program /home/speccpu/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost.localdomain Fri Jul 21 11:39:32 2023

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 250 (250-6.el9\_0)
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

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## Platform Notes (Continued)

Linux localhost.localdomain 5.14.0-70.22.1.el9\_0.x86\_64 #1 SMP PREEMPT Tue Aug 2 10:02:12 EDT 2022 x86\_64 x86\_64 x86\_64 GNU/Linux

```

2. w
  11:39:32 up 42 min,  2 users,  load average: 37.21, 88.62, 55.68
USER  TTY          LOGIN@   IDLE   JCPU   PCPU   WHAT
root  tty1        10:58    12.00s  0.83s  0.00s  -bash
root  pts/0      11:38    1:08   0.01s  0.01s  -bash

```

```

3. Username
  From environment variable $USER:  root

```

```

4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size                (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                    (blocks, -f) unlimited
pending signals              (-i) 4124390
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) 4124390
virtual memory                (kbytes, -v) unlimited
file locks                   (-x) unlimited

```

```

5. sysinfo process ancestry
/usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
login -- root
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags -c
  ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=160 --tune base,peak -o all --define
  intspeedaffinity --define drop_caches intspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile
  ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=160 --tune base,peak --output_format all
  --define intspeedaffinity --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed
  intspeed --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.024/templogs/preenv.intspeed.024.0.log
  --lognum 024.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/speccpu

```

```

6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Platinum 8460H
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 6
microcode      : 0x2b000181
bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs

```

(Continued on next page)



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## Platform Notes (Continued)

```

cpu cores      : 40
siblings      : 40
4 physical ids (chips)
160 processors (hardware threads)
physical id 0: core ids 0-39
physical id 1: core ids 0-39
physical id 2: core ids 0-39
physical id 3: core ids 0-39
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,204,206
physical id 2: apicids
256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,308,310,312,314,316,318,320,322,324,326,328,330,332,334
physical id 3: apicids
384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,436,438,440,442,444,446,448,450,452,454,456,458,460,462

```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

### 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):                 160
On-line CPU(s) list:   0-159
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:             Intel(R) Xeon(R) Platinum 8460H
BIOS Model name:       Intel(R) Xeon(R) Platinum 8460H
CPU family:             6
Model:                  143
Thread(s) per core:    1
Core(s) per socket:    40
Socket(s):              4
Stepping:               6
CPU max MHz:           3800.0000
CPU min MHz:           800.0000
BogoMIPS:               4400.00
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 intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
                        tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmil avx2
                        smep bmi2 erms invpcid 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 split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida
                        arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku

```

(Continued on next page)



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## Platform Notes (Continued)

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\_lld arch\_capabilities

Virtualization:

VT-x

L1d cache:

7.5 MiB (160 instances)

L1i cache:

5 MiB (160 instances)

L2 cache:

320 MiB (160 instances)

L3 cache:

420 MiB (4 instances)

NUMA node(s):

4

NUMA node0 CPU(s):

0-39

NUMA node1 CPU(s):

40-79

NUMA node2 CPU(s):

80-119

NUMA node3 CPU(s):

120-159

Vulnerability Itlb multihit:

Not affected

Vulnerability L1tf:

Not affected

Vulnerability Mds:

Not affected

Vulnerability Meltdown:

Not affected

Vulnerability Spec store bypass:

Mitigation; Speculative Store Bypass disabled via prctl

Vulnerability Spectre v1:

Mitigation; usercopy/swaps barriers and \_\_user pointer sanitization

Vulnerability Spectre v2:

Mitigation; Enhanced IBRS, IBPB conditional, RSB filling

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	7.5M	12	Data	1	64	1	64
L1i	32K	5M	8	Instruction	1	64	1	64
L2	2M	320M	16	Unified	2	2048	1	64
L3	105M	420M	15	Unified	3	114688	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: 0-39

node 0 size: 257060 MB

node 0 free: 250576 MB

node 1 cpus: 40-79

node 1 size: 258039 MB

node 1 free: 257182 MB

node 2 cpus: 80-119

node 2 size: 258039 MB

node 2 free: 257203 MB

node 3 cpus: 120-159

node 3 size: 258019 MB

node 3 free: 257240 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

9. /proc/meminfo

MemTotal: 1055906992 kB

10. who -r

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## Platform Notes (Continued)

run-level 3 Jul 21 10:56

11. Systemd service manager version: systemd 250 (250-6.el9\_0)

Default Target Status  
multi-user degraded

12. Failed units, from systemctl list-units --state=failed

UNIT LOAD ACTIVE SUB DESCRIPTION  
\* sep5.service loaded failed failed systemd script to load sep5 driver at boot time

13. Services, from systemctl list-unit-files

STATE UNIT FILES  
enabled ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online  
accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker gdm  
getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump libstoragemgmt lm\_sensors  
low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname  
nvmefc-boot-connections ostree-remount pmcd pmie pmlgger power-profiles-daemon  
gemu-guest-agent rhsmcrted rpcbind rsyslog rtkit-daemon selinux-autorelabel-mark sep5  
smartd sshd sssd switcheroo-control sysstat systemd-network-generator tuned udisks2 upower  
vgauthd virtgemud vmtoolsd  
enabled-runtime systemd-remount-fs  
disabled arp-ethers autofs blk-availability brltyt canberra-system-bootup canberra-system-shutdown  
canberra-system-shutdown-reboot chrony-wait cni-dhcp console-getty cpupower cups-browsed  
dbus-daemon debug-shell dnsmasq dovecot fancontrol fcoe firewallld grafana-server gssproxy  
httpd httpd@ ibacm iprdump iprinit iprupdate ipsec iscsid iscsiuiio kpatch kvm\_stat ledmon  
libvirt-guests libvirt d lldpad man-db-restart-cache-update named named-chroot nfs-blkmap  
nfs-server nftables nmb numad nvme-autoconnect pmfind pmie\_farm pmlgger\_farm pmproxy  
podman podman-auto-update podman-restart postfix powertop psacct ras-mc-ctl rasdaemon  
rdisc rhcd rhsm rhsm-facts rpmdb-rebuild rrdcached saslauthd serial-getty@ smb snmpd  
snmptrapd spamassassin speech-dispatcherd srp\_daemon srp\_daemon\_port@ sshd-keygen@  
systemd-boot-check-no-failures systemd-nspawn@ systemd-pstore systemd-sysex target  
targetclid tog-pegasus trace-cmd virtinterfaced virtnetworkd virtnodedevd virtnwfilterd  
virtproxyd virtsecret virtstoraged vsftpd wpa\_supplicant  
indirect pcsd spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo  
virtlockd virtlogd vsftpd@

14. Linux kernel boot-time arguments, from /proc/cmdline

BOOT\_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-70.22.1.el9\_0.x86\_64  
root=/dev/mapper/rhel-root  
ro  
crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M  
resume=/dev/mapper/rhel-swap  
rd.lvm.lv=rhel/root  
rd.lvm.lv=rhel/swap  
rhgb  
quiet

15. cpupower frequency-info

analyzing CPU 0:  
current policy: frequency should be within 800 MHz and 3.80 GHz.  
The governor "performance" may decide which speed to use  
within this range.  
boost state support:  
Supported: yes  
Active: yes

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## Platform Notes (Continued)

-----  
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 40  
vm.dirty\_writeback\_centisecs 500  
vm.dirtytime\_expire\_seconds 43200  
vm.extfrag\_threshold 500  
vm.min\_unmapped\_ratio 1  
vm.nr\_hugepages 0  
vm.nr\_hugepages\_mempolicy 0  
vm.nr\_overcommit\_hugepages 0  
vm.swappiness 10  
vm.watermark\_boost\_factor 15000  
vm.watermark\_scale\_factor 10  
vm.zone\_reclaim\_mode 0

-----  
18. /sys/kernel/mm/transparent\_hugepage  
defrag always defer defer+madvice [madvice] never  
enabled [always] madvice never  
hpage\_pmd\_size 2097152  
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 Red Hat Enterprise Linux 9.0 (Plow)  
redhat-release Red Hat Enterprise Linux release 9.0 (Plow)  
system-release Red Hat Enterprise Linux release 9.0 (Plow)

-----  
21. Disk information  
SPEC is set to: /home/speccpu  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/mapper/rhel-home xfs 7.0T 231G 6.7T 4% /home

-----  
22. /sys/devices/virtual/dmi/id  
Product Family: Rack

(Continued on next page)





# SPEC CPU®2017 Integer Speed Result

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New H3C Technologies Co., Ltd.

SPECspeed®2017\_int\_base = 14.8

H3C UniServer R6700 G6 (Intel Xeon Platinum 8460H)

SPECspeed®2017\_int\_peak = 15.0

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jul-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

## Platform Notes (Continued)

### 23. dmidecode

Additional information from dmidecode 3.3 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:

30x Micron MTC20F2085S1RC48BA1 32 GB 2 rank 4800  
1x Samsung M321R4GA3BB6-CQKMG 32 GB 2 rank 4800  
1x Samsung M321R4GA3BB6-CQKVG 32 GB 2 rank 4800

### 24. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends International, LLC.  
BIOS Version: 6.00.23  
BIOS Date: 06/20/2023  
BIOS Revision: 5.29

## Compiler Version Notes

C | 600.perlbench\_s(base, peak) 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 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_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 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Fortran | 648.exchange2\_s(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

(Continued on next page)



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## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifx

## 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:

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

C++ benchmarks:

```
-m64 -std=c++14 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

## Peak Compiler Invocation

C benchmarks:

icx

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SPECspeed®2017\_int\_peak = 15.0

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jul-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

## Peak Compiler Invocation (Continued)

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -fno-strict-overflow
-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.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

605.mcf\_s: basepeak = yes

```
625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: basepeak = yes

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## Peak Optimization Flags (Continued)

623.xalancbmk\_s: basepeak = yes

631.deepsjeng\_s: basepeak = yes

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-ic2023-official-linux64.html>

[http://www.spec.org/cpu2017/flags/New\\_H3C-Platform-Settings-V1.0-SPR-RevC.html](http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevC.html)

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

[http://www.spec.org/cpu2017/flags/New\\_H3C-Platform-Settings-V1.0-SPR-RevC.xml](http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.0-SPR-RevC.xml)

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