



# SPEC CPU®2017 Integer Rate Result

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**Bull SAS**

SPECrate®2017\_int\_base = 6030

**BullSequana SH81 (Intel Xeon 6788P)**

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 20

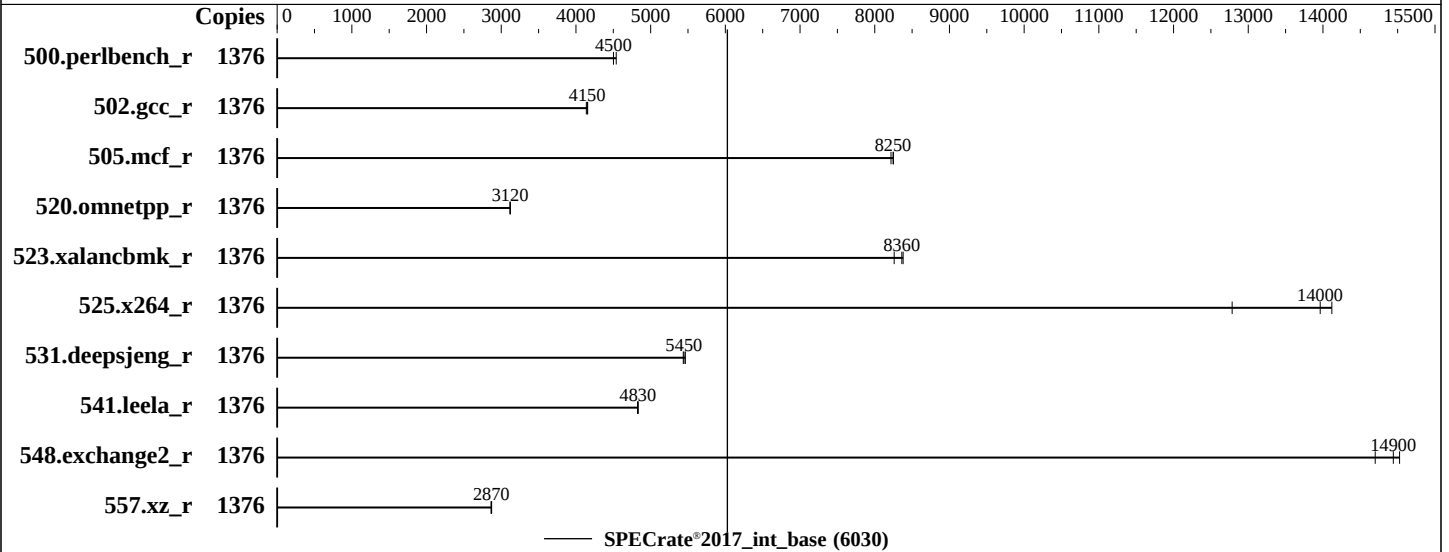
Test Sponsor: Bull SAS

Tested by: Bull SAS

Test Date: Sep-2025

Hardware Availability: Nov-2025

Software Availability: Jul-2025



## Hardware

CPU Name: Intel Xeon 6788P  
Max MHz: 3800  
Nominal: 2000  
Enabled: 688 cores, 8 chips, 2 threads/core  
Orderable: 6,8 chips  
Cache L1: 64 KB I + 48 KB D on chip per core  
L2: 2 MB I+D on chip per core  
L3: 336 MB I+D on chip per chip  
Other: None  
Memory: 4 TB (64 x 64 GB 2Rx4 PC5-6400B-R)  
Storage: 1920 GB Micron 7450 NVMe SSD  
Other: CPU Cooling: Air

## Software

OS: Red Hat Enterprise Linux 9.6 (Plow)  
5.14.0-570.12.1.el9\_6.x86\_64  
Compiler: C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux;  
Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;  
Parallel: No  
Firmware: Version BIOS\_BHS123.80.04.017 released Sep-2025  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
Other: None  
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   |         |       |         |       |         |       |
|-----------------|--------|-------------------|---------------------|-------------------|--------------------|-------------------|---------------------|--------|---------|-------|---------|-------|---------|-------|
|                 | Copies | Seconds           | Ratio               | Seconds           | Ratio              | Seconds           | Ratio               | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 500.perlbench_r | 1376   | 487               | 4500                | <b><u>487</u></b> | <b><u>4500</u></b> | 483               | 4540                |        |         |       |         |       |         |       |
| 502.gcc_r       | 1376   | <b><u>469</u></b> | <b><u>4150</u></b>  | 469               | 4160               | 471               | 4140                |        |         |       |         |       |         |       |
| 505.mcf_r       | 1376   | 271               | 8220                | <b><u>270</u></b> | <b><u>8250</u></b> | 270               | 8250                |        |         |       |         |       |         |       |
| 520.omnetpp_r   | 1376   | 579               | 3120                | <b><u>579</u></b> | <b><u>3120</u></b> | 579               | 3120                |        |         |       |         |       |         |       |
| 523.xalancbmk_r | 1376   | 176               | 8260                | <b><u>174</u></b> | <b><u>8360</u></b> | 173               | 8380                |        |         |       |         |       |         |       |
| 525.x264_r      | 1376   | 171               | 14100               | 188               | 12800              | <b><u>173</u></b> | <b><u>14000</u></b> |        |         |       |         |       |         |       |
| 531.deepsjeng_r | 1376   | 289               | 5460                | 290               | 5440               | <b><u>290</u></b> | <b><u>5450</u></b>  |        |         |       |         |       |         |       |
| 541.leela_r     | 1376   | 472               | 4820                | 472               | 4830               | <b><u>472</u></b> | <b><u>4830</u></b>  |        |         |       |         |       |         |       |
| 548.exchange2_r | 1376   | <b><u>241</u></b> | <b><u>14900</u></b> | 245               | 14700              | 240               | 15000               |        |         |       |         |       |         |       |
| 557.xz_r        | 1376   | 519               | 2860                | <b><u>518</u></b> | <b><u>2870</u></b> | 518               | 2870                |        |         |       |         |       |         |       |

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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/spec/lib/intel64:/home/spec/lib/ia32:/home/spec/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>

## Platform Notes

BIOS Configuration:  
DCU Streamer Prefetcher = Disabled  
SNC = Enabled

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## Platform Notes (Continued)

Power Performance Tuning = BIOS controls EPB  
ENERGY\_PERF\_BIAS\_CFG mode = Hyper Performance

Sysinfo program /home/spec/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on cheops Fri Oct 31 09:26:48 2025

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 252 (252-51.el9)
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 cheops 5.14.0-570.12.1.el9\_6.x86\_64 #1 SMP PREEMPT\_DYNAMIC Fri Apr 4 10:41:31 EDT 2025 x86\_64 x86\_64  
x86\_64 GNU/Linux

2. w  
09:26:48 up 14:37, 2 users, load average: 11.64, 138.17, 567.95  
USER TTY LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 Thu18 14:35m 0.02s 0.02s -bash  
root pts/0 09:25 1:12 0.03s 0.03s -bash

3. Username  
From environment variable \$USER: root

4. ulimit -a  
real-time non-blocking time (microseconds, -R) unlimited  
core file size (blocks, -c) unlimited  
data seg size (kbytes, -d) unlimited  
scheduling priority (-e) 0

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### Platform Notes (Continued)

|                      |                         |
|----------------------|-------------------------|
| file size            | (blocks, -f) unlimited  |
| pending signals      | (-i) 16507874           |
| max locked memory    | (kbytes, -l) 8192       |
| max memory size      | (kbytes, -m) unlimited  |
| open files           | (-n) 16384              |
| 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) 16507874           |
| virtual memory       | (kbytes, -v) unlimited  |
| file locks           | (-x) unlimited          |

```
-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
bash tasks.sh
bash run_one_rate.sh 3 intrate
runcpu --copies 1376 --configfile Mesca6_4S --define smt-on --define numactl --define cores=688 --define
  invoke_with_interleave --define drop_caches --iterations=3 --reportable --size=ref --tune base -o all
  intrate
runcpu --copies 1376 --configfile Mesca6_4S --define smt-on --define numactl --define cores=688 --define
  invoke_with_interleave --define drop_caches --iterations 3 --reportable --size ref --tune base
  --output_format all --nopower --runmode rate --tune base --size refrate intrate --nopreenv --note-preenv
  --logfile $SPEC/tmp/CPU2017.211/templogs/preenv.intrate.211.0.log --lognum 211.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/spec
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) 6788P
vendor_id      : GenuineIntel
cpu family     : 6
model          : 173
stepping       : 1
microcode      : 0x10003c2
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi
cpu cores      : 86
siblings       : 172
8 physical ids (chips)
1376 processors (hardware threads)
physical id 0: core ids 0-42,64-106
physical id 1: core ids 0-42,64-106
physical id 2: core ids 0-42,64-106
physical id 3: core ids 0-42,64-106
physical id 4: core ids 0-42,64-106
physical id 5: core ids 0-42,64-106
physical id 6: core ids 0-42,64-106
physical id 7: core ids 0-42,64-106
physical id 0: apicids 0-85,128-213
physical id 1: apicids 256-341,384-469
physical id 2: apicids 512-597,640-725
physical id 3: apicids 768-853,896-981
physical id 4: apicids 1024-1109,1152-1237
physical id 5: apicids 1280-1365,1408-1493
physical id 6: apicids 1536-1621,1664-1749
physical id 7: apicids 1792-1877,1920-2005
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):                 1376
On-line CPU(s) list:    0-1375
Vendor ID:              GenuineIntel
BIOS Vendor ID:         Intel(R) Corporation
Model name:              Intel(R) Xeon(R) 6788P
BIOS Model name:        Intel(R) Xeon(R) 6788P
CPU family:              6
Model:                  173
Thread(s) per core:     2
Core(s) per socket:     86
Socket(s):               8
Stepping:                1
CPU(s) scaling MHz:     21%
CPU max MHz:             3800.0000
CPU min MHz:             800.0000
BogoMIPS:                4000.00
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 intel_ppin cdp_l2
                        ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
                        vpid ept_ad fsgsbase tsc_adjust bmi1 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 vnmi 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 ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_l1d
                        arch_capabilities
Virtualization:          VT-x
L1d cache:               32.3 MiB (688 instances)
L1i cache:               43 MiB (688 instances)
L2 cache:                 1.3 GiB (688 instances)
L3 cache:                 2.6 GiB (8 instances)
NUMA node(s):            16
NUMA node0 CPU(s):       0-42,688-730
NUMA node1 CPU(s):       43-85,731-773
NUMA node2 CPU(s):       86-128,774-816
NUMA node3 CPU(s):       129-171,817-859
NUMA node4 CPU(s):       172-214,860-902
NUMA node5 CPU(s):       215-257,903-945
NUMA node6 CPU(s):       258-300,946-988
NUMA node7 CPU(s):       301-343,989-1031
NUMA node8 CPU(s):       344-386,1032-1074
```

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### Platform Notes (Continued)

```
NUMA node9 CPU(s):          387-429,1075-1117
NUMA node10 CPU(s):         430-472,1118-1160
NUMA node11 CPU(s):         473-515,1161-1203
NUMA node12 CPU(s):         516-558,1204-1246
NUMA node13 CPU(s):         559-601,1247-1289
NUMA node14 CPU(s):         602-644,1290-1332
NUMA node15 CPU(s):         645-687,1333-1375
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:      Not affected
Vulnerability L1tf:               Not affected
Vulnerability Mds:                Not affected
Vulnerability Meltdown:           Not affected
Vulnerability Mmio stale data:    Not affected
Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed:           Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass:  Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:         Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:         Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling;
                                   PBRSE-eIBRS Not affected; BHI BHI_DIS_S
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      | 32.3M    | 12   | Data        | 1     | 64     | 1        | 64             |
| L1i  | 64K      | 43M      | 16   | Instruction | 1     | 64     | 1        | 64             |
| L2   | 2M       | 1.3G     | 16   | Unified     | 2     | 2048   | 1        | 64             |
| L3   | 336M     | 2.6G     | 16   | Unified     | 3     | 344064 | 1        | 64             |

8. numactl --hardware

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

```
available: 16 nodes (0-15)
node 0 cpus: 0-42,688-730
node 0 size: 256738 MB
node 0 free: 254730 MB
node 1 cpus: 43-85,731-773
node 1 size: 258026 MB
node 1 free: 257046 MB
node 2 cpus: 86-128,774-816
node 2 size: 258026 MB
node 2 free: 256901 MB
node 3 cpus: 129-171,817-859
node 3 size: 258026 MB
node 3 free: 257036 MB
node 4 cpus: 172-214,860-902
node 4 size: 258026 MB
node 4 free: 256328 MB
node 5 cpus: 215-257,903-945
node 5 size: 258026 MB
node 5 free: 257067 MB
node 6 cpus: 258-300,946-988
node 6 size: 258026 MB
node 6 free: 256895 MB
node 7 cpus: 301-343,989-1031
node 7 size: 258026 MB
node 7 free: 257037 MB
node 8 cpus: 344-386,1032-1074
node 8 size: 257980 MB
```

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### Platform Notes (Continued)

node 8 free: 256399 MB  
node 9 cpus: 387-429,1075-1117  
node 9 size: 258026 MB  
node 9 free: 257117 MB  
node 10 cpus: 430-472,1118-1160  
node 10 size: 258026 MB  
node 10 free: 257081 MB  
node 11 cpus: 473-515,1161-1203  
node 11 size: 258026 MB  
node 11 free: 257022 MB  
node 12 cpus: 516-558,1204-1246  
node 12 size: 258026 MB  
node 12 free: 256288 MB  
node 13 cpus: 559-601,1247-1289  
node 13 size: 258026 MB  
node 13 free: 257092 MB  
node 14 cpus: 602-644,1290-1332  
node 14 size: 258026 MB  
node 14 free: 257054 MB  
node 15 cpus: 645-687,1333-1375  
node 15 size: 257974 MB  
node 15 free: 257004 MB

node distances:

| node | 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 |
|------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0:   | 10 | 12 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 |
| 1:   | 12 | 10 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 |
| 2:   | 21 | 21 | 10 | 12 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 |
| 3:   | 21 | 21 | 12 | 10 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 |
| 4:   | 21 | 21 | 31 | 31 | 10 | 12 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 |
| 5:   | 21 | 21 | 31 | 31 | 12 | 10 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 |
| 6:   | 31 | 31 | 21 | 21 | 21 | 21 | 10 | 12 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 |
| 7:   | 31 | 31 | 21 | 21 | 21 | 21 | 12 | 10 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 |
| 8:   | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 10 | 12 | 21 | 21 | 21 | 21 | 31 | 31 |
| 9:   | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 12 | 10 | 21 | 21 | 21 | 21 | 31 | 31 |
| 10:  | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 10 | 12 | 31 | 31 | 21 | 21 |
| 11:  | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 12 | 10 | 31 | 31 | 21 | 21 |
| 12:  | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 10 | 12 | 21 | 21 |
| 13:  | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 12 | 10 | 21 | 21 |
| 14:  | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 10 | 12 |
| 15:  | 31 | 31 | 21 | 21 | 21 | 21 | 31 | 31 | 31 | 31 | 21 | 21 | 21 | 21 | 12 | 10 |

9. /proc/meminfo  
MemTotal: 4226083160 kB

10. who -r  
run-level 3 Oct 30 18:51

11. Systemd service manager version: systemd 252 (252-51.el9)  
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

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### Platform Notes (Continued)

#### 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 firewalld  
gdm getty@ insights-client-boot irqbalance iscsi-onboot iscsi-starter kdump libstoragemgmt  
lm\_sensors low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd  
nis-domainname nvme-fc-boot-connections ostree-remount pmcd pmie pmlogger  
power-profiles-daemon qemu-guest-agent rhsmcertd rsyslog rtkit-daemon  
selinux-autorelabel-mark smartd sshd sssd switcheroo-control sysstat systemd-boot-update  
systemd-network-generator tuned udisks2 upower vgauthd vmtoolsd

enabled-runtime systemd-remount-fs

disabled arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown  
canberra-system-shutdown-reboot chrony-wait chronyd-restricted cni-dhcp console-getty  
cpupower cups-browsed dbus-daemon debug-shell dnf-system-upgrade dnsmasq fancontrol  
grafana-server iprump iprinit iprupdate iscsi-init iscsid iscsiuiop kpatch kvm\_stat ledmon  
lvm-devices-import man-db-restart-cache-update netavark-dhcp-proxy  
netavark-firewalld-reload nftables nvme-fc-autoconnect ostree-readonly-sysroot-migration  
ostree-state-overlay@ pcp-geolocate pmfind pmie\_farm pmlogger\_farm pmproxy podman  
podman-auto-update podman-clean-transient podman-kube@ podman-restart postfix powertop  
psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts rpmbd-rebuild rrdcached saslauthd  
selinux-check-proper-disable serial-getty@ speech-dispatcherd sshd-keygen@  
systemd-boot-check-no-failures systemd-pstore systemd-sysex wpa\_supplicant

indirect iscsi spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo  
systemd-sysupdate systemd-sysupdate-reboot

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

BOOT\_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-570.12.1.el9\_6.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 437:

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

#### 16. tuned-adm active

Current active profile: throughput-performance

#### 17. sysctl

|                             |      |
|-----------------------------|------|
| kernel.numa_balancing       | 0    |
| 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 |

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

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## Bull SAS

SPECrate®2017\_int\_base = 6030

## BullSequana SH81 (Intel Xeon 6788P)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 20

Test Sponsor: Bull SAS

Tested by: Bull SAS

Test Date: Sep-2025

Hardware Availability: Nov-2025

Software Availability: Jul-2025

### Platform Notes (Continued)

```
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 9.6 (Plow)
redhat-release  Red Hat Enterprise Linux release 9.6 (Plow)
system-release  Red Hat Enterprise Linux release 9.6 (Plow)
-----
```

```
-----
21. Disk information
SPEC is set to: /home/spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   372G  11G  361G   3% /home
-----
```

```
-----
22. /sys/devices/virtual/dmi/id
Vendor:      BULL
Product:     BullSequana SH series
Product Family: -
Serial:      XAN-S60-00048
-----
```

```
-----
23. dmidecode
Additional information from dmidecode 3.6 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:
24x Micron MTC40F2046S1RC64BD2 MXCC 64 GB 2 rank 6400
8x Micron MTC40F2046S1RC64BD2 QSFF 64 GB 2 rank 6400
19x Samsung M321R8GA0EB2-CCPKC 64 GB 2 rank 6400
-----
```

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# SPEC CPU®2017 Integer Rate Result

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Software Availability: Jul-2025

## Platform Notes (Continued)

13x Samsung M321R8GA0EB2-CCPWC 64 GB 2 rank 6400

### 24. BIOS

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

BIOS Vendor: BULL  
BIOS Version: BIOS\_BHS123.80.04.017-D  
BIOS Date: 09/26/2025  
BIOS Revision: 51.80

## Compiler Version Notes

=====  
C | 500.perlbench\_r(base) 502.gcc\_r(base) 505.mcf\_r(base) 525.x264\_r(base) 557.xz\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.  
=====

=====  
C++ | 520.omnetpp\_r(base) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base) 541.leela\_r(base)  
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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=====

=====  
Fortran | 548.exchange2\_r(base)  
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308  
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=====

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Base Portability Flags

500.perlbench\_r: -DSPEC\_LP64 -DSPEC\_LINUX\_X64

502.gcc\_r: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

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Test Date: Sep-2025

Hardware Availability: Nov-2025

Software Availability: Jul-2025

## Base Portability Flags (Continued)

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/2024.1/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/2024.1/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/2024.1/lib -lqkmalloc

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

<http://www.spec.org/cpu2017/flags/BullSequanaSH-Flags-V1.7.html>

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

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

<http://www.spec.org/cpu2017/flags/BullSequanaSH-Flags-V1.7.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

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