SPEC CPU®2017 Integer Rate Result

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Bull SAS

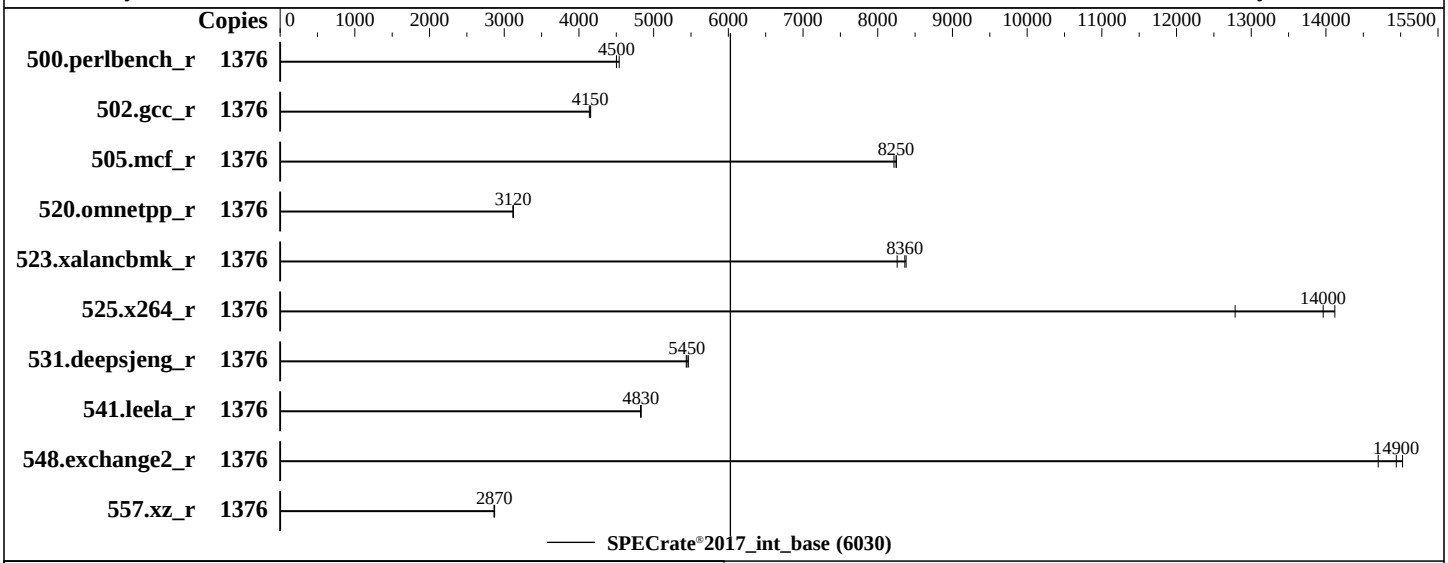
BullSequana SH81 (Intel Xeon 6788P)

SPECrate®2017_int_base = 6030

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	**487**	**4500**	483	4540							
502.gcc_r	1376	**469**	**4150**	469	4160	471	4140							
505.mcf_r	1376	271	8220	**270**	**8250**	270	8250							
520.omnetpp_r	1376	579	3120	**579**	**3120**	579	3120							
523.xalancbmk_r	1376	176	8260	**174**	**8360**	173	8380							
525.x264_r	1376	171	14100	188	12800	**173**	**14000**							
531.deepsjeng_r	1376	289	5460	290	5440	**290**	**5450**							
541.leela_r	1376	472	4820	472	4830	**472**	**4830**							
548.exchange2_r	1376	**241**	**14900**	245	14700	240	15000							
557.xz_r	1376	519	2860	**518**	**2870**	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
```

(Continued on next page)

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
```

(Continued on next page)

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;
                                       PBRSB-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 nvmefc-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 iprdump iprinit iprupdate iscsi-init iscsid iscsiuio kpatch kvm_stat ledmon
                   lvm-devices-import man-db-restart-cache-update netavark-dhcp-proxy
                   netavark-firewalld-reload nftables nvmf-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 rpmdb-rebuild rrdcached saslauthd
                   selinux-check-proper-disable serial-getty@ speech-dispatcherd sshd-keygen@
                   systemd-boot-check-no-failures systemd-pstore systemd-sysext 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
```

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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+madvise [madvise] never
  enabled         [always] madvise 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
```

(Continued on next page)

Platform Notes (Continued)

```
     13x Samsung M321R8GA0EB2-CCPWC 64 GB 2 rank 6400


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 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
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
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)

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.

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