SPEC CPU®2017 Integer Rate Result

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Bull SAS

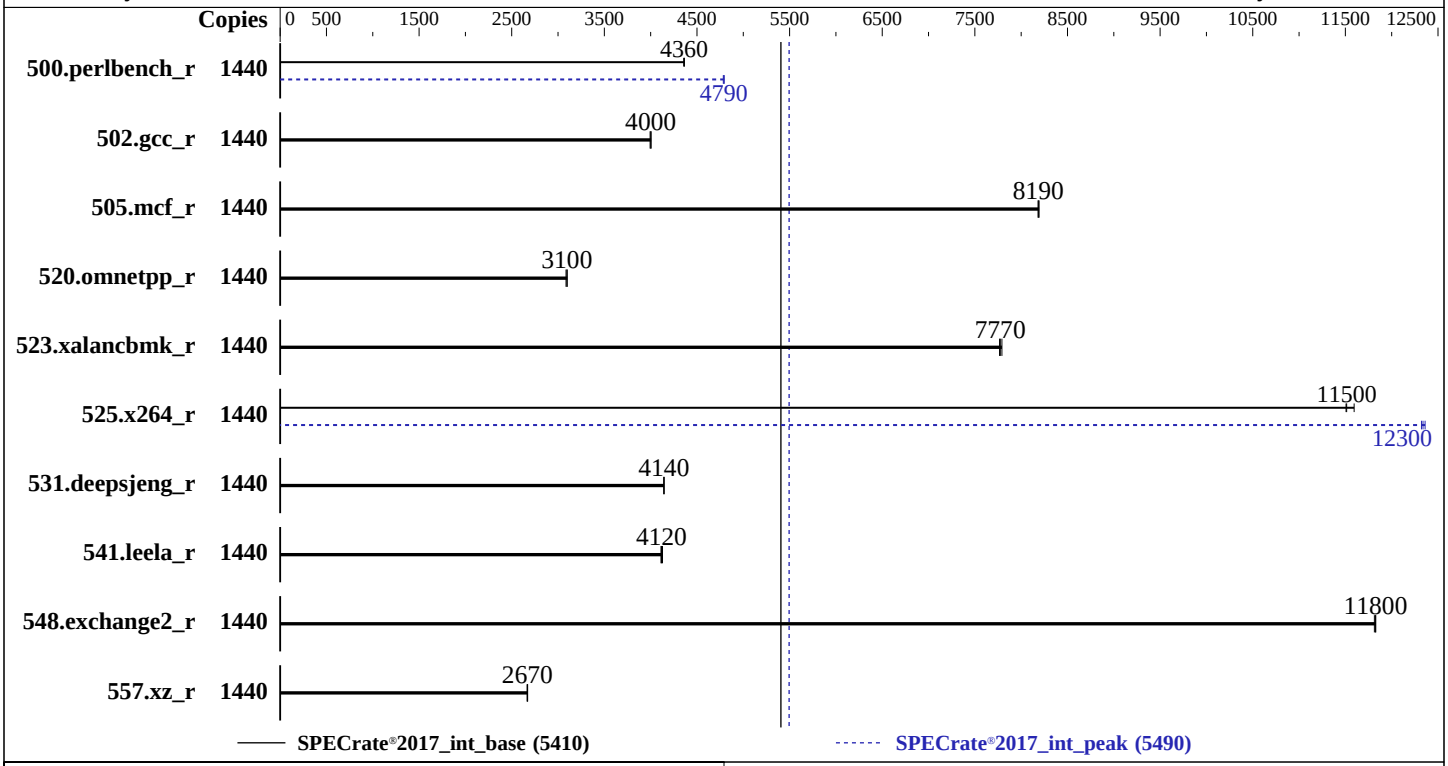
BullSequana SH160 (Intel Xeon Platinum 8490H)

SPECrate®2017_int_base = 5410

SPECrate®2017_int_peak = 5490

CPU2017 License: 20
Test Sponsor: Bull SAS
Tested by: Bull SAS

Test Date: Aug-2024
Hardware Availability: Jun-2024
Software Availability: Dec-2023



Hardware

CPU Name:	Intel Xeon Platinum 8490H
Max MHz:	3500
Nominal:	1900
Enabled:	720 cores, 12 chips, 2 threads/core
Orderable:	12,16 chips
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	2 MB I+D on chip per core
L3:	112.5 MB I+D on chip per chip
Other:	None
Memory:	6 TB (96 x 64 GB 2Rx4 PC5-4800B-R)
Storage:	1 x 15.4 TB NVME RAID SSD 1 x 960 GB NVME SSD
Other:	CPU Cooling: Air

Software

OS:	Red Hat Enterprise Linux 9.2 (Plow) 5.14.0-284.30.1.el9_2.x86_64
Compiler:	C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.2.3 of Intel Fortran Compiler for Linux;
Parallel:	No
Firmware:	Version BIOS_SAR121.79.00.007 released Jun-2024
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	None
Power Management:	BIOS and OS set to prefer performance at the cost of additional power usage.

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	1440	**526**	**4360**	526	4360	525	4360	1440	478	4790	**479**	**4790**	479	4780
502.gcc_r	1440	509	4000	511	3990	**510**	**4000**	1440	509	4000	511	3990	**510**	**4000**
505.mcf_r	1440	**284**	**8190**	284	8190	284	8180	1440	**284**	**8190**	284	8190	284	8180
520.omnetpp_r	1440	**610**	**3100**	610	3100	612	3090	1440	**610**	**3100**	610	3100	612	3090
523.xalancbmk_r	1440	196	7770	**196**	**7770**	195	7790	1440	196	7770	**196**	**7770**	195	7790
525.x264_r	1440	**219**	**11500**	217	11600	219	11500	1440	204	12400	205	12300	**204**	**12300**
531.deepsjeng_r	1440	398	4140	**398**	**4140**	398	4140	1440	398	4140	**398**	**4140**	398	4140
541.leela_r	1440	580	4110	**579**	**4120**	578	4130	1440	580	4110	**579**	**4120**	578	4130
548.exchange2_r	1440	319	11800	**319**	**11800**	319	11800	1440	319	11800	**319**	**11800**	319	11800
557.xz_r	1440	**583**	**2670**	583	2670	582	2670	1440	**583**	**2670**	583	2670	582	2670

SPECrate®2017_int_base = 5410

SPECrate®2017_int_peak = 5490

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"
Not using the LTS version of the kernel
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/mnt/spec/lib/intel64:/mnt/spec/lib/ia32:/mnt/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>

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.
```

Platform Notes

```
BIOS Configuration:
DCU Streamer Prefetcher = Disabled
Power Performance Tuning = BIOS Controls EPB
Energy Perf Bias CFG mode = Performance0
Enable dIout tuning = enabled
LLC Dead Line Alloc = disabled
Package C State = C0/C1 state
Patrol Scrub = Disabled
BMC Configuration:
FansFullSpeed = True

 Sysinfo program /mnt/spec/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on mesca516s-02 Tue Aug 20 10:50:52 2024

 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 (252-14.el9_2.3)
 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 mesca516s-02 5.14.0-284.30.1.el9_2.x86_64 #1 SMP PREEMPT_DYNAMIC Fri Aug 25 09:13:12 EDT 2023 x86_64
   x86_64 x86_64 GNU/Linux

 ------------------------------------------------------------
 2. w
    10:50:52 up 2 days, 20:10,  2 users,  load average: 0.68, 110.38, 415.38
   USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
   root     pts/0     09:40    1:05m  0.01s  0.01s -bash
   root     pts/1     10:07   60.00s  4.99s  3.33s top

 ------------------------------------------------------------
 3. Username
```

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Platform Notes (Continued)

```
  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) 24766553
  max locked memory           (kbytes, -l) 8192
  max memory size             (kbytes, -m) unlimited
  open files                          (-n) 40000
  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) 24766553
  virtual memory              (kbytes, -v) unlimited
  file locks                          (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: root [priv]
 sshd: root@pts/1
 -bash
 bash $SPEC/run_one_rate.sh 3 intrate
 runcpu --copies 1440 --configfile mesca5_16S --define smt-on --define cores=720 --define
   invoke_with_interleave --define drop_caches --iterations=3 --reportable --size=ref --tune all -o all
   intrate
 runcpu --copies 1440 --configfile mesca5_16S --define smt-on --define cores=720 --define
   invoke_with_interleave --define drop_caches --iterations 3 --reportable --size ref --tune all
   --output_format all --nopower --runmode rate --tune base:peak --size refrate intrate --nopreenv
   --note-preenv --logfile $SPEC/tmp/CPU2017.070/templogs/preenv.intrate.070.0.log --lognum 070.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /mnt/spec

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Platinum 8490H
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 8
    microcode       : 0x2b0005c0
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
    cpu cores       : 60
    siblings        : 120
    12 physical ids (chips)
    1440 processors (hardware threads)
    physical id 0: core ids 0-59
    physical id 1: core ids 0-59
    physical id 2: core ids 0-59
    physical id 3: core ids 0-59
    physical id 4: core ids 0-59
    physical id 5: core ids 0-59
```

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Platform Notes (Continued)

```
    physical id 6: core ids 0-59
    physical id 7: core ids 0-59
    physical id 8: core ids 0-59
    physical id 9: core ids 0-59
    physical id 10: core ids 0-59
    physical id 11: core ids 0-59
    physical id 0: apicids 0-119
    physical id 1: apicids 128-247
    physical id 2: apicids 256-375
    physical id 3: apicids 384-503
    physical id 4: apicids 512-631
    physical id 5: apicids 640-759
    physical id 6: apicids 768-887
    physical id 7: apicids 896-1015
    physical id 8: apicids 1024-1143
    physical id 9: apicids 1152-1271
    physical id 10: apicids 1280-1399
    physical id 11: apicids 1408-1527
  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:                   46 bits physical, 57 bits virtual
  Byte Order:                      Little Endian
  CPU(s):                          1440
  On-line CPU(s) list:             0-1439
  Vendor ID:                       GenuineIntel
  BIOS Vendor ID:                  Intel(R) Corporation
  Model name:                      Intel(R) Xeon(R) Platinum 8490H
  BIOS Model name:                 Intel(R) Xeon(R) Platinum 8490H
  CPU family:                      6
  Model:                           143
  Thread(s) per core:              2
  Core(s) per socket:              60
  Socket(s):                       12
  Stepping:                        8
  CPU max MHz:                     3500.0000
  CPU min MHz:                     800.0000
  BogoMIPS:                        3800.00
  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 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 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
```

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Platform Notes (Continued)

```
                                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:                    33.8 MiB (720 instances)
  L1i cache:                    22.5 MiB (720 instances)
  L2 cache:                     1.4 GiB (720 instances)
  L3 cache:                     1.3 GiB (12 instances)
  NUMA node(s):                 12
  NUMA node0 CPU(s):            0-59,720-779
  NUMA node1 CPU(s):            60-119,780-839
  NUMA node2 CPU(s):            120-179,840-899
  NUMA node3 CPU(s):            180-239,900-959
  NUMA node4 CPU(s):            240-299,960-1019
  NUMA node5 CPU(s):            300-359,1020-1079
  NUMA node6 CPU(s):            360-419,1080-1139
  NUMA node7 CPU(s):            420-479,1140-1199
  NUMA node8 CPU(s):            480-539,1200-1259
  NUMA node9 CPU(s):            540-599,1260-1319
  NUMA node10 CPU(s):           600-659,1320-1379
  NUMA node11 CPU(s):           660-719,1380-1439
  Vulnerability Itlb multihit:  Not affected
  Vulnerability L1tf:           Not affected
  Vulnerability Mds:            Not affected
  Vulnerability Meltdown:       Not affected
  Vulnerability Mmio stale data: Not affected
  Vulnerability Retbleed:       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 IBRS, IBPB conditional, RSB filling, PBRSB-eIBRS SW
                                sequence
  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    33.8M   12 Data            1     64        1             64
     L1i       32K    22.5M    8 Instruction     1     64        1             64
     L2         2M     1.4G   16 Unified         2   2048        1             64
     L3     112.5M     1.3G   15 Unified         3 122880        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 12 nodes (0-11)
  node 0 cpus: 0-59,720-779
  node 0 size: 515027 MB
  node 0 free: 512240 MB
  node 1 cpus: 60-119,780-839
  node 1 size: 516018 MB
  node 1 free: 514094 MB
  node 2 cpus: 120-179,840-899
  node 2 size: 516069 MB
  node 2 free: 514263 MB
  node 3 cpus: 180-239,900-959
  node 3 size: 516069 MB
  node 3 free: 514152 MB
  node 4 cpus: 240-299,960-1019
  node 4 size: 516069 MB
  node 4 free: 513933 MB
  node 5 cpus: 300-359,1020-1079
```

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Platform Notes (Continued)

```
  node 5 size: 516069 MB
  node 5 free: 514101 MB
  node 6 cpus: 360-419,1080-1139
  node 6 size: 516069 MB
  node 6 free: 513805 MB
  node 7 cpus: 420-479,1140-1199
  node 7 size: 516069 MB
  node 7 free: 514104 MB
  node 8 cpus: 480-539,1200-1259
  node 8 size: 516069 MB
  node 8 free: 514296 MB
  node 9 cpus: 540-599,1260-1319
  node 9 size: 516069 MB
  node 9 free: 514332 MB
  node 10 cpus: 600-659,1320-1379
  node 10 size: 516069 MB
  node 10 free: 514264 MB
  node 11 cpus: 660-719,1380-1439
  node 11 size: 516029 MB
  node 11 free: 514188 MB
  node distances:
  node   0   1   2   3   4   5   6   7   8   9  10  11
    0:  10  21  21  21  41  41  41  41  41  41  41  41
    1:  21  10  21  21  41  41  41  41  41  41  41  41
    2:  21  21  10  21  41  41  41  41  41  41  41  41
    3:  21  21  21  10  41  41  41  41  41  41  41  41
    4:  41  41  41  41  10  21  21  21  41  41  41  41
    5:  41  41  41  41  21  10  21  21  41  41  41  41
    6:  41  41  41  41  21  21  10  21  41  41  41  41
    7:  41  41  41  41  21  21  21  10  41  41  41  41
    8:  41  41  41  41  41  41  41  41  10  21  21  21
    9:  41  41  41  41  41  41  41  41  21  10  21  21
   10:  41  41  41  41  41  41  41  41  21  21  10  21
   11:  41  41  41  41  41  41  41  41  21  21  21  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       6340303880 kB

------------------------------------------------------------
10. who -r
  run-level 3 Aug 17 14:44

------------------------------------------------------------
11. Systemd service manager version: systemd 252 (252-14.el9_2.3)
  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

------------------------------------------------------------
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 iscsi-onboot kdump libstoragemgmt
                   low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
```

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Platform Notes (Continued)

```
                  nvmefc-boot-connections ostree-remount power-profiles-daemon qemu-guest-agent rhsmcertd
                  rsyslog rtkit-daemon selinux-autorelabel-mark smartd sshd sssd switcheroo-control
                  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 cni-dhcp console-getty cpupower cups-browsed
                  dbus-daemon debug-shell dnf-system-upgrade dnsmasq iprdump iprinit iprupdate iscsid
                  iscsiuio kpatch kvm_stat ledmon man-db-restart-cache-update nftables nvmf-autoconnect
                  ostree-readonly-sysroot-migration podman podman-auto-update podman-clean-transient
                  podman-kube@ podman-restart psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm rhsm-facts
                  rpmdb-rebuild selinux-check-proper-disable speech-dispatcherd sshd-keygen@
                  systemd-boot-check-no-failures systemd-pstore systemd-sysext wpa_supplicant
  indirect        serial-getty@ 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=(hd6,gpt2)/vmlinuz-5.14.0-284.30.1.el9_2.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
  pci=nobar
  selinux=0
  rhgb
  tsc=nowatchdog
  console=ttyS0,115200
  udev.children-max=512
  nmi_watchdog=0
  add_efi_memmap
  pci=nobar
  earlyprintk=ttyS0,115200

------------------------------------------------------------
15. cpupower frequency-info
  analyzing CPU 0:
    current policy: frequency should be within 800 MHz and 3.50 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
  vm.dirty_ratio                     40
  vm.dirty_writeback_centisecs      500
```

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Platform Notes (Continued)

```
  vm.dirtytime_expire_seconds     43200
  vm.extfrag_threshold              500
  vm.min_unmapped_ratio               1
  vm.nr_hugepages                  6144
  vm.nr_hugepages_mempolicy        6144
  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 9.2 (Plow)
  redhat-release Red Hat Enterprise Linux release 9.2 (Plow)
  system-release Red Hat Enterprise Linux release 9.2 (Plow)

------------------------------------------------------------
21. Disk information
SPEC is set to: /mnt/spec
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sdc       xfs    14T   11T  3.7T  75% /mnt

------------------------------------------------------------
22. /sys/devices/virtual/dmi/id
    Vendor:         BULL
    Product:        BullSequana S series
    Product Family: -
    Serial:         -

------------------------------------------------------------
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:
    96x Hynix HMCG94AEBRA109N 64 GB 2 rank 4800


------------------------------------------------------------
24. BIOS
```

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Platform Notes (Continued)

```
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       BULL
    BIOS Version:      BIOS_SAR121.79.00.007-D
    BIOS Date:         06/22/2024
    BIOS Revision:     121.79
```

Compiler Version Notes

```
==============================================================================================================
C       | 500.perlbench_r(base, peak) 502.gcc_r(base, peak) 505.mcf_r(base, peak) 525.x264_r(base, peak)
        | 557.xz_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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==============================================================================================================
C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
        | 541.leela_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran | 548.exchange2_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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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
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64

(Continued on next page)

Base Portability Flags (Continued)

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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-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/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc
```

Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: basepeak = yes

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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

http://www.spec.org/cpu2017/flags/BullSequanaSH-Flags-V1.1.html
http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.html

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

http://www.spec.org/cpu2017/flags/BullSequanaSH-Flags-V1.1.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023p2-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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