SPECaccel®2023 Result

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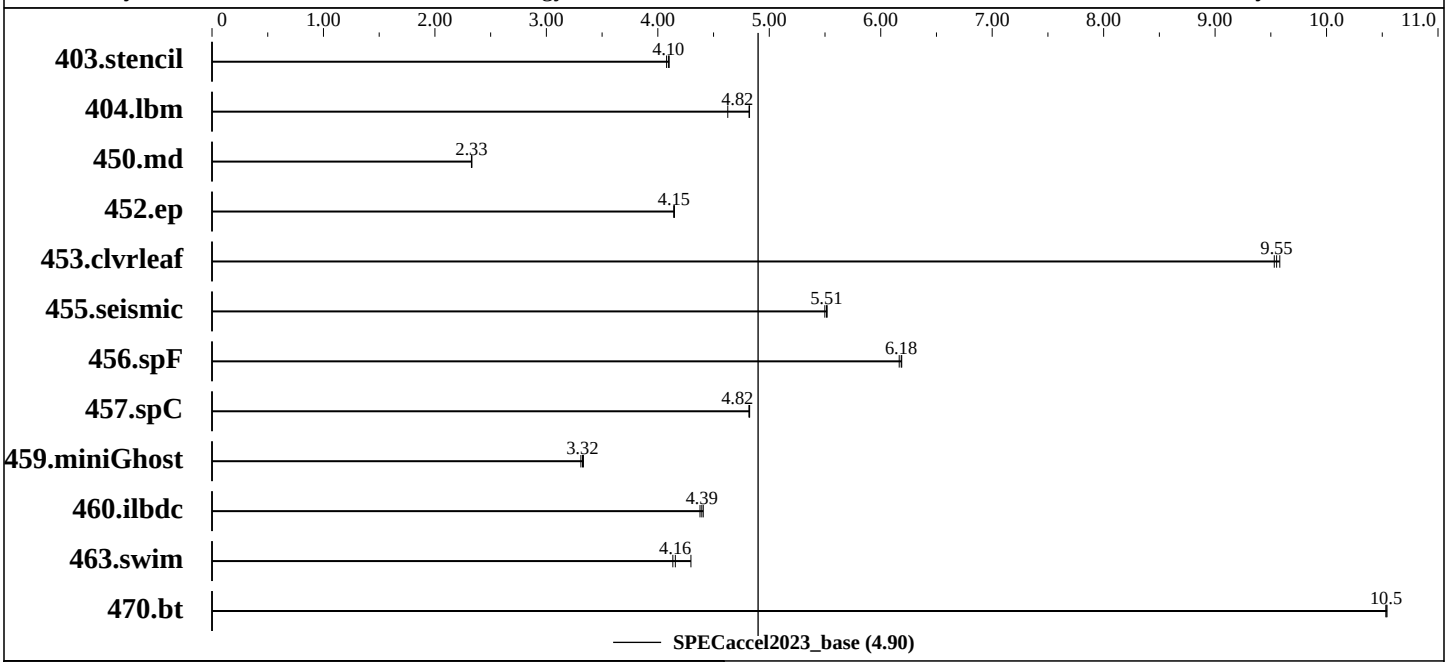
KTNF
(Test Sponsor: Telecommunications Technology Association)
NVIDIA H100
CoreRidge KH590S3

SPECaccel 2023_base = 4.90

SPECaccel 2023_peak = Not Run

accel2023 License: 068A
Test Sponsor: Telecommunications Technology Association
Tested by: Telecommunications Technology Association

Test Date: Nov-2025
Hardware Availability: Mar-2025
Software Availability: Jun-2025



Hardware

CPU Name:	INTEL XEON PLATINUM 8558
Max MHz.:	4000
Nominal:	2100
Enabled:	96 cores, 2 chips, 2 threads/core
Orderable:	2 chips
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	2 MB I+D on chip per core
L3:	260 MB I+D on chip per chip
Other:	None
Memory:	256 GB (8 x 32 GB DDR5, 5600 MT/s, ECC)
Storage:	1x 1.92TB NVMe SSD
Other:	None
Base Threads Run:	1
Min. Peak Threads:	--
Max. Peak Threads:	--

Accelerator

Accel Model Name:	H100 NVL 96GB
Accel Vendor:	NVIDIA Corporation
Accel Name:	NVIDIA H100
Type of Accel:	GPU
Accel Connection:	PCIe Gen5 x16
Does Accel Use ECC:	Yes
Accel Description:	NVIDIA H100 NVL 96GB
Accel Driver:	580.105.08

Software

OS:	Rocky Linux release 9.6 (Blue Onyx) 5.14.0-570.58.1.el9_6.x86_64
Compiler:	C/Fortran: Version 25.9 NVHPC SDK
Firmware:	American Megatrends Inc. S610KTFPD.031 11/01/2024
File System:	xfs
System State:	Run level 5 (multi-user)
Other:	None
Base Parallel Model:	ACC
Base Threads Run:	1
Peak Parallel Models:	Not Run

(Continued on next page)

Software (Continued)

Max. Peak Threads: --
Min. Peak Threads: --

Results Table

Benchmark	Base							Peak						
	Model	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Model	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
403.stencil	ACC	107	4.10	**107**	**4.10**	108	4.08							
404.lbm	ACC	**94.4**	**4.82**	94.3	4.82	98.3	4.63							
450.md	ACC	**258**	**2.33**	258	2.33	257	2.33							
452.ep	ACC	100	4.15	**100**	**4.15**	100	4.14							
453.clvrleaf	ACC	105	9.53	**105**	**9.55**	104	9.58							
455.seismic	ACC	**141**	**5.51**	142	5.50	141	5.52							
456.spF	ACC	**76.8**	**6.18**	76.8	6.19	77.0	6.17							
457.spC	ACC	**112**	**4.82**	112	4.82	112	4.82							
459.miniGhost	ACC	178	3.31	**177**	**3.32**	177	3.33							
460.ilbdc	ACC	**126**	**4.39**	127	4.38	126	4.41							
463.swim	ACC	106	4.13	**106**	**4.16**	102	4.30							
470.bt	ACC	**100**	**10.5**	100	10.5	100	10.5							

SPEC accel2023_base = 4.90

SPEC accel2023_peak = Not Run

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

Platform Notes

```
Sysinfo program /home/spec/accel2023/bin/sysinfo
Rev: r6622 of 2021-04-07 b1a7d5f8f71be5aff70a755cad7211a0
running on localhost.localdomain Wed Nov 12 11:32:21 2025

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
   https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : INTEL(R) XEON(R) PLATINUM 8558
      2  "physical id"s (chips)
      192 "processors"
   cores, siblings (Caution: counting these is hw and system dependent. The following
   excerpts from /proc/cpuinfo might not be reliable.  Use with caution.)
      cpu cores : 48
      siblings  : 96
      physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
      25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
      physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
      25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
```

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Platform Notes (Continued)

```
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):                               192
     On-line CPU(s) list:                  0-191
     Vendor ID:                            GenuineIntel
     Model name:                           INTEL(R) XEON(R) PLATINUM 8558
     CPU family:                           6
     Model:                                207
     Thread(s) per core:                   2
     Core(s) per socket:                   48
     Socket(s):                            2
     Stepping:                             2
     CPU(s) scaling MHz:                   21%
     CPU max MHz:                          4000.0000
     CPU min MHz:                          800.0000
     BogoMIPS:                             4200.00
     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:                            4.5 MiB (96 instances)
     L1i cache:                            3 MiB (96 instances)
     L2 cache:                             192 MiB (96 instances)
     L3 cache:                             520 MiB (2 instances)
     NUMA node(s):                         4
     NUMA node0 CPU(s):                    0-23,96-119
     NUMA node1 CPU(s):                    24-47,120-143
     NUMA node2 CPU(s):                    48-71,144-167
     NUMA node3 CPU(s):                    72-95,168-191
     Vulnerability Gather data sampling:   Not affected
```

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Platform Notes (Continued)

```
      Vulnerability Indirect target selection: 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 SW sequence; 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     4.5M   12 Data            1     64        1             64
      L1i       32K       3M    8 Instruction     1     64        1             64
      L2         2M     192M   16 Unified         2   2048        1             64
      L3       260M     520M   20 Unified         3 212992        1             64

  /proc/cpuinfo cache data
     cache size : 266240 KB

  From numactl --hardware
  WARNING: a numactl 'node' might or might not correspond to a physical chip.
    available: 4 nodes (0-3)
    node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 96 97 98 99
    100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119
    node 0 size: 63597 MB
    node 0 free: 62338 MB
    node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
    120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141
    142 143
    node 1 size: 64499 MB
    node 1 free: 61161 MB
    node 2 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
    144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165
    166 167
    node 2 size: 64499 MB
    node 2 free: 63718 MB
    node 3 cpus: 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
    168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189
```

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Platform Notes (Continued)

```
  190 191
  node 3 size: 64438 MB
  node 3 free: 63756 MB
  node distances:
  node     0    1    2    3
     0:   10   12   21   21
     1:   12   10   21   21
     2:   21   21   10   12
     3:   21   21   12   10

From /proc/meminfo
   MemTotal:       263204616 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/sbin/tuned-adm active
    Current active profile: balanced

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
   powersave

From /etc/*release* /etc/*version*
   os-release:
      NAME="Rocky Linux"
      VERSION="9.6 (Blue Onyx)"
      ID="rocky"
      ID_LIKE="rhel centos fedora"
      VERSION_ID="9.6"
      PLATFORM_ID="platform:el9"
      PRETTY_NAME="Rocky Linux 9.6 (Blue Onyx)"
      ANSI_COLOR="0;32"
   redhat-release: Rocky Linux release 9.6 (Blue Onyx)
   rocky-release: Rocky Linux release 9.6 (Blue Onyx)
   rocky-release-upstream: Derived from Red Hat Enterprise Linux 9.6
   system-release: Rocky Linux release 9.6 (Blue Onyx)
   system-release-cpe: cpe:/o:rocky:rocky:9::baseos

uname -a:
   Linux localhost.localdomain 5.14.0-570.58.1.el9_6.x86_64 #1 SMP PREEMPT_DYNAMIC Fri
   Oct 31 13:55:05 UTC 2025 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

gather_data_sampling:                                Not affected
indirect_target_selection:                           Not affected
CVE-2018-12207 (iTLB Multihit):                      Not affected
CVE-2018-3620 (L1 Terminal Fault):                   Not affected
```

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Platform Notes (Continued)

```
 Microarchitectural Data Sampling:                       Not affected
 CVE-2017-5754 (Meltdown):                               Not affected
 mmio_stale_data:                                        Not affected
 reg_file_data_sampling:                                 Not affected
 retbleed:                                               Not affected
 spec_rstack_overflow:                                   Not affected
 CVE-2018-3639 (Speculative Store Bypass):               Mitigation: Speculative Store
                                                         Bypass disabled via prctl
 CVE-2017-5753 (Spectre variant 1):                      Mitigation: usercopy/swapgs
                                                         barriers and __user pointer
                                                         sanitization
 CVE-2017-5715 (Spectre variant 2):                      Mitigation: Enhanced / Automatic
                                                          IBRS; IBPB: conditional; RSB
                                                        filling; PBRSB-eIBRS: SW sequence;
                                                         BHI: BHI_DIS_S
 CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
 CVE-2019-11135 (TSX Asynchronous Abort):                Not affected

 run-level 5 Nov 10 17:34

 SPEC is set to: /home/spec/accel2023
    Filesystem          Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rl-home xfs   856G  8.2G  848G   1% /home

 From /sys/devices/virtual/dmi/id
     Vendor:         KTNF Co.,Ltd.
     Product:        KH590S3
     Product Family: Family

 Cannot run dmidecode; consider saying (as root)
    chmod +s /usr/sbin/dmidecode

 BIOS:
    BIOS Vendor:       American Megatrends International, LLC.
    BIOS Version:      S610KTFPD.031
    BIOS Date:         11/01/2024

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C          | 457.spC(base)
------------------------------------------------------------------------------
/usr/bin/ld: /usr/lib64/crt1.o: in function ‘_start’:
(.text+0x1b): undefined reference to ‘main’
```

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Compiler Version Notes (Continued)

```
pgacclnk: child process exit status 1: /usr/bin/ld
nvc 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
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------------------------------------------------------------------------------

==============================================================================
C          | 403.stencil(base) 404.lbm(base) 452.ep(base) 470.bt(base)
------------------------------------------------------------------------------
nvc 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
NVIDIA Compilers and Tools
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------------------------------------------------------------------------------

==============================================================================
C          | 457.spC(base)
------------------------------------------------------------------------------
/usr/bin/ld: /usr/lib64/crt1.o: in function ‘_start’:
(.text+0x1b): undefined reference to ‘main’
pgacclnk: child process exit status 1: /usr/bin/ld
nvc 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
NVIDIA Compilers and Tools
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------------------------------------------------------------------------------

==============================================================================
C          | 403.stencil(base) 404.lbm(base) 452.ep(base) 470.bt(base)
------------------------------------------------------------------------------
nvc 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
NVIDIA Compilers and Tools
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------------------------------------------------------------------------------

==============================================================================
Fortran    | 450.md(base) 455.seismic(base) 456.spF(base) 460.ilbdc(base)
           | 463.swim(base)
------------------------------------------------------------------------------
nvfortran 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
NVIDIA Compilers and Tools
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------------------------------------------------------------------------------

==============================================================================
Fortran, C | 453.clvrleaf(base) 459.miniGhost(base)
------------------------------------------------------------------------------
nvfortran 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
NVIDIA Compilers and Tools
```

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Compiler Version Notes (Continued)

```
Copyright (c) 2025, NVIDIA CORPORATION & AFFILIATES.  All rights reserved.
nvc 25.9-0 64-bit target on x86-64 Linux -tp sapphirerapids
NVIDIA Compilers and Tools
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------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`nvc`

Fortran benchmarks:
`nvfortran`

Benchmarks using both Fortran and C:
`nvfortran nvc`

Base Portability Flags

457.spC: `-mcmodel=medium -Wl,--no-relax`

Base Optimization Flags

C benchmarks:
`-Ofast -gpu=cc90 -gpu=ptx -gpu=nordc -acc -Mfprelaxed -Mstack_arrays`

Fortran benchmarks:

450.md: `-O3 -gpu=cc90 -gpu=ptx -gpu=nordc -acc -Mfprelaxed -Mstack_arrays`

455.seismic: `-Ofast -gpu=cc90 -gpu=ptx -gpu=nordc -acc -Mfprelaxed -Mstack_arrays`

456.spF: `Same as 455.seismic`

460.ilbdc: `Same as 455.seismic`

463.swim: `Same as 455.seismic`

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

453.clvrleaf: `-Ofast -gpu=cc90 -gpu=ptx -gpu=nordc -acc -Mfprelaxed -Mstack_arrays`

459.miniGhost: `-Mnomain -Ofast -gpu=cc90 -gpu=ptx -gpu=nordc -acc -Mfprelaxed -Mstack_arrays`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/accel2023/flags/nv2023_flags_v2.html`
`http://www.spec.org/accel2023/flags/nv2021_flags_v1.0.3.2025-12-01.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/accel2023/flags/nv2023_flags_v2.xml`
`http://www.spec.org/accel2023/flags/nv2021_flags_v1.0.3.2025-12-01.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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