SPEC CPU®2017 Floating Point Speed Result

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Esconet Technologies Ltd.

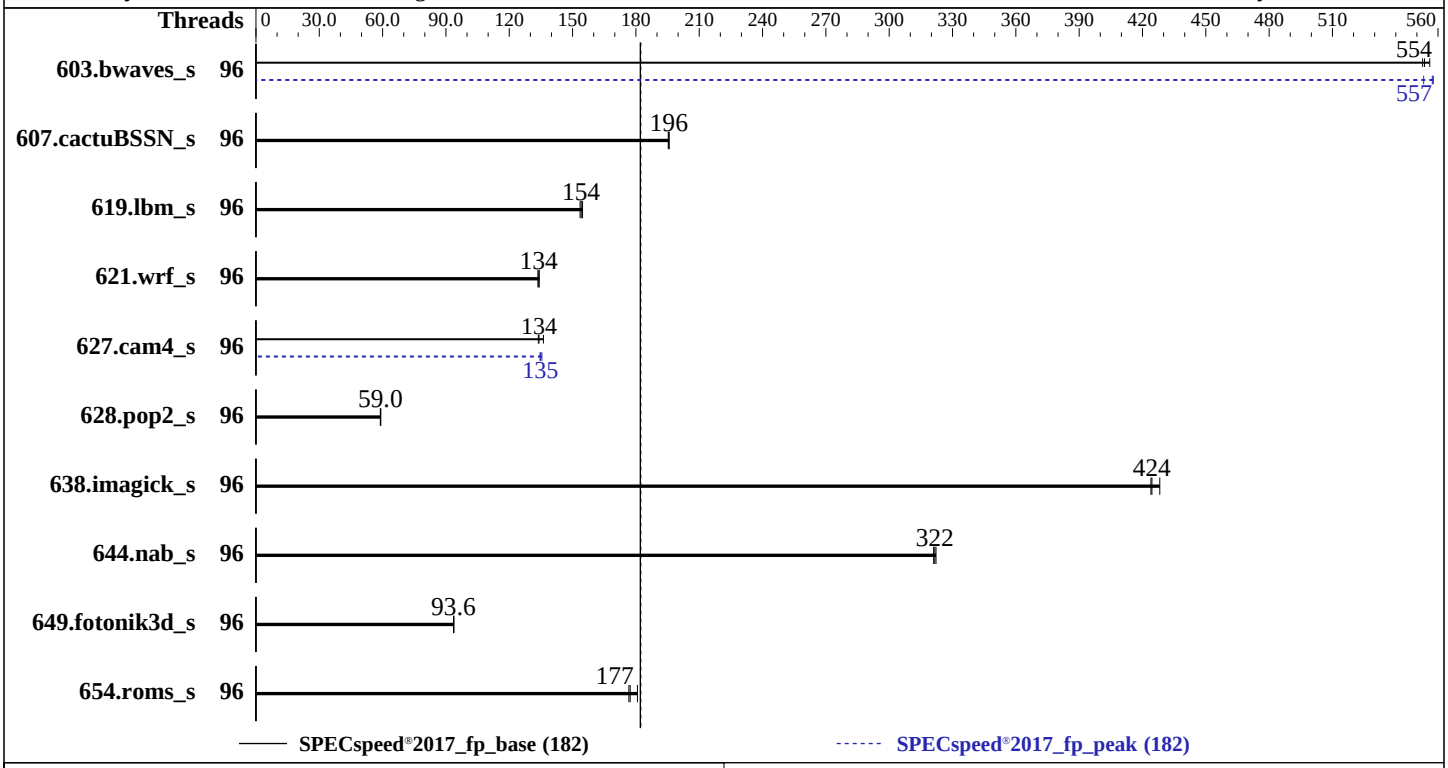
Hexadata HD-RS3000 Ver: ILX-002
(Intel Xeon Gold 5318N, 2.10 GHz)

SPECspeed®2017_fp_base = 182

SPECspeed®2017_fp_peak = 182

CPU2017 License: 6523
Test Sponsor: Esconet Technologies Ltd.
Tested by: Esconet Technologies Ltd.

Test Date: Mar-2025
Hardware Availability: Apr-2021
Software Availability: Jun-2024



Hardware

CPU Name:	Intel Xeon Gold 5318N
Max MHz:	3400
Nominal:	2100
Enabled:	48 cores, 2 chips, 2 threads/core
Orderable:	1,2 chips
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	1.25 MB I+D on chip per core
L3:	36 MB I+D on chip per chip
Other:	None
Memory:	2 TB (16 x 128 GB 4Rx4 PC4-3200AA-R, running at 2666)
Storage:	125 GB on tmpfs
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 15 SP6 6.4.0-150600.21-default
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:	Yes
Firmware:	Version P1.00 released Aug-2022
File System:	tmpfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	jemalloc memory allocator V5.0.1
Power Management:	OS set to prefer performance at the cost of additional power usage.

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	96	106	556	107	553	**107**	**554**	96	106	558	107	553	**106**	**557**
607.cactuBSSN_s	96	85.3	195	**85.2**	**196**	85.2	196	96	85.3	195	**85.2**	**196**	85.2	196
619.lbm_s	96	**34.0**	**154**	33.9	155	34.1	154	96	**34.0**	**154**	33.9	155	34.1	154
621.wrf_s	96	98.6	134	99.0	134	**98.7**	**134**	96	98.6	134	99.0	134	**98.7**	**134**
627.cam4_s	96	**66.1**	**134**	65.1	136	66.3	134	96	**65.7**	**135**	65.4	135	65.9	135
628.pop2_s	96	201	59.2	201	58.9	**201**	**59.0**	96	201	59.2	201	58.9	**201**	**59.0**
638.imagick_s	96	**34.0**	**424**	34.0	424	33.7	428	96	**34.0**	**424**	34.0	424	33.7	428
644.nab_s	96	54.4	321	**54.3**	**322**	54.2	322	96	54.4	321	**54.3**	**322**	54.2	322
649.fotonik3d_s	96	**97.4**	**93.6**	97.2	93.8	97.4	93.6	96	**97.4**	**93.6**	97.2	93.8	97.4	93.6
654.roms_s	96	89.1	177	**88.8**	**177**	87.1	181	96	89.1	177	**88.8**	**177**	87.1	181

SPECspeed®2017_fp_base = 182

SPECspeed®2017_fp_peak = 182

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

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu17/lib/intel64:/mnt/ramdisk/cpu17/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Redhat Enterprise Linux 8.0
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3>       /proc/sys/vm/drop_caches
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases

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.

Benchmark run from a 125 GB ramdisk created with the cmd: "mount -t tmpfs -o size=125G tmpfs /mnt/ramdisk"
```

Platform Notes

```
BIOS settings: Default

Sysinfo program /mnt/ramdisk/cpu17/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Sun Mar 16 11:06:53 2025

SUT (System Under Test) info as seen by some common utilities.

------------------------------------------------------------
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------------------------------------------------------------
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 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 254 (254.10+suse.84.ge8d77af424)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
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17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   11:06:53 up 2 days, 22:02,  1 user,  load average: 0.00, 0.00, 0.00
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                Thu14    3.00s  1.11s  0.00s sh
  reportable-ic2023.2.3-lin-core-avx512-speed-smt-on-20231121.sh

------------------------------------------------------------
3. Username
  From environment variable $USER:  root

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 8253701
  max locked memory       (kbytes, -l) 8192
```

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Platform Notes (Continued)

```
   max memory size         (kbytes, -m) unlimited
   open files                      (-n) 1024
   pipe size            (512 bytes, -p) 8
   POSIX message queues     (bytes, -q) 819200
   real-time priority              (-r) 0
   stack size              (kbytes, -s) unlimited
   cpu time               (seconds, -t) unlimited
   max user processes              (-u) 8253701
   virtual memory          (kbytes, -v) unlimited
   file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=31
 login -- root
 -bash
 sh reportable-ic2023.2.3-lin-core-avx512-speed-smt-on-20231121.sh
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=96 --tune base,peak -o all --define smt-on
   --define drop_caches fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=96 --tune base,peak --output_format all
   --define smt-on --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed
   --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.005/templogs/preenv.fpspeed.005.0.log --lognum 005.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu17

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Gold 5318N CPU @ 2.10GHz
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 106
    stepping        : 6
    microcode       : 0xd0003d1
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs mmio_stale_data eibrs_pbrsb gds bhi
    cpu cores       : 24
    siblings        : 48
    2 physical ids (chips)
    96 processors (hardware threads)
    physical id 0: core ids 0-23
    physical id 1: core ids 0-23
    physical id 0: apicids 0-47
    physical id 1: apicids 64-111
  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 2.39.3:
  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):                               96
  On-line CPU(s) list:                  0-95
  Vendor ID:                            GenuineIntel
  BIOS Vendor ID:                       Intel(R) Corporation
```

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Platform Notes (Continued)

```
  Model name:                      Intel(R) Xeon(R) Gold 5318N CPU @ 2.10GHz
  BIOS Model name:                 Intel(R) Xeon(R) Gold 5318N CPU @ 2.10GHz  CPU @ 2.1GHz
  BIOS CPU family:                 179
  CPU family:                      6
  Model:                           106
  Thread(s) per core:              2
  Core(s) per socket:              24
  Socket(s):                       2
  Stepping:                        6
  CPU(s) scaling MHz:              34%
  CPU max MHz:                     3400.0000
  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 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
                                   intel_ppin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                                   flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep
                                   bmi2 erms invpcid rtm 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 wbnoinvd dtherm ida arat pln pts hwp
                                   hwp_act_window hwp_epp hwp_pkg_req vnmi avx512vbmi umip pku ospke
                                   avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
                                   avx512_vpopcntdq la57 rdpid fsrm md_clear pconfig flush_l1d
                                   arch_capabilities
  Virtualization:                  VT-x
  L1d cache:                       2.3 MiB (48 instances)
  L1i cache:                       1.5 MiB (48 instances)
  L2 cache:                        60 MiB (48 instances)
  L3 cache:                        72 MiB (2 instances)
  NUMA node(s):                    2
  NUMA node0 CPU(s):               0-23,48-71
  NUMA node1 CPU(s):               24-47,72-95
  Vulnerability Gather data sampling: Mitigation; Microcode
  Vulnerability Itlb multihit:     Not affected
  Vulnerability L1tf:              Not affected
  Vulnerability Mds:               Not affected
  Vulnerability Meltdown:          Not affected
  Vulnerability Mmio stale data:   Mitigation; Clear CPU buffers; SMT vulnerable
  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 SW loop, KVM SW loop
  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     2.3M   12 Data            1    64        1             64
      L1i       32K     1.5M    8 Instruction     1    64        1             64
      L2       1.3M      60M   20 Unified         2  1024        1             64
      L3        36M      72M   12 Unified         3 49152        1             64
```

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Platform Notes (Continued)

```
------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0-23,48-71
  node 0 size: 1031697 MB
  node 0 free: 989731 MB
  node 1 cpus: 24-47,72-95
  node 1 size: 1031753 MB
  node 1 free: 993391 MB
  node distances:
  node   0   1
    0:  10  20
    1:  20  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       2112973592 kB

------------------------------------------------------------
10. who -r
  run-level 3 Mar 13 18:34

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          apparmor auditd cron firewalld getty@ irqbalance issue-generator kbdsettings kdump
                   kdump-early kdump-notify postfix purge-kernels rollback sshd systemd-pstore wicked
                   wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
  enabled-runtime  systemd-remount-fs
  disabled         boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell ebtables fsidd
                   grub2-once haveged issue-add-ssh-keys kexec-load lunmask nfs nfs-blkmap rpcbind
                   rpmconfigcheck serial-getty@ systemd-boot-check-no-failures systemd-confext
                   systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd
  indirect         systemd-userdbd wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
  root=UUID=82a9aeec-5736-4b02-959a-2c2c5709e6ff
  splash=silent
  mitigations=auto
  quiet
  security=apparmor
  crashkernel=365M,high
  crashkernel=72M,low

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 60:
    current policy: frequency should be within 800 MHz and 3.40 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
```

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Platform Notes (Continued)

```
      Supported: yes
      Active: yes

------------------------------------------------------------
15. sysctl
  kernel.numa_balancing               1
  kernel.randomize_va_space           2
  vm.compaction_proactiveness        20
  vm.dirty_background_bytes           0
  vm.dirty_background_ratio          10
  vm.dirty_bytes                      0
  vm.dirty_expire_centisecs        3000
  vm.dirty_ratio                     20
  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                      60
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                0

------------------------------------------------------------
16. /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

------------------------------------------------------------
17. /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

------------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP6

------------------------------------------------------------
19. Disk information
SPEC is set to: /mnt/ramdisk/cpu17
  Filesystem     Type   Size  Used Avail Use% Mounted on
  tmpfs          tmpfs  125G   73G   53G  58% /mnt/ramdisk

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Product:        HDR-RM2386212I

------------------------------------------------------------
21. dmidecode
  Additional information from dmidecode 3.4 follows.  WARNING: Use caution when you interpret this section.
```

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Platform Notes (Continued)

```
  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:
    16x Hynix TLR4128G32Q422 128 GB 4 rank 3200, configured at 2666


 ------------------------------------------------------------
 22. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       American Megatrends International, LLC.
    BIOS Version:      P1.00
    BIOS Date:         08/23/2022
    BIOS Revision:     5.22
```

Compiler Version Notes

```
==============================================================================================================
C               | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran         | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
Fortran, C      | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

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Base Compiler Invocation (Continued)

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifx

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using both Fortran and C:
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
-DSPEC_OPENMP -Wno-implicit-int -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Peak Compiler Invocation

C benchmarks:
icx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

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Peak Optimization Flags (Continued)

Fortran benchmarks:

603.bwaves_s: `-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

649.fotonik3d_s: `basepeak = yes`

654.roms_s: `basepeak = yes`

Benchmarks using both Fortran and C:

621.wrf_s: `basepeak = yes`

627.cam4_s: `-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

628.pop2_s: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.html`
`http://www.spec.org/cpu2017/flags/Hexadata-Platform-Flags-Intel-ICX.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.xml`
`http://www.spec.org/cpu2017/flags/Hexadata-Platform-Flags-Intel-ICX.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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