SPEC CPU®2017 Floating Point Speed Result

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Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

$SPECspeed^{®}2017\_fp\_base = 314$

$SPECspeed^{®}2017\_fp\_peak = 314$

CPU2017 License: 3358

Test Sponsor: Inspur Electronic Information Industry Co., Ltd.

Tested by: Inspur Electronic Information Industry Co., Ltd.

Test Date: Sep-2023

Hardware Availability: Apr-2023

Software Availability: Dec-2022

Benchmark	Threads	Result
603.bwaves_s	112	1420
607.cactuBSSN_s	112	383
619.lbm_s	112	236
621.wrf_s	112	167
627.cam4_s	112	165
628.pop2_s	112	61.1
638.imagick_s	112	564
644.nab_s	112	723
649.fotonik3d_s	112	176
654.roms_s	112	596

SPECspeed®2017_fp_base (314)

SPECspeed®2017_fp_peak (314)

Hardware

CPU Name: Intel Xeon Platinum 8450H
  Max MHz: 3500
  Nominal: 2000
Enabled: 112 cores, 4 chips
Orderable: 2,4 chips
Cache L1: 32 KB I + 48 KB D on chip per core
  L2: 2 MB I+D on chip per core
  L3: 75 MB I+D on chip per chip
  Other: None
Memory: 1 TB (32 x 32 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 1 TB NVME SSD
Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
   5.14.0-70.13.1.el9_0.x86_64
Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++
   Compiler for Linux;
   Fortran: Version 2023.0 of Intel Fortran Compiler
   for Linux;
Parallel: Yes
Firmware: Version 03.00.00 released Dec-2022
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost
   of additional power usage.

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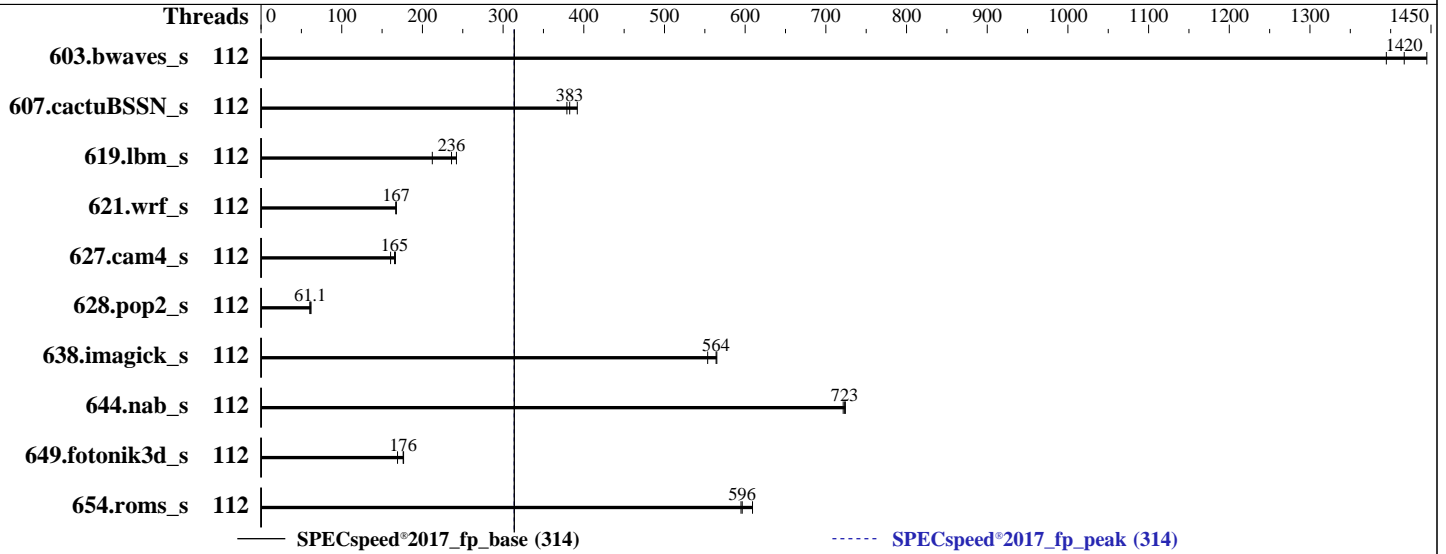
SPECspeed®2017_fp_peak = 314

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Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	112	40.8	1440	42.3	1390	**41.6**	**1420**	112	40.8	1440	42.3	1390	**41.6**	**1420**
607.cactuBSSN_s	112	42.5	392	**43.6**	**383**	44.0	379	112	42.5	392	**43.6**	**383**	44.0	379
619.lbm_s	112	21.6	242	24.7	212	**22.2**	**236**	112	21.6	242	24.7	212	**22.2**	**236**
621.wrf_s	112	78.9	168	79.2	167	**79.0**	**167**	112	78.9	168	79.2	167	**79.0**	**167**
627.cam4_s	112	55.2	161	53.2	167	**53.6**	**165**	112	55.2	161	53.2	167	**53.6**	**165**
628.pop2_s	112	192	61.9	196	60.4	**194**	**61.1**	112	192	61.9	196	60.4	**194**	**61.1**
638.imagick_s	112	26.1	554	25.5	565	**25.6**	**564**	112	26.1	554	25.5	565	**25.6**	**564**
644.nab_s	112	**24.2**	**723**	24.2	721	24.1	724	112	**24.2**	**723**	24.2	721	24.1	724
649.fotonik3d_s	112	53.9	169	**51.8**	**176**	51.6	177	112	53.9	169	**51.8**	**176**	51.6	177
654.roms_s	112	26.5	595	25.8	609	**26.4**	**596**	112	26.5	595	25.8	609	**26.4**	**596**
SPECspeed®2017_fp_base =		**314**												
SPECspeed®2017_fp_peak =		**314**												

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"
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/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

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.

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
```

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Test Date: Sep-2023

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Platform Notes

```
BIOS configuration:
ENERGY_PERF_BIAS_CFG mode set to Performance
Hardware Prefetch set to Disable
VT Support set to Disable
Sub NUMA Cluster (SNC) set to SNC2
Hyper Threading set to disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Mon Sep 11 06:54:41 2023

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 250 (250-6.el9_0)
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. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
-----------------------------------------------------------

-----------------------------------------------------------
1. uname -a
  Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14 12:42:38 EDT 2022 x86_64
  x86_64 x86_64 GNU/Linux

-----------------------------------------------------------
2. w
  06:54:41 up 3 min,  1 user,  load average: 1.19, 1.65, 0.78
  USER     TTY          LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1         06:51    9.00s  1.14s  0.00s sh
  reportable-ic2023.0-lin-sapphirerapids-speed-smt-off-20221201.sh

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

-----------------------------------------------------------
4. ulimit -a
  real-time non-blocking time  (microseconds, -R) unlimited
```

(Continued on next page)

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Platform Notes (Continued)

```
    core file size          (blocks, -c) 0
    data seg size           (kbytes, -d) unlimited
    scheduling priority         (-e) 0
    file size               (blocks, -f) unlimited
    pending signals             (-i) 4126594
    max locked memory       (kbytes, -l) 64
    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) 4126594
    virtual memory          (kbytes, -v) unlimited
    file locks                  (-x) unlimited

    ------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 18
 login -- root
 -bash
 sh reportable-ic2023.0-lin-sapphirerapids-speed-smt-off-20221201.sh
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=112 --tune base,peak -o all --define
   drop_caches fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=112 --tune base,peak --output_format all
   --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv
   --note-preenv --logfile $SPEC/tmp/CPU2017.004/templogs/preenv.fpspeed.004.0.log --lognum 004.0
   --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017

    ------------------------------------------------------------
6. /proc/cpuinfo
    model name      : Intel(R) Xeon(R) Platinum 8450H
    vendor_id       : GenuineIntel
    cpu family      : 6
    model           : 143
    stepping        : 6
    microcode       : 0x2b000130
    bugs            : spectre_v1 spectre_v2 spec_store_bypass swapgs
    cpu cores       : 28
    siblings        : 28
    4 physical ids (chips)
    112 processors (hardware threads)
    physical id 0: core ids 0-27
    physical id 1: core ids 0-27
    physical id 2: core ids 0-27
    physical id 3: core ids 0-27
    physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54
    physical id 1: apicids
    128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
    80,182
    physical id 2: apicids
    256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,3
    08,310
    physical id 3: apicids
    384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,4
```

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Platform Notes (Continued)

```
     36,438
  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:            52 bits physical, 57 bits virtual
  Byte Order:               Little Endian
  CPU(s):                   112
  On-line CPU(s) list:      0-111
  Vendor ID:                GenuineIntel
  BIOS Vendor ID:           Intel(R) Corporation
  Model name:               Intel(R) Xeon(R) Platinum 8450H
  BIOS Model name:          Intel(R) Xeon(R) Platinum 8450H
  CPU family:               6
  Model:                    143
  Thread(s) per core:       1
  Core(s) per socket:       28
  Socket(s):                4
  Stepping:                 6
  CPU max MHz:              3500.0000
  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 ds_cpl
                            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 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 enqcmd fsrm md_clear serialize tsxldtrk pconfig
                            arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities
  L1d cache:                5.3 MiB (112 instances)
  L1i cache:                3.5 MiB (112 instances)
  L2 cache:                 224 MiB (112 instances)
  L3 cache:                 300 MiB (4 instances)
  NUMA node(s):             8
  NUMA node0 CPU(s):        0-13
  NUMA node1 CPU(s):        14-27
  NUMA node2 CPU(s):        28-41
  NUMA node3 CPU(s):        42-55
  NUMA node4 CPU(s):        56-69
  NUMA node5 CPU(s):        70-83
  NUMA node6 CPU(s):        84-97
  NUMA node7 CPU(s):        98-111
  Vulnerability Itlb multihit:    Not affected
  Vulnerability L1tf:             Not affected
  Vulnerability Mds:              Not affected
```

(Continued on next page)

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Platform Notes (Continued)

```
   Vulnerability Meltdown:             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
   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     5.3M   12 Data            1     64       1              64
       L1i      32K     3.5M    8 Instruction     1     64       1              64
       L2        2M     224M   16 Unified         2   2048       1              64
       L3       75M     300M   15 Unified         3  81920       1              64

   --------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0-13
   node 0 size: 128589 MB
   node 0 free: 127030 MB
   node 1 cpus: 14-27
   node 1 size: 129020 MB
   node 1 free: 127989 MB
   node 2 cpus: 28-41
   node 2 size: 129020 MB
   node 2 free: 128687 MB
   node 3 cpus: 42-55
   node 3 size: 129020 MB
   node 3 free: 128688 MB
   node 4 cpus: 56-69
   node 4 size: 129020 MB
   node 4 free: 128811 MB
   node 5 cpus: 70-83
   node 5 size: 129020 MB
   node 5 free: 128853 MB
   node 6 cpus: 84-97
   node 6 size: 129020 MB
   node 6 free: 128854 MB
   node 7 cpus: 98-111
   node 7 size: 128973 MB
   node 7 free: 128768 MB
   node distances:
   node   0    1    2    3    4    5    6    7
     0:  10   12   21   21   21   21   21   21
     1:  12   10   21   21   21   21   21   21
     2:  21   21   10   12   21   21   21   21
     3:  21   21   12   10   21   21   21   21
     4:  21   21   21   21   10   12   21   21
     5:  21   21   21   21   12   10   21   21
     6:  21   21   21   21   21   21   10   12
     7:  21   21   21   21   21   21   12   10

   --------------------------------------------------------------
9. /proc/meminfo
   MemTotal:        1056449176 kB

   --------------------------------------------------------------
10. who -r
   run-level 3 Sep 11 06:51
```

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Platform Notes (Continued)

```
     ----------------------------------------------------------
     11. Systemd service manager version: systemd 250 (250-6.el9_0)
       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          NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
                        dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor microcode nis-domainname
                        rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd systemd-network-generator upower
       enabled-runtime  systemd-remount-fs
       disabled         blk-availability canberra-system-bootup canberra-system-shutdown
                        canberra-system-shutdown-reboot chrony-wait console-getty cpupower debug-shell kvm_stat
                        man-db-restart-cache-update nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@
                        sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
       indirect         sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo


     ----------------------------------------------------------
     14. Linux kernel boot-time arguments, from /proc/cmdline
       BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
       root=/dev/mapper/rhel-root
       ro
       resume=/dev/mapper/rhel-swap
       rd.lvm.lv=rhel/root
       rd.lvm.lv=rhel/swap


     ----------------------------------------------------------
     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. 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
```

(Continued on next page)

Inspur Electronic Information Industry Co., Ltd.	$SPECspeed^{®}2017\_fp\_base = 314$
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Platform Notes (Continued)

```
   vm.swappiness                        60
   vm.watermark_boost_factor         15000
   vm.watermark_scale_factor            10
   vm.zone_reclaim_mode                  0


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


  -------------------------------------------------------------
18. /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


  -------------------------------------------------------------
19. OS release
   From /etc/*-release /etc/*-version
   os-release     Red Hat Enterprise Linux 9.0 (Plow)
   redhat-release Red Hat Enterprise Linux release 9.0 (Plow)
   system-release Red Hat Enterprise Linux release 9.0 (Plow)


  -------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2017
   Filesystem             Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   819G  155G  664G  19% /home


  -------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
     Vendor:        IEI
     Product:       NF8480-M7-A0-R0-00
     Product Family: Not specified
     Serial:        380251A12


  -------------------------------------------------------------
22. 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:
    32x Micron MTC20F2085S1RC48BA1 32 GB 2 rank 4800



  -------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:      American Megatrends International, LLC.
   BIOS Version:     03.00.00
   BIOS Date:        12/16/2022
```

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SPECspeed®2017_fp_peak = 314

CPU2017 License: 3358		**Test Date:**	Sep-2023
Test Sponsor: Inspur Electronic Information Industry Co., Ltd.		**Hardware Availability:**	Apr-2023
Tested by: Inspur Electronic Information Industry Co., Ltd.		**Software Availability:**	Dec-2022

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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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------------------------------------------------------------------------------


==============================================================================
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 2023.0.0 Build 20221201
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------------------------------------------------------------------------------


==============================================================================
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 2023.0.0 Build 20221201
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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------------------------------------------------------------------------------
```

Base 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
```

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

SPEC CPU®2017 Floating Point Speed Result

Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

SPECspeed®2017_fp_base = 314

SPECspeed®2017_fp_peak = 314

CPU2017 License: 3358
Test Sponsor: Inspur Electronic Information Industry Co., Ltd.
Tested by: Inspur Electronic Information Industry Co., Ltd.

Test Date: Sep-2023
Hardware Availability: Apr-2023
Software Availability: Dec-2022

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:
```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:
```
-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -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:
```
-m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

SPEC CPU®2017 Floating Point Speed Result

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Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

SPECspeed®2017_fp_base = 314

SPECspeed®2017_fp_peak = 314

CPU2017 License: 3358
Test Sponsor: Inspur Electronic Information Industry Co., Ltd.
Tested by: Inspur Electronic Information Industry Co., Ltd.

Test Date: Sep-2023
Hardware Availability: Apr-2023
Software Availability: Dec-2022

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`

Fortran benchmarks:

603.bwaves_s: `basepeak = yes`

649.fotonik3d_s: `basepeak = yes`

654.roms_s: `basepeak = yes`

Benchmarks using both Fortran and C:

621.wrf_s: `basepeak = yes`

627.cam4_s: `basepeak = yes`

628.pop2_s: `basepeak = yes`

(Continued on next page)

Inspur Electronic Information Industry Co., Ltd.

NF8480M7 (Intel Xeon Platinum 8450H)

SPECspeed®2017_fp_base = 314

SPECspeed®2017_fp_peak = 314

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Test Date: Sep-2023
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Software Availability: Dec-2022

Peak Optimization Flags (Continued)

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-ic2023-official-linux64.html
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.3.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml
http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.3.xml

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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