



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_fp_base = 296

PowerEdge R760xa (Intel Xeon Platinum 8460Y+)

SPECspeed®2017_fp_peak = 296

CPU2017 License: 6573

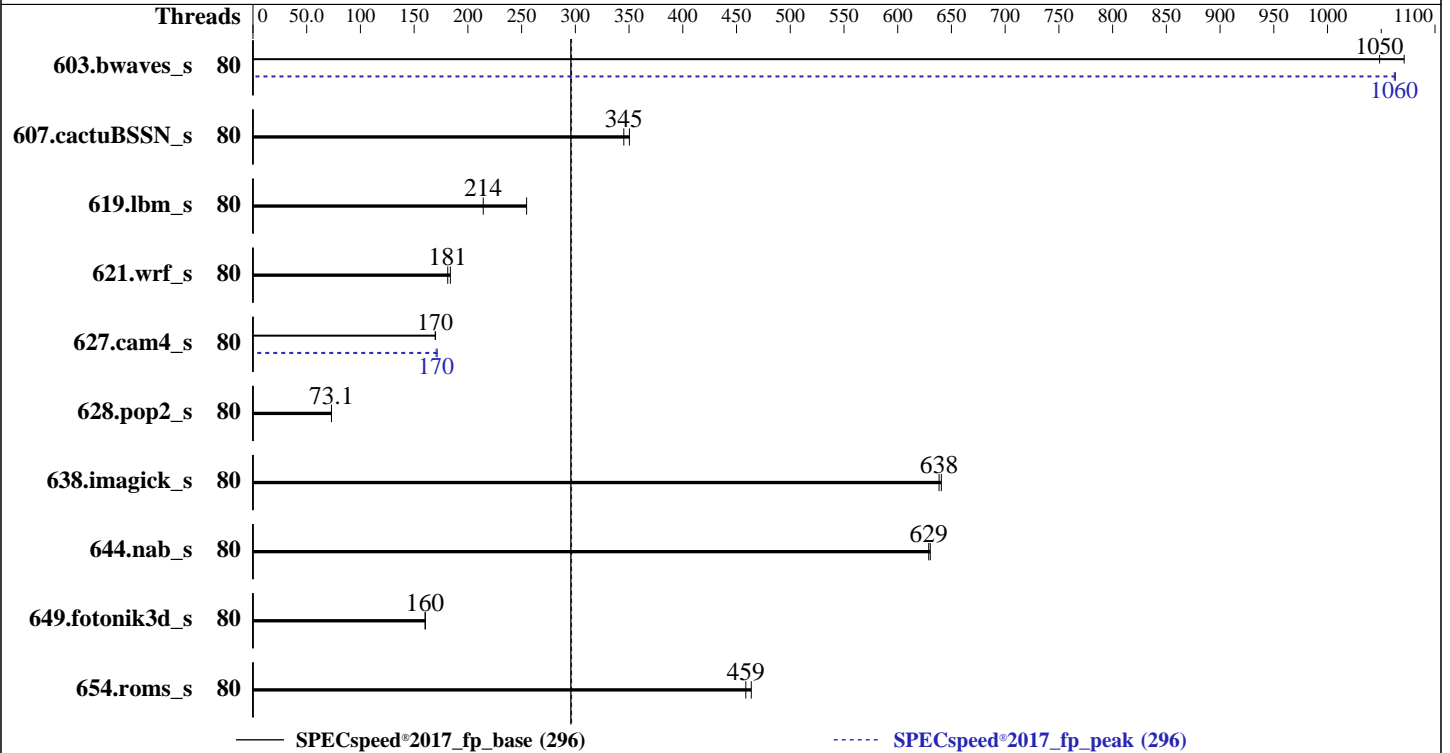
Test Date: Jun-2023

Test Sponsor: Dell Inc.

Hardware Availability: Jun-2023

Tested by: Dell Inc.

Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon Platinum 8460Y+
 Max MHz: 3700
 Nominal: 2000
 Enabled: 80 cores, 2 chips
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 105 MB I+D on chip per chip
 Other: None
 Memory: 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)
 Storage: 125 GB on tmpfs
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
 5.14.21-150400.22-default
 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 1.0.0 released Mar-2023
 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: BIOS and OS set to prefer performance
 at the cost of additional power usage.



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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	80	55.1	1070	<u>56.3</u>	<u>1050</u>			80	55.5	1060	<u>55.5</u>	<u>1060</u>		
607.cactuBSSN_s	80	<u>48.3</u>	<u>345</u>	47.6	350			80	<u>48.3</u>	<u>345</u>	47.6	350		
619.lbm_s	80	20.6	255	<u>24.4</u>	<u>214</u>			80	20.6	255	<u>24.4</u>	<u>214</u>		
621.wrf_s	80	<u>73.0</u>	<u>181</u>	72.0	184			80	<u>73.0</u>	<u>181</u>	72.0	184		
627.cam4_s	80	52.2	170	<u>52.3</u>	<u>170</u>			80	51.7	171	<u>52.0</u>	<u>170</u>		
628.pop2_s	80	162	73.1	<u>163</u>	<u>73.1</u>			80	162	73.1	<u>163</u>	<u>73.1</u>		
638.imagick_s	80	22.5	641	<u>22.6</u>	<u>638</u>			80	22.5	641	<u>22.6</u>	<u>638</u>		
644.nab_s	80	27.7	630	<u>27.8</u>	<u>629</u>			80	27.7	630	<u>27.8</u>	<u>629</u>		
649.fotonik3d_s	80	56.8	160	<u>56.9</u>	<u>160</u>			80	56.8	160	<u>56.9</u>	<u>160</u>		
654.roms_s	80	34.0	464	<u>34.3</u>	<u>459</u>			80	34.0	464	<u>34.3</u>	<u>459</u>		

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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 =
"/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/lib/intel64:/mnt/ramdisk/cpu2017-1.1.9-ic2023.0/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"



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Platform Notes

BIOS settings:

ADDDC Setting : Disabled
 DIMM Self Healing on
 Uncorrectable Memory Error : Disabled
 Logical Processor : Disabled
 Virtualization Technology : Disabled
 Sub NUMA Cluster : 2-way Clustering
 Optimizer Mode : Enabled

System Profile : Custom
 CPU Power Management : Maximum Performance
 C1E : Disabled
 C States : Autonomous
 Memory Patrol Scrub : Disabled
 Energy Efficiency Policy : Performance
 PCI ASPM L1 Link
 Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-ic2023.0/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Wed Jun 28 12:19:55 2023

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

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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 249 (249.11+suse.124.g2bc0b2c447)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 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 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222/lp) x86_64 x86_64 x86_64 GNU/Linux
-
2. w
12:19:55 up 2:20, 3 users, load average: 5.56, 5.75, 3.46

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Platform Notes (Continued)

```
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1    -             10:00   2:18m 1.33s  0.00s /bin/bash ./dell-run-specspeed.sh
--iterations 2 --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --define Dell-BIOS-LogProcD=1
```

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) 2060193
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) 2060193
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 34
login -- root
-bash
/bin/bash ./DELL_speed.sh
/bin/bash ./dell-run-main.sh speed
/bin/bash ./dell-run-main.sh speed
/bin/bash ./dell-run-specspeed.sh --iterations 2 --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --define Dell-BIOS-LogProcD=1
/bin/bash ./dell-run-specspeed.sh --iterations 2 --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --define Dell-BIOS-LogProcD=1
runcpu --nobuild --action validate --define default-platform-flags -c
ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=80 --tune base,peak -o all --define drop_caches --iterations 2 --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --define Dell-BIOS-LogProcD=1 fpspeed
runcpu --nobuild --action validate --define default-platform-flags --configfile ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=80 --tune base,peak --output_format all --define drop_caches --iterations 2 --output_format csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_Xeon-4.inc --define Dell-BIOS-LogProcD=1 --nopower --runmode speed --tune base:peak --size refspeed fpspeed --nopreenv --note-preenv --logfile \$SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /mnt/ramdisk/cpu2017-1.1.9-ic2023.0

6. /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8460Y+
vendor_id : GenuineIntel
cpu family : 6
model : 143
stepping : 8

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Platform Notes (Continued)

```

microcode      : 0x2b0001b0
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 40
siblings       : 40
2 physical ids (chips)
80 processors (hardware threads)
physical id 0: core ids 0-39
physical id 1: core ids 0-39
physical id 0: apicids
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78
physical id 1: apicids
128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,204,206
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 2.37.2:

```

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):                80
On-line CPU(s) list:  0-79
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Platinum 8460Y+
CPU family:            6
Model:                 143
Thread(s) per core:   1
Core(s) per socket:   40
Socket(s):             2
Stepping:              8
BogoMIPS:              4000.00
Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                      clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                      lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                      nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                      ds_cpl 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
                      cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced 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 avx_vnni avx512_bf16 wbnoinvd dtherm ida
                      arat pln pts 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_lld arch_capabilities

L1d cache:            3.8 MiB (80 instances)
L1i cache:            2.5 MiB (80 instances)
L2 cache:             160 MiB (80 instances)
L3 cache:             210 MiB (2 instances)
NUMA node(s):        4
NUMA node0 CPU(s):  0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76
NUMA node1 CPU(s):  2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78
NUMA node2 CPU(s):  1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77

```

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Platform Notes (Continued)

```

NUMA node3 CPU(s):      3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:      Not affected
Vulnerability Mds:       Not affected
Vulnerability Meltdown:  Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
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	3.8M	12	Data	1	64	1	64
L1i	32K	2.5M	8	Instruction	1	64	1	64
L2	2M	160M	16	Unified	2	2048	1	64
L3	105M	210M	15	Unified	3	114688	1	64

8. numactl --hardware

```

NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76
node 0 size: 128364 MB
node 0 free: 127313 MB
node 1 cpus: 2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78
node 1 size: 129018 MB
node 1 free: 128723 MB
node 2 cpus: 1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77
node 2 size: 129018 MB
node 2 free: 128125 MB
node 3 cpus: 3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63,67,71,75,79
node 3 size: 128671 MB
node 3 free: 113056 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

```

9. /proc/meminfo

MemTotal: 527435184 kB

10. who -r

run-level 3 Jun 28 10:00 last=5

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)

```

Default Target Status
multi-user      running

```

12. Services, from systemctl list-unit-files

```

STATE UNIT FILES
enabled ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron
display-manager firewalld getty@ haveged irqbalance iscsi issue-generator kbdsettings
kdump kdump-early klog lvm2-monitor nsd postfix purge-kernels rollback rsyslog smartd

```

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Platform Notes (Continued)

```

enabled-runtime  sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant
disabled        systemd-remount-fs
                NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon
                appstream-sync-cache autofs autoyast-initscripts blk-availability bluetooth-mesh
                boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed
                debug-shell dnsmasq ebttables exchange-bmc-os-info gpm grub2-once haveged-switch-root ipmi
                ipmievd iscsi-init iscsid iscsiui issue-add-ssh-keys kexec-load lunmask man-db-create
                multipathd nfs nfs-blkmap nm-cloud-setup nmb openvpn@ ostree-remount pppoe pppoe-server
                rdisc rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb
                snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures
                systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
                upower wpa_supplicant@
indirect        pcsd saned@ wickedd

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=3757ffab-74c4-4c1d-ad87-5cec94a9329d
splash=silent
resume=/dev/disk/by-uuid/69fef525-d33c-4f45-ba84-662bbc343f8b
mitigations=auto
quiet
security=apparmor
crashkernel=319M,high
crashkernel=72M,low

```

```

-----
14. cpupower frequency-info
analyzing CPU 0:
  Unable to determine current policy
  boost state support:
    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+madvice [madvice] never
enabled     [always] madvice never

```

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Platform Notes (Continued)

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 SP4

19. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-ic2023.0
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 125G 11G 115G 9% /mnt/ramdisk

20. /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge R760xa
Product Family: PowerEdge
Serial: 1234567

21. dmidecode
Additional information from dmidecode 3.2 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:
16x 002C00B3002C MTC20F2085S1RC48BA1 32 GB 2 rank 4800

22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Dell Inc.
BIOS Version: 1.0.0
BIOS Date: 03/10/2023
BIOS Revision: 1.0

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.

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Compiler Version Notes (Continued)

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
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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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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

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

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SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

SPECspeed®2017_fp_base = 296

PowerEdge R760xa (Intel Xeon Platinum 8460Y+)

SPECspeed®2017_fp_peak = 296

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

Base Portability Flags (Continued)

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

Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

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Peak Compiler Invocation (Continued)

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: -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

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

627.cam4_s: -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

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Peak Optimization Flags (Continued)

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-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.5.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/Dell-Platform-Flags-PowerEdge-Intel-Xeon-v1.5.xml>

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