



SPEC CPU®2017 Floating Point Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen9

(2.50 GHz, Intel Xeon E5-2680 v3)

SPECrate®2017_fp_base = 114

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 3

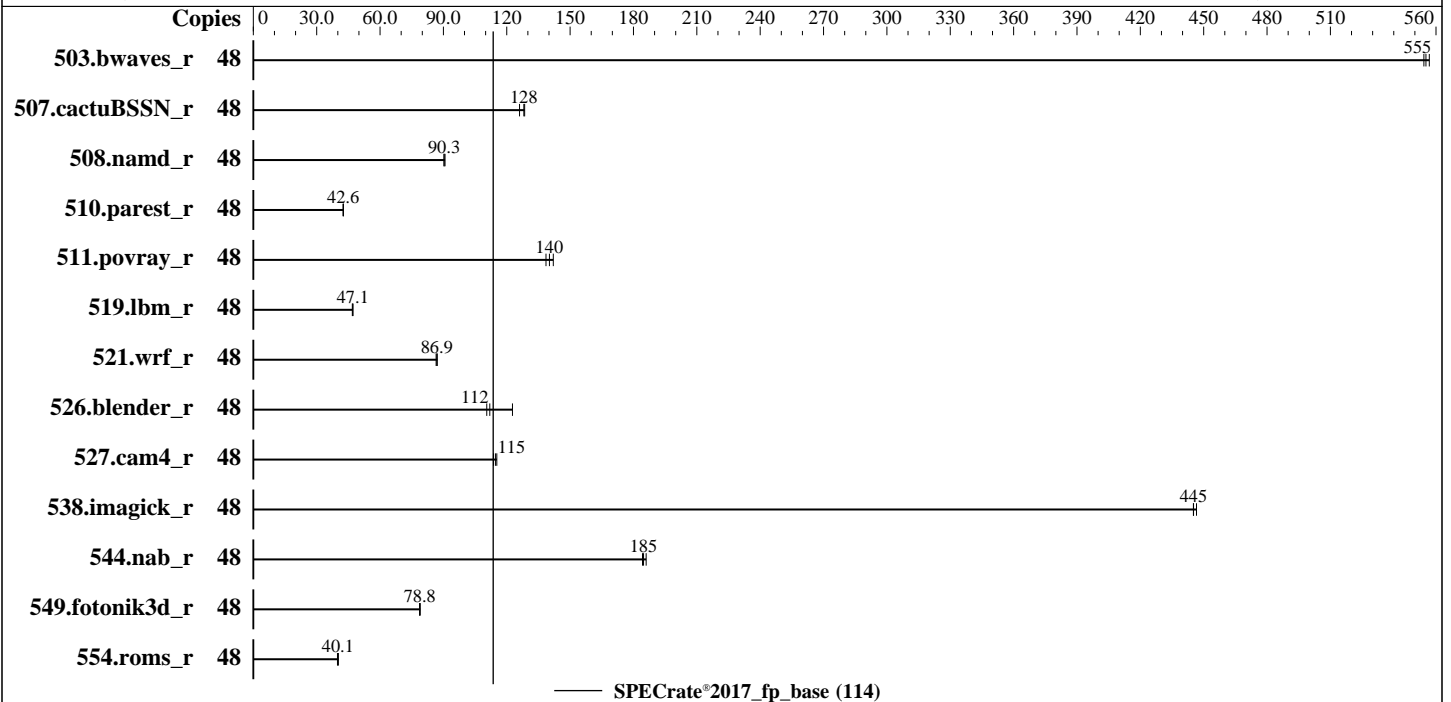
Test Sponsor: HPE

Tested by: HPE

Test Date: May-2023

Hardware Availability: Feb-2023

Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon E5-2680 v3
 Max MHz: 3300
 Nominal: 2500
 Enabled: 24 cores, 2 chips, 2 threads/core
 Orderable: 1, 2 chip (s)
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 256 KB I+D on chip per core
 L3: 15 MB I+D on chip per chip
 Other: None
 Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2133P-R)
 Storage: 1 x 3 TB SATA 7.2K RPM HDD, RAID 0
 Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 Kernel 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: No
 Firmware: HPE BIOS Version P89 v3.08 01/12/2023 released Feb-2023
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	48	868	554	864	557	867	555							
507.cactuBSSN_r	48	473	128	474	128	482	126							
508.namd_r	48	505	90.3	502	90.8	505	90.3							
510.parest_r	48	2942	42.7	2952	42.5	2949	42.6							
511.povray_r	48	799	140	809	139	789	142							
519.lbm_r	48	1074	47.1	1079	46.9	1073	47.1							
521.wrf_r	48	1235	87.1	1242	86.6	1238	86.9							
526.blender_r	48	653	112	661	111	596	123							
527.cam4_r	48	728	115	732	115	738	114							
538.imagick_r	48	268	445	268	445	267	447							
544.nab_r	48	438	184	437	185	434	186							
549.fotonik3d_r	48	2377	78.7	2374	78.8	2367	79.0							
554.roms_r	48	1895	40.3	1914	39.8	1903	40.1							

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor.

For details, please see the config file.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, <http://www.spec.org/osg/policy.html>. This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

This benchmark run is conducted using the latest binaries based on IC23 and to suffice the minimum software requirement, the Operating System used is RHEL9.0

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
sync; echo 3> /proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
```



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Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8480+ CPU + 512GB RAM memory using Red Hat Enterprise Linux 9.0
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>

Platform Notes

The system ROM used for this result contains Intel microcode version 0x49 for the Intel Xeon E5-2680 v3 processor.

BIOS Configuration:

Power Profile set to Custom
Power Regulator set to Static High Performance Mode
Minimum Processor Idle Power Core C-State set to C6 State
Minimum Processor Idle Power Package C-State set to No Package State
QPI Snoop Configuration set to Cluster on Die
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Fri May 19 03:55:04 2023

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

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1. uname -a
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6. /proc/cpuinfo
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10. who -r
11. Systemd service manager version: systemd 250 (250-6.el9_0)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline

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Platform Notes (Continued)

```

14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
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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
03:55:04 up 17:43, 1 user, load average: 4.48, 29.63, 40.68
USER      TTY      LOGIN@  IDLE   JCPU   PCPU   WHAT
root     pts/0    17:43   5:15m  1.58s  0.01s  -bash

```

```

3. Username
From environment variable $USER: root

```

```

4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size                (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                    (blocks, -f) unlimited
pending signals              (-i) 1031035
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) 1031035
virtual memory                (kbytes, -v) unlimited
file locks                   (-x) unlimited

```

```

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@pts/0
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 -c
ic2023.0-lin-core-avx2-rate-20221201.cfg --define smt-on --define cores=24 --define physicalfirst --define
invoke_with_interleave --define drop_caches --tune base -o all fprate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=48 --configfile
ic2023.0-lin-core-avx2-rate-20221201.cfg --define smt-on --define cores=24 --define physicalfirst --define

```

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Platform Notes (Continued)

```
invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode rate
--tune base --size refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.004/templogs/preenv.fprate.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) CPU E5-2680 v3 @ 2.50GHz
vendor_id      : GenuineIntel
cpu family     : 6
model          : 63
stepping       : 2
microcode      : 0x49
bugs           : cpu_meltdown spectre_v1 spectre_v2 spec_store_bypass lltf mds swapgs itlb_multihit
cpu cores      : 12
siblings       : 24
2 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-5,8-13
physical id 1: core ids 0-5,8-13
physical id 0: apicids 0-11,16-27
physical id 1: apicids 32-43,48-59
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.37.4:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          46 bits physical, 48 bits virtual
Byte Order:             Little Endian
CPU(s):                 48
On-line CPU(s) list:   0-47
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:             Intel(R) Xeon(R) CPU E5-2680 v3 @ 2.50GHz
BIOS Model name:       Intel(R) Xeon(R) CPU E5-2680 v3 @ 2.50GHz
CPU family:             6
Model:                  63
Thread(s) per core:    2
Core(s) per socket:    12
Socket(s):              2
Stepping:               2
BogoMIPS:               4994.09
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 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 cpuid_fault epb
                        invpcid_single pti intel_ppin ssbd ibrs ibpb stibp tpr_shadow vnmi
                        flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms
                        invpcid cqm xsaveopt cqm_llc cqm_occup_llc dtherm ida arat pln pts
                        md_clear flush_lld
Virtualization:         VT-x
L1d cache:              768 KiB (24 instances)
L1i cache:              768 KiB (24 instances)
```

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Platform Notes (Continued)

```

L2 cache:                6 MiB (24 instances)
L3 cache:                60 MiB (4 instances)
NUMA node(s):            4
NUMA node0 CPU(s):      0-5,24-29
NUMA node1 CPU(s):      6-11,30-35
NUMA node2 CPU(s):      12-17,36-41
NUMA node3 CPU(s):      18-23,42-47
Vulnerability Itlb multihit: KVM: Mitigation: VMX disabled
Vulnerability L1tf:       Mitigation; PTE Inversion; VMX conditional cache flushes, SMT vulnerable
Vulnerability Mds:        Mitigation; Clear CPU buffers; SMT vulnerable
Vulnerability Meltdown:   Mitigation; PTI
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:  Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:  Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP 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	32K	768K	8	Data	1	64	1	64
L1i	32K	768K	8	Instruction	1	64	1	64
L2	256K	6M	8	Unified	2	512	1	64
L3	15M	60M	20	Unified	3	12288	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: 0-5,24-29
node 0 size: 64313 MB
node 0 free: 55962 MB
node 1 cpus: 6-11,30-35
node 1 size: 64509 MB
node 1 free: 58340 MB
node 2 cpus: 12-17,36-41
node 2 size: 64472 MB
node 2 free: 58472 MB
node 3 cpus: 18-23,42-47
node 3 size: 64500 MB
node 3 free: 58588 MB
node distances:
node  0  1  2  3
 0:  10  21  31  31
 1:  21  10  31  31
 2:  31  31  10  21
 3:  31  31  21  10

```

9. /proc/meminfo

MemTotal: 263982856 kB

10. who -r

run-level 3 May 18 10:11

11. Systemd service manager version: systemd 250 (250-6.e19_0)

```

Default Target Status
multi-user      running

```

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Platform Notes (Continued)

```
-----
12. 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 mdmonitor microcode nis-domainname rhsmcertd
rsyslog selinux-autorelabel-mark sshd sssd systemd-network-generator tuned udisks2 upower

enabled-runtime systemd-remount-fs
disabled canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot
chrony-wait console-getty cpupower debug-shell ipsec kvm_stat man-db-restart-cache-update
nftables powertop 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
-----
```

```
-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd1,gpt2)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64
root=UUID=56312656-1635-4f2c-8806-abb8e5086713
ro
resume=UUID=60bbf78d-9819-4f52-a842-7de0e7133ca8
-----
```

```
-----
14. cpupower frequency-info
analyzing CPU 0:
Unable to determine current policy
boost state support:
Supported: yes
Active: yes
-----
```

```
-----
15. tuned-adm active
Current active profile: throughput-performance
-----
```

```
-----
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 40
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 10
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 0
-----
```

```
-----
17. /sys/kernel/mm/transparent_hugepage
defrag always defer+madvice [madvice] never
enabled [always] madvice never
hpage_pmd_size 2097152
-----
```

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Platform Notes (Continued)

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/sdb5 xfs 2.7T 82G 2.6T 4% /home
```

21. /sys/devices/virtual/dmi/id

```
Vendor: HP
Product: ProLiant DL380 Gen9
Product Family: ProLiant
Serial: HZ76NU6420
```

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:
8x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2133
```

23. BIOS

(This section combines info from /sys/devices and dmidecode.)

```
BIOS Vendor: HP
BIOS Version: P89
BIOS Date: 01/12/2023
BIOS Revision: 3.0
Firmware Revision: 2.72
```

Compiler Version Notes

=====
C | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)

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++ | 508.namd_r(base) 510.parest_r(base)
=====

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 | 511.povray_r(base) 526.blender_r(base)
=====

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
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
=====

=====
C++, C, Fortran | 507.cactuBSSN_r(base)
=====

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

=====
Fortran | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
=====

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

=====
Fortran, C | 521.wrf_r(base) 527.cam4_r(base)
=====

Intel(R) Fortran 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
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
=====

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Base Portability Flags

```
503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

C++ benchmarks:

```
-w -std=c++14 -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

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SPEC CPU®2017 Floating Point Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen9

(2.50 GHz, Intel Xeon E5-2680 v3)

SPECrate®2017_fp_base = 114

SPECrate®2017_fp_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: May-2023

Hardware Availability: Feb-2023

Software Availability: Dec-2022

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto  
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -ljemalloc  
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast  
-ffast-math -flto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -Wno-implicit-int -nostandard-realloc-lhs  
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.1-HSW-revB.html>

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html>

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.1-HSW-revB.xml>

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

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Tested with SPEC CPU®2017 v1.1.9 on 2023-05-19 03:55:04-0400.

Report generated on 2023-06-06 19:14:25 by CPU2017 PDF formatter v6716.

Originally published on 2023-06-06.