



SPEC CPU®2017 Integer Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL560 Gen11

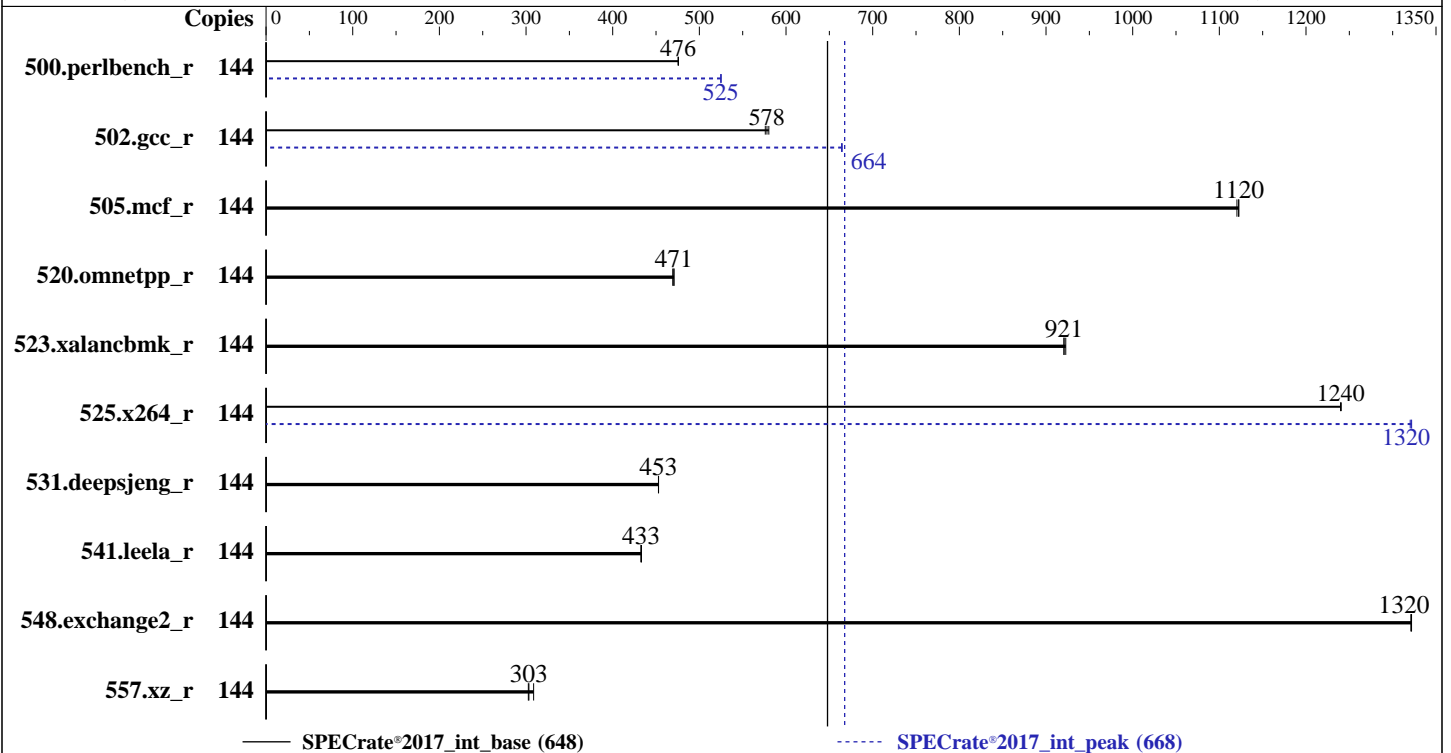
(2.20 GHz, Intel Xeon Gold 6416H)

SPECrate®2017_int_base = 648

SPECrate®2017_int_peak = 668

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: Apr-2024
Hardware Availability: Mar-2024
Software Availability: Mar-2024



Hardware

CPU Name: Intel Xeon Gold 6416H
 Max MHz: 4200
 Nominal: 2200
 Enabled: 72 cores, 4 chips, 2 threads/core
 Orderable: 1, 2, 4 chip(s)
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 45 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (32 x 32 GB 2Rx8 PC5-4800B-R)
 Storage: 2 x 960 GB SATA SSD, RAID 1
 Other: CPU Cooling: Air

Software

OS: Ubuntu 22.04.4 LTS
 Kernel 5.15.0-102-generic
 Compiler: C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++ Compiler for Linux;
 Fortran: Version 2024.0.2 of Intel Fortran Compiler for Linux;
 Parallel: No
 Firmware: HPE BIOS Version v2.16 03/01/2024 released Mar-2024
 File System: ext4
 System State: Run level 5 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	144	482	476	482	476	482	476	144	437	525	437	525	437	525
502.gcc_r	144	351	580	354	576	353	578	144	307	664	307	665	307	664
505.mcf_r	144	208	1120	207	1120	207	1120	144	208	1120	207	1120	207	1120
520.omnetpp_r	144	401	471	403	469	402	471	144	401	471	403	469	402	471
523.xalancbmk_r	144	165	923	165	921	165	921	144	165	923	165	921	165	921
525.x264_r	144	203	1240	203	1240	203	1240	144	191	1320	191	1320	191	1320
531.deepsjeng_r	144	364	453	364	453	364	453	144	364	453	364	453	364	453
541.leela_r	144	550	433	551	433	551	433	144	550	433	551	433	551	433
548.exchange2_r	144	286	1320	285	1320	286	1320	144	286	1320	285	1320	286	1320
557.xz_r	144	504	309	514	303	513	303	144	504	309	514	303	513	303

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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.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/cpu2017/lib/intel64:/cpu2017/lib/ia32:/cpu2017/je5.0.1-32"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4
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.

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General Notes (Continued)

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

BIOS Configuration:

Workload Profile set to General Throughput Compute
Memory Patrol Scrubbing set to Disabled
Last Level Cache (LLC) Dead Line Allocation set to Disabled
Stale A to S set to Enabled
Thermal Configuration set to Maximum Cooling
Enhanced Processor Performance Profile set to Aggressive
Workload Profile set to Custom
Intel UPI Link Power Management set to Enabled
Minimum Processor Idle Power Package C-State set to Package C6 (non-retention) State

Sysinfo program /cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on dl560ac Tue Apr 16 14:43:02 2024

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

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17. /sys/kernel/mm/transparent_hugepage/khugepaged
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1. uname -a
Linux dl560ac 5.15.0-102-generic #112-Ubuntu SMP Tue Mar 5 16:50:32 UTC 2024 x86_64 x86_64 x86_64 GNU/Linux

2. w
14:43:02 up 11 min, 1 user, load average: 0.14, 0.03, 0.01
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root pts/0 16.1.33.101 14:42 6.00s 0.79s 0.00s -bash

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Platform Notes (Continued)

3. Username

From environment variable \$USER: root

4. ulimit -a

```
time(seconds)          unlimited
file(blocks)           unlimited
data(kbytes)           unlimited
stack(kbytes)          unlimited
coredump(blocks)       0
memory(kbytes)         unlimited
locked memory(kbytes) 132053572
process                4126221
nofiles                1024
vmemory(kbytes)       unlimited
locks                  unlimited
rtprio                 0
```

5. sysinfo process ancestry

```
/sbin/init
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root@pts/0
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=144 -c
ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=72 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=144 --configfile
ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --define smt-on --define cores=72 --define physicalfirst
--define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
--runmode rate --tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.010/templogs/preenv.intrate.010.0.log --lognum 010.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /cpu2017
```

6. /proc/cpuinfo

```
model name      : Intel(R) Xeon(R) Gold 6416H
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 8
microcode      : 0x2b000590
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
cpu cores      : 18
siblings       : 36
4 physical ids (chips)
144 processors (hardware threads)
physical id 0: core ids 0-17
physical id 1: core ids 0-17
physical id 2: core ids 0-17
physical id 3: core ids 0-17
physical id 0: apicids 0-35
physical id 1: apicids 128-163
physical id 2: apicids 256-291
physical id 3: apicids 384-419
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for

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Platform Notes (Continued)

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):                 144
On-line CPU(s) list:   0-143
Vendor ID:              GenuineIntel
Model name:             Intel(R) Xeon(R) Gold 6416H
CPU family:             6
Model:                  143
Thread(s) per core:    2
Core(s) per socket:    18
Socket(s):              4
Stepping:               8
BogoMIPS:               4400.00
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                        clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb
                        rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl
                        xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq
                        dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm
                        pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
                        avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2
                        cdp_l3 invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
                        tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1
                        avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                        avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                        xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                        cqm_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm
                        ida arat pln pts 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 amx_bf16 avx512_fp16 amx_tile
                        amx_int8 flush_lld arch_capabilities

```

```

Virtualization:        VT-x
L1d cache:             3.4 MiB (72 instances)
L1i cache:             2.3 MiB (72 instances)
L2 cache:              144 MiB (72 instances)
L3 cache:              180 MiB (4 instances)
NUMA node(s):         8
NUMA node0 CPU(s):    0-8,72-80
NUMA node1 CPU(s):    9-17,81-89
NUMA node2 CPU(s):    18-26,90-98
NUMA node3 CPU(s):    27-35,99-107
NUMA node4 CPU(s):    36-44,108-116
NUMA node5 CPU(s):    45-53,117-125
NUMA node6 CPU(s):    54-62,126-134
NUMA node7 CPU(s):    63-71,135-143
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit:       Not affected
Vulnerability L1tf:                 Not affected
Vulnerability Mds:                   Not affected
Vulnerability Meltdown:              Not affected
Vulnerability Mmio stale data:       Not affected
Vulnerability Retbleed:              Not affected

```

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Platform Notes (Continued)

Vulnerability Spec rstack overflow: Not affected
 Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
 Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
 Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRBS-eIBRS
 SW sequence
 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	3.4M	12	Data	1	64	1	64
L1i	32K	2.3M	8	Instruction	1	64	1	64
L2	2M	144M	16	Unified	2	2048	1	64
L3	45M	180M	15	Unified	3	49152	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: 0-8,72-80
node 0 size: 128539 MB
node 0 free: 128019 MB
node 1 cpus: 9-17,81-89
node 1 size: 129019 MB
node 1 free: 128526 MB
node 2 cpus: 18-26,90-98
node 2 size: 129019 MB
node 2 free: 128685 MB
node 3 cpus: 27-35,99-107
node 3 size: 129019 MB
node 3 free: 128664 MB
node 4 cpus: 36-44,108-116
node 4 size: 129019 MB
node 4 free: 128666 MB
node 5 cpus: 45-53,117-125
node 5 size: 129019 MB
node 5 free: 128651 MB
node 6 cpus: 54-62,126-134
node 6 size: 129019 MB
node 6 free: 128562 MB
node 7 cpus: 63-71,135-143
node 7 size: 129012 MB
node 7 free: 128467 MB
node distances:
node  0  1  2  3  4  5  6  7
0:  10  20  30  30  30  30  30  30
1:  20  10  30  30  30  30  30  30
2:  30  30  10  20  30  30  30  30
3:  30  30  20  10  30  30  30  30
4:  30  30  30  30  10  20  30  30
5:  30  30  30  30  20  10  30  30
6:  30  30  30  30  30  30  10  20
7:  30  30  30  30  30  30  20  10

```

9. /proc/meminfo

MemTotal: 1056428588 kB

10. who -r

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Platform Notes (Continued)

run-level 5 Apr 16 14:34

11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)

```
Default Target Status
graphical          degraded
```

12. Failed units, from systemctl list-units --state=failed

```
UNIT                                LOAD ACTIVE SUB DESCRIPTION
* systemd-networkd-wait-online.service loaded failed failed Wait for Network to be Configured
```

13. Services, from systemctl list-unit-files

```
STATE UNIT FILES
enabled ModemManager apparmor blk-availability cloud-config cloud-final cloud-init
cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager
grub-common grub-initrd-fallback irqbalance keyboard-setup lvm2-monitor lxd-agent
multipathd networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db
setvtrgb snapd ssh systemd-networkd systemd-networkd-wait-online systemd-pstore
systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
unattended-upgrades vgauth
enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled console-getty debug-shell iscsid nftables rsync serial-getty@
systemd-boot-check-no-failures systemd-network-generator systemd-sysext
systemd-time-wait-sync upower
generated apport
indirect uuid
masked cryptdisks cryptdisks-early hwclock lvm2 multipath-tools-boot rc rcS screen-cleanup sudo
x11-common
```

14. Linux kernel boot-time arguments, from /proc/cmdline

```
BOOT_IMAGE=/vmlinuz-5.15.0-102-generic
root=/dev/mapper/ubuntu--vg-ubuntu--lv
ro
```

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
```

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Platform Notes (Continued)

```

16. /sys/kernel/mm/transparent_hugepage
   defrag          always defer defer+madvice [madvice] never
   enabled         always [madvice] 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 Ubuntu 22.04.4 LTS

```

```

-----
19. Disk information
SPEC is set to: /cpu2017
Filesystem                Type      Size  Used Avail Use% Mounted on
/dev/mapper/ubuntu--vg-ubuntu--lv ext4      295G   76G  204G  28% /

```

```

-----
20. /sys/devices/virtual/dmi/id
   Vendor:           HPE
   Product:          ProLiant DL560 Gen11
   Product Family:   ProLiant
   Serial:           CZ23230TDL

```

```

-----
21. 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 Hynix HMCG88MEBRA115N 32 GB 2 rank 4800
  32x UNKNOWN NOT AVAILABLE

```

```

-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       HPE
   BIOS Version:      2.16
   BIOS Date:         03/01/2024
   BIOS Revision:     2.16
   Firmware Revision: 1.53

```

Compiler Version Notes

```

=====
C | 502.gcc_r(peak)
=====

```

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Compiler Version Notes (Continued)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====
C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
| 557.xz_r(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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=====
C | 502.gcc_r(peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.0.2 Build 20231213
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=====
C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
| 557.xz_r(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====
C++ | 520.omnetpp_r(base, peak) 523.xalancbnk_r(base, peak) 531.deepsjeng_r(base, peak)
| 541.leela_r(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

=====
Fortran | 548.exchange2_r(base, peak)
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
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Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



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Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502 gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc

C++ benchmarks:

-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc

Fortran benchmarks:

-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmalloc

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



SPEC CPU®2017 Integer Rate Result

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Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL560 Gen11

(2.20 GHz, Intel Xeon Gold 6416H)

SPECrate®2017_int_base = 648

SPECrate®2017_int_peak = 668

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Apr-2024

Hardware Availability: Mar-2024

Software Availability: Mar-2024

Peak Portability Flags

```

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

```

Peak Optimization Flags

C benchmarks:

```

500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmallo

502.gcc_r: -m32 -L/opt/intel/oneapi/compiler/2024.0/lib32 -std=gnu89
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc32-5.0.1/lib -ljemallo

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/opt/intel/oneapi/compiler/2024.0/lib -lqkmallo

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

```

(Continued on next page)



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Tested by: HPE

Test Date: Apr-2024

Hardware Availability: Mar-2024

Software Availability: Mar-2024

Peak Optimization Flags (Continued)

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev3.0.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev3.0.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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