



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

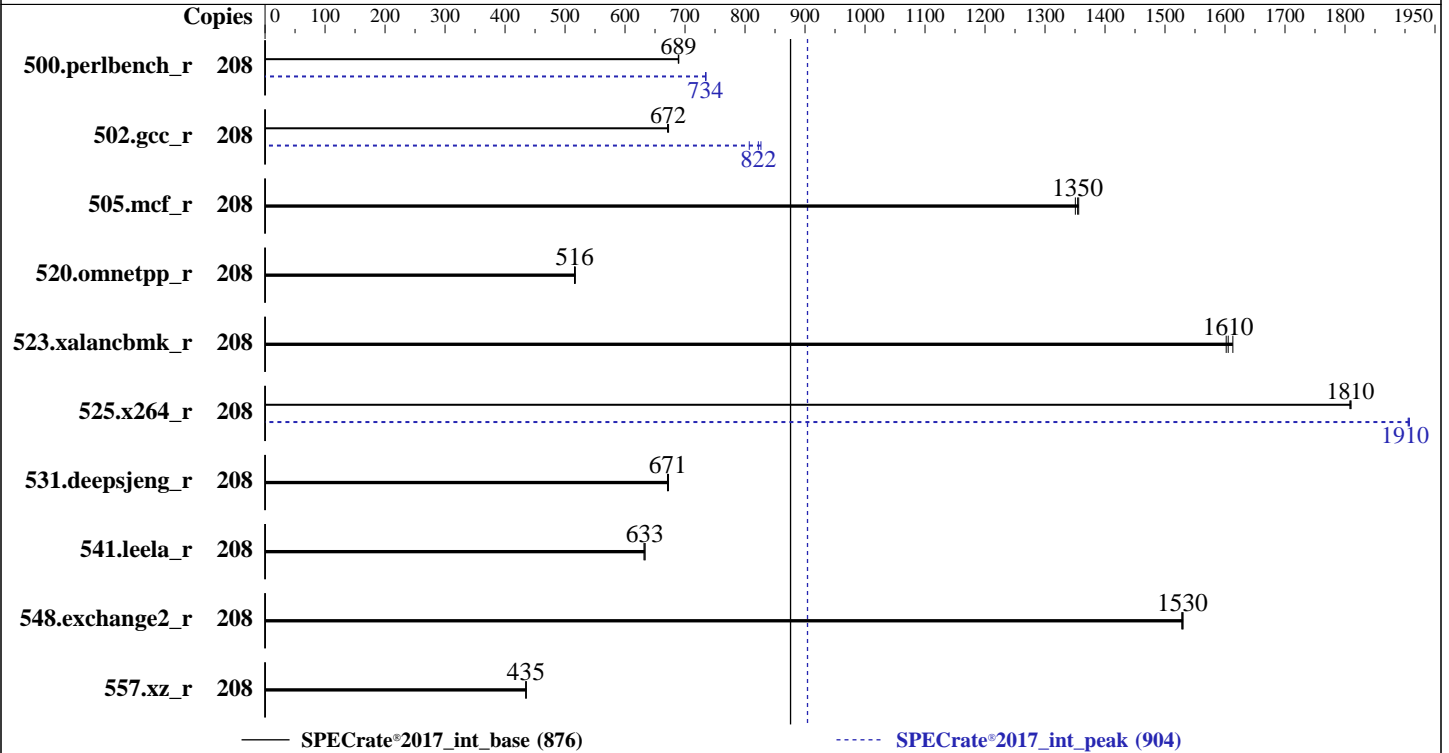
(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

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

Test Date: Feb-2023
Hardware Availability: Jan-2023
Software Availability: May-2022



Hardware

CPU Name: Intel Xeon Platinum 8470
Max MHz: 3800
Nominal: 2000
Enabled: 96 cores, 2 chips, 2 threads/core
Orderable: 1, 2 chip(s)
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: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 400 GB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux release 9.0 (Plow)
Kernel 5.14.0-70.13.1.el9_0.x86_64
Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux;
Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;
Parallel: No
Firmware: HPE BIOS Version v1.22 01/18/2023 released Jan-2023
File System: xfs
System State: Run level 3 (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



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

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

Test Date: Feb-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	208	480	690	<u>481</u>	<u>689</u>	481	689	208	<u>451</u>	<u>734</u>	451	735	451	734
502.gcc_r	208	439	671	438	673	<u>438</u>	<u>672</u>	208	356	827	365	807	<u>358</u>	<u>822</u>
505.mcf_r	208	249	1350	248	1360	<u>248</u>	<u>1350</u>	208	249	1350	248	1360	<u>248</u>	<u>1350</u>
520.omnetpp_r	208	529	516	<u>529</u>	<u>516</u>	528	517	208	529	516	<u>529</u>	<u>516</u>	528	517
523.xalancbmk_r	208	136	1610	137	1600	<u>137</u>	<u>1610</u>	208	136	1610	137	1600	<u>137</u>	<u>1610</u>
525.x264_r	208	201	1810	<u>201</u>	<u>1810</u>	201	1810	208	191	1910	<u>191</u>	<u>1910</u>	191	1910
531.deepsjeng_r	208	<u>355</u>	<u>671</u>	355	671	354	672	208	<u>355</u>	<u>671</u>	355	671	354	672
541.leela_r	208	<u>544</u>	<u>633</u>	545	632	544	633	208	<u>544</u>	<u>633</u>	545	632	544	633
548.exchange2_r	208	<u>356</u>	<u>1530</u>	357	1530	356	1530	208	<u>356</u>	<u>1530</u>	357	1530	356	1530
557.xz_r	208	<u>516</u>	<u>435</u>	516	435	517	434	208	<u>516</u>	<u>435</u>	516	435	517	434

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

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

Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

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>
IRQ balance service was stopped using "systemctl stop irqbalance.service"
tuned-adm profile was set to Accelerator-Performance using "tuned-adm profile accelerator-performance"
```



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

LD_LIBRARY_PATH = "/home/cpu2017_19/lib/intel64:/home/cpu2017_19/lib/ia32:/home/cpu2017_19/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.

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 0x2b000161 for the Intel Xeon Platinum 8470 processor.

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

Intel UPI Link Enablement set to Single Link

Enhanced Processor Performance Profile set to Aggressive

Thermal Configuration set to Maximum Cooling

Workload Profile set to Custom

Adjacent Sector Prefetch set to Disabled

DCU Stream Prefetcher set to Disabled

Intel UPI Link Power Management set to Enabled

Minimum Processor Idle Power Package C-State set to Package C6 (non-retention) State

Sysinfo program /home/cpu2017_19/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost.localdomain Thu Feb 16 23:07:32 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. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Platform Notes (Continued)

```

14. cpupower frequency-info
15. tuned-adm active
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
 23:07:32 up 1 min,  0 users,  load average:  7.57,  2.67,  0.95
USER      TTY      LOGIN@  IDLE   JCPU   PCPU   WHAT

```

```

-----
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) 4127056
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) 4127056
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@notty
bash -c cd $SPEC/ && $SPEC/intrate.sh
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=208 -c
ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=104 --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=208 --configfile
ic2022.1-lin-core-avx512-rate-20220316.cfg --define smt-on --define cores=104 --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

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

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

Test Date: Feb-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Platform Notes (Continued)

```
$SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017_19
```

```
-----
6. /proc/cpuinfo
model name      : Intel(R) Xeon(R) Platinum 8470
vendor_id      : GenuineIntel
cpu family     : 6
model          : 143
stepping       : 6
microcode      : 0x2b000161
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 52
siblings       : 104
2 physical ids (chips)
208 processors (hardware threads)
physical id 0: core ids 0-51
physical id 1: core ids 0-51
physical id 0: apicids 0-103
physical id 1: apicids 128-231
```

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, 57 bits virtual
Byte Order:             Little Endian
CPU(s):                 208
On-line CPU(s) list:   0-207
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:             Intel(R) Xeon(R) Platinum 8470
BIOS Model name:       Intel(R) Xeon(R) Platinum 8470
CPU family:             6
Model:                  143
Thread(s) per core:    2
Core(s) per socket:    52
Socket(s):              2
Stepping:               6
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 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
                        vmmi 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
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

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

Test Date: Feb-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Platform Notes (Continued)

```
cldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk pconfig
arch_lbr avx512_fp16 amx_tile flush_lld arch_capabilities
```

VT-x

```
Virtualization:
L1d cache: 4.9 MiB (104 instances)
L1i cache: 3.3 MiB (104 instances)
L2 cache: 208 MiB (104 instances)
L3 cache: 210 MiB (2 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-12,104-116
NUMA node1 CPU(s): 13-25,117-129
NUMA node2 CPU(s): 26-38,130-142
NUMA node3 CPU(s): 39-51,143-155
NUMA node4 CPU(s): 52-64,156-168
NUMA node5 CPU(s): 65-77,169-181
NUMA node6 CPU(s): 78-90,182-194
NUMA node7 CPU(s): 91-103,195-207
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
Vulnerability Spectre v1: Mitigation; usercopy/swaps 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	4.9M	12	Data	1	64	1	64
L1i	32K	3.3M	8	Instruction	1	64	1	64
L2	2M	208M	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: 8 nodes (0-7)
node 0 cpus: 0-12,104-116
node 0 size: 128694 MB
node 0 free: 127989 MB
node 1 cpus: 13-25,117-129
node 1 size: 129018 MB
node 1 free: 128387 MB
node 2 cpus: 26-38,130-142
node 2 size: 129018 MB
node 2 free: 128599 MB
node 3 cpus: 39-51,143-155
node 3 size: 129018 MB
node 3 free: 128602 MB
node 4 cpus: 52-64,156-168
node 4 size: 129018 MB
node 4 free: 128577 MB
node 5 cpus: 65-77,169-181
node 5 size: 129018 MB
node 5 free: 128548 MB
node 6 cpus: 78-90,182-194
node 6 size: 129018 MB
node 6 free: 128263 MB
node 7 cpus: 91-103,195-207
node 7 size: 128998 MB
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

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

Test Date: Feb-2023
Hardware Availability: Jan-2023
Software Availability: May-2022

Platform Notes (Continued)

```
node 7 free: 128182 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:      1056566920 kB
```

```
-----
10. who -r
run-level 3 Feb 16 23:06
```

```
-----
11. Systemd service manager version: systemd 250 (250-6.el9_0)
Default Target Status
multi-user      running
```

```
-----
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 lvm2-monitor mdmonitor microcode
           nis-domainname rhsmcertd rsyslog selinux-autorelabel-mark sshd sssd
           systemd-network-generator tuned udisks2 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
           hwloc-dump-hwdata ipsec kvm_stat man-db-restart-cache-update nftables powertop rdisc rhsm
           rhsm-facts rpmdm-rebuild serial-getty@ sshd-keygen@ systemd-boot-check-no-failures
           systemd-pstore systemd-sysex
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=(hd0,gpt2)/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
```

```
-----
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: accelerator-performance
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Platform Notes (Continued)

```

-----
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 defer+madvice [madvice] never
enabled         [always] madvice 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_19
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   372G  365G  6.9G  99% /home

-----
21. /sys/devices/virtual/dmi/id
Vendor:          HPE
Product:         ProLiant DL380 Gen11
Product Family:  ProLiant
Serial:          CNX2100G8

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Platform Notes (Continued)

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:

16x Hynix HMCG94AEBRA103N 64 GB 2 rank 4800

23. BIOS

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

BIOS Vendor: HPE
BIOS Version: 1.22
BIOS Date: 01/18/2023
BIOS Revision: 1.22
Firmware Revision: 1.10

Compiler Version Notes

C | 502.gcc_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 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 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C | 502.gcc_r(peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 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 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C++ | 520.omnetpp_r(base, peak) 523.xalancbmk_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 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Compiler Version Notes (Continued)

Fortran | 548.exchange2_r(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

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 -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmallo

C++ benchmarks:

-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Base Optimization Flags (Continued)

C++ benchmarks (continued):

-lqkmallocc

Fortran benchmarks:

-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -fltto

-mfpmath=sse -funroll-loops -gopt-mem-layout-trans=4

-nostandard-realloc-lhs -align array32byte -auto

-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin

-lqkmallocc

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

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)

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

Peak Optimization Flags (Continued)

500.perlbench_r (continued):

```
-fprofile-use=default.profddata(pass 2) -xCORE-AVX512
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-strict-overflow
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmallocc
```

502.gcc_r: -m32

```
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX512
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc32-5.0.1/lib
-ljemallocc
```

505.mcf_r: basepeak = yes

```
525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/intel/compiler/2022.1.0/linux/compiler/lib/intel64_lin
-lqkmallocc
```

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

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/HPE-Platform-Flags-Intel-SPR-rev1.1.html>

http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.html

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

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev1.1.xml>

http://www.spec.org/cpu2017/flags/Intel-ic2022-official-linux64_revA.xml



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen11

(2.00 GHz, Intel Xeon Platinum 8470)

SPECrate®2017_int_base = 876

SPECrate®2017_int_peak = 904

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Feb-2023

Hardware Availability: Jan-2023

Software Availability: May-2022

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.1.9 on 2023-02-16 12:37:31-0500.

Report generated on 2024-01-29 17:27:43 by CPU2017 PDF formatter v6716.

Originally published on 2023-03-28.