



SPEC CPU®2017 Integer Rate Result

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Inspur Electronic Information Industry Co., Ltd.
(IEI)

SPECrate®2017_int_base = 1970

NF8480M7 (Intel Xeon Platinum 8490H)

SPECrate®2017_int_peak = 2020

CPU2017 License: 3358

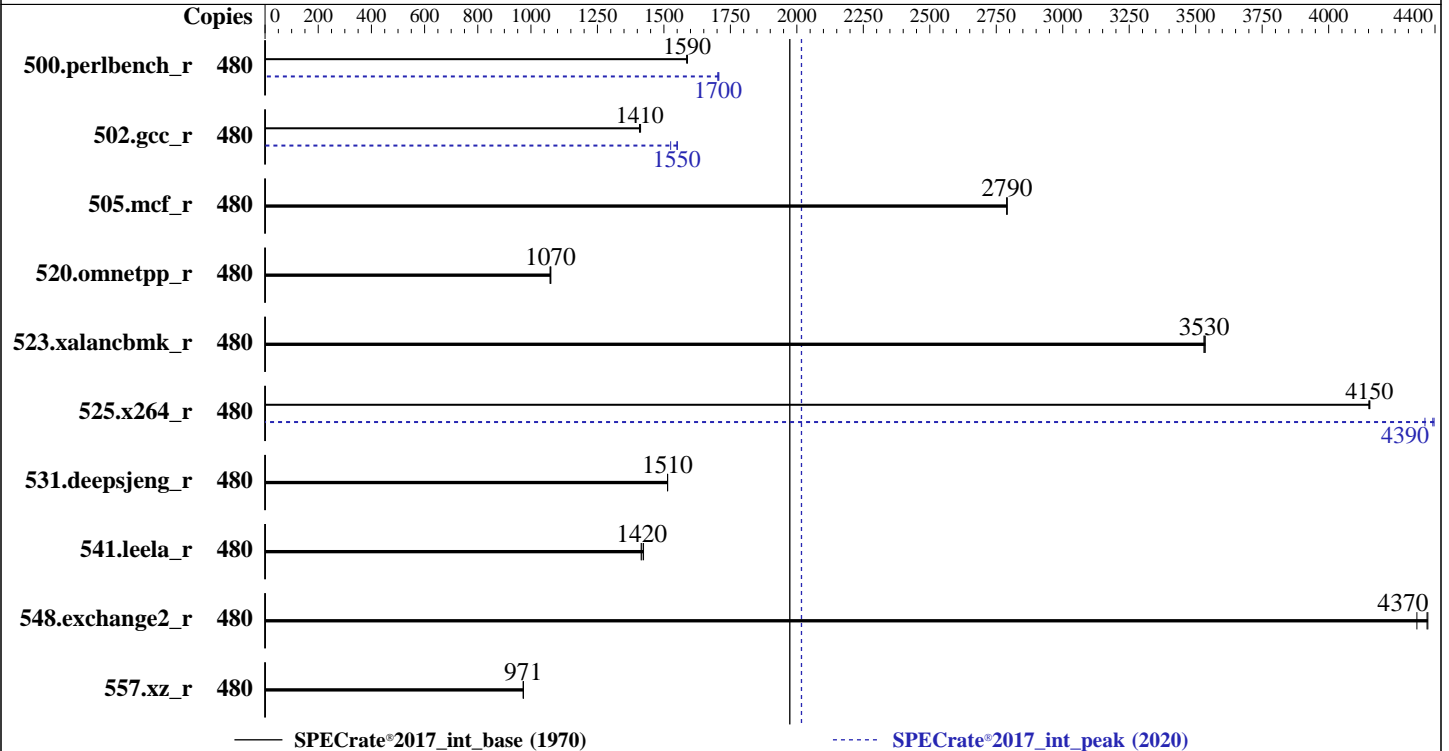
Test Date: Apr-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Apr-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Feb-2023



Hardware

CPU Name: Intel Xeon Platinum 8490H
 Max MHz: 3500
 Nominal: 1900
 Enabled: 240 cores, 4 chips, 2 threads/core
 Orderable: 2,4 chips
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 112.5 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (32 x 32 GB 2Rx4 PC5-4800B-R)
 Storage: 1 x 1 TB NVME SSD
 Other: None

Software

OS: Red Hat Enterprise Linux 9.0 (Plow)
 5.14.0-70.13.1.el9_0.x86_64
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2023.0 of Intel Fortran Compiler
 for Linux;
 Parallel: No
 Firmware: Version 03.00.00 released Dec-2022
 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.



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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	480	482	1590	<u>481</u>	<u>1590</u>	481	1590	480	<u>448</u>	<u>1700</u>	448	1710	449	1700
502.gcc_r	480	<u>482</u>	<u>1410</u>	483	1410	481	1410	480	<u>439</u>	<u>1550</u>	438	1550	446	1530
505.mcf_r	480	<u>278</u>	<u>2790</u>	278	2790	278	2790	480	<u>278</u>	<u>2790</u>	278	2790	278	2790
520.omnetpp_r	480	<u>586</u>	<u>1070</u>	588	1070	586	1070	480	<u>586</u>	<u>1070</u>	588	1070	586	1070
523.xalancbmk_r	480	143	3540	144	3530	<u>144</u>	<u>3530</u>	480	143	3540	144	3530	<u>144</u>	<u>3530</u>
525.x264_r	480	202	4160	202	4150	<u>202</u>	<u>4150</u>	480	191	4400	<u>191</u>	<u>4390</u>	193	4360
531.deepsjeng_r	480	363	1510	<u>363</u>	<u>1510</u>	363	1510	480	363	1510	<u>363</u>	<u>1510</u>	363	1510
541.leela_r	480	558	1420	<u>561</u>	<u>1420</u>	562	1410	480	558	1420	<u>561</u>	<u>1420</u>	562	1410
548.exchange2_r	480	<u>288</u>	<u>4370</u>	288	4370	290	4330	480	<u>288</u>	<u>4370</u>	288	4370	290	4330
557.xz_r	480	534	972	534	971	<u>534</u>	<u>971</u>	480	534	972	534	971	<u>534</u>	<u>971</u>

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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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/CPU2017/lib/intel64:/home/CPU2017/lib/ia32:/home/CPU2017/je5.0.1-32"
MALLOC_CONF = "retain:true"



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General Notes

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

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

BIOS configuration:
 ENERGY_PERF_BIAS_CFG mode set to Performance
 Hardware Prefetch set to Disable
 VT Support set to Disable
 Sub NUMA Cluster (SNC) set to SNC4

Sysinfo program /home/CPU2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Mon Apr 3 09:54:30 2023

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

 Table of contents

1. `uname -a`
2. `w`
3. Username
4. `ulimit -a`
5. `sysinfo process ancestry`
6. `/proc/cpuinfo`
7. `lscpu`
8. `numactl --hardware`
9. `/proc/meminfo`
10. `who -r`
11. Systemd service manager version: `systemd 250 (250-6.el9_0)`
12. Failed units, from `systemctl list-units --state=failed`
13. Services, from `systemctl list-unit-files`
14. Linux kernel boot-time arguments, from `/proc/cmdline`
15. `cpupower frequency-info`
16. `tuned-adm active`
17. `sysctl`
18. `/sys/kernel/mm/transparent_hugepage`
19. `/sys/kernel/mm/transparent_hugepage/khugepaged`
20. OS release
21. Disk information
22. `/sys/devices/virtual/dmi/id`

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Platform Notes (Continued)

23. dmidecode
24. 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
09:54:30 up 1:27, 1 user, load average: 108.25, 353.69, 424.26
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root tty1 08:45 14.00s 1.20s 0.02s -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) 4126194
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) 4126194
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 18
login -- root
-bash
-bash
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=480 -c
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=240 --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=480 --configfile
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=240 --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/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /home/CPU2017

6. /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8490H
vendor_id : GenuineIntel

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Platform Notes (Continued)

```

cpu family      : 6
model          : 143
stepping       : 8
microcode      : 0x2b000130
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
cpu cores      : 60
siblings       : 120
4 physical ids (chips)
480 processors (hardware threads)
physical id 0: core ids 0-59
physical id 1: core ids 0-59
physical id 2: core ids 0-59
physical id 3: core ids 0-59
physical id 0: apicids 0-119
physical id 1: apicids 128-247
physical id 2: apicids 256-375
physical id 3: apicids 384-503

```

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

7. lscpu

From lscpu from util-linux 2.37.4:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         52 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                480
On-line CPU(s) list:   0-479
Vendor ID:             GenuineIntel
BIOS Vendor ID:       Intel(R) Corporation
Model name:            Intel(R) Xeon(R) Platinum 8490H
BIOS Model name:      Intel(R) Xeon(R) Platinum 8490H
CPU family:           6
Model:                143
Thread(s) per core:   2
Core(s) per socket:   60
Socket(s):             4
Stepping:              8
Frequency boost:      enabled
CPU max MHz:          1901.0000
CPU min MHz:          800.0000
BogoMIPS:             3800.00
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 aperfperf tsc_known_freq pni pclmulqdq dtes64 ds_cpl
                      smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic
                      movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm
                      3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 invpcid_single
                      intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase
                      tsc_adjust bmi1 avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq
                      rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_ni
                      avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc
                      cqm_mbm_total cqm_mbm_local split_lock_detect avx_vnni avx512_bf16
                      wbnoinvd dtherm ida arat pln pts 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

```

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Platform Notes (Continued)

```

                                amx_tile flush_lld arch_capabilities
L1d cache:                      11.3 MiB (240 instances)
L1i cache:                      7.5 MiB (240 instances)
L2 cache:                       480 MiB (240 instances)
L3 cache:                       450 MiB (4 instances)
NUMA node(s):                   16
NUMA node0 CPU(s):              0-14,240-254
NUMA node1 CPU(s):              15-29,255-269
NUMA node2 CPU(s):              30-44,270-284
NUMA node3 CPU(s):              45-59,285-299
NUMA node4 CPU(s):              60-74,300-314
NUMA node5 CPU(s):              75-89,315-329
NUMA node6 CPU(s):              90-104,330-344
NUMA node7 CPU(s):              105-119,345-359
NUMA node8 CPU(s):              120-134,360-374
NUMA node9 CPU(s):              135-149,375-389
NUMA node10 CPU(s):             150-164,390-404
NUMA node11 CPU(s):             165-179,405-419
NUMA node12 CPU(s):             180-194,420-434
NUMA node13 CPU(s):             195-209,435-449
NUMA node14 CPU(s):             210-224,450-464
NUMA node15 CPU(s):             225-239,465-479
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	11.3M	12	Data	1	64	1	64
L1i	32K	7.5M	8	Instruction	1	64	1	64
L2	2M	480M	16	Unified	2	2048	1	64
L3	112.5M	450M	15	Unified	3	122880	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

```

available: 16 nodes (0-15)
node 0 cpus: 0-14,240-254
node 0 size: 64069 MB
node 0 free: 55638 MB
node 1 cpus: 15-29,255-269
node 1 size: 64505 MB
node 1 free: 58012 MB
node 2 cpus: 30-44,270-284
node 2 size: 64505 MB
node 2 free: 57669 MB
node 3 cpus: 45-59,285-299
node 3 size: 64505 MB
node 3 free: 58019 MB
node 4 cpus: 60-74,300-314
node 4 size: 64505 MB
node 4 free: 58025 MB
node 5 cpus: 75-89,315-329
node 5 size: 64505 MB

```

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Platform Notes (Continued)

```

node 5 free: 58019 MB
node 6 cpus: 90-104,330-344
node 6 size: 64505 MB
node 6 free: 58015 MB
node 7 cpus: 105-119,345-359
node 7 size: 64505 MB
node 7 free: 58020 MB
node 8 cpus: 120-134,360-374
node 8 size: 64505 MB
node 8 free: 58022 MB
node 9 cpus: 135-149,375-389
node 9 size: 64505 MB
node 9 free: 58007 MB
node 10 cpus: 150-164,390-404
node 10 size: 64505 MB
node 10 free: 57991 MB
node 11 cpus: 165-179,405-419
node 11 size: 64505 MB
node 11 free: 58022 MB
node 12 cpus: 180-194,420-434
node 12 size: 64469 MB
node 12 free: 57970 MB
node 13 cpus: 195-209,435-449
node 13 size: 64505 MB
node 13 free: 58019 MB
node 14 cpus: 210-224,450-464
node 14 size: 64505 MB
node 14 free: 58020 MB
node 15 cpus: 225-239,465-479
node 15 size: 64476 MB
node 15 free: 57987 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
0:  10 12 12 12 21 21 21 21 21 21 21 21 21 21 21 21
1:  12 10 12 12 21 21 21 21 21 21 21 21 21 21 21 21
2:  12 12 10 12 21 21 21 21 21 21 21 21 21 21 21 21
3:  12 12 12 10 21 21 21 21 21 21 21 21 21 21 21 21
4:  21 21 21 21 10 12 12 12 21 21 21 21 21 21 21 21
5:  21 21 21 21 21 12 10 12 12 21 21 21 21 21 21 21
6:  21 21 21 21 21 12 12 10 12 21 21 21 21 21 21 21
7:  21 21 21 21 21 12 12 12 10 21 21 21 21 21 21 21
8:  21 21 21 21 21 21 21 21 10 12 12 12 21 21 21 21
9:  21 21 21 21 21 21 21 21 12 10 12 12 21 21 21 21
10: 21 21 21 21 21 21 21 21 12 12 10 12 21 21 21 21
11: 21 21 21 21 21 21 21 21 12 12 12 10 21 21 21 21
12: 21 21 21 21 21 21 21 21 21 21 21 21 10 12 12 12
13: 21 21 21 21 21 21 21 21 21 21 21 21 12 10 12 12
14: 21 21 21 21 21 21 21 21 21 21 21 21 12 12 10 12
15: 21 21 21 21 21 21 21 21 21 21 21 21 12 12 12 10

```

```

-----
9. /proc/meminfo
   MemTotal:      1056346292 kB

```

```

-----
10. who -r
    run-level 3 Apr 3 08:27

```

```

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

```

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Platform Notes (Continued)

Default Target Status
multi-user degraded

12. Failed units, from systemctl list-units --state=failed
UNIT LOAD ACTIVE SUB DESCRIPTION
* dnf-makecache.service loaded failed failed dnf makecache

13. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond
dbus-broker firewalld getty@ irqbalance kdump lvm2-monitor 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 kvm_stat
man-db-restart-cache-update nftables rdisc rhsm rhsm-facts rpmdb-rebuild serial-getty@
sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext
indirect sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo

14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=(hd0,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

15. cpupower frequency-info
analyzing CPU 0:
current policy: frequency should be within 800 MHz and 1.90 GHz.
The governor "performance" may decide which speed to use
within this range.
boost state support:
Supported: yes
Active: yes

16. tuned-adm active
Current active profile: throughput-performance

17. 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

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Platform Notes (Continued)

```

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

```

```

-----
18. /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

```

```

-----
19. /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

```

```

-----
20. 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)

```

```

-----
21. Disk information
SPEC is set to: /home/CPU2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs  819G  275G  545G  34% /home

```

```

-----
22. /sys/devices/virtual/dmi/id
Vendor:          Inspur
Product:         NF8480M7
Product Family: Not specified
Serial:          000000000

```

```

-----
23. 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 Samsung M321R4GA3BB6-CQKMG 32 GB 2 rank 4800

```

```

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

```



SPEC CPU®2017 Integer Rate Result

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Inspur Electronic Information Industry Co., Ltd.
(IEI)

SPECrate®2017_int_base = 1970

NF8480M7 (Intel Xeon Platinum 8490H)

SPECrate®2017_int_peak = 2020

CPU2017 License: 3358

Test Date: Apr-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Apr-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Feb-2023

Compiler Version Notes

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

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.0.0 Build 20221201
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 2023.0.0 Build 20221201
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 2023.0.0 Build 20221201
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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 2023.0.0 Build 20221201
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=====

=====
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 2023.0.0 Build 20221201
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
=====

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

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
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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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

```

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx



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CPU2017 License: 3358

Test Date: Apr-2023

Test Sponsor: Inspur Electronic Information Industry Co., Ltd. (IEI)

Hardware Availability: Apr-2023

Tested by: Inspur Electronic Information Industry Co., Ltd. (IEI)

Software Availability: Feb-2023

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

```

```

502.gcc_r: -m32
-L/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/ia32_lin
-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 -ljemalloc

```

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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin
-lqkmalloc

```

557.xz_r: basepeak = yes

C++ benchmarks:

(Continued on next page)



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Software Availability: Feb-2023

Peak Optimization Flags (Continued)

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/Intel-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.html>

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

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

<http://www.spec.org/cpu2017/flags/Inspur-Platform-Settings-intel-V3.xml>

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