



SPEC CPU®2017 Integer Rate Result

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xFusion

SPECrate®2017_int_base = 1100

FusionServer 2488H V7 (Intel Xeon Platinum 8454H)

SPECrate®2017_int_peak = 1130

CPU2017 License: 6488

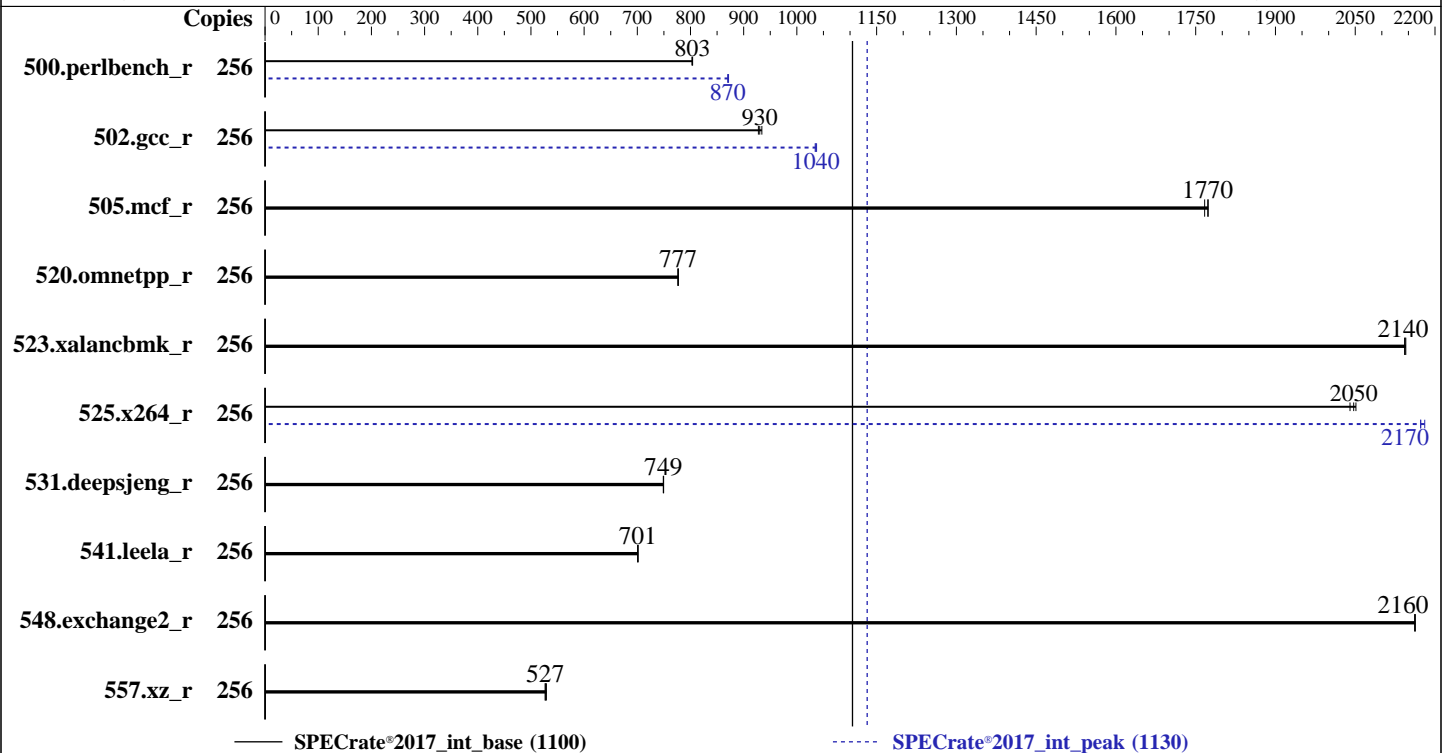
Test Sponsor: xFusion

Tested by: xFusion

Test Date: Sep-2023

Hardware Availability: Jul-2023

Software Availability: Dec-2022



Hardware

CPU Name: Intel Xeon Platinum 8454H
 Max MHz: 3400
 Nominal: 2100
 Enabled: 128 cores, 4 chips, 2 threads/core
 Orderable: 1,2,4 chips
 Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 82.5 MB I+D on chip per chip
 Other: None
 Memory: 1 TB (32 x 32 GB 2Rx8 PC5-4800B-R)
 Storage: 1 x 960 GB SATA SSD
 Other: None

Software

OS: Red Hat Enterprise Linux release 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 01.02.00.05 Released Jul-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



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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	256	508	803	<u>507</u>	<u>803</u>	507	804	256	<u>468</u>	<u>870</u>	468	870	468	872
502.gcc_r	256	390	930	388	934	391	928	256	350	1040	<u>350</u>	<u>1040</u>	350	1030
505.mcf_r	256	234	1770	<u>233</u>	<u>1770</u>	233	1770	256	234	1770	<u>233</u>	<u>1770</u>	233	1770
520.omnetpp_r	256	433	776	432	777	<u>432</u>	<u>777</u>	256	433	776	432	777	<u>432</u>	<u>777</u>
523.xalancbmk_r	256	126	2140	126	2140	126	2150	256	<u>126</u>	<u>2140</u>	126	2140	126	2150
525.x264_r	256	219	2050	220	2040	<u>219</u>	<u>2050</u>	256	206	2180	<u>206</u>	<u>2170</u>	206	2170
531.deepsjeng_r	256	391	750	<u>392</u>	<u>749</u>	392	749	256	391	750	<u>392</u>	<u>749</u>	392	749
541.leela_r	256	605	701	<u>605</u>	<u>701</u>	604	701	256	605	701	<u>605</u>	<u>701</u>	604	701
548.exchange2_r	256	310	2160	310	2160	<u>310</u>	<u>2160</u>	256	310	2160	310	2160	<u>310</u>	<u>2160</u>
557.xz_r	256	523	529	<u>525</u>	<u>527</u>	525	527	256	523	529	<u>525</u>	<u>527</u>	525	527

SPECrate®2017_int_base = **1100**

SPECrate®2017_int_peak = **1130**

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/Uniautos/cpu2017/lib/intel64:/home/Uniautos/cpu2017/lib/ia32:/home/Uniautos/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:
Performance Profile Set to Performance
SNC Set to Enable SNC4 (4-clusters)

Sysinfo program /home/Uniautos/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Tue Sep 26 11:26:42 2023

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

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Platform Notes (Continued)

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`
11:26:42 up 11 min, 1 user, load average: 0.00, 0.15, 0.22
USER TTY LOGIN@ IDLE JCPU PCPU WHAT
root pts/0 11:25 9.00s 1.22s 0.04s -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) 4125098
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) 4125098
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
/bin/sh ./run_rate.sh
runcpu --define default-platform-flags --copies 256 -c ic2023.0-lin-sapphirerapids-rate-20221201.cfg
--define smt-on --define cores=128 --define physicalfirst --define invoke_with_interleave --define
drop_caches --tune base,peak -o all intrate
runcpu --define default-platform-flags --copies 256 --configfile
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=128 --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/CPU2017.014/templongs/preenv.intrate.014.0.log --lognum 014.0 --from_runcpu 2
specperl \$SPEC/bin/sysinfo
\$SPEC = /home/Uniautos/cpu2017

6. `/proc/cpuinfo`
model name : Intel(R) Xeon(R) Platinum 8454H
vendor_id : GenuineIntel
cpu family : 6
model : 143

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Platform Notes (Continued)

```
stepping      : 8
microcode     : 0x2b0001b0
bugs          : spectre_v1 spectre_v2 spec_store_bypass swapsg
cpu cores     : 32
siblings      : 64
4 physical ids (chips)
256 processors (hardware threads)
physical id 0: core ids 0-31
physical id 1: core ids 0-31
physical id 2: core ids 0-31
physical id 3: core ids 0-31
physical id 0: apicids 0-63
physical id 1: apicids 128-191
physical id 2: apicids 256-319
physical id 3: apicids 384-447
```

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):                 256
On-line CPU(s) list:   0-255
Vendor ID:              GenuineIntel
BIOS Vendor ID:        Intel(R) Corporation
Model name:             Intel(R) Xeon(R) Platinum 8454H
BIOS Model name:       Intel(R) Xeon(R) Platinum 8454H
CPU family:             6
Model:                  143
Thread(s) per core:    2
Core(s) per socket:    32
Socket(s):              4
Stepping:               8
BogoMIPS:               4200.00
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 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
                        intel_ppin 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 avx512_fp16
                        amx_tile flush_l1d arch_capabilities
Virtualization:        VT-x
L1d cache:             6 MiB (128 instances)
L1i cache:             4 MiB (128 instances)
L2 cache:              256 MiB (128 instances)
```

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Platform Notes (Continued)

```

L3 cache:                330 MiB (4 instances)
NUMA node(s):            16
NUMA node0 CPU(s):      0-7,128-135
NUMA node1 CPU(s):      8-15,136-143
NUMA node2 CPU(s):      16-23,144-151
NUMA node3 CPU(s):      24-31,152-159
NUMA node4 CPU(s):      32-39,160-167
NUMA node5 CPU(s):      40-47,168-175
NUMA node6 CPU(s):      48-55,176-183
NUMA node7 CPU(s):      56-63,184-191
NUMA node8 CPU(s):      64-71,192-199
NUMA node9 CPU(s):      72-79,200-207
NUMA node10 CPU(s):     80-87,208-215
NUMA node11 CPU(s):     88-95,216-223
NUMA node12 CPU(s):     96-103,224-231
NUMA node13 CPU(s):     104-111,232-239
NUMA node14 CPU(s):     112-119,240-247
NUMA node15 CPU(s):     120-127,248-255
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	6M	12	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	2M	256M	16	Unified	2	2048	1	64
L3	82.5M	330M	15	Unified	3	90112	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: 0-7,128-135
node 0 size: 63740 MB
node 0 free: 62384 MB
node 1 cpus: 8-15,136-143
node 1 size: 64508 MB
node 1 free: 64077 MB
node 2 cpus: 16-23,144-151
node 2 size: 64508 MB
node 2 free: 63968 MB
node 3 cpus: 24-31,152-159
node 3 size: 64508 MB
node 3 free: 63992 MB
node 4 cpus: 32-39,160-167
node 4 size: 64508 MB
node 4 free: 64254 MB
node 5 cpus: 40-47,168-175
node 5 size: 64508 MB
node 5 free: 64288 MB
node 6 cpus: 48-55,176-183
node 6 size: 64508 MB
node 6 free: 64277 MB

```

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Platform Notes (Continued)

```

node 7 cpus: 56-63,184-191
node 7 size: 64508 MB
node 7 free: 64260 MB
node 8 cpus: 64-71,192-199
node 8 size: 64508 MB
node 8 free: 64302 MB
node 9 cpus: 72-79,200-207
node 9 size: 64508 MB
node 9 free: 64290 MB
node 10 cpus: 80-87,208-215
node 10 size: 64508 MB
node 10 free: 64263 MB
node 11 cpus: 88-95,216-223
node 11 size: 64472 MB
node 11 free: 64004 MB
node 12 cpus: 96-103,224-231
node 12 size: 64508 MB
node 12 free: 64217 MB
node 13 cpus: 104-111,232-239
node 13 size: 64508 MB
node 13 free: 64287 MB
node 14 cpus: 112-119,240-247
node 14 size: 64508 MB
node 14 free: 64298 MB
node 15 cpus: 120-127,248-255
node 15 size: 64488 MB
node 15 free: 64238 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 12 10 12 12 21 21 21 21 21 21 21 21
6:  21 21 21 21 12 12 10 12 21 21 21 21 21 21 21 21
7:  21 21 21 21 12 12 12 10 21 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:      1056063264 kB

```

```

-----
10. who -r
    run-level 3 Sep 26 11:15

```

```

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

```

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Platform Notes (Continued)

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

```
UNIT          LOAD    ACTIVE SUB    DESCRIPTION
```

```
* sep5.service loaded failed failed systemd script to load sep5 driver at boot time
```

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 mdmonitor microcode nis-domainname rhsmcertd  
rsyslog selinux-autorelabel-mark sep5 sshd sssd systemd-network-generator tuned udisks2
```

```
enabled-runtime systemd-remount-fs
```

```
disabled       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=UUID=058bfd1-c62b-4fad-8d41-5c40aa179007
```

```
ro
```

```
crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
```

```
resume=UUID=b47f1685-a5fa-4d39-b2d7-e3f6e95ad499
```

```
nohz_full=1-72
```

15. `cpupower frequency-info`

```
analyzing CPU 0:
```

```
Unable to determine current policy
```

```
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
```

```
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
```

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Platform Notes (Continued)

```

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/Uniautos/cpu2017
  Filesystem      Type  Size  Used Avail Use% Mounted on
  /dev/sda5       xfs   820G  49G  772G   6% /home

```

```

-----
22. /sys/devices/virtual/dmi/id
   Vendor:      XFUSION
   Product:     2488H V7
   Product Family: EagleStream

```

```

-----
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-CQKDG 32 GB 2 rank 4800

```

```

-----
24. BIOS
(This section combines info from /sys/devices and dmidecode.)
  BIOS Vendor:      XFUSION
  BIOS Version:     01.02.00.05
  BIOS Date:        07/13/2023

```

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
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(Continued on next page)



SPEC CPU®2017 Integer Rate Result

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xFusion

SPECrate®2017_int_base = 1100

FusionServer 2488H V7 (Intel Xeon Platinum 8454H)

SPECrate®2017_int_peak = 1130

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Sep-2023
Hardware Availability: Jul-2023
Software Availability: Dec-2022

Compiler Version Notes (Continued)

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

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Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx



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Test Date: Sep-2023
Hardware Availability: Jul-2023
Software Availability: Dec-2022

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.xalanchbmk_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: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Sep-2023
Hardware Availability: Jul-2023
Software Availability: Dec-2022

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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Test Sponsor: xFusion

Tested by: xFusion

Test Date: Sep-2023

Hardware Availability: Jul-2023

Software Availability: Dec-2022

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/xFusion-Platform-Settings-SPR-V1.1-revC.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/xFusion-Platform-Settings-SPR-V1.1-revC.xml>

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Tested with SPEC CPU®2017 v1.1.9 on 2023-09-25 23:26:42-0400.

Report generated on 2024-01-29 18:12:09 by CPU2017 PDF formatter v6716.

Originally published on 2023-10-24.