# SPEC CPU®2017 Integer Rate Result

**xFusion**

xFusion 1288H V6 (Intel Xeon Gold 5318Y)  

**CPU2017 License:** 6488  
**Test Sponsor:** xFusion  
**Tested by:** xFusion  
**Test Date:** Apr-2022  
**Hardware Availability:** Apr-2021  
**Software Availability:** May-2021  

<table>
<thead>
<tr>
<th>Copy</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>96</td>
<td>228</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>96</td>
<td>272</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>96</td>
<td>320</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>96</td>
<td>421</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>96</td>
<td>657</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>96</td>
<td>645</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>96</td>
<td>235</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>96</td>
<td>279</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>96</td>
<td>188</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>96</td>
<td>188</td>
</tr>
</tbody>
</table>

**Software**  

**OS:** Red Hat Enterprise Linux release 8.4 (Ootpa)  
**Compiler:** C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux; Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux  
**Parallel:** No  
**Firmware:** Version 0.95 Released Dec-2021  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** None  
**Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage

**Hardware**  

**CPU Name:** Intel Xeon Gold 5318Y  
**Max MHz:** 3400  
**Nominal:** 2100  
**Enabled:** 48 cores, 2 chips, 2 threads/core  
**Orderable:** 1.2 chips  
**Cache L1:** 32 KB I + 48 KB D on chip per core  
**L2:** 1.25 MB I+D on chip per core  
**L3:** 36 MB I+D on chip per chip  
**Other:** None  
**Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 2933)  
**Storage:** 1 x 960 GB SATA SSD  
**Other:** None
**SPEC CPU®2017 Integer Rate Result**

xFusion

xFusion 1288H V6 (Intel Xeon Gold 5318Y)

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>96</td>
<td>670</td>
<td>228</td>
<td>670</td>
<td>228</td>
<td>670</td>
<td>228</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>96</td>
<td>500</td>
<td>272</td>
<td>500</td>
<td>272</td>
<td>500</td>
<td>272</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>96</td>
<td>290</td>
<td>534</td>
<td>288</td>
<td>538</td>
<td>289</td>
<td>537</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>96</td>
<td>572</td>
<td>220</td>
<td>571</td>
<td>220</td>
<td>573</td>
<td>220</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>96</td>
<td>241</td>
<td>421</td>
<td>240</td>
<td>423</td>
<td>242</td>
<td>419</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>96</td>
<td>255</td>
<td>658</td>
<td>256</td>
<td>657</td>
<td>256</td>
<td>657</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>96</td>
<td>467</td>
<td>235</td>
<td>467</td>
<td>235</td>
<td>467</td>
<td>235</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>96</td>
<td>693</td>
<td>229</td>
<td>694</td>
<td>229</td>
<td>694</td>
<td>229</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>96</td>
<td>388</td>
<td>649</td>
<td>390</td>
<td>645</td>
<td>390</td>
<td>645</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>96</td>
<td>552</td>
<td>188</td>
<td>552</td>
<td>188</td>
<td>551</td>
<td>188</td>
</tr>
</tbody>
</table>

**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 = "/spec2017/lib/intel64:/spec2017/lib/ia32"
MALLOC_CONF = "retain:true"

**General Notes**

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Files system 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>
xFusion
xFusion 1288H V6 (Intel Xeon Gold 5318Y)

Copyright 2017-2022 Standard Performance Evaluation Corporation

SPECrater®2017_int_base = 325
SPECrater®2017_int_peak = Not Run

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

Test Date: Apr-2022
Hardware Availability: Apr-2021
Software Availability: May-2021

General Notes (Continued)
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.

Platform Notes
BIOS configuration:
Performance Profile Set to Performance
SNC Set to Enabled SNC2 (2-clusters)

Sysinfo program /spec2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b5589e0e16aca64d
running on localhost.localdomain Tue Apr 12 11:39:44 2022

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
model name: Intel(R) Xeon(R) Gold 5318Y CPU @ 2.10GHz
2 "physical id"s (chips)
96 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores: 24
siblings: 48
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
CPU family: 6
Model: 106

(Continued on next page)
xFusion

xFusion 1288H V6 (Intel Xeon Gold 5318Y)

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

SPECrater®2017_int_base = 325
SPECrater®2017_int_peak = Not Run

Test Date: Apr-2022
Hardware Availability: Apr-2021
Software Availability: May-2021

Platform Notes (Continued)

Model name: Intel(R) Xeon(R) Gold 5318Y CPU @ 2.10GHz
BIOS Model name: Intel(R) Xeon(R) Gold 5318Y CPU @ 2.10GHz
Stepping: 6
CPU MHz: 2600.000
BogoMIPS: 4200.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 36864K
NUMA node0 CPU(s): 0-11,48-59
NUMA node1 CPU(s): 12-23,60-71
NUMA node2 CPU(s): 24-35,72-83
NUMA node3 CPU(s): 36-47,84-95

Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pse sse2 syscall nx pdpe1gb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf 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 fl64 f128 rdrand lahf_lm absm3nmprefetch cpuid_fault epb cat_l3 invpcid_single ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vni flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsavec xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local split_lock_detect wbnoind dtherm ida arat pln pts hwp_epp avx512vbmidi umip pku ospke avx512_vbmi lge gfn vaes vpcmvdseq avx512_vnni avx512_bigal tme avx512_vpopcntdq la57 rdpid md_clear pconfi flush_l1d arch_capabilitie

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 48 49 50 51 52 53 54 55 56 57 58 59
node 0 size: 128116 MB
node 0 free: 127618 MB
node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 60 61 62 63 64 65 66 67 68 69 70 71
node 1 size: 129018 MB
node 1 free: 128614 MB
node 2 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 72 73 74 75 76 77 78 79 80 81 82 83
node 2 size: 129018 MB
node 2 free: 128458 MB
node 3 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 84 85 86 87 88 89 90 91 92 93 94 95
node 3 size: 129016 MB
node 3 free: 128431 MB
node distances:

(Continued on next page)
## Platform Notes (Continued)

<table>
<thead>
<tr>
<th>node</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:</td>
<td>10</td>
<td>11</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>1:</td>
<td>11</td>
<td>10</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2:</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>3:</td>
<td>20</td>
<td>20</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

From `/proc/meminfo`

- MemTotal: 527534160 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/sbin/tuned-adm active

- Current active profile: throughput-performance

From `/etc/*release* /etc/*version*`

- `os-release`:
  - NAME="Red Hat Enterprise Linux"
  - VERSION=\"8.4 (Ootpa)\"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VERSION_ID="8.4"
  - PLATFORM_ID="platform:el8"
  - PRETTY_NAME="Red Hat Enterprise Linux 8.4 (Ootpa)"
  - ANSI_COLOR=\"0;31\"
- redhat-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
- system-release: Red Hat Enterprise Linux release 8.4 (Ootpa)
- system-release-cpe: cpe:/o:redhat:enterprise_linux:8.4:ga

`uname -a`:

- Linux localhost.localdomain 4.18.0-305.el8.x86_64 #1 SMP Thu Apr 29 08:54:30 EDT 2021
- x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- CVE-2018-12207 (iTLB Multihit): Not affected
- CVE-2018-3620 (L1 Terminal Fault): Not affected
- Microarchitectural Data Sampling: Not affected
- CVE-2017-5754 (Meltdown): Not affected
- CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapgs barriers and __user pointer sanitization
- CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
- CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected

(Continued on next page)
xFusion

xFusion 1288H V6 (Intel Xeon Gold 5318Y)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>6488</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>xFusion</td>
</tr>
<tr>
<td>Tested by:</td>
<td>xFusion</td>
</tr>
</tbody>
</table>

**SPECRate®2017_int_base = 325**

**SPECRate®2017_int_peak = Not Run**

**Platform Notes (Continued)**

- CVE-2019-11135 (TSX Asynchronous Abort): Not affected
- run-level 3 Apr 12 11:37
- SPEC is set to: /spec2017
- /dev/sda3      xfs   420G   19G  402G   5% /

From /sys/devices/virtual/dmi/id
- Vendor:         Xfusion
- Product:        1288H V6
- Product Family: Whitley
- Serial:         123456

Additional information from dmidecode 3.2 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 Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200, configured at 2933

- BIOS:
  - BIOS Vendor: INSYDE Corp.
  - BIOS Version: 0.95
  - BIOS Date: 12/22/2021
  - BIOS Revision: 0.95

(End of data from sysinfo program)

**Compiler Version Notes**

==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>525.x264_r(base) 557.xz_r(base)</td>
</tr>
</tbody>
</table>

==============================================================================
| Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, |
| Version 2021.1 Build 20201113 |
| Copyright (C) 1985-2020 Intel Corporation. All rights reserved. |

==============================================================================
<table>
<thead>
<tr>
<th>C++</th>
<th>520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>541.leela_r(base)</td>
</tr>
</tbody>
</table>

==============================================================================
| Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, |
| Version 2021.1 Build 20201113 |

(Continued on next page)
xFusion
xFusion 1288H V6 (Intel Xeon Gold 5318Y)

SPECratenet_2017_int_base = 325
SPECratenet_2017_int_peak = Not Run

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

Test Date: Apr-2022
Hardware Availability: Apr-2021
Software Availability: May-2021

Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------
Fortran | 548.exchange2_r(base)
------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

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
-mbranches-within-32B-boundaries

(Continued on next page)
SPEC CPU®2017 Integer Rate Result

xFusion

xFusion 1288H V6 (Intel Xeon Gold 5318Y)

SPECrater®2017_int_base = 325
SPECrater®2017_int_peak = Not Run

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion
Test Date: Apr-2022
Hardware Availability: Apr-2021
Test Date: Apr-2022
Software Availability: May-2021

Base Optimization Flags (Continued)

C benchmarks (continued):
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-ICX-V1.1.html
You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-ICX-V1.1.xml

SPEC CPU and SPECrater 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 v1.1.8 on 2022-04-12 11:39:43-0400.
Originally published on 2022-05-10.