xFusion 5288 V6 (Intel Xeon Platinum 8352S)

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

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<td>262</td>
</tr>
<tr>
<td>557.xz_r 128</td>
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**Software**

- **OS:** Red Hat Enterprise Linux release 8.4 (Ootpa) 4.18.0-305.el8.x86_64
- **Compiler:** C/C++: Version 2021.4.0 of Intel oneAPI DPC++/C++ Compiler Build 20210924 for Linux; Fortran: Version 2021.4.0 of Intel Fortran Compiler Classic Build 20210910 for Linux
- **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 Platinum 8352S
- **Max MHz:** 3400
- **Nominal:** 2200
- **Enabled:** 64 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:** 48 MB I+D on chip per chip
- **Other:** None
- **Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x 960 GB SATA SSD
- **Other:** None

**Test Date:** Apr-2022  
**Hardware Availability:** Apr-2021  
**Software Availability:** Sep-2021
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Results Table

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SPECrate®2017_int_base = 451
SPECrate®2017_int_peak = Not Run

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = 
"/spec2017/lib/intel64:/spec2017/lib/ia32:/spec2017/je5.0.1-32"
MALLOCONF = "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
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesyste page cache synced and cleared with:
sync; echo 3>/proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.: (Continued on next page)
General Notes (Continued)

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.

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 982a61ec0915b55891ef0e16aca61c64d
running on localhost.localdomain Tue Apr 19 22:17:19 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) Platinum 8352S CPU @ 2.20GHz
  2 "physical id"s (chips)
  128 "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 : 32
siblings : 64
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 24
25 26 27 28 29 30 31
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 24
25 26 27 28 29 30 31

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): 128
On-line CPU(s) list: 0-127
Thread(s) per core: 2
Core(s) per socket: 32
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel

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

- **BIOS Vendor ID:** Intel(R) Corporation
- **CPU family:** 6
- **Model:** 106
- **Model name:** Intel(R) Xeon(R) Platinum 8352S CPU @ 2.20GHz
- **BIOS Model name:** Intel(R) Xeon(R) Platinum 8352S CPU @ 2.20GHz
- **Stepping:** 6
- **CPU MHz:** 2800.000
- **BogoMIPS:** 4400.00
- **Virtualization:** VT-x
- **L1d cache:** 48K
- **L1i cache:** 32K
- **L2 cache:** 1280K
- **L3 cache:** 49152K
- **NUMA node0 CPU(s):** 0-15, 64-79
- **NUMA node1 CPU(s):** 16-31, 80-95
- **NUMA node2 CPU(s):** 32-47, 96-111
- **NUMA node3 CPU(s):** 48-63, 112-127
- **Flags:** fpu vme de pse ts cmov pat pse36 clflush dts mmmfxsr ss sse sse2 mm xmm ht tm pbe syscall nx pdpe1gb rdtsscp 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 fl64r rand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 invpcid_single ssebd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmm_nonshadow flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cqmm rdt_a avx512f avx512dq rdseed adx smap avx512sfma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsaveopt xsavec xsaves cmqm_llc cmqm_occup_llc cmqm_mbm_total cmqm_mbm_local split_lock_detect wboinvd dtherm ida arat pln pts hwp epp avx512vbm avx512vfi avx512vbmi gfnl vaes vpclmulqdq avx512_vnni avx512_vbitalg tme avx512_vpopcntdq la57 rdpid fcmad md_clear pconf g flush_l1d arch_capabilities

```
/proctcpuinfo cache data
    cache size : 49152 KB

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 12 13 14 15 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
       node 0 size: 127987 MB
       node 0 free: 127164 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
       node 1 size: 129017 MB
       node 1 free: 128730 MB
node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111
```

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

xFusion 5288 V6 (Intel Xeon Platinum 8352S)

SPECrated®2017_int_base = 451
SPECrated®2017_int_peak = Not Run

CPU2017 License: 6488
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Test Date: Apr-2022
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Hardware Availability: Apr-2021
Software Availability: Sep-2021

Platform Notes (Continued)

node 2 size: 129017 MB
node 2 free: 128659 MB
node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127
node 3 size: 129014 MB
node 3 free: 128714 MB

node distances:
node 0 1 2 3
0: 10 11 20 20
1: 11 10 20 20
2: 20 20 10 11
3: 20 20 11 10

From /proc/meminfo
MemTotal: 527397084 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

(Continued on next page)
xFusion

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Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1):
 Mitigation: seccomp
 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

CVE-2019-11135 (TSX Asynchronous Abort):
 Not affected

run-level 3 Apr 19 22:15

SPEC is set to: /spec2017

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda3      xfs   859G   68G  792G   8% /

From /sys/devices/virtual/dmi/id
Vendor:         XFUSION
Product:        5288 V6
Product Family: Whitley
Serial:         Serial

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

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
==============================================================================
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==============================================================================

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

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xFusion

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SPECrare®2017_int_base = 451
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CPU2017 License: 6488
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Tested by: xFusion

Test Date: Apr-2022
Hardware Availability: Apr-2021
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Compiler Version Notes (Continued)

==============================================================================
C++ | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
541.leela_r(base)
==============================================================================

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.4.0 Build 20210924
Copyright (C) 1985-2021 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 2021.4.0 Build 20210910_000000
Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

Base Portability Flags

500.perlbinc_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
**SPEC CPU®2017 Integer Rate Result**

**xFusion**

**xFusion 5288 V6 (Intel Xeon Platinum 8352S)**

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

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

---

**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`
- `-L/usr/local/intel/compiler/2021.4.0/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/usr/local/intel/compiler/2021.4.0/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/usr/local/intel/compiler/2021.4.0/linux/compiler/lib/intel64_lin`
- `-lqkmalloc`

---

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

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Tested with SPEC CPU®2017 v1.1.8 on 2022-04-19 22:17:18-0400.
Originally published on 2022-05-10.