



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

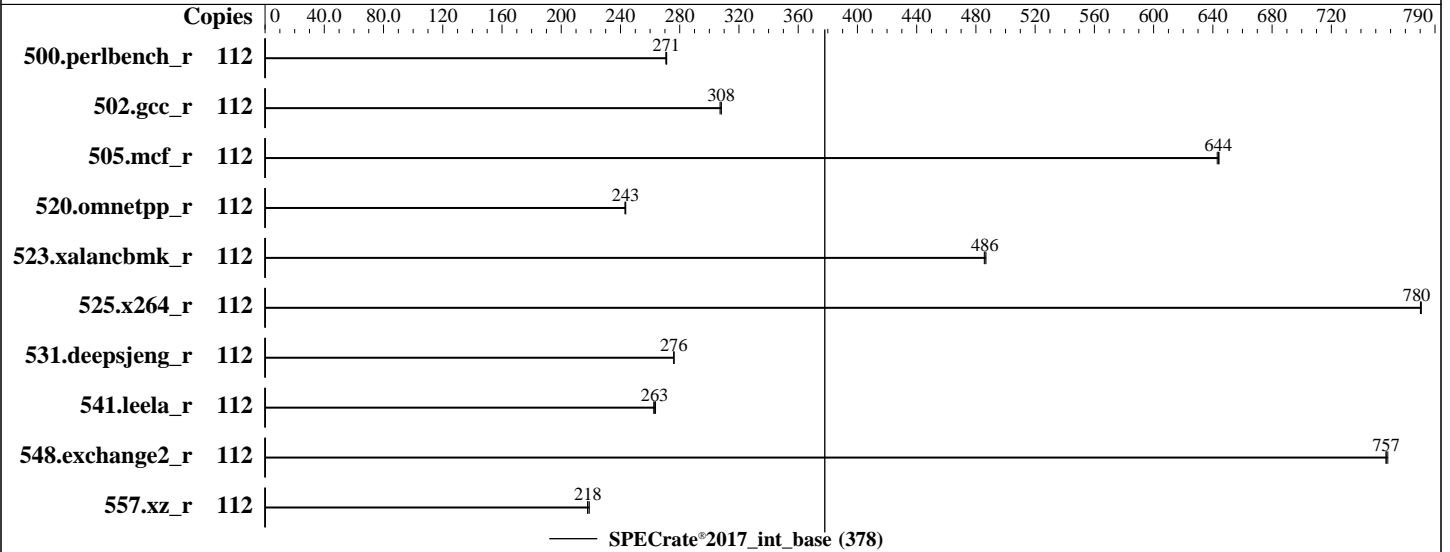
SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021



Hardware

CPU Name: Intel Xeon Gold 6330
 Max MHz: 3100
 Nominal: 2000
 Enabled: 56 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: 42 MB I+D on chip per chip
 Other: None
 Memory: 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R, running at 2933)
 Storage: 1 x 960 GB SATA SSD
 Other: None

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
 Parallel: No
 Firmware: Version 1.05 build 04/27/2022 Released Jun-2022
 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



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	112	658	271	657	271	659	271							
502.gcc_r	112	515	308	516	307	515	308							
505.mcf_r	112	281	644	281	644	282	643							
520.omnetpp_r	112	605	243	603	244	604	243							
523.xalancbmk_r	112	244	486	243	487	243	486							
525.x264_r	112	251	780	251	780	251	781							
531.deepsjeng_r	112	465	276	465	276	465	276							
541.leela_r	112	703	264	705	263	707	262							
548.exchange2_r	112	387	758	388	757	388	757							
557.xz_r	112	552	219	556	218	555	218							

SPECrate®2017_int_base = 378

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"
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
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.:

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

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 982a61ec0915b55891ef0e16acafc64d
running on localhost.localdomain Thu May 5 09:36:36 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 6330 CPU @ 2.00GHz
2 "physical id"s (chips)
112 "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 : 28
siblings : 56
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
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

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): 112
On-line CPU(s) list: 0-111
Thread(s) per core: 2
Core(s) per socket: 28
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

Platform Notes (Continued)

```

BIOS Vendor ID: Intel(R) Corporation
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6330 CPU @ 2.00GHz
BIOS Model name: Intel(R) Xeon(R) Gold 6330 CPU @ 2.00GHz
Stepping: 6
CPU MHz: 2600.000
BogoMIPS: 4000.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 43008K
NUMA node0 CPU(s): 0-13,56-69
NUMA node1 CPU(s): 14-27,70-83
NUMA node2 CPU(s): 28-41,84-97
NUMA node3 CPU(s): 42-55,98-111

```

```

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
aperfmpperf 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 invpcid_single ssbd mba ibrs
ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase
tsc_adjust bmi1 hle 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 wbnoinvd dtherm ida arat pln pts hwp_epp avx512vbmi umip pku ospke
avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq
la57 rdpid fsrm md_clear pconfig flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 43008 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 56 57 58 59 60 61 62 63 64 65 66 67 68 69

node 0 size: 128155 MB

node 0 free: 127342 MB

node 1 cpus: 14 15 16 17 18 19 20 21 22 23 24 25 26 27 70 71 72 73 74 75 76 77 78 79 80

81 82 83

node 1 size: 129017 MB

node 1 free: 128483 MB

node 2 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 84 85 86 87 88 89 90 91 92 93 94

95 96 97

node 2 size: 129017 MB

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

Platform Notes (Continued)

```

node 2 free: 128614 MB
node 3 cpus: 42 43 44 45 46 47 48 49 50 51 52 53 54 55 98 99 100 101 102 103 104 105
106 107 108 109 110 111
node 3 size: 128978 MB
node 3 free: 128717 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: 527533720 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

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

Platform Notes (Continued)

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

run-level 3 May 5 09:34

SPEC is set to: /spec2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	xfs	420G	54G	366G	13%	/

From /sys/devices/virtual/dmi/id

```
Vendor:          XFUSION
Product:         XH321 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 M393A4G43AB3-CWE 32 GB 2 rank 3200, configured at 2933

BIOS:

```
BIOS Vendor:     INSYDE Corp.
BIOS Version:    1.05
BIOS Date:       04/27/2022
BIOS Revision:   1.5
```

(End of data from sysinfo program)

Compiler Version Notes

```
-----
C          | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)
          | 525.x264_r(base) 557.xz_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.
-----
```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

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.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



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

SPECrate®2017_int_base = 378

xFusion XH321 V6 (Intel Xeon Gold 6330)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2022
Hardware Availability: Jun-2022
Software Availability: Sep-2021

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  
-lqkmallocc
```

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  
-lqkmallocc
```

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  
-lqkmallocc
```

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

http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html
<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 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 v1.1.8 on 2022-05-05 09:36:35-0400.
Report generated on 2022-06-07 15:41:16 by CPU2017 PDF formatter v6442.
Originally published on 2022-06-07.