**SPEC CPU®2017 Integer Rate Result**

**xFusion**

xFusion KunLun 9008 V5 (Intel Xeon Platinum 8280)

<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>
<tr>
<td>Test Date:</td>
<td>Feb-2022</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Dec-2020</td>
</tr>
</tbody>
</table>

| SPECrate®2017_int_base = 1340 | SPECrate®2017_int_peak = 1390 |

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Platinum 8280</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max MHz:</td>
<td>4000</td>
</tr>
<tr>
<td>Nominal:</td>
<td>2700</td>
</tr>
<tr>
<td>Enabled:</td>
<td>224 cores, 8 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable:</td>
<td>2,4,6,8 chip</td>
</tr>
<tr>
<td>Cache L1:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2:</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3:</td>
<td>38.5 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>3 TB (96 x 32 GB 2Rx4 PC4-2933Y-R)</td>
</tr>
<tr>
<td>Storage:</td>
<td>1 x 2400 GB SAS, 10000 RPM</td>
</tr>
<tr>
<td>Other:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>OS:</th>
<th>Red Hat Enterprise Linux release 8.3 (Ootpa) 4.18.0-240.el8.x86_64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>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; C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux</td>
</tr>
<tr>
<td>Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>Firmware:</td>
<td>Version 8.18 released Sep-2021</td>
</tr>
<tr>
<td>File System:</td>
<td>ext4</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other:</td>
<td>jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td>Power Management:</td>
<td>BIOS and OS set to prefer performance at the cost of additional power usage.</td>
</tr>
</tbody>
</table>
**SPEC CPU®2017 Integer Rate Result**

**xFusion**

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Spec CPU®2017 Integer Rate Result

**SPECrate®2017_int_base = 1340**

**SPECrate®2017_int_peak = 1390**

CPU2017 License: 6488

Test Sponsor: xFusion

Tested by: xFusion

Test Date: Feb-2022

Hardware Availability: Apr-2019

Software Availability: Dec-2020

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>
<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>448</td>
<td>731</td>
<td>976</td>
<td>732</td>
<td>974</td>
<td>730</td>
<td>977</td>
<td>448</td>
<td>631</td>
<td>1130</td>
<td>633</td>
<td>1130</td>
<td>633</td>
<td>1130</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>448</td>
<td>703</td>
<td>903</td>
<td>695</td>
<td>913</td>
<td>690</td>
<td>920</td>
<td>448</td>
<td>598</td>
<td>1060</td>
<td>600</td>
<td>1060</td>
<td>601</td>
<td>1060</td>
</tr>
<tr>
<td>505.mcf_r</td>
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<td>378</td>
<td>1920</td>
<td>376</td>
<td>1920</td>
<td>376</td>
<td>1920</td>
<td>448</td>
<td>378</td>
<td>1920</td>
<td>376</td>
<td>1920</td>
<td>376</td>
<td>1920</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>448</td>
<td>685</td>
<td>858</td>
<td>683</td>
<td>860</td>
<td>683</td>
<td>860</td>
<td>448</td>
<td>685</td>
<td>858</td>
<td>683</td>
<td>860</td>
<td>683</td>
<td>860</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>448</td>
<td>295</td>
<td>1610</td>
<td>298</td>
<td>1590</td>
<td>298</td>
<td>1590</td>
<td>448</td>
<td>295</td>
<td>1610</td>
<td>298</td>
<td>1590</td>
<td>298</td>
<td>1590</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>448</td>
<td>427</td>
<td>2750</td>
<td>428</td>
<td>2740</td>
<td>428</td>
<td>2740</td>
<td>448</td>
<td>427</td>
<td>2750</td>
<td>428</td>
<td>2740</td>
<td>428</td>
<td>2740</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>448</td>
<td>578</td>
<td>838</td>
<td>574</td>
<td>842</td>
<td>578</td>
<td>838</td>
<td>448</td>
<td>571</td>
<td>847</td>
<td>572</td>
<td>847</td>
<td>571</td>
<td>848</td>
</tr>
</tbody>
</table>

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 = "/home/spec/lib/intel64:/home/spec/lib/ia32:/home/spec/je5.0.1-32"
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:

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.

(Continued on next page)
xFusion KunLun 9008 V5 (Intel Xeon Platinum 8280)

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CPU2017 License: 6488
Test Sponsor: xFusion
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SPECrate®2017_int_base = 1340
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Test Date: Feb-2022
Hardware Availability: Apr-2019
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General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS configuration:
Power Policy Set to Performance
SNC Set to Enabled
IMC (Integrated memory controller) Interleaving set to 1 way interleave
Xtended Prediction Table (XPT) Prefetch set to Enabled
Last Level Cache (LLC) Prefetch set to Disabled

Sysinfo program /home/spec/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aacf64d
running on localhost.localdomain Sat Feb 12 18:16:41 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 8280 CPU @ 2.70GHz
  8 "physical id"'s (chips)
448 "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 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30
physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30

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): 448
On-line CPU(s) list: 0-447
Thread(s) per core: 2
Core(s) per socket: 28
Socket(s): 8
NUMA node(s): 16
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

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

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CPU2017 License: 6488
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Test Date: Feb-2022
Hardware Availability: Apr-2019
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CPU Model: Intel(R) Xeon(R) Platinum 8280 CPU @ 2.70GHz

Flags: fpu vme de pse tsc ts cmov pat pse36 clflush dts aperfmperf

Cache size: 39424 KB

Platform Notes (Continued)

Model name: Intel(R) Xeon(R) Platinum 8280 CPU @ 2.70GHz
Stepping: 3289.997
CPU MHz: 4000.0000
CPU min MHz: 1000.0000
BogoMIPS: 5400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s): 0-3, 7-9, 14-17, 21-23, 24-27, 28-31, 32-34, 38-41, 46-48, 52-55, 256-261
NUMA node1 CPU(s): 4-6, 10-12, 16-18, 22-24, 28-30, 34-36, 42-44, 50-52, 56-58
NUMA node2 CPU(s): 6-11, 13-19, 25-31, 35-41, 45-47, 53-59, 256-261, 266-272
NUMA node4 CPU(s): 28-35, 36-43, 44-51, 52-59, 256-261, 266-272
NUMA node5 CPU(s): 36-43, 44-51, 52-59, 256-261, 266-272
NUMA node6 CPU(s): 40-47, 48-55, 56-63, 64-71, 256-261, 266-272
NUMA node7 CPU(s): 52-63, 64-71, 72-79, 80-87, 256-261, 266-272
NUMA node8 CPU(s): 70-77, 78-85, 86-93, 94-101, 256-261, 266-272
NUMA node9 CPU(s): 90-97, 98-105, 106-113, 114-121, 256-261, 266-272
NUMA node10 CPU(s): 118-125, 126-133, 134-141, 142-149, 256-261, 266-272
NUMA node11 CPU(s): 144-151, 152-159, 160-167, 168-175, 256-261, 266-272
NUMA node12 CPU(s): 172-179, 180-187, 188-195, 196-203, 256-261, 266-272
NUMA node13 CPU(s): 204-211, 212-219, 220-227, 228-235, 256-261, 266-272
NUMA node14 CPU(s): 234-241, 242-249, 250-257, 258-265, 256-261, 266-272
NUMA node15 CPU(s): 266-273, 274-281, 282-289, 290-297, 256-261, 266-272

From numactl --hardware

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

/proc/cpuinfo cache data
cache size = 39424 MB
## SPEC CPU®2017 Integer Rate Result

<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>node 3 free: 193347 MB</td>
</tr>
<tr>
<td>node 4 cpus: 56 57 58 59 63 64 65 70 71 72 73 77 78 79 280 281 282 283 287 288 289 294 295 296 297 301 302 303</td>
</tr>
<tr>
<td>node 4 free: 193346 MB</td>
</tr>
<tr>
<td>node 5 cpus: 60 61 62 66 67 68 69 74 75 76 80 81 82 83 284 285 286 290 291 292 293 298 299 300 304 305 306 307</td>
</tr>
<tr>
<td>node 5 free: 193367 MB</td>
</tr>
<tr>
<td>node 6 cpus: 84 85 86 87 91 92 93 98 99 100 101 105 106 107 308 309 310 311 315 316 317 322 323 324 325 329 330 331</td>
</tr>
<tr>
<td>node 6 free: 191407 MB</td>
</tr>
<tr>
<td>node 7 free: 193326 MB</td>
</tr>
<tr>
<td>node 8 cpus: 112 113 114 115 119 120 121 126 127 128 129 133 134 135 284 285 286 290 291 292 293 298 299 300 301 302 303</td>
</tr>
<tr>
<td>node 8 size: 190619 MB</td>
</tr>
<tr>
<td>node 9 free: 193282 MB</td>
</tr>
<tr>
<td>node 9 size: 190209 MB</td>
</tr>
<tr>
<td>node 10 cpus: 140 141 142 143 147 148 149 154 155 156 157 161 162 163 371 372 373 378 379 380 381 385 386 387</td>
</tr>
<tr>
<td>node 10 size: 191295 MB</td>
</tr>
<tr>
<td>node 12 size: 191211 MB</td>
</tr>
<tr>
<td>node 12 size: 190775 MB</td>
</tr>
<tr>
<td>node 13 cpus: 172 173 174 178 179 180 181 186 187 188 192 193 194 195 396 397 398 402 403 404 405 410 411 412 416 417 418 419</td>
</tr>
<tr>
<td>node 13 size: 191195 MB</td>
</tr>
<tr>
<td>node 14 cpus: 196 197 198 199 203 204 205 210 211 212 213 217 218 219 420 421 422 423</td>
</tr>
<tr>
<td>node 14 size: 192557 MB</td>
</tr>
<tr>
<td>node 14 size: 190775 MB</td>
</tr>
<tr>
<td>node 15 cpus: 200 201 202 206 207 208 209 214 215 216 220 221 222 223 424 425 426 430 431 432 433 434 435 436 437 441 442 443</td>
</tr>
<tr>
<td>node 15 size: 192775 MB</td>
</tr>
</tbody>
</table>
| node distances:
| node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 |
| 0: 10 11 31 31 21 21 21 21 21 31 31 31 31 31 31 31 |
| 1: 11 10 31 31 21 21 21 21 21 31 31 31 31 31 31 31 31 |
| 2: 31 31 10 11 21 21 21 21 21 31 31 31 31 31 31 31 31 |
| 3: 31 31 11 10 21 21 21 21 21 31 31 31 31 31 31 31 31 |
| 4: 21 21 21 21 10 11 31 31 31 31 31 31 31 31 31 31 31 |
| 5: 21 21 21 21 11 10 31 31 31 31 31 31 31 31 31 31 31 |
| 6: 21 21 21 21 31 31 10 11 31 31 31 31 31 31 31 31 31 |
| 7: 21 21 21 21 31 31 11 10 31 31 31 31 31 31 31 31 31 |
| 8: 21 21 31 31 31 31 31 10 11 21 21 31 31 31 31 31 21 |

(Continued on next page)
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</table>

**Platform Notes (Continued)**

```
  9:  21  21  31  31  31  31  31  31  11  10  21  21  31  31  21  21
 10:  31  31  21  21  31  31  31  31  21  21  10  11  21  21  31  31
 11:  31  31  21  21  31  31  31  31  21  21  11  10  21  21  31  31
 12:  31  31  31  31  21  21  31  31  31  31  21  21  11  10  21  21
 13:  31  31  31  31  31  31  21  21  21  21  31  31  21  21  10  11
 14:  31  31  31  31  21  21  31  31  31  31  21  21  11  10  21  21
 15:  31  31  31  31  31  31  21  21  21  21  31  31  21  21  11  10
```

From /proc/meminfo:
- MemTotal: 3168351844 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

From /etc/*release*/etc/*version*:
- os-release:
  NAME="Red Hat Enterprise Linux"
  VERSION="8.3 (Ootpa)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="8.3"
  PLATFORM_ID="platform:el8"
  PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
  ANSI_COLOR="0;31"
- redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
- system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
- system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- CVE-2018-12207 (iTLB Multithit):
  Mitigation: Split huge pages
- CVE-2018-3620 (LL 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/swaps 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):
  Mitigation: TSX disabled

run-level 3 Feb 12 18:03

SPEC is set to: /home/spec

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sdb1</td>
<td>ext4</td>
<td>2.0T</td>
<td>6.2G</td>
<td>1.9T</td>
<td>1%</td>
<td>/home/spec</td>
</tr>
</tbody>
</table>

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

From `/sys/devices/virtual/dmi/id`

- **Vendor:** xFusion
- **Product:** 9008 V5
- **Product Family:** Purley
- **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:**
  - 38x Hynix HMA84GR7CJR4N-WM 32 GB 2 rank 2933
  - 3x Hynix HMA84GR7JJR4N-WM 32 GB 2 rank 2933
  - 55x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

- **BIOS:**
  - **BIOS Vendor:** INSYDE Corp.
  - **BIOS Version:** 8.18
  - **BIOS Date:** 09/06/2021
  - **BIOS Revision:** 8.18

(End of data from sysinfo program)

### Compiler Version Notes

| C | 500.perlbench_r(peak) 557.xz_r(peak) |
|---------------------------------------|
| Intel(R) C 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. |

| C | 502.gcc_r(peak) |
|---------------------------------|
| Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2021.1 Build 20201113 |
| Copyright (C) 1985-2020 Intel Corporation. All rights reserved. |

| C | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base) |
|-----------------------------------------------|
| 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. |

| C | 500.perlbench_r(peak) 557.xz_r(peak) |
|---------------------------------------|
| Intel(R) C 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. |

| C | 502.gcc_r(peak) |
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## SPEC CPU®2017 Integer Rate Result

**xFusion**

**xFusion KunLun 9008 V5 (Intel Xeon Platinum 8280)**

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>1340</td>
<td>1390</td>
</tr>
</tbody>
</table>

### CPU2017 License:

6488

### Test Date:

Feb-2022

### Test Sponsor:

xFusion

### Tested by:

xFusion

### Hardware Availability:

Apr-2019

### Software Availability:

Dec-2020

### Compiler Version Notes (Continued)

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<table>
<thead>
<tr>
<th>Base Compiler Invocation</th>
<th>Fortran</th>
</tr>
</thead>
<tbody>
<tr>
<td>C benchmarks:</td>
<td>Fortran</td>
</tr>
<tr>
<td>icx</td>
<td>548.exchange2_r(base, peak)</td>
</tr>
</tbody>
</table>

| C++ benchmarks:          | Fortran |
| icpx                     | 548.exchange2_r(base, peak) |

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### Compiler Version Notes:

C | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113  
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C | 500.perlbench_r(peak) 557.xz_r(peak)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

C | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base)  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

C++ | 520.omnetpp_r(base, peak) 523.xalanchmk_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 2021.1 Build 20201113  
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(Continued on next page)
## Base Compiler Invocation (Continued)

Fortran benchmarks:

```bash
tfort
```

## Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td><code>-DSPEC_LP64 -DSPEC_LINUX_X64</code></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td><code>-DSPEC_LP64 -DSPEC_LINUX</code></td>
</tr>
<tr>
<td>525.x264_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>541.leela_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
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<td>548.exchange2_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>557.xz_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
</tbody>
</table>

## 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/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
```
SPEC CPU®2017 Integer Rate Result

xFusion

xFusion KunLun 9008 V5 (Intel Xeon Platinum 8280)

SPECrate®2017_int_base = 1340
SPECrate®2017_int_peak = 1390

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

Test Date: Feb-2022
Hardware Availability: Apr-2019
Software Availability: Dec-2020

Peak Compiler Invocation

C benchmarks (except as noted below):
icx

500.perlbench_r: icc
557.xz_r: icc

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

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: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -fno-strict-overflow
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -f Santo
-Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4

(Continued on next page)
### Peak Optimization Flags (Continued)

502.gcc_r (continued):
- mbranches-within-32B-boundaries
- L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -flto
-03 -ffast-math -qopt-mem-layout-trans=4 -fno-alias
- mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- lqkmalloc

557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
- qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- lqkmalloc

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalanchbmk_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/xFusion-Platform-Settings-CSL-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-CSL-V1.1.xml

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

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