## xFusion

*xFusion 2488H V5 (Intel Xeon Platinum 8276L)*

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 11.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Threads</th>
<th>0</th>
<th>2.00</th>
<th>4.00</th>
<th>6.00</th>
<th>8.00</th>
<th>10.0</th>
<th>12.0</th>
<th>14.0</th>
<th>16.0</th>
<th>18.0</th>
<th>20.0</th>
<th>22.0</th>
<th>25.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>112</td>
<td>675</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>112</td>
<td>10.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>112</td>
<td>14.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>112</td>
<td>16.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>112</td>
<td>6.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>112</td>
<td>5.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>112</td>
<td>17.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>OS: Red Hat Enterprise Linux release 8.4 (Ootpa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
</tr>
<tr>
<td>Parallel: Yes</td>
</tr>
<tr>
<td>Firmware: Version 8.23 Released Dec-2021</td>
</tr>
<tr>
<td>File System: xfs</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
</tr>
<tr>
<td>Peak Pointers: Not Applicable</td>
</tr>
<tr>
<td>Other: jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td>Power Management: BIOS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

### CPU Name: Intel Xeon Platinum 8276L

- Max MHz: 4000
- Nominal: 2200
- Enabled: 112 cores, 4 chips
- Orderable: 2.4 chips
- Cache L1: 32 KB I + 32 KB D on chip per core
- L2: 1 MB I+D on chip per core
- L3: 38.5 MB I+D on chip per chip
- Other: None
- Memory: 768 GB (48 x 16 GB 2Rx4 PC4-2933Y-R)
- Storage: 1 x 960 GB SATA SSD
- Other: None
xFusion

xFusion 2488H V5 (Intel Xeon Platinum 8276L)

SPEC®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

xFusion

xFusion 2488H V5 (Intel Xeon Platinum 8276L)

SPECspeed®2017_int_base = 11.7

SPECspeed®2017_int_peak = Not Run

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>112</td>
<td>264</td>
<td>6.73</td>
<td>263</td>
<td>6.76</td>
<td>263</td>
<td>6.75</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>112</td>
<td>375</td>
<td>10.6</td>
<td>372</td>
<td>10.7</td>
<td>368</td>
<td>10.8</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>112</td>
<td>240</td>
<td>19.7</td>
<td>240</td>
<td>19.7</td>
<td>243</td>
<td>19.4</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>112</td>
<td>147</td>
<td>11.1</td>
<td>149</td>
<td>11.0</td>
<td>151</td>
<td>10.8</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>112</td>
<td>101</td>
<td>14.1</td>
<td>101</td>
<td>14.1</td>
<td>100</td>
<td>14.2</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>112</td>
<td>106</td>
<td>16.6</td>
<td>106</td>
<td>16.7</td>
<td>106</td>
<td>16.6</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>112</td>
<td>239</td>
<td>6.01</td>
<td>238</td>
<td>6.01</td>
<td>243</td>
<td>5.91</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>112</td>
<td>339</td>
<td>5.03</td>
<td>338</td>
<td>5.05</td>
<td>338</td>
<td>5.05</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>112</td>
<td>170</td>
<td>17.3</td>
<td>170</td>
<td>17.3</td>
<td>171</td>
<td>17.2</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>112</td>
<td>249</td>
<td>24.8</td>
<td>249</td>
<td>24.9</td>
<td>249</td>
<td>24.9</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 11.7

SPECspeed®2017_int_peak = Not Run

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

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:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/spec2017/lib/intel64:/spec2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

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
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

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

xFusion

xFusion 2488H V5 (Intel Xeon Platinum 8276L)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>11.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

General Notes (Continued)

Platform Notes

BIOS configuration:
Power Policy Set to Load Balance
Hyper-Threading Set to Disabled

Sysinfo program /spec2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16a6a6a6a6
running on localhost.localdomain Thu Mar 10 09:45:53 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 8276L CPU @ 2.20GHz
  4 "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 : 28
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

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: 1
Core(s) per socket: 28
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
CPU family: 6

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

Model: 85  
Model name: Intel(R) Xeon(R) Platinum 8276L CPU @ 2.20GHz  
BIOS Model name: Intel(R) Xeon(R) Platinum 8276L CPU @ 2.20GHz  
Stepping: 7  
CPU MHz: 1700.171  
CPU max MHz: 4000.0000  
CPU min MHz: 1000.0000  
BogoMIPS: 4400.00  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 39424K  
NUMA node0 CPU(s): 0-27  
NUMA node1 CPU(s): 28-55  
NUMA node2 CPU(s): 56-83  
NUMA node3 CPU(s): 84-111  
Flags: fpu vme de pse tsc msr pae mca 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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrnd lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fxl_io fsgsbase tsc_adjust bmi1 hle avx2 smep bmi1 erms invpcid cqm mpx raft_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsavesopt xsaveopt xsave xavesaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_l1d arch_capabilities

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 16 17 18 19 20 21 22 23 24 25 26 27
node 0 size: 191706 MB
node 0 free: 183896 MB
node 1 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
node 1 size: 193529 MB
node 1 free: 191273 MB
node 2 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
node 2 size: 193529 MB
node 2 free: 190529 MB

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

### SPEC CPU®2017 Integer Speed Result

**xFusion**

**SPECspeed®2017_int_base** = 11.7

**SPECspeed®2017_int_peak** = Not Run

<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>Mar-2022</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Jun-2021</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

1. **node 3 cpus:** 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111
2. **node 3 size:** 193492 MB
3. **node 3 free:** 190522 MB
4. **node distances:**
   - 0: 10 21 21 21
   - 1: 21 10 21 21
   - 2: 21 21 10 21
   - 3: 21 21 21 10

From `/proc/meminfo`

- **MemTotal:** 790792880 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="8.4 (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):**
  - KVM: Mitigation: Split huge pages
- **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

(Continued on next page)
xFusion

xFusion 2488H V5 (Intel Xeon Platinum 8276L)

SPEC CPU®2017 Integer Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

SPECspeed®2017_int_base = 11.7
SPECspeed®2017_int_peak = Not Run

Platform Notes (Continued)

Bypass disabled via prctl and seccomp
Mitigation: usercopy/swapgs barriers and __user pointer sanitation

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 Mar 10 07:06

SPEC is set to: /spec2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 859G 132G 728G 16% /

From /sys/devices/virtual/dmi/id
Vendor: xFusion
Product: 2488H V5
Product Family: Purley
Serial: 1234567

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:
48x Samsung M393A2K43CB2-CVF 16 GB 2 rank 2933

BIOS:
BIOS Vendor: INSYDE Corp.
BIOS Version: 8.23
BIOS Date: 12/30/2021
BIOS Revision: 8.23

(End of data from sysinfo program)

Compiler Version Notes

========================================================================================================
C | 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(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.

(Continued on next page)
xFusion
xFusion 2488H V5 (Intel Xeon Platinum 8276L)

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

Compiler Version Notes (Continued)

C++
| 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) |
| 641.leela_s(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.

Fortran
| 648.exchange2_s(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

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
# SPEC CPU®2017 Integer Speed Result

## xFusion

**xFusion 2488H V5 (Intel Xeon Platinum 8276L)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>11.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

### CPU2017 License: 6488
- **Test Date:** Mar-2022
- **Hardware Availability:** Apr-2021
- **Software Availability:** Jun-2021

### Test Sponsor: xFusion
- **Tested by:** xFusion

### Base Optimization Flags

**C benchmarks:**

- `-DSPEC_OPENMP` `-std=c11` `-m64` `-fiopenmp` `-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/jemalloc64-5.0.1/lib` `-ljemalloc`

**C++ benchmarks:**

- `-DSPEC_OPENMP` `-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:**

- `-m64` `-xCORE-AVX512` `-O3` `-ipo` `-no-prec-div` `-qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs` `-align array32byte` `-auto`
- `-mbranches-within-32B-boundaries`

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:


---

**SPEC CPU and SPECspeed 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 2022-03-10 09:45:52-0500.
Report generated on 2022-03-29 18:00:20 by CPU2017 PDF formatter v6442.
Originally published on 2022-03-29.