Altos Computing Inc.

BrainSphere T350 F4 (Intel Xeon Silver 4110)

SPECrate®2017_int_base = 88.4

SPECrate®2017_int_peak = 91.3

CPU2017 License: 97
Test Sponsor: Altos Computing Inc.
Tested by: Altos Computing Inc.

Test Date: Oct-2020
Hardware Availability: Feb-2020
Software Availability: Apr-2020

Copies

500.perlbench_r 32
502.gcc_r 32
505.mcf_r 32
520.omnetpp_r 32
523.xalancbmk_r 32
525.x264_r 32
531.deepsjeng_r 32
541.leela_r 32
548.exchange2_r 32
557.xz_r 32

SPECrate®2017_int_base (88.4)

SPECrate®2017_int_peak (91.3)

Hardware

CPU Name: Intel Xeon Silver 4110
Max MHz: 3000
Nominal: 2100
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1.2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 11 MB I+D on chip per chip
Other: None
Memory: 384 GB (12 x 32 GB 2Rx4 PC4-3200AA-R, running at 2400)
Storage: 1 x 960 GB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux release 8.1
4.18.0-147.el8.x86_64
Compiler: C/C++: Version 19.1.1.217 of Intel C/C++ Compiler Build 20200306 for Linux;
Fortran: Version 19.1.1.217 of Intel Fortran Compiler Build 20200306 for Linux
Parallel: No
Firmware: Version R11 released Feb-2020
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS set to prefer performance at the cost of additional power usage
# SPEC CPU®2017 Integer Rate Result

## Altos Computing Inc.

### BrainSphere T350 F4 (Intel Xeon Silver 4110)

| SPECrate®2017_int_base = 88.4 | SPECrate®2017_int_peak = 91.3 |

**CPU2017 License:** 97  
**Test Date:** Oct-2020  
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**Test Sponsor:** Altos Computing Inc.  
**Tested by:** Altos Computing Inc.  
**Software Availability:** Apr-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>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>32</td>
<td>873</td>
<td>58.4</td>
<td>882</td>
<td>57.8</td>
<td>875</td>
<td>58.2</td>
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<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>32</td>
<td>633</td>
<td>71.5</td>
<td>628</td>
<td>72.2</td>
<td>627</td>
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<td></td>
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<td></td>
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<tr>
<td>505.mcf_r</td>
<td>32</td>
<td>330</td>
<td>157</td>
<td>332</td>
<td>156</td>
<td>329</td>
<td>157</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>32</td>
<td>644</td>
<td>65.1</td>
<td>644</td>
<td>65.2</td>
<td>643</td>
<td>65.3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>32</td>
<td>284</td>
<td>119</td>
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<td>119</td>
<td>284</td>
<td>119</td>
<td></td>
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</tr>
<tr>
<td>525.x264_r</td>
<td>32</td>
<td>326</td>
<td>172</td>
<td>329</td>
<td>170</td>
<td>324</td>
<td>173</td>
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<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>32</td>
<td>555</td>
<td>66.1</td>
<td>555</td>
<td>66.1</td>
<td>555</td>
<td>66.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>32</td>
<td>867</td>
<td>61.1</td>
<td>867</td>
<td>61.1</td>
<td>867</td>
<td>61.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>32</td>
<td>535</td>
<td>157</td>
<td>538</td>
<td>156</td>
<td>535</td>
<td>157</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>662</td>
<td>52.2</td>
<td>659</td>
<td>52.4</td>
<td>659</td>
<td>52.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

### 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 = 
    
  
MALLOC_CONF = "retain:true"
```
Altos Computing Inc.
BrainSphere T350 F4 (Intel Xeon Silver 4110)

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

SPECrate®2017_int_base = 88.4
SPECrate®2017_int_peak = 91.3

CPU2017 License: 97
Test Sponsor: Altos Computing Inc.
Tested by: Altos Computing Inc.
Test Date: Oct-2020
Hardware Availability: Feb-2020
Software Availability: Apr-2020

General Notes
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
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>
Yes: 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

Platform Notes
BIOS Configuration:
Power Policy Quick Settings set to Performance
IMC set to 1-way interleaving
Sub_NUMA Cluster set to enabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edible6e46a485a0011
running on localhost.localdomain Wed Oct 14 02:29:58 2020

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) Silver 4110 CPU @ 2.10GHz
    2 "physical id"s (chips)
    32 "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 : 8
    siblings : 16
    physical 0: cores 0 1 2 3 4 5 6 7
    physical 1: cores 0 1 2 3 4 5 6 7

From lscpu:
    Architecture: x86_64
### SPEC CPU®2017 Integer Rate Result

**Altos Computing Inc.**  
**BrainSphere T350 F4 (Intel Xeon Silver 4110)**  

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base = 88.4</th>
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**CPU2017 License:** 97  
**Test Sponsor:** Altos Computing Inc.  
**Tested by:** Altos Computing Inc.  

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<tbody>
<tr>
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<td>Feb-2020</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2020</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

- **CPU op-mode(s):** 32-bit, 64-bit  
- **Byte Order:** Little Endian  
- **CPU(s):** 32  
- **On-line CPU(s) list:** 0-31  
- **Thread(s) per core:** 2  
- **Core(s) per socket:** 8  
- **Socket(s):** 2  
- **NUMA node(s):** 2  
- **Vendor ID:** GenuineIntel  
- **CPU family:** 6  
- **Model:** 85  
- **Model name:** Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz  
- **Stepping:** 4  
- **CPU MHZ:** 2400.006  
- **CPU max MHZ:** 3000.0000  
- **CPU min MHZ:** 800.0000  
- **BogoMIPS:** 4200.00  
- **Virtualization:** VT-x  
- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 1024K  
- **L3 cache:** 11264K  
- **NUMA node0 CPU(s):** 0-7,16-23  
- **NUMA node1 CPU(s):** 8-15,24-31  
- **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 pdelgb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrpr 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 cdp_l3 invpcid_single pti intel_pevin ssbd ibrs ibpb stibp tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rd_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xsavec xsetbv  
- **/proc/cpuinfo cache data**  
  - **cache size:** 11264 KB  

From numactl --hardware  
**WARNING:** a numactl 'node' might or might not correspond to a physical chip.

<table>
<thead>
<tr>
<th>available:</th>
<th>2 nodes (0-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>node 0 cpus:</td>
<td>0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23</td>
</tr>
<tr>
<td>node 0 size:</td>
<td>191854 MB</td>
</tr>
<tr>
<td>node 0 free:</td>
<td>191410 MB</td>
</tr>
<tr>
<td>node 1 cpus:</td>
<td>8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31</td>
</tr>
</tbody>
</table>

(Continued on next page)
Platform Notes (Continued)

node 1 size: 193506 MB
node 1 free: 192983 MB
node distances:
node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo
MemTotal: 394609832 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.1 (Ootpa)"
    ID="rhe1"
    ID_LIKE="fedora"
    VERSION_ID="8.1"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.1 (Ootpa)"
    ANSI_COLOR="0;31"
    redhat-release: Red Hat Enterprise Linux release 8.1 (Ootpa)
    system-release: Red Hat Enterprise Linux release 8.1 (Ootpa)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:8.1:ga

uname -a:
Linux localhost.localdomain 4.18.0-147.el8.x86_64 #1 SMP Thu Sep 26 15:52:44 UTC 2019
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2018-3620 (L1 Terminal Fault):
  Mitigation: PTE Inversion; VMX: conditional cache flushes, SMT vulnerable
Microarchitectural Data Sampling:
  Mitigation: Clear CPU buffers; SMT vulnerable
CVE-2017-5754 (Meltdown):
  Mitigation: PTI
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: Full generic retpoline, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling

run-level 3 Oct 14 02:29
SPEC is set to: /home/cpu2017

(Continued on next page)
Altos Computing Inc.

BrainSphere T350 F4 (Intel Xeon Silver 4110)

**SPECrate®2017_int_base = 88.4**

**SPECrate®2017_int_peak = 91.3**

---

**CPU2017 License:** 97  
**Test Sponsor:** Altos Computing Inc.  
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**Test Date:** Oct-2020  
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**Software Availability:** Apr-2020

---

**Platform Notes (Continued)**

Filesystem | Type | Size | Used | Avail | Use% | Mounted on
--- | --- | --- | --- | --- | --- | ---
/dev/mapper/rhel-home | xfs | 392G | 88G | 304G | 23% | /home

From /sys/devices/virtual/dmi/id  
BIOS: GIGABYTE R11 02/25/2020  
Vendor: Altos  
Product: BrainSphere R389 F4  
Product Family: Server  
Serial: GIGBN82521A0007

Additional information from dmidecode 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:  
12x NO DIMM NO DIMM  
12x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200

(End of data from sysinfo program)

---

**Compiler Version Notes**

```
==============================================================================
C       | 502.gcc_r(peak)
-----------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen Build 20200304
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) C Compiler for applications running on Intel(R) 64, Version 2021.1 NextGen Build 20200304
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 for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```
Altos Computing Inc.

BrainSphere T350 F4 (Intel Xeon Silver 4110)

**SPEC CPU®2017 Integer Rate Result**

| SPECrate®2017_int_base = 88.4 | SPECrate®2017_int_peak = 91.3 |

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</tr>
</tbody>
</table>

**Compiler Version Notes (Continued)**

```
C       | 502.gcc_r(peak)
```

Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
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) C Compiler for applications running on Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
C       | 500.perlbench_r(peak) 557.xz_r(peak)
```

Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
C       | 502.gcc_r(peak)
```

Intel(R) C Compiler for applications running on IA-32, Version 2021.1 NextGen Build 20200304
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) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
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 for applications running on Intel(R) 64, (Continued on next page)
Altos Computing Inc.

BrainSphere T350 F4 (Intel Xeon Silver 4110)

**SPEC CPU®2017 Integer Rate Result**

**SPECrade®2017_int_base = 88.4**

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---

**Compiler Version Notes (Continued)**

Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

---

**Base Compiler Invocation**

C benchmarks:
icc

C++ benchmarks:
icpc

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

---

(Continued on next page)
Altos Computing Inc.  
BrainSphere T350 F4 (Intel Xeon Silver 4110)  

SPECrate®2017_int_base = 88.4  
SPECrate®2017_int_peak = 91.3

CPU2017 License: 97  
Test Sponsor: Altos Computing Inc.  
Tested by: Altos Computing Inc.

Test Date: Oct-2020  
Hardware Availability: Feb-2020  
Software Availability: Apr-2020

Base Portability Flags (Continued)

557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-\( -m64 -gnextgen -std=c11 \)
-\( -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs \)
-\( -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops \)
-\( -fuse-ld=gold -qopt-mem-layout-trans=4 \)
-\( -L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin -lqkmalloc \)

C++ benchmarks:
-\( -m64 -gnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries \)
-\( -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse \)
-\( -funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4 \)
-\( -L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin -lqkmalloc \)

Fortran benchmarks:
-\( -m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs \)
-\( -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4 \)
-\( -nostandard-realloc-lhs -align array32byte -auto \)
-\( -mbranches-within-32B-boundaries \)
-\( -L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin -lqkmalloc \)

Peak Compiler Invocation

C benchmarks:  
\textit{icc}  

C++ benchmarks:  
\textit{icpc}  

Fortran benchmarks:  
\textit{ifort}
Altos Computing Inc.  
BrainSphere T350 F4 (Intel Xeon Silver 4110)  

**SPEC CPU®2017 Integer Rate Result**

Copyright 2017-2020 Standard Performance Evaluation Corporation

| CPU2017 License: | 97 |
| Test Sponsor: | Altos Computing Inc. |
| Tested by: | Altos Computing Inc. |
| Test Date: | Oct-2020 |
| Hardware Availability: | Feb-2020 |
| Software Availability: | Apr-2020 |

**SPECrate®2017_int_base = 88.4**

**SPECrate®2017_int_peak = 91.3**

---

**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.leea_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

(Continued on next page)

---

**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/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

502.gcc_r: -m32
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/ia32_lin
-std=gnu89
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdatalpass 2) -xCORE-AVX512 -flto
-Ofast(pass 1) -O3 -ffast-math -qnextgen -fuse-ld=gold
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc32-5.0.1/lib
-ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -flto -O3 -ffast-math
-fuse=ld=gold -qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/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/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin

(Continued on next page)
Altos Computing Inc.

BrainSphere T350 F4 (Intel Xeon Silver 4110)

SPEC CPU®2017 Integer Rate Result

<table>
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<th>Test Date: Oct-2020</th>
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<td>Hardware Availability: Feb-2020</td>
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<tr>
<td>Tested by: Altos Computing Inc.</td>
<td>Software Availability: Apr-2020</td>
</tr>
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SPECrate®2017_int_base = 88.4
SPECrate®2017_int_peak = 91.3

Peak Optimization Flags (Continued)

557.xz_r (continued):
-lqkmalloc

C++ benchmarks:

520.omnetpp_r: basepeak = yes
523.xalancbmk_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/Altos-Platform-Settings-V1.0-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/Altos-Platform-Settings-V1.0-revA.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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