<table>
<thead>
<tr>
<th>SPEC® CPU2017 Integer Rate Result</th>
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<tr>
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<tr>
<td>PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 2.20GHz</td>
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</tbody>
</table>

| CPU2017 License: | 19 |
| Test Sponsor: | Fujitsu |
| Tested by: | Fujitsu |

| Test Date: | Apr-2018 |
| Hardware Availability: | Dec-2017 |
| Software Availability: | Mar-2018 |

| SPECrate2017_int_base = | 92.9 |
| SPECrate2017_int_peak = | Not Run |

### Hardware

| CPU Name: | Intel Xeon Silver 4114T |
| Max MHz.: | 3000 |
| Nominal: | 2200 |
| Enabled: | 20 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: | 13.75 MB I+D on chip per chip |
| Other: | None |
| Memory: | 192 GB (12 x 16 GB 2Rx4 PC4-2666V-R, running at 2400) |
| Storage: | 1 x SATA SSD, 960 GB |
| Other: | None |

### Software

| OS: | SUSE Linux Enterprise Server 12 SP2 4.4.114-92.64-default |
| Compiler: | C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux: Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux |
| Parallel: | No |
| Firmware: | Fujitsu BIOS Version V1.0.0.0 R1.27.0 for D3853-A1x. Released Mar-2018 |
| File System: | xfs |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |
| Peak Pointers: | Not Applicable |
| Other: | jemalloc memory allocator library V5.0.1 |
**SPEC CPU2017 Integer Rate Result**

**Fujitsu**

PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 2.20GHz

**SPECrate2017_int_base = 92.9**

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### Results Table

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**SPECrate2017_int_base = 92.9**

**SPECrate2017_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"  
Set Kernel Boot Parameter: nohz_full=1-39  
Set CPU frequency governor to maximum performance with:  
cpupower -c all frequency-set -g performance  
Process tuning settings:  
echo 0 > /proc/sys/kernel/numa_balancing  
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns  
echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns  
cpu idle state set with:  
cpupower idle-set -d 1  
cpupower idle-set -d 2

---

### General Notes

Environment variables set by runcpu before the start of the run:  
LD_LIBRARY_PATH = "/home/Benchmark/speccpu2017/lib/ia32:/home/Benchmark/speccpu2017/lib/intel64"  
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017/je5.0.1-32"  
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/Benchmark/speccpu2017/je5.0.1-64"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM

(Continued on next page)
**Fujitsu**

PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 2.20GHz

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**General Notes (Continued)**

memory using Redhat Enterprise Linux 7.4
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.:
numactl --interleave=all runcpu <etc>

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;
jemalloc: sources available via jemalloc.net

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.

**Platform Notes**

BIOS configuration:
- DCU Streamer Prefetcher = Disabled
- Intel Virtualization Technology = Disabled
- Power Technology = Custom
- HWPM Support = Disabled
- Uncore Frequency Scaling = Disabled
- Sub NUMA Clustering = Disabled
- Stale AtoS = Enabled
- LLC dead line alloc = Disabled

Sysinfo program /home/Benchmark/speccpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bbc091c0f
running on CX2550M4 Fri Apr 20 15:54:36 2018

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 4114T CPU @ 2.20GHz
  2 "physical id"s (chips)
  40 "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 : 10
  siblings : 20
```

(Continued on next page)
### SPEC CPU2017 Integer Rate Result

**Fujitsu**

PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 2.20GHz

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**Test Date:** Apr-2018  
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**Software Availability:** Mar-2018

---

**Platform Notes (Continued)**

- physical 0: cores 0 1 2 3 4 8 9 10 11 12
- physical 1: cores 0 1 2 3 4 8 9 10 11 12

From `lscpu`:

- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 40
- On-line CPU(s) list: 0-39
- Thread(s) per core: 2
- Core(s) per socket: 10
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Silver 4114T CPU @ 2.20GHz
- Stepping: 4
- CPU MHz: 2201.000
- CPU max MHz: 2201.0000
- CPU min MHz: 800.0000
- BogoMIPS: 4389.71
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 14080K
- NUMA node0 CPU(s): 0-9, 20-29
- NUMA node1 CPU(s): 10-19, 30-39
- Flags: fpu vme de pse tsc msr pae mce 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 aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pccd dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtherm intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vmvi fpxprec ipt vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 irds invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsaves xgetbv1 cqm_1llc cqm_occup_1llc

/proc/cpuinfo cache data
- cache size: 14080 KB

From `numactl --hardware`

- WARNING: a numactl 'node' might or might not correspond to a physical chip.
- available: 2 nodes (0-1)
  - node 0 cpus: 0 1 2 3 4 5 6 7 8 9 20 21 22 23 24 25 26 27 28 29

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Fujitsu
PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 2.20GHz

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Platform Notes (Continued)

node 0 size: 95373 MB
node 0 free: 95001 MB
node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
node 1 size: 96641 MB
node 1 free: 96322 MB
node distances:
node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo
MemTotal: 196622460 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
SUSE Linux Enterprise Server 12 SP2

uname -a:
Linux CX2550M4 4.4.114-92.64-default #1 SMP Thu Feb 1 19:18:19 UTC 2018 (c6ce5db)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 20 13:54

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

(Continued on next page)
SPEC CPU2017 Integer Rate Result

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Platform Notes (Continued)

frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.
BIOS FUJITSU V1.0.0.0 R1.27.0 for D3853-A1x 03/15/2018
Memory:
12x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666, configured at 2400
4x Not Specified Not Specified

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
CXXC  520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)
==============================================================================
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
FC  548.exchange2_r(base)
==============================================================================
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort
Fujitsu
PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 2.20GHz

| SPECrate2017_int_base | 92.9 |
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### 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

### Base Optimization Flags

**C benchmarks:**

- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

**C++ benchmarks:**

- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

**Fortran benchmarks:**

- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
- -L/usr/local/je5.0.1-64/lib -ljemalloc

### Base Other Flags

**C benchmarks:**

- -m64 -std=c11

**C++ benchmarks:**

- -m64

**Fortran benchmarks:**

- -m64

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

## SPEC CPU2017 Integer Rate Result

### Fujitsu

PRIMERGY CX2550 M4, Intel Xeon Silver 4114T, 
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You can also download the XML flags sources by saving the following links:


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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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