## SPEC CPU®2017 Integer Rate Result

**Fujitsu**

PRIMERGY TX1330 M5, Intel Xeon E-2386G, 3.50GHz

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<tr>
<td>19</td>
<td>Jan-2022</td>
<td>Mar-2022</td>
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<tr>
<td>Fujitsu</td>
<td>Jun-2021</td>
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### SPECrate®2017_int_base = 58.0

### SPECrate®2017_int_peak = Not Run

### Hardware

<table>
<thead>
<tr>
<th>CPU Name</th>
<th>OS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Xeon E-2386G</td>
<td>SUSE Linux Enterprise Server 15 SP3</td>
</tr>
<tr>
<td>Max MHz: 5100</td>
<td>5.3.18-57-default</td>
</tr>
<tr>
<td>Nominal: 3500</td>
<td>Compiler:</td>
</tr>
<tr>
<td>Enabled: 6 cores, 1 chip, 2 threads/core</td>
<td>C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;</td>
</tr>
<tr>
<td>Orderable: 1 chip</td>
<td>Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;</td>
</tr>
<tr>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
<td>Parallel: No</td>
</tr>
<tr>
<td>L2: 512 KB I+D on chip per core</td>
<td>Firmware: Fujitsu BIOS Version V5.0.0.22 R1.31.0 for D3931-A1x, Released Mar-2022 tested as V5.0.0.22 R1.20.0 for D3931-A1x Jan-2022</td>
</tr>
<tr>
<td>L3: 12 MB I+D on chip per chip</td>
<td>File System: xfs</td>
</tr>
<tr>
<td>Other: None</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Memory: 32 GB (2 x 16 GB 2Rx8 PC4-3200AA-E)</td>
<td>Base Pointers: 64-bit</td>
</tr>
<tr>
<td>Storage: 1 x SATA M.2 SSD, 240GB</td>
<td>Peak Pointers: Not Applicable</td>
</tr>
<tr>
<td>Other: None</td>
<td>Other: None</td>
</tr>
</tbody>
</table>

### Software

| Power Management: BIOS set to prefer performance at the cost of additional power usage |

### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECrate®2017_int_base (58.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>12</td>
<td>41.3</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>12</td>
<td>40.9</td>
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<td>505.mcf_r</td>
<td>12</td>
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<td>520.omnetpp_r</td>
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<td>75.6</td>
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<td>523.xalancbmk_r</td>
<td>12</td>
<td>129</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>12</td>
<td>47.8</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>12</td>
<td>47.3</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>12</td>
<td>31.2</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>12</td>
<td>128</td>
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<tr>
<td>557.xz_r</td>
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### Results Table

<table>
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<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Base</td>
<td></td>
<td></td>
<td>Peak</td>
<td></td>
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<td></td>
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<tr>
<td>perfbench_r</td>
<td>12</td>
<td>463</td>
<td>1.3</td>
<td>463</td>
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<td>462</td>
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<td>gcc_r</td>
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<td>415</td>
<td>0.9</td>
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<td>mcf_r</td>
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<td>omnetpp_r</td>
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<td>163</td>
<td>129</td>
<td>162</td>
<td>129</td>
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<tr>
<td>deepsjeng_r</td>
<td>12</td>
<td>287</td>
<td>47.9</td>
<td>287</td>
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<td>287</td>
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<tr>
<td>leela_r</td>
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<td>420</td>
<td>47.3</td>
<td>420</td>
<td>47.3</td>
<td>420</td>
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</tr>
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<td>12</td>
<td>245</td>
<td>128</td>
<td>245</td>
<td>128</td>
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</tr>
<tr>
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<td>12</td>
<td>415</td>
<td>31.2</td>
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<td>31.2</td>
</tr>
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**SPECrate®2017_int_base = 58.0**

**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 config file option 'submit' was used.

### Operating System Notes

Stack size set to unlimited using "$ulimit -s unlimited"

cpupower -c all frequency-set -g performance

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH = 
"/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/lib/ia32:/home/Benchmark/speccpu/je5.0.1-32"
MALLOCONF = "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>
```

(Continued on next page)
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PRIMERGY TX1330 M5, Intel Xeon E-2386G, 3.50GHz

SPECrates®2017_int_base = 58.0
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CPU2017 License: 19
Test Date: Jan-2022
Test Sponsor: Fujitsu
Hardware Availability: Mar-2022
Tested by: Fujitsu
Software Availability: Jun-2021

General Notes (Continued)

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:
Adjacent Cache Line Prefetch = Disabled
Package C-State limit = C6
Per Core P State OS control mode = Disabled
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d
running on localhost Fri Jan 14 15:29:11 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) E-2386G CPU @ 3.50GHz
1 "physical id"s (chips)
12 "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 : 6
siblings : 12
physical 0: cores 0 1 2 3 4 5

From lscpu from util-linux 2.36.2:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 39 bits physical, 48 bits virtual
CPU(s): 12
On-line CPU(s) list: 0-11
Thread(s) per core: 2
Core(s) per socket: 6
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6

(Continued on next page)
Fujitsu

PRIMERGY TX1330 M5, Intel Xeon E-2386G, 3.50GHz

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

Test Date: Jan-2022
Hardware Availability: Mar-2022
Software Availability: Jun-2021

Model: 167
Model name: Intel(R) Xeon(R) E-2386G CPU @ 3.50GHz
Stepping: 1
CPU MHz: 4930.018
CPU max MHz: 5100.0000
CPU min MHz: 800.0000
BogoMIPS: 7008.00
Virtualization: VT-x
L1d cache: 288 KiB
L1i cache: 192 KiB
L2 cache: 3 MiB
L3 cache: 12 MiB
NUMA node0 CPU(s): 0-11
Vulnerability Itlb multihit: Not affected
Vulnerability Lltf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; userscopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbd: Not affected
Vulnerability Tsx async abort: Not affected
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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single ssbd ibrs ibpb stibp ibrs_enhanced tpr_shadow vmmi flexpriority ept vpid fpred ad fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms invpcid mxp avx512f avx512dq rdseed adx smap avx512ifma clflushopt intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves dtherm ida arat pln pts hwp hwp_notify hwp_act_window hwp_epp hwp_pkg_req avx512vmbi umip pku ospke avx512_vmbi2 gfn1 vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq rdpid fsrmd cleard flush_l1d arch_capabilities

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 48K 288K 12 Data 1 64 1 64
L1i 32K 192K 8 Instruction 1 64 1 64
L2 512K 3M 8 Unified 2 1024 1 64
L3 12M 12M 16 Unified 3 12288 1 64

/proc/cpuinfo cache data

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Copyright 2017-2022 Standard Performance Evaluation Corporation

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Tested by: Fujitsu

SPECrate®2017_int_base = 58.0

SPECRate®2017_int_peak = Not Run

Platform Notes (Continued)

cache size : 12288 KB

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
   available: 1 nodes (0)
   node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11
   node 0 size: 31515 MB
   node 0 free: 31038 MB
   node distances:
   node 0
     0:  10

From /proc/meminfo
   MemTotal: 32271524 kB
   HugePages_Total: 0
   Hugepagesize: 2048 kB

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

From /etc/*release* /etc/*version*
   os-release:
      NAME="SLES"
      VERSION="15-SP3"
      VERSION_ID="15.3"
      PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
      ID="sles"
      ID_LIKE="suse"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:15:sp3"

uname -a:
   Linux localhost 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021
   (ba3c2e9/1p-5d9e8aa) 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
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swapgs barriers and __user pointer sanitization

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

- **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 Jan 14 15:25**

SPEC is set to: /home/Benchmark/speccpu

- Filesystem     Type  Size  Used Avail Use% Mounted on
  - /dev/sda4      xfs   180G   43G  138G  24% /home

- From /sys/devices/virtual/dmi/id
  - Vendor:         FUJITSU
  - Product:        PRIMERGY TX1330 M5
  - Product Family: SERVER
  - Serial:         EWBUxxxxxx

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 SMBOIS" standard.

- Memory:
  - 2x Samsung M391A2K43DB1-CWE 16 GB 2 rank 3200

- BIOS:
  - BIOS Vendor:       FUJITSU // American Megatrends International, LLC.
  - BIOS Version:      V5.0.0.22 R1.20.0 for D3931-A1x
  - BIOS Date:         01/11/2022
  - BIOS Revision:     1.20

(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)

C++     | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
        | 541.leela_r(base)
```

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Compiler Version Notes (Continued)

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 | 548.exchange2_r(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

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalanchmk_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
### Fujitsu

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**Hardware Availability:** Mar-2022  
**Software Availability:** Jun-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/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`

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: