SPEC CPU®2017 Integer Rate Result

Fujitsu
PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

CPU2017 License: 19  Test Date: Dec-2021
Test Sponsor: Fujitsu  Hardware Availability: Mar-2022
Tested by: Fujitsu  Software Availability: Jun-2021

SPECrater®2017_int_base = 69.3
SPECrater®2017_int_peak = Not Run

Hardware
CPU Name: Intel Xeon E-2388G
Max MHz: 5100
Nominal: 3200
Enabled: 8 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 512 KB I+D on chip per core
L3: 16 MB I+D on chip per chip
Other: None
Memory: 32 GB (2 x 16 GB 2Rx8 PC4-3200AA-E)
Storage: 1 x SATA M.2 SSD, 240GB
Other: None

Software
OS: SUSE Linux Enterprise Server 15 SP3
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;
Parallel: No
Firmware: Fujitsu BIOS Version V5.0.0.22 R1.30.0 for D3931-A1x. Released Mar-2022 tested as V5.0.0.22 R1.15.0 for D3931-A1x Dec-2021
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.
## SPEC CPU®2017 Integer Rate Result

**Fujitsu**

PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

### SPECrate®2017_int_base = 69.3

### SPECrate®2017_int_peak = Not Run

<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>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>16</td>
<td>500</td>
<td>50.9</td>
<td>501</td>
<td>50.9</td>
<td>499</td>
<td>51.0</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>16</td>
<td>491</td>
<td>46.1</td>
<td>493</td>
<td>45.9</td>
<td>491</td>
<td>46.2</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>16</td>
<td>238</td>
<td>108</td>
<td>239</td>
<td>108</td>
<td>238</td>
<td>109</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>16</td>
<td>628</td>
<td>33.4</td>
<td>627</td>
<td>33.5</td>
<td>628</td>
<td>33.4</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>16</td>
<td>185</td>
<td>91.2</td>
<td>184</td>
<td>91.7</td>
<td>185</td>
<td>91.5</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>16</td>
<td>177</td>
<td>159</td>
<td>177</td>
<td>158</td>
<td>177</td>
<td>159</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>16</td>
<td>312</td>
<td>58.8</td>
<td>312</td>
<td>58.8</td>
<td>312</td>
<td>58.8</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>16</td>
<td>453</td>
<td>58.4</td>
<td>454</td>
<td>58.4</td>
<td>454</td>
<td>58.4</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>16</td>
<td>266</td>
<td>158</td>
<td>266</td>
<td>158</td>
<td>266</td>
<td>158</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>16</td>
<td>450</td>
<td>38.4</td>
<td>451</td>
<td>38.3</td>
<td>450</td>
<td>38.4</td>
</tr>
</tbody>
</table>

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/PVT/speccpu-1.1.8_b/lib/intel64:/home/PVT/speccpu-1.1.8_b/lib/ia32:/home/PVT/speccpu-1.1.8_b/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)
Fujitsu

PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

SPECrater®2017_int_base = 69.3

SPECrater®2017_int_peak = Not Run

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/PVT/speccpu-1.1.8_b/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost Thu Dec 16 00:51:11 2021

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-2388G CPU @ 3.20GHz
  1 "physical id"s (chips)
  16 "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

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): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Fujitsu

PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

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

SPECrater®2017_int_base = 69.3
SPECrater®2017_int_peak = Not Run

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

Platform Notes (Continued)

Model: 167
Model name: Intel(R) Xeon(R) E-2388G CPU @ 3.20GHz
Stepping: 1
CPU MHz: 3481.015
CPU max MHz: 5100.0000
CPU min MHz: 800.0000
BogoMIPS: 6384.00
Virtualization: VT-x
L1d cache: 384 KiB
L1i cache: 256 KiB
L2 cache: 4 MiB
L3 cache: 16 MiB
NUMA node0 CPU(s): 0-15
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: 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; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbd: Not affected
Vulnerability Tlx 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 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 x86_64 pae mce cx8 apic sep mtrr

From lscpu --cache:

NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d 48K 384K 12 Data 1 64 1 64
L1i 32K 256K 8 Instruction 1 64 1 64
L2 512K 4M 8 Unified 2 1024 1 64
L3 16M 16M 16 Unified 3 16384 1 64

/proc/cpuinfo cache data

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

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>Fujitsu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Mar-2022</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Jun-2021</td>
</tr>
</tbody>
</table>

---

**Platform Notes (Continued)**

```plaintext
cache size : 16384 KB

From numactl --hardware
WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)
nodemap:
    node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    node 0 size: 31514 MB
    node 0 free: 30978 MB
    node distances:
        node 0
            0:  10

From /proc/meminfo
MemTotal:       32270472 kB
MemFree:        30978000 kB
MemAvailable:   30978000 kB
Buffers:        17128 kB
Cached:         86564 kB
SwapTotal:      0 kB
SwapFree:       0 kB
Meminfo:

/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)
```
**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**

PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Fujitsu</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Dec-2021</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Mar-2022</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Jun-2021</td>
</tr>
</tbody>
</table>

| SPECrate®2017_int_base = | 69.3 |
| SPECrate®2017_int_peak = | Not Run |

---

### 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 Dec 15 11:48

SPEC is set to: /home/PVT/speccpu-1.1.8_b

```bash
Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/sda4    xfs   180G   41G  140G  23% /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 SMBIOS* standard."

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

BIOS:

<table>
<thead>
<tr>
<th>BIOS Vendor:</th>
<th>FUJITSU // American Megatrends International, LLC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS Version:</td>
<td>V5.0.0.22 R1.15.0 for D3931-A1x</td>
</tr>
<tr>
<td>BIOS Date:</td>
<td>12/03/2021</td>
</tr>
<tr>
<td>BIOS Revision:</td>
<td>1.15</td>
</tr>
</tbody>
</table>

(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) |

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

(Continued on next page)
Fujitsu

PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

SPECrate®2017_int_base = 69.3
SPECrate®2017_int_peak = Not Run

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.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

Test Date: Dec-2021
Hardware Availability: Mar-2022
Software Availability: Jun-2021
**Fujitsu**

PRIMERGY TX1330 M5, Intel Xeon E-2388G, 3.20GHz

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>69.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>Not Run</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`

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:

http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-RKL-RevC.xml
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

SPEC CPU and SPECrate 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 2021-12-15 10:51:10-0500.
Originally published on 2022-01-04.