**SPEC CPU®2017 Floating Point Speed Result**

**Fujitsu**

PRIMERGY TX1330 M5, Intel Xeon E-2336, 2.90GHz

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base</th>
<th>39.3</th>
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<tbody>
<tr>
<td>SPECspeed®2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 19  
**Test Sponsor:** Fujitsu  
**Tested by:** Fujitsu  
**CPU Name:** Intel Xeon E-2336  
**Max MHz:** 4800  
**Nominal:** 2900  
**Enabled:** 6 cores, 1 chip  
**Orderable:** 1 chip  
**Cache L1:** 32 KB I + 48 KB D on chip per core  
**Cache L2:** 512 KB I+D on chip per core  
**Cache L3:** 12 MB I+D on chip per chip  
**Memory:** 32 GB (2 x 16 GB 2Rx8 PC4-3200AA-E)  
**Storage:** 1 x SATA M.2 SSD, 240GB  
**OS:** SUSE Linux Enterprise Server 15 SP3 5.3.18-57-default

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</table>

| 5.00 | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 35.0 | 40.0 | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 | 90.0 | 95.0 | 100.0 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0   | 603.bwaves_s | 6   | 607.cactuBSSN_s | 6   | 619.lbm_s | 6   | 621.wrf_s | 6   | 627.cam4_s | 6   | 628.pop2_s | 6   | 638.imagick_s | 6   | 644.nab_s | 6   | 649.fotonik3d_s | 6   | 654.roms_s | 6   | 65.1 |

**Threads**

| 0 | 5.00 | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 35.0 | 40.0 | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 | 90.0 | 95.0 | 100.0 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 603.bwaves_s | 6   | 607.cactuBSSN_s | 6   | 619.lbm_s | 6   | 621.wrf_s | 6   | 627.cam4_s | 6   | 628.pop2_s | 6   | 638.imagick_s | 6   | 644.nab_s | 6   | 649.fotonik3d_s | 6   | 654.roms_s | 6   | 21.7 |

**Software**

| 0 | 5.00 | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 35.0 | 40.0 | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 | 90.0 | 95.0 | 100.0 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 603.bwaves_s | 6   | 607.cactuBSSN_s | 6   | 619.lbm_s | 6   | 621.wrf_s | 6   | 627.cam4_s | 6   | 628.pop2_s | 6   | 638.imagick_s | 6   | 644.nab_s | 6   | 649.fotonik3d_s | 6   | 654.roms_s | 6   | 22.1 |

**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

| 0 | 5.00 | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 35.0 | 40.0 | 45.0 | 50.0 | 55.0 | 60.0 | 65.0 | 70.0 | 75.0 | 80.0 | 85.0 | 90.0 | 95.0 | 100.0 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 603.bwaves_s | 6   | 607.cactuBSSN_s | 6   | 619.lbm_s | 6   | 621.wrf_s | 6   | 627.cam4_s | 6   | 628.pop2_s | 6   | 638.imagick_s | 6   | 644.nab_s | 6   | 649.fotonik3d_s | 6   | 654.roms_s | 6   | 22.1 |

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

PRIMERGY TX1330 M5, Intel Xeon E-2336, 2.90GHz

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 = "/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/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 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
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

(Continued on next page)
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CPU2017 License: 19  
Test Sponsor: Fujitsu  
Test Date: Jan-2022  
Tested by: Fujitsu  
Hardware Availability: Mar-2022  
Software Availability: Jun-2021

**General Notes (Continued)**

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5  

**Platform Notes**

BIOS configuration:  
HyperThreading = Disabled  
Package C-State un-demotion = Enabled  
REFRESH_2X_MODE = 2- Enabled HOT only  
PAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b5891ef0e16aaca64d  
running on localhost Fri Jan 21 14:14:56 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](https://www.spec.org/cpu2017/Docs/config.html#sysinfo)

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) E-2336 CPU @ 2.90GHz
  1 "physical id"s (chips)
  6 "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 : 6
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):                6
On-line CPU(s) list:   0-5
Thread(s) per core:    1
Core(s) per socket:    6
Socket(s):             1
NUMA node(s):          1
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 167
Model name:            Intel(R) Xeon(R) E-2336 CPU @ 2.90GHz
Stepping:              1
CPU MHz:               4080.579
```

(Continued on next page)
Fujitsu
PRIMERGY TX1330 M5, Intel Xeon E-2336, 2.90GHz

Platform Notes (Continued)

CPU max MHz: 4800.0000
CPU min MHz: 800.0000
BogoMIPS: 5808.00
Virtualization: VT-x
L1d cache: 288 KiB
L1i cache: 192 KiB
L2 cache: 3 MiB
L3 cache: 12 MiB
NUMA node0 CPU(s): 0-5
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 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 ebpb invpcid_single ssbd ibrs ibpb stibp ibrs_enabled tpr_shadow vmmi flexpriority ept vpid ept_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 xsaves dtscr dtherm ida arat pnr pts hwlp hwlp_notifi hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpcmclasdq avx512_vnni avx512_bitalg avx512_vpopcntdq rdrpid fism md_clear flush_l1d arch_capabilities

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

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

(Continued on next page)
Fujitsu

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Specspeed®2017_fp_base = 39.3

Specspeed®2017_fp_peak = Not Run

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

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

Platform Notes (Continued)

available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5
node 0 size: 31584 MB
node 0 free: 31157 MB
node distances:
node 0
0: 10

From /proc/meminfo
MemTotal: 32342500 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

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: userscopy/swaps barriers and __user pointer sanitization
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

(Continued on next page)
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Platform Notes (Continued)

run-level 3 Jan 21 14:13
SPEC is set to: /home/Benchmark/speccpu
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda4      xfs   180G   43G  137G  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 SMBIOS" 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               | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
------------------------------------------------------------
Intel(R) C 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.
------------------------------------------------------------

------------------------------------------------------------
C++, C, Fortran | 607.cactuBSSN_s(base)
------------------------------------------------------------
Intel(R) C++ 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.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000

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### Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel (R) Fortran (R) 64 Compiler Classic for applications running on Intel (R) 64, Version 2021.1 Build 20201112_000000

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---

Fortran | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
---

Intel (R) Fortran (R) 64 Compiler Classic for applications running on Intel (R) 64, Version 2021.1 Build 20201112_000000

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---

Fortran, C | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
---

Intel (R) Fortran (R) 64 Compiler Classic for applications running on Intel (R) 64, Version 2021.1 Build 20201112_000000

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### Base Compiler Invocation

C benchmarks:
- icc

Fortran benchmarks:
- ifort

Benchmarks using both Fortran and C:
- ifort icc

Benchmarks using Fortran, C, and C++:
- icpc icc ifort

### Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64

(Continued on next page)
**Base Portability Flags (Continued)**

619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

**Base Optimization Flags**

C benchmarks:
- m64 -std=c11 -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-mbranches-within-32B-boundaries

Fortran benchmarks:
- m64 -Wl,-z,muldefs -DSPEC_OPENMP -xcORE-AVX2 -ipo -O3 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-nostandard-realloc-lhs -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using both Fortran and C:
- m64 -std=c11 -Wl,-z,muldefs -xcORE-AVX2 -ipo -O3 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
- m64 -std=c11 -Wl,-z,muldefs -xcORE-AVX2 -ipo -O3 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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-RevB.xml
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
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<td>Mar-2022</td>
<td>Fujitsu</td>
<td>Jun-2021</td>
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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU\(^\circ\)2017 v1.1.8 on 2022-01-21 00:14:55-0500.


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