# SPEC® CPU2017 Floating Point Rate Result

## NEC Corporation

**Express5800/T110i-S (Intel Core i3-7300)**

- **SPECrate2017_fp_base = 19.9**
- **SPECrate2017_fp_peak = 20.2**

### Hardware

- CPU Name: Intel Core i3-7300
- Max MHz.: 4000
- Nominal: 4000
- Enabled: 2 cores, 1 chip, 2 threads/core
- Orderable: 1 chip
- Cache L1: 32 KB I + 32 KB D on chip per core
- L2: 256 KB I+D on chip per core
- L3: 4 MB I+D on chip per chip
- Other: None
- Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)
- Storage: 1 x 1 TB SATA, 7200 RPM
- Other: None

### Software

- OS: Red Hat Enterprise Linux Server release 7.4 (Maipo)
- Compiler: C/C++: Version 18.0.2.199 of Intel C/C++ Compiler for Linux
- Fortran: Version 18.0.2.199 of Intel Fortran Compiler for Linux
- Parallel: No
- Firmware: Version 5.0.3006 02/28/2018 released Apr-2018
- File System: ext4
- System State: Run level 3 (multi-user)
- Base Pointers: 64-bit
- Peak Pointers: 64-bit
- Other: None

---

### SPECrate2017_fp_results

<table>
<thead>
<tr>
<th>SPEC2017_float</th>
<th>Benchmark</th>
<th>Copies</th>
<th>Score</th>
</tr>
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<tr>
<td>SPECrate2017_fp_base</td>
<td>503.bwaves_r</td>
<td>4</td>
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<tr>
<td></td>
<td>507.cactuBSSN_r</td>
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<td>510.parest_r</td>
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<td>519.lbm_r</td>
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<td>544.nab_r</td>
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<td>549.fotonik3d_r</td>
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<tr>
<td></td>
<td>554.roms_r</td>
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**CPU2017 License:** 9006

**Test Date:** Nov-2018

**Hardware Availability:** Apr-2017

**Test Sponsor:** NEC Corporation

**Software Availability:** Mar-2018

**Tested by:** NEC Corporation
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<td>618</td>
<td>10.3</td>
</tr>
</tbody>
</table>

SPECrate2017_fp_base = 19.9
SPECrate2017_fp_peak = 20.2

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"

Binaries compiled on a system with 1x Intel Core i7-6700K CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5
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

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)
SPEC CPU2017 Floating Point Rate Result

NEC Corporation
Express5800/T110i-S (Intel Core i3-7300)

SPECrate2017_fp_peak = 20.2
SPECrate2017_fp_base = 19.9

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Test Date: Nov-2018
Tested by: NEC Corporation
Hardware Availability: Apr-2017
Software Availability: Mar-2018

General Notes (Continued)

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 Settings:
Power Management Policy: Custom
Energy Performance: Performance
DCU Streamer Prefetcher: Disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on t110is Wed Nov 14 16:53:42 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) Core(TM) i3-7300 CPU @ 4.00GHz
 1 "physical id"s (chips)
 4 "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 : 2
siblings : 4
physical 0: cores 0 1

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 4
On-line CPU(s) list: 0-3
Thread(s) per core: 2
Core(s) per socket: 2
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Core(TM) i3-7300 CPU @ 4.00GHz
Stepping: 9
CPU MHz: 3606.875
CPU max MHz: 4000.000

(Continued on next page)
PROF PARTNER NAME: NEC Corporation

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Express5800/T110i-S (Intel Core i3-7300)

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Platform Notes (Continued)

CPU min MHz: 800.0000
BogoMIPS: 8016.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 4096K
NUMA node0 CPU(s): 0-3

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 art arch_perfmon pebs bts rep_good ntopology nonstop_tsc
aperfmask perfevents pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 fma cx16
xtrmask pdcm pclid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx
f16c rdrand lahf_lm abm 3dnowprefetch cpuid ibs Intel_P拓扑控位数 xsaveopt xtrunc xsaveopt xgetbv1 dtherm
arbitration pln pts hwp hwp_notify hwp_act_window hwp_epp

From /proc/cpuinfo cache data

Cache size: 4096 KB

WARNING: a numactl 'node' might or might not correspond to a
physical chip.

From numactl --hardware

Available: 1 nodes (0)
Node 0 CPUs: 0 1 2 3
Node 0 size: 65474 MB
Node 0 free: 63618 MB

From /proc/meminfo

MemTotal: 65915016 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.4 (Maipo)"
ID=rhel
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.4"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.4 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
## NEC Corporation

**Express5800/T110i-S (Intel Core i3-7300)**

| SPECrate2017_fp_base | 19.9 |
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### Platform Notes (Continued)

- system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)

```markdown
uname -a:
Linux t110is 3.10.0-693.21.1.el7.x86_64 #1 SMP Fri Feb 23 18:54:16 UTC 2018 x86_64
x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

- CVE-2017-5754 (Meltdown): Mitigation: PTI
- CVE-2017-5753 (Spectre variant 1): Mitigation: Load fences
- CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS (kernel)

run-level 3 Nov 14 16:48

SPEC is set to: /home/cpu2017

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<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
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</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>ext4</td>
<td>909G</td>
<td>119G</td>
<td>744G</td>
<td>14%</td>
<td>/</td>
</tr>
</tbody>
</table>

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.

- BIOS American Megatrends Inc. 5.0.3006 02/28/2018
- Memory: 4x Micron 18ASF2G72AZ-2G3B1 16 GB 2 rank 2400

(End of data from sysinfo program)

## Compiler Version Notes

```
CC  519.lbm_r(base) 538.imagick_r(base, peak) 544.nab_r(base, peak)
```

```
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

```
CC  519.lbm_r(peak)
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CXXC 508.namd_r(base) 510.parest_r(base, peak)
icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

CXXC 508.namd_r(peak)
icpc (ICC) 18.0.2 20180210
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icpc (ICC) 18.0.2 20180210
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icc (ICC) 18.0.2 20180210
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ifort (IFORT) 18.0.2 20180210
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icc (ICC) 18.0.2 20180210
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Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using both C and C++:
icpc -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64
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Copyright 2017-2018 Standard Performance Evaluation Corporation

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<td>519.lbm_r: -DSPEC_LP64</td>
</tr>
<tr>
<td>521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian</td>
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<tr>
<td>526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char</td>
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<tr>
<td>527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG</td>
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<td>-qopt-mem-layout-trans=3</td>
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<td>-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs</td>
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Test Date: Nov-2018
Hardware Availability: Apr-2017
Software Availability: Mar-2018
NEC Corporation
Express5800/T110i-S (Intel Core i3-7300)

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<tr>
<th>SPECrate2017_fp_base</th>
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CPU2017 License: 9006
Test Sponsor: NEC Corporation
Test Date: Nov-2018
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Tested by: NEC Corporation
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Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using both C and C++:
icpc -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

Peak Portability Flags
Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
519.lbm_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

538.imagick_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3

544.nab_r: Same as 538.imagick_r

C++ benchmarks:
508.namd_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

(Continued on next page)
**SPEC CPU2017 Floating Point Rate Result**

**NEC Corporation**

Express5800/T110i-S (Intel Core i3-7300)

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**Software Availability:** Mar-2018

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**Peak Optimization Flags (Continued)**

510.parest_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3

Fortran benchmarks:

503.bwaves_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3 -auto  
-nostandard-realloc-lhs

549.fotonik3d_r: Same as 503.bwaves_r

554.roms_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both Fortran and C:

-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both C and C++:

511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3  
-no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3

526.blender_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

---

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/Intel-ic18.0-official-linux64.2017-12-21.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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