## NEC Corporation

**Express5800/R110j-1 (Intel Core i3-8300)**

<table>
<thead>
<tr>
<th>SPECspeed2017_fp_base</th>
<th>SPECspeed2017_fp_peak</th>
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<tbody>
<tr>
<td>22.3</td>
<td>22.6</td>
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</table>

### CPU2017 License: 9006
Test Sponsor: NEC Corporation
Tested by: NEC Corporation

### Hardware

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_fp_base</th>
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<tr>
<td>603.bwaves_s</td>
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<td>607.cactuBSSN_s</td>
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<td>619.lbm_s</td>
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<td>621.wrf_s</td>
<td>16.2</td>
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<td>627.cam4_s</td>
<td>27.6</td>
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<td>628.pop2_s</td>
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<td>638.imagick_s</td>
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<tr>
<td>649.fotonik3d_s</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Software

OS: Red Hat Enterprise Linux Server release 7.5 (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:

### SPEC2017 Floating Point Speed Result

- **NEC Corporation**
- **Express5800/R110j-1 (Intel Core i3-8300)**
- **SPECspeed2017_fp_base = 22.3**
- **SPECspeed2017_fp_peak = 22.6**
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
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<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>17.6</td>
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<td>523</td>
<td>33.4</td>
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</tbody>
</table>

**SPECspeed2017_fp_base = 22.3**

**SPECspeed2017_fp_peak = 22.6**

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

## 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:

- KMP_AFFINITY = "granularity=fine,compact"
- LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
- OMP_STACKSIZE = "192M"

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) 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.

# SPEC CPU2017 Floating Point Speed Result

## NEC Corporation

Express5800/R110j-1 (Intel Core i3-8300)

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**CPU2017 License:** 9006  
**Test Sponsor:** NEC Corporation  
**Tested by:** NEC Corporation

<table>
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<tr>
<th>Test Date</th>
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<tbody>
<tr>
<td>Hardware Availability</td>
<td>Jan-2019</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Aug-2018</td>
</tr>
</tbody>
</table>

### Platform Notes

**BIOS Settings:**
- Thermal Configuration: Maximum Cooling
- Intel Virtualization Technology (Intel VT): Disabled
- Sysinfo program /home/cpu2017/bin/sysinfo
- Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
- running on r110j Fri Nov 23 13:11:50 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](https://www.spec.org/cpu2017/Docs/config.html#sysinfo)

**From /proc/cpuinfo**

- model name: Intel(R) Core(TM) i3-8300 CPU @ 3.70GHz
  - 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: 4
  - siblings: 4
  - physical 0: cores 0 1 2 3

**From /proc/cpuinfo**

- 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: 1
- Core(s) per socket: 4
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 158
- Model name: Intel(R) Core(TM) i3-8300 CPU @ 3.70GHz
- Stepping: 11
- CPU MHz: 3700.000
- CPU max MHz: 3700.0000
- CPU min MHz: 800.0000
- BogoMIPS: 7392.00
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 256K
- L3 cache: 8192K
- NUMA node0 CPU(s): 0-3
- Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov

(Continued on next page)
SPEC CPU2017 Floating Point Speed Result

NEC Corporation
Express5800/R110j-1 (Intel Core i3-8300)

SPECspeed2017_fp_base = 22.3
SPECspeed2017_fp_peak = 22.6

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Tested by: NEC Corporation
Test Date: Nov-2018
Hardware Availability: Jan-2019
Software Availability: Aug-2018

Platform Notes (Continued)

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 nopl xtopology nonstop_tsc aperfmperf eagerfpu pni pclmulqdq dtc64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcd sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch epb intel_pt ssbd ibrs ibpb stibp tpr_shadow vmni flexpriority ept vpid fsgsbase tsc_adjust bmi1 avx2 smep bmi2 ertm invpcid mxp rdseed adx smap xsaveopt xsavec xgetbv1 dtherm arat pln pts hwp hwp_notify hwp_act_window hwp_epp spec_ctrl intel_stibp flush_l1d

/platforminfo cache data
  cache size : 8192 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
   node 0 size: 65385 MB
   node 0 free: 63491 MB
   node distances:
     node 0
     0: 10

From /proc/meminfo
 MemTotal: 6582112 kB
 HugePages_Total: 0
 Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
 os-release:
   NAME="Red Hat Enterprise Linux Server"
   VERSION="7.5 (Maipo)"
   ID="rhel"
   ID_LIKE="fedora"
   VARIANT="Server"
   VARIANT_ID="server"
   VERSION_ID="7.5"
   PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
 redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
 system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
 system-release-cpe: cpe:/o:redhat:enterprise_linux:7.5:ga:server

uname -a:
 Linux r110j 3.10.0-862.11.6.el7.x86_64 #1 SMP Fri Aug 10 16:55:11 UTC 2018 x86_64
 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

(Continued on next page)
NEC Corporation

Express5800/R110j-1 (Intel Core i3-8300)

| SPECspeed2017_fp_base | 22.3 |
| SPECspeed2017_fp_peak | 22.6 |

CPU2017 License: 9006  
Test Sponsor: NEC Corporation  
Tested by: NEC Corporation

Test Date: Nov-2018  
Hardware Availability: Jan-2019  
Software Availability: Aug-2018

Platform Notes (Continued)

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

run-level 3 Nov 23 13:06

SPEC is set to: /home/cpu2017

<table>
<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>88G</td>
<td>775G</td>
<td>11%</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 NEC U43 10/02/2018
Memory:
4x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666, configured at 2400

(End of data from sysinfo program)

Compiler Version Notes

CC  619.lbm_s(base) 638.imagick_s(base, peak) 644.nab_s(base, peak)
-----------------------------------------------------------------------------------
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------

CC  619.lbm_s(peak)
-----------------------------------------------------------------------------------
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------

FC  607.cactuBSSN_s(base, peak)
-----------------------------------------------------------------------------------
icpc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.2 20180210  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------------

(Continued on next page)
SPEC CPU2017 Floating Point Speed Result

NEC Corporation
Express5800/R110j-1 (Intel Core i3-8300)

SPECspeed2017_fp_base = 22.3
SPECspeed2017_fp_peak = 22.6

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Test Date: Nov-2018
Tested by: NEC Corporation
Hardware Availability: Jan-2019
Software Availability: Aug-2018

Compiler Version Notes (Continued)

==============================================================================
FC 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base, peak)
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================

==============================================================================
FC 603.bwaves_s(peak) 649.fotonik3d_s(peak)
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================

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

==============================================================================
CC 621.wrf_s(peak) 628.pop2_s(peak)
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

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

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64
SPEC CPU2017 Floating Point Speed Result

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Express5800/R110j-1 (Intel Core i3-8300)

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**Test Date:** Nov-2018  
**Hardware Availability:** Jan-2019  
**Software Availability:** Aug-2018

### Base Portability Flags

- 603.bwaves_s: -DSPEC_LP64
- 607.cactuBSSN_s: -DSPEC_LP64
- 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.poll_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:**
- -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
- -ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
- -L/usr/local/je5.0.1-64/lib -ljemalloc

**Fortran benchmarks:**
- -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div
- -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
- -nostandard-realloc-lhs -L/usr/local/je5.0.1-64/lib -ljemalloc

**Benchmarks using both Fortran and C:**
- -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
- -ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
- -nostandard-realloc-lhs -L/usr/local/je5.0.1-64/lib -ljemalloc

**Benchmarks using Fortran, C, and C++:**
- -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
- -ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
- -nostandard-realloc-lhs -L/usr/local/je5.0.1-64/lib -ljemalloc

### Peak Compiler Invocation

**C benchmarks:**
- icc -m64 -std=c11

**Fortran benchmarks:**
- ifort -m64

(Continued on next page)
### Peak Compiler Invocation (Continued)

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

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

### Peak Portability Flags

Same as Base Portability Flags

### Peak Optimization Flags

C benchmarks:
- 619.lbm_s: basepeak = yes
- 638.imagick_s: basepeak = yes
- 644.nab_s: basepeak = yes

Fortran benchmarks:
- 603.bwaves_s: -prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP -DSPEC_OPENMP -O2 -xCORE-AVX2 -qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div -qopt-mem-layout-trans=3 -qopenmp -nostandard-realloc-lhs
- 649.fotonik3d_s: Same as 603.bwaves_s
- 654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:
- 621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2 -qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div -qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -nostandard-realloc-lhs
- 627.cam4_s: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP -nostandard-realloc-lhs

(Continued on next page)
### NEC Corporation

**Express5800/R110j-1 (Intel Core i3-8300)**

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### Peak Optimization Flags (Continued)

- 628.pop2_s: Same as 621.wrf_s
- Benchmarks using Fortran, C, and C++:
  - 607.cactuBSSN_s: basepeak = yes

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:


---

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.5 on 2018-11-22 23:11:50-0500.  
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Originally published on 2018-12-25.