SPEC® CPU2017 Integer Rate Result

NEC Corporation

Express5800/T110j-S (Intel Xeon E-2126G)

**SPECrate2017_int_base** = 35.5

**SPECrate2017_int_peak** = 37.8

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**Hardware**

- **CPU Name**: Intel Xeon E-2126G
- **Max MHz.**: 4500
- **Nominal**: 3300
- **Enabled**: 6 cores, 1 chip
- **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**: 12 MB I+D on chip per chip
- **Other**: None
- **Memory**: 64 GB (4 x 16 GB 2Rx8 PC4-2666V-E)
- **Storage**: 1 x 1 TB SATA, 7200 RPM
- **Other**: None

**Software**

- **OS**: Red Hat Enterprise Linux Server release 7.5 (Maipo)
- **Kernel**: 3.10.0-862.11.6.el7.x86_64
- **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 F07 10/31/2018 released Dec-2018
- **File System**: ext4
- **System State**: Run level 3 (multi-user)
- **Base Pointers**: 64-bit
- **Peak Pointers**: 32/64-bit
- **Other**: jemalloc memory allocator V5.0.1
NEC Corporation

Express5800/T110j-S (Intel Xeon E-2126G)

SPECrate2017_int_base = 35.5
SPECrate2017_int_peak = 37.8

Results Table

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</tbody>
</table>

SPECrate2017_int_base = 35.5
SPECrate2017_int_peak = 37.8

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"
IRQ balance service was stopped using "systemctl stop irqbalance.service"

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
Filesytstem 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) (Continued on next page)
**SPEC CPU2017 Integer Rate Result**

**NEC Corporation**

Express5800/T110j-S (Intel Xeon E-2126G)

| SPECrate2017_int_base = 35.5 |
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**CPU2017 License:** 9006  
**Test Sponsor:** NEC Corporation  
**Test Date:** Dec-2018  
**Hardware Availability:** Dec-2018  
**Tested by:** NEC Corporation  
**Software Availability:** Aug-2018

### General Notes (Continued)

is mitigated in the system as tested and documented.


### Platform Notes

**BIOS Settings:**  
VT-x: Disabled  
Energy Efficient P-state: Disabled  
Energy Efficient Turbo: Disabled  
Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9  
runtime on t110js Wed Dec 5 10:13:06 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) Xeon(R) E-2126G CPU @ 3.30GHz
  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:

```
Architecture:       x86_64
CPU op-mode(s):     32-bit, 64-bit
Byte Order:         Little Endian
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:              158
Model name:         Intel(R) Xeon(R) E-2126G CPU @ 3.30GHz
Stepping:           10
CPU MHz:            4453.912
```

(Continued on next page)
### NEC Corporation

**Express5800/T110j-S (Intel Xeon E-2126G)**

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**CPU2017 License:** 9006  
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</tbody>
</table>

**Platform Notes (Continued)**

```plaintext
CPU max MHz:           4500.0000  
CPU min MHz:           800.0000  
BogoMIPS:              6624.00  
Virtualization:        VT-x  
L1d cache:             32K  
L1i cache:             32K  
L2 cache:              256K  
L3 cache:              12288K  
NUMA node0 CPU(s):     0-5  
Flags:                 fpu vme de 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 nopl xtopology nonstop_tsc aperfmperf eagerfpu 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 intel_pt ssbd ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bm1 hle avx2 smep bmi2  erts invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1 dtherm ida arat pin pts hwp hwp_notify hwp_act_window hwp_epp spec_ctrl intel_stibp flush_l1d
```

/proc/cpuinfo cache data  
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  
node 0 size: 65455 MB  
node 0 free: 63579 MB  
node distances:  
node 0  
0:  10

From /proc/meminfo  
MemTotal:       65895412 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)"

(Continued on next page)
NEC Corporation
Express5800/T110j-S (Intel Xeon E-2126G)

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

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Platform Notes (Continued)

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 t110js 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:
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 Dec 5 10:07

SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext4 909G 64G 799G 8% /

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. F07 10/31/2018
Memory:
4x Samsung M391A2K43BB1-CTD 16 GB 2 rank 2667

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
  557.xz_r(base)
------------------------------------------------------------------------------
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

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CC  500.perlbench_r(peak) 502.gcc_r(peak) 505.mcf_r(peak) 525.x264_r(peak)
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Compiler Version Notes (Continued)

==============================================================================
CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
541.leela_r(base)

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

==============================================================================
CXXC 520.omnetpp_r(peak) 523.xalancbmk_r(peak) 531.deepsjeng_r(peak)
541.leela_r(peak)

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

==============================================================================
FC 548.exchange2_r(base)

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

==============================================================================
FC 548.exchange2_r(peak)

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

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64
# SPEC CPU2017 Integer Rate Result

## NEC Corporation

Express5800/T110j-S (Intel Xeon E-2126G)  

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## Base Portability Flags

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## Base Optimization Flags

- **C benchmarks:**
  
  -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
  -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc  

- **C++ benchmarks:**
  
  -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
  -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

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

## Peak Compiler Invocation

- **C benchmarks (except as noted below):**
  
  icc -m64 -std=c11  
  
  502.gcc_r.icc -m32 -std=c11 -L/home/prasadj/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

- **C++ benchmarks (except as noted below):**
  
  icpc -m64  
  
  523.xalancbmk_r.icpc -m32 -L/home/prasadj/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

- **Fortran benchmarks:**
  
  ifort -m64
SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

NEC Corporation
Express5800/T110j-S (Intel Xeon E-2126G)

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CPU2017 License: 9006
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Tested by: NEC Corporation

Test Date: Dec-2018
Hardware Availability: Dec-2018
Software Availability: Aug-2018

Peak Portability Flags

-DSPEC_LP64 -DSPEC_LINUX_X64
-D_FILE_OFFSET_BITS=64

Peak Optimization Flags

C benchmarks:
- -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
- -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
- -fno-strict-overflow -L/usr/local/je5.0.1-64/lib
- -ljemalloc

C++ benchmarks:
- -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
- -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
- -L/usr/local/je5.0.1-32/lib -ljemalloc

(Continued on next page)
## SPEC CPU2017 Integer Rate Result

**NEC Corporation**  
Express5800/T110j-S (Intel Xeon E-2126G)  

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>SPECrate2017_int_peak</th>
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**CPU2017 License:** 9006  
**Test Sponsor:** NEC Corporation  
**Tested by:** NEC Corporation

**Test Date:** Dec-2018  
**Hardware Availability:** Dec-2018  
**Software Availability:** Aug-2018

### Peak Optimization Flags (Continued)

541.leela_r (continued):
- `-L/usr/local/je5.0.1-64/lib -ljemalloc`

Fortran benchmarks:

548.exchange2_r: `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.

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