**SPEC® CPU2017 Integer Rate Result**

**Format sp. z o.o.**

**ASUS RS500-E8-RS4 v2**

**SPECrate2017_int_base** = 64.1

**SPECrate2017_int_peak** = Not Run

---

**CPU2017 License**: 9032  
**Test Sponsor**: Format sp. z o.o.  
**Tested by**: Piotr Mankiewicz  
**Test Date**: Aug-2018  
**Hardware Availability**: Aug-2018  
**Software Availability**: Apr-2018

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**Hardware**

- **CPU Name**: Intel Xeon E5-2620 v4  
- **Max MHz.**: 3000  
- **Nominal**: 2100  
- **Enabled**: 16 cores, 2 chips, 2 threads/core  
- **Orderable**: 1-2 chip  
- **Cache L1**: 32 KB I + 32 KB D on chip per core  
- **L2**: 256 KB I+D on chip per core  
- **L3**: 20 MB I+D on chip per chip  
- **Other**: None

**Memory**: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R, running at 2133)  
**Storage**: 1x 800 GB PCIe SSD  
**Other**: None

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**Software**

- **OS**: Red Hat Enterprise Linux Server release 7.5 (Maipo)  
- **Compiler**: C/C++: Version 18.0.0.128 of Intel C/C++  
- **Compiler for Linux**: Fortran: Version 18.0.0.128 of Intel Fortran  
- **Firmware**: Version 3401 released Jun-2017  
- **File System**: xfs  
- **System State**: Run level 3 (multi-user)  
- **Base Pointers**: 64-bit  
- **Peak Pointers**: Not Applicable  
- **Other**: jemalloc: jemalloc memory allocator library V5.0.1;
# SPEC CPU2017 Integer Rate Result

## Format sp. z o.o.

ASUS RS500-E8-RS4 v2

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## Results Table

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</tbody>
</table>

**SPECrate2017_int_base = 64.1**  
**SPECrate2017_int_peak = Not Run**

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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 = "/usr/cpu2017/lib/ia32:/usr/cpu2017/lib/intel64:/usr/cpu2017/je5.0.1-32:/usr/cpu2017/je5.0.1-64"
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4

Transparent Huge Pages enabled by default

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.

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets; built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5 sources available via jemalloc.net;
Platform Notes

BIOS Configuration:
- Hardware Prefetch: Enabled
- Power Technology: Custom
- Config TDP: Enabled
- Config TDP Level: Nominal
- Energy Performance BIAS setting.: Balanced Performance
- Workload Configuration: I/O Sensitive
- Power Boost: Enable
- CPU C3 report: Disable
- CPU C6 report: Enable
- Hyper-Threading: Enable

Sysinfo program /usr/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on localhost.localdomain Tue Aug 7 10:01:00 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) CPU E5-2620 v4 @ 2.10GHz
  - 2 "physical id"s (chips)
  - 32 "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
  - physical 1: cores 0 1 2 3 4 5 6 7

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 32
- On-line CPU(s) list: 0-31
- Thread(s) per core: 2
- Core(s) per socket: 8
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 79
- Model name: Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz
- Stepping: 1
- CPU MHz: 2095.126
- BogoMIPS: 4190.25
### Platform Notes (Continued)

- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 256K
- **L3 cache:** 20480K
- **NUMA node0 CPU(s):** 0-7,16-23
- **NUMA node1 CPU(s):** 8-15,24-31
- **Flags:**
  - fpu vme de pse mce cx8 apic sep mtrr pge mca cmov
  - pat pse36 ccf flush dtsc 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 aperf
  - perfmpref eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
  - xtrax pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
  - avx f16c rdrand lahf_lm abm 3dnowprefetch epb cat_l3 cdp_l3 intel_pt ssbd ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle
  - avx2 smep bmi2 1hores invpcid rtm cmq rdt_a rdseed adx smap xsaves opt cmq llc
  - cmq_occup_llc cmq_mbm_total cmq_mbm_local dtherm ida arat pln pts spec_ctrl
  - intel_stibp

From `/proc/cpuinfo`

- **cache data**
- **cache size:** 20480 KB

From `numactl --hardware`

- **WARNING:** a numactl 'node' might or might not correspond to a physical chip.
- **available:** 2 nodes (0-1)
- **node 0 cpus:** 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23
- **node 0 size:** 65436 MB
- **node 0 free:** 63391 MB
- **node 1 cpus:** 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
- **node 1 size:** 65536 MB
- **node 1 free:** 63951 MB
- **node distances:**
  - node 0: 1 0
  - node 1: 21 10

From `/proc/meminfo`

- **MemTotal:** 131759840 KB
- **HugePages_Total:** 0
- **Hugepagesize:** 2048 KB

From `/etc/*release*` and `/etc/*version*`

- **os-release:**
  - **NAME:** "Red Hat Enterprise Linux Server"
  - **VERSION:** "7.5 (Maipo)"
  - **ID:** "rhel"
  - **ID_LIKE:** "fedora"
  - **VARIANT:** "Server"

(Continued on next page)
SPEC CPU2017 Integer Rate Result
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CPU2017 License: 9032
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Tested by: Piotr Mankiewicz

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

Platform Notes (Continued)

VARIANT_ID="server"
VERSION_ID="7.5"

PRETTY_NAME="Red Hat Enterprise Linux"
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 localhost.localdomain 3.10.0-862.9.1.el7.x86_64 #1 SMP Wed Jun 27 04:30:39 EDT 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: Full retpoline

run-level 3 Aug 7 10:00

SPEC is set to: /usr/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 50G 35G 16G 69% /

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. 3401 06/22/2017
Memory:
  8x <BAD INDEX> <BAD INDEX> 16 GB 2 rank 2400, configured at 2133
  8x NO DIMM NO DIMM

(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) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

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

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#### Compiler Version Notes (Continued)

541.leela_r(base)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

---

FC 548.exchange2_r(base)

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

---

#### Base Compiler Invocation

**C benchmarks:**
icc

**C++ benchmarks:**
icpc

**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

#### Base Optimization Flags

C benchmarks:
-W1, -z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div

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

C benchmarks (continued):
- `-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 -align array32byte`
- `-L/usr/local/je5.0.1-64/lib -ljemalloc`

**Base Other Flags**

C benchmarks:
- `-m64 -std=c11`

C++ benchmarks:
- `-m64`

Fortran benchmarks:
- `-m64`

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: