**CPU2017 Integer Rate Result**

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

**ASUS RS500-E8-RS4 v2**

### SPECrate2017_int_base = 65.5

### 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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<th>SPECrate2017_int_base</th>
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<td>525.x264_r</td>
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<td>557.xz_r</td>
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</tr>
</tbody>
</table>

### 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:** 512 GB (16 x 32 GB 2Rx4 PC4-2400T-R, running at 2133)  
- **Storage:** 1x 800 GB PCIe SSD  
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux Server release 7.5 (Maipo) 3.10.0-862.9.1.el7.x86_64  
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux  
- **Parallel:** No  
- **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

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ASUS RS500-E8-RS4 v2

SPECrate2017_int_base = 65.5
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CPU2017 License: 9032
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Test Date: Aug-2018
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Results Table

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</tbody>
</table>

SPECrate2017_int_base = 65.5
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;
# SPEC CPU2017 Integer Rate Result

**Format sp. z o.o.**  
**ASUS RS500-E8-RS4 v2**  

<table>
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<td>Piotr Mankiewicz</td>
<td>Software Availability:</td>
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<tbody>
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</table>

## 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 Mon Aug  6 21:02:39 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: 2095.139
- BogoMIPS: 4190.27

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

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**Format sp. z o.o.**  
**ASUS RS500-E8-RS4 v2**

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**Test Sponsor:** Format sp. z o.o.  
**Tested by:** Piotr Mankiewicz

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</table>

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

**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 tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dtflush dt sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch cpb cat_l3 cdp_l3 intel_pmcli intel_pt ssbd
ibrs ibpb tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle
avx2 smep bmi2 ibrms invpcid vmptrld rtb cdt_a rdtsc aa rdtscp xsaveopt cqm_llc
cqmm_occup_llc cqmm_mb_total cqmm_mb_local dtcach acceleration ida arat pln pts spec_ctrl
intel_stibp
```

```
/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: 262044 MB
    node 0 free: 255974 MB
    node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
    node 1 size: 262144 MB
    node 1 free: 256282 MB
    node distances:
        node 0:
            0: 10 21
            1: 21 10
```

```
From /proc/meminfo
    MemTotal:  528096776 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"
```

(Continued on next page)
Format sp. z o.o.
ASUS RS500-E8-RS4 v2

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Test Date: Aug-2018
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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 retropoline

run-level 3 Aug 6 20:59

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:
16x <BAD INDEX> <BAD INDEX> 32 GB 2 rank 2400, configured at 2133

(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)
   541.leela_r(base)

(Continued on next page)
Format sp. z o.o.
ASUS RS500-E8-RS4 v2

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CPU2017 License: 9032
Test Sponsor: Format sp. z o.o.
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Test Date: Aug-2018
Hardware Availability: Aug-2018
Software Availability: Apr-2018

Compiler Version Notes (Continued)

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.perlbmk_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
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

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

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
http://www.spec.org/cpu2017/flags/FORMAT-RS500-E8-RS4-v2-Platform-Settings.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/FORMAT-RS500-E8-RS4-v2-Platform-Settings.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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