



SPEC® CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221
SPECrate2017_int_peak = 235

CPU2017 License: 9081

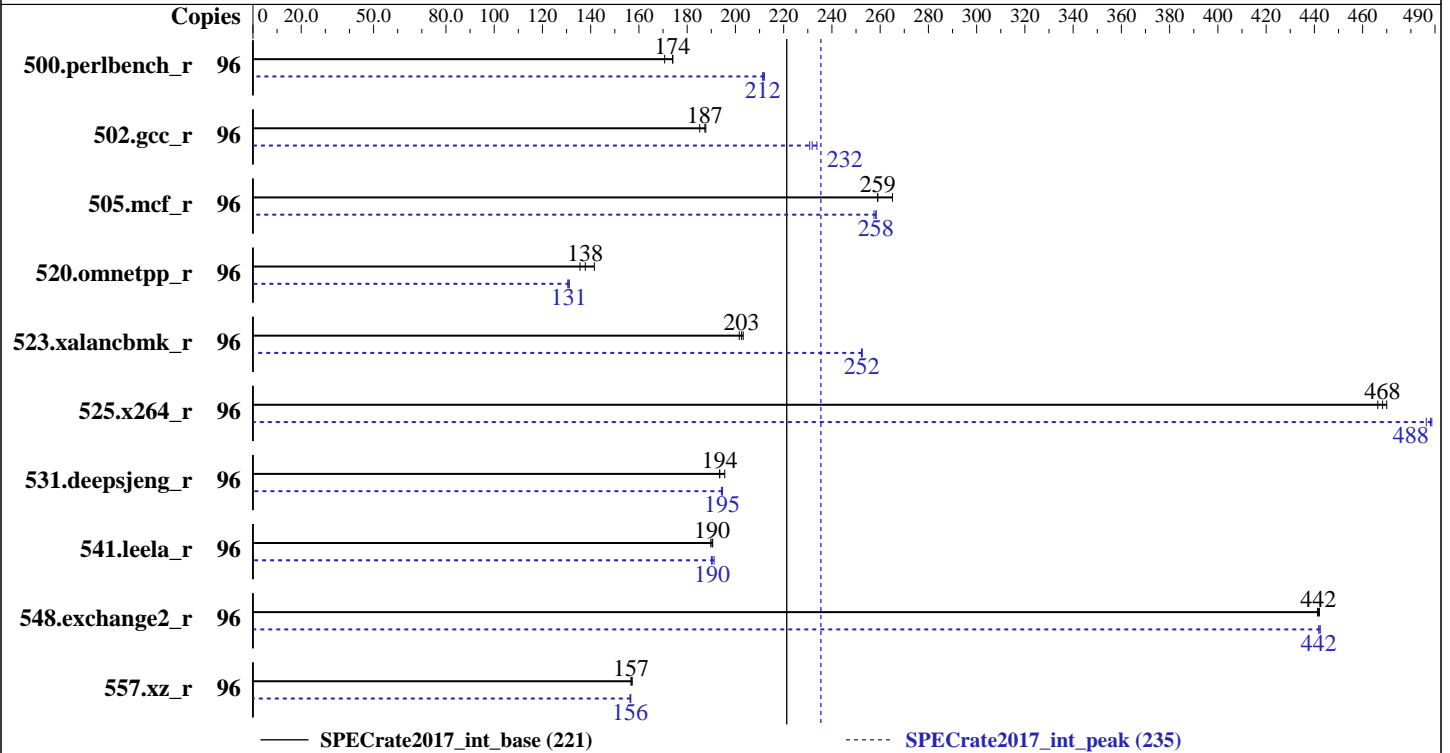
Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Platinum 8160
 Max MHz.: 3700
 Nominal: 2100
 Enabled: 48 cores, 2 chips, 2 threads/core
 Orderable: 1,2 chips
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 33 MB I+D on chip per chip
 Other: None
 Memory: 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
 Storage: 1 x 960 GB SSD SATA III
 Other: None

Software

OS: Red Hat Enterprise Linux Server release 7.4 (Maipo)
 3.10.0-693.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 BIOSR0009 released Oct-2017
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other: jemalloc memory allocator library V5.0.1;



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221
SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	879	174	878	174	896	171	96	721	212	723	211	722	212
502.gcc_r	96	734	185	726	187	724	188	96	581	234	589	231	586	232
505.mcf_r	96	585	265	599	259	599	259	96	603	257	601	258	600	258
520.omnetpp_r	96	890	142	914	138	929	136	96	960	131	965	130	962	131
523.xalancbmk_r	96	499	203	500	203	503	202	96	402	252	402	252	401	253
525.x264_r	96	359	468	358	470	360	466	96	344	488	346	486	344	489
531.deepsjeng_r	96	562	196	569	194	569	193	96	565	195	565	195	567	194
541.leela_r	96	834	191	838	190	835	190	96	837	190	835	190	832	191
548.exchange2_r	96	569	442	569	442	570	441	96	569	442	569	442	568	442
557.xz_r	96	659	157	661	157	661	157	96	662	157	663	156	663	156

SPECrate2017_int_base = 221

SPECrate2017_int_peak = 235

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="/cpu2017.1.0.2/lib/ia32:/cpu2017.1.0.2/lib/intel64:/cpu2017.1.0.2/je5.0.1-32:/cpu2017.1.0.2/je5.0.1-64"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32 GB RAM

memory using Redhat Enterprise Linux 7.4

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

runcpu command invoked through numactl i.e.:

numactl --interleave=all runcpu <etc>

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

No: 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.

No: 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

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221
SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

General Notes (Continued)

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 or <https://github.com/jemalloc/jemalloc/releases>

Platform Notes

BIOS Settings:

Intel(R) Hyper-Threading Tech = Enabled

CPU Power and Performance Policy = Performance

Intel(R) Turbo Boost Technology = Enabled

ClE = Disabled

Processor C6 = Disabled

IMC Interleaving = 1-way Interleave

Sub_NUMA Cluster = Enabled

Set FAN Profile = Performance

Patrol Scrub = Disabled

Sysinfo program /cpu2017.1.0.2/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

running on SUT Sat Feb 10 22:32:22 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) Platinum 8160 CPU @ 2.10GHz

2 "physical id"s (chips)

96 "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 : 24

siblings : 48

physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu:

Architecture: x86_64

CPU op-mode(s): 32-bit, 64-bit

Byte Order: Little Endian

CPU(s): 96

On-line CPU(s) list: 0-95

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221

SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```

Thread(s) per core:      2
Core(s) per socket:     24
Socket(s):               2
NUMA node(s):           4
Vendor ID:               GenuineIntel
CPU family:              6
Model:                   85
Model name:              Intel(R) Xeon(R) Platinum 8160 CPU @ 2.10GHz
Stepping:                4
CPU MHz:                 1433.824
CPU max MHz:             3700.0000
CPU min MHz:             1000.0000
BogoMIPS:                4200.00
Virtualization:         VT-x
L1d cache:               32K
L1i cache:               32K
L2 cache:                1024K
L3 cache:                33792K
NUMA node0 CPU(s):      0-2,6-8,12-14,18-20,48-50,54-56,60-62,66-68
NUMA node1 CPU(s):      3-5,9-11,15-17,21-23,51-53,57-59,63-65,69-71
NUMA node2 CPU(s):      24-26,30-32,36-38,42-44,72-74,78-80,84-86,90-92
NUMA node3 CPU(s):      27-29,33-35,39-41,45-47,75-77,81-83,87-89,93-95
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 nopl xtopology nonstop_tsc
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 fma
cx16 xtpr 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
tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
erms invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb
avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc
cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts hwp hwp_act_window hwp_epp
hwp_pkg_req

```

```

/proc/cpuinfo cache data
cache size : 33792 KB

```

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

```

available: 4 nodes (0-3)
node 0 cpus: 0 1 2 6 7 8 12 13 14 18 19 20 48 49 50 54 55 56 60 61 62 66 67 68
node 0 size: 96972 MB
node 0 free: 94282 MB
node 1 cpus: 3 4 5 9 10 11 15 16 17 21 22 23 51 52 53 57 58 59 63 64 65 69 70 71
node 1 size: 98304 MB
node 1 free: 95895 MB
node 2 cpus: 24 25 26 30 31 32 36 37 38 42 43 44 72 73 74 78 79 80 84 85 86 90 91 92

```

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221
SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Platform Notes (Continued)

```

node 2 size: 98304 MB
node 2 free: 95496 MB
node 3 cpus: 27 28 29 33 34 35 39 40 41 45 46 47 75 76 77 81 82 83 87 88 89 93 94 95
node 3 size: 98304 MB
node 3 free: 95917 MB
node distances:
node 0 1 2 3
0: 10 11 21 21
1: 11 10 21 21
2: 21 21 10 11
3: 21 21 11 10

```

```

From /proc/meminfo
MemTotal: 394689568 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"
redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.4:ga:server

```

```

uname -a:
Linux SUT 3.10.0-693.el7.x86_64 #1 SMP Thu Jul 6 19:56:57 EDT 2017 x86_64 x86_64
x86_64 GNU/Linux

```

run-level 3 Feb 9 11:19

```

SPEC is set to: /cpu2017.1.0.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 825G 67G 717G 9% /

```

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 Intel Corporation SE5C620.86B.00.01.0009.101920170742 10/19/2017
Memory:

```

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221
SPECrate2017_int_peak = 235

CPU2017 License: 9081
Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa
Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018
Hardware Availability: Sep-2017
Software Availability: Sep-2017

Platform Notes (Continued)

24x Samsung M393A2G40EB2-CTD 16 GB 2 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

=====
CC 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
525.x264_r(base, peak) 557.xz_r(base, peak)

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

=====
CC 500.perlbench_r(peak) 502.gcc_r(peak)

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)

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

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

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

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

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



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221

SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

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:

```
-Wl,-z,muldefs -xCORE-AVX512 -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-AVX512 -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-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc
```



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10 GHz)

SPECrate2017_int_base = 221

SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Base Other Flags

C benchmarks:

-m64 -std=c11

C++ benchmarks:

-m64

Fortran benchmarks:

-m64

Peak Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64

502.gcc_r: -D_FILE_OFFSET_BITS=64

505.mcf_r: -DSPEC_LP64

520.omnetpp_r: -DSPEC_LP64

523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -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

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -w1, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo

-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3

-fno-strict-overflow -L/usr/local/je5.0.1-64/lib

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10
GHz)

SPECrate2017_int_base = 221

SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Peak Optimization Flags (Continued)

500.perlbench_r (continued):

-ljemalloc

502.gcc_r: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32

-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo

-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3

-L/usr/local/je5.0.1-32/lib -ljemalloc

505.mcf_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div

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

-ljemalloc

525.x264_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div

-qopt-mem-layout-trans=3 -fno-alias

-L/usr/local/je5.0.1-64/lib -ljemalloc

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo

-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3

-L/usr/local/je5.0.1-64/lib -ljemalloc

523.xalancbmk_r: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32

-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo

-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3

-L/usr/local/je5.0.1-32/lib -ljemalloc

531.deepsjeng_r: Same as 520.omnetpp_r

541.leela_r: Same as 520.omnetpp_r

Fortran benchmarks:

-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div

-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte

-L/usr/local/je5.0.1-64/lib -ljemalloc

Peak Other Flags

C benchmarks (except as noted below):

-m64 -std=c11

(Continued on next page)



SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Epsilon Sp. z o.o. Sp. Komandytowa
eterio 220 RA1 (Intel Xeon Platinum 8160, 2.10
GHz)

SPECrate2017_int_base = 221

SPECrate2017_int_peak = 235

CPU2017 License: 9081

Test Sponsor: Epsilon Sp. z o.o. Sp. Komandytowa

Tested by: Epsilon Sp. z o.o. Sp. Komandytowa

Test Date: Feb-2018

Hardware Availability: Sep-2017

Software Availability: Sep-2017

Peak Other Flags (Continued)

502.gcc_r: -m32 -std=c11

C++ benchmarks (except as noted below):

-m64

523.xalancbmk_r: -m32

Fortran benchmarks:

-m64

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.html>

<http://www.spec.org/cpu2017/flags/Epsilon-Platform-Flags-RevA-Feb-2018-For-Intel-Platform.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-10-19.xml>

<http://www.spec.org/cpu2017/flags/Epsilon-Platform-Flags-RevA-Feb-2018-For-Intel-Platform.xml>

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2017 v1.0.2 on 2018-02-10 16:32:22-0500.

Report generated on 2018-10-31 17:10:57 by CPU2017 PDF formatter v6067.

Originally published on 2018-03-29.