SPEC® CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz)

SPECrate2017_int_base = 85.0
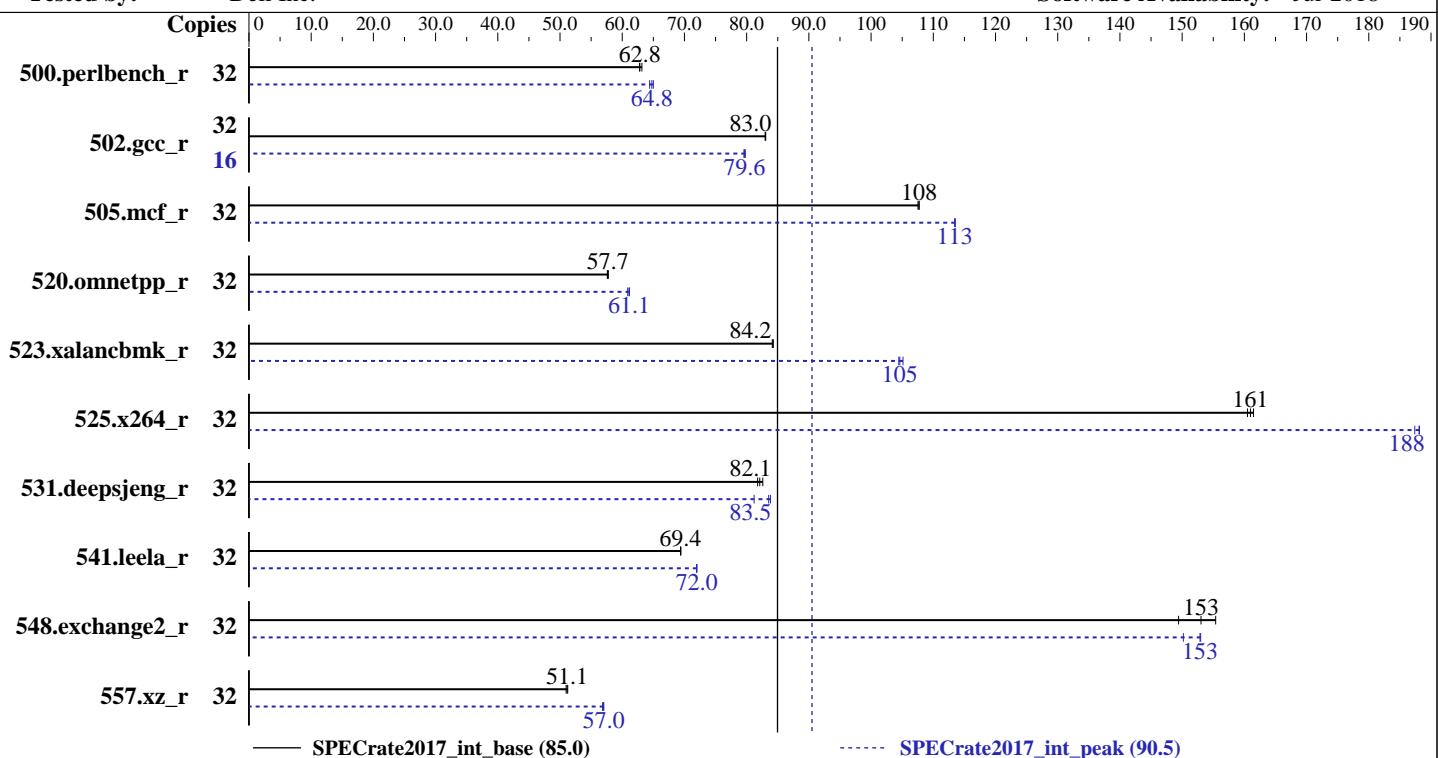
SPECrate2017_int_peak = 90.5

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Aug-2018

Hardware Availability: Dec-2018

Software Availability: Jul-2018

Benchmark	Copies	base	peak
500.perlbench_r	32	62.8	64.8
502.gcc_r	32 / 16	83.0	79.6
505.mcf_r	32	108	113
520.omnetpp_r	32	57.7	61.1
523.xalancbmk_r	32	84.2	105
525.x264_r	32	161	188
531.deepsjeng_r	32	82.1	83.5
541.leela_r	32	69.4	72.0
548.exchange2_r	32	153	153
557.xz_r	32	51.1	57.0

SPECrate2017_int_base (85.0)   SPECrate2017_int_peak (90.5)

Hardware

CPU Name: AMD EPYC 7251
 Max MHz.: 2900
 Nominal: 2100
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 64 KB I + 32 KB D on chip per core
 L2: 512 KB I+D on chip per core
 L3: 32 MB I+D on chip per chip
 Other: None
Memory: 1 TB (16 x 64 GB 4DRx4 PC4-2667V-L, running at 2400)

Storage: 1 x 800 GB PCIe SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP3
 kernel 4.4.126-94.22

Compiler: C/C++: Version 1.0.0 of AOCC
 Fortran: Version 4.8.2 of GCC
Parallel: No
Firmware: Version 62.5.1 released May-2018
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator library V4.5.0

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Aug-2018

Hardware Availability: Dec-2018

Software Availability: Jul-2018

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	32	811	62.8	**811**	**62.8**	807	63.2	32	784	65.0	**787**	**64.8**	791	64.4
502.gcc_r	32	546	83.0	545	83.1	**546**	**83.0**	16	284	79.8	285	79.6	**284**	**79.6**
505.mcf_r	32	**480**	**108**	481	108	480	108	32	456	113	456	114	**456**	**113**
520.omnetpp_r	32	727	57.8	729	57.6	**728**	**57.7**	32	690	60.9	**687**	**61.1**	686	61.2
523.xalancbmk_r	32	**401**	**84.2**	402	84.1	401	84.3	32	324	104	321	105	**323**	**105**
525.x264_r	32	349	161	**348**	**161**	347	161	32	298	188	299	187	**298**	**188**
531.deepsjeng_r	32	**447**	**82.1**	449	81.8	444	82.6	32	**439**	**83.5**	437	83.8	452	81.2
541.leela_r	32	763	69.4	764	69.4	**764**	**69.4**	32	736	72.0	**736**	**72.0**	736	72.0
548.exchange2_r	32	540	155	**548**	**153**	561	149	32	558	150	**548**	**153**	548	153
557.xz_r	32	674	51.2	**676**	**51.1**	678	51.0	32	**606**	**57.0**	606	57.0	608	56.8
SPECrate2017_int_base =		**85.0**											
SPECrate2017_int_peak =		**90.5**											

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

Compiler Notes

```
The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/

The AOCC Gold Linker plugin was installed and used for the link stage.

The AOCC Fortran Plugin version 1.0 was used to leverage AOCC optimizers
with gfortran. It is available here:
http://developer.amd.com/amd-aocc/
```

Submit Notes

```
The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu
```

(Continued on next page)

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Operating System Notes (Continued)

```
dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were
all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages were enabled for this run (OS default)
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017-1.0.5/amd1704-rate-libs-revD/64;/home/cpu2017-1.0.5/amd1704-rate-libs-revD/32:"
MALLOC_CONF = "lg_chunk:26"

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using RHEL 7.4
NA: 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 with GCC v4.8.5
in RHEL v7.2 under default conditions.
jemalloc: sources available from jemalloc.net or
https://github.com/jemalloc/jemalloc/releases
jemalloc uses environment variable MALLOC_CONF
with values narenas and lg_chunk:
narenas: sets the maximum number of arenas to use
for automatic multiplexing
of threads and arenas.
lg_chunk: set the virtual memory chunk size (log
base 2). For example,
lg_chunk:21 sets the default chunk size to 2^21 =
2MiB.
```

Platform Notes

```
 BIOS settings:
 Memory Interleaving set to Channel Interleaving
 Virtualization Technology disabled
 System Profile set to Custom
 CPU Power Management set to Maximum Performance
 Memory Frequency set to Maximum Performance
 Turbo Boost enabled
 C States set to Autonomous
 Memory Patrol Scrub disabled
 Memory Refresh Rate set to 1x
```

(Continued on next page)

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Platform Notes (Continued)

```
PCI ASPM L1 Link Power Management disabled
Determinism Slider set to Power Determinism
Sysinfo program /home/cpu2017-1.0.5/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-yyi5 Sun Aug  5 12:42:22 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 : AMD EPYC 7251 8-Core Processor
      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 8 12 16 20 24 28
      physical 1: cores 0 8 12 16 20 24 28

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):          8
      Vendor ID:             AuthenticAMD
      CPU family:            23
      Model:                 1
      Model name:            AMD EPYC 7251 8-Core Processor
      Stepping:              2
      CPU MHz:               2095.923
      BogoMIPS:              4191.84
      Virtualization:        AMD-V
      L1d cache:             32K
      L1i cache:             64K
      L2 cache:              512K
      L3 cache:              4096K
      NUMA node0 CPU(s):     0,8,16,24
      NUMA node1 CPU(s):     2,10,18,26
      NUMA node2 CPU(s):     4,12,20,28
      NUMA node3 CPU(s):     6,14,22,30
```

(Continued on next page)

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base =   85.0

SPECrate2017_int_peak =   90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Platform Notes (Continued)

```
        NUMA node4 CPU(s):       1,9,17,25
        NUMA node5 CPU(s):       3,11,19,27
        NUMA node6 CPU(s):       5,13,21,29
        NUMA node7 CPU(s):       7,15,23,31
        Flags:                   fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
     pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
     constant_tsc rep_good nopl nonstop_tsc extd_apicid amd_dcm aperfmperf eagerfpu pni
     pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes xsave avx f16c
     rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
     osvw skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_l2 mwaitx arat cpb
     hw_pstate retpoline retpoline_amd npt lbrv svm_lock nrip_save tsc_scale vmcb_clean
     flushbyasid decodeassists pausefilter pfthreshold vmmcall avic fsgsbase bmi1 avx2
     smep bmi2 rdseed adx smap clflushopt sha_ni xsaveopt xsavec xgetbv1 clzero irperf
     ibpb overflow_recov succor smca

  /proc/cpuinfo cache data
     cache size : 512 KB

  From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
  physical chip.
    available: 8 nodes (0-7)
    node 0 cpus: 0 8 16 24
    node 0 size: 128687 MB
    node 0 free: 128545 MB
    node 1 cpus: 2 10 18 26
    node 1 size: 129020 MB
    node 1 free: 128891 MB
    node 2 cpus: 4 12 20 28
    node 2 size: 129020 MB
    node 2 free: 128890 MB
    node 3 cpus: 6 14 22 30
    node 3 size: 129020 MB
    node 3 free: 128889 MB
    node 4 cpus: 1 9 17 25
    node 4 size: 129020 MB
    node 4 free: 128883 MB
    node 5 cpus: 3 11 19 27
    node 5 size: 129020 MB
    node 5 free: 128861 MB
    node 6 cpus: 5 13 21 29
    node 6 size: 129020 MB
    node 6 free: 128878 MB
    node 7 cpus: 7 15 23 31
    node 7 size: 129019 MB
    node 7 free: 128885 MB
    node distances:
    node   0   1   2   3   4   5   6   7
```

(Continued on next page)

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Platform Notes (Continued)

```
     0:  10  16  16  16  28  28  22  28
     1:  16  10  16  16  28  28  28  22
     2:  16  16  10  16  22  28  28  28
     3:  16  16  16  10  28  22  28  28
     4:  28  28  22  28  10  16  16  16
     5:  28  28  28  22  16  10  16  16
     6:  22  28  28  28  16  16  10  16
     7:  28  22  28  28  16  16  16  10

  From /proc/meminfo
     MemTotal:       1056597308 kB
     HugePages_Total:        0
     Hugepagesize:        2048 kB

  /usr/bin/lsb_release -d
     SUSE Linux Enterprise Server 12 SP3

  From /etc/*release* /etc/*version*
     SuSE-release:
        SUSE Linux Enterprise Server 12 (x86_64)
        VERSION = 12
        PATCHLEVEL = 3
        # This file is deprecated and will be removed in a future service pack or release.
        # Please check /etc/os-release for details about this release.
     os-release:
        NAME="SLES"
        VERSION="12-SP3"
        VERSION_ID="12.3"
        PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:12:sp3"

  uname -a:
     Linux linux-yyi5 4.4.126-94.22-default #1 SMP Wed Apr 11 07:45:03 UTC 2018 (9649989)
     x86_64 x86_64 x86_64 GNU/Linux

  Kernel self-reported vulnerability status:

  CVE-2017-5754 (Meltdown):            Not affected
  CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
  CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline + IBPB

  run-level 3 Aug 5 12:34

  SPEC is set to: /home/cpu2017-1.0.5
     Filesystem      Type  Size  Used Avail Use% Mounted on
```

(Continued on next page)

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Platform Notes (Continued)

```
     /dev/nvme0n1p4 xfs    703G   19G  684G   3% /home

 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 Dell Inc. 62.5.1 [MaxPerf C_En] 05/21/2018
   Memory:
    16x 80CE863280CE M386A8K40BM2-CTD 64 GB 4 rank 2666, configured at 2400
    16x Not Specified Not Specified

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
  CC   502.gcc_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
  CXXC 523.xalancbmk_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
  CC   500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
       525.x264_r(base) 557.xz_r(base, peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------
```

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55		**Test Date:**	Aug-2018
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Dec-2018
Tested by:	Dell Inc.	**Software Availability:**	Jul-2018

Compiler Version Notes (Continued)

```
==============================================================================
 CXXC 520.omnetpp_r(base, peak) 523.xalancbmk_r(base) 531.deepsjeng_r(base,
      peak) 541.leela_r(base)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
CC   500.perlbench_r(peak) 525.x264_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
CXXC 541.leela_r(peak)
------------------------------------------------------------------------------
AOCC.LLVM.4.0.0.B35.2017_04_26 clang version 4.0.0 (CLANG:) (based on LLVM
  AOCC.LLVM.4.0.0.B35.2017_04_26)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /root/work/compilers/AOCC-1.0-Compiler/bin
------------------------------------------------------------------------------


==============================================================================
 FC  548.exchange2_r(base, peak)
------------------------------------------------------------------------------
GNU Fortran (GCC) 4.8.2
Copyright (C) 2013 Free Software Foundation, Inc.
GNU Fortran comes with NO WARRANTY, to the extent permitted by law.
You may redistribute copies of GNU Fortran
under the terms of the GNU General Public License.
For more information about these matters, see the file named COPYING
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

(Continued on next page)

SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Base Compiler Invocation (Continued)

C++ benchmarks:
`clang++`

Fortran benchmarks:
`clang gfortran`

Base Portability Flags

500.perlbench_r: `-DSPEC_LINUX_X64 -DSPEC_LP64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LINUX -DSPEC_LP64`
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:
```
-flto -Wl,-plugin-opt=-merge-constant
-Wl,-plugin-opt=-lsr-in-nested-loop -Wl,-plugin-opt=-disable-vect-cmp
-O3 -ffast-math -march=znver1 -fstruct-layout=2
-mllvm -unroll-threshold=100 -fremap-arrays -mno-avx2
-mllvm -inline-threshold=1000 -mllvm  -disable-vect-cmp -z muldefs
-ljemalloc
```

C++ benchmarks:
```
-flto -Wl,-plugin-opt=-merge-constant
-Wl,-plugin-opt=-lsr-in-nested-loop -Wl,-plugin-opt=-disable-vect-cmp
-O3 -march=znver1 -mllvm -unroll-threshold=100 -finline-aggressive
-fremap-arrays -mllvm -inline-threshold=1000 -mllvm  -disable-vect-cmp
-z muldefs -ljemalloc
```

Fortran benchmarks:
```
-flto -Wl,-plugin-opt=-merge-constant
-Wl,-plugin-opt=-lsr-in-nested-loop -Wl,-plugin-opt=-disable-vect-cmp
-O3 -mavx -madx -funroll-loops -ffast-math -z muldefs -Ofast
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-fdefault-integer-8 -fplugin=dragonegg.so
-fplugin-arg-dragonegg-llvm-option=-lsr-in-nested-loop
-fplugin-arg-dragonegg-llvm-option=-enable-iv-split
-fplugin-arg-dragonegg-llvm-option=-merge-constant
-fplugin-arg-dragonegg-llvm-option=-inline-threshold:1000
-fplugin-arg-dragonegg-llvm-option=-disable-vect-cmp -ljemalloc
-lgfortran -lamdlibm
```

Peak Compiler Invocation

C benchmarks:
```
clang
```

C++ benchmarks:
```
clang++
```

Fortran benchmarks:
```
clang gfortran
```

Peak Portability Flags

500.perlbench_r: `-DSPEC_LINUX_X64 -DSPEC_LP64`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LINUX -D_FILE_OFFSET_BITS=64`
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: `-flto -Wl,-plugin-opt=-merge-constant`
`-Wl,-plugin-opt=-lsr-in-nested-loop`
`-fprofile-instr-generate`(pass 1)

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

SPEC CPU2017 Integer Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Peak Optimization Flags (Continued)

500.perlbench_r (continued):
```
-fprofile-instr-use(pass 2) -Ofast -march=znver1
-fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -mllvm -unroll-threshold=100 -fremap-arrays
-mllvm -inline-threshold=1000 -ljemalloc
```

502.gcc_r: `-m32 -flto -Wl,-plugin-opt=-merge-constant`
```
-Wl,-plugin-opt=-lsr-in-nested-loop -Ofast -march=znver1
-fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -mllvm -unroll-threshold=100 -fremap-arrays
-mllvm -inline-threshold=1000 -fgnu89-inline -ljemalloc
```

505.mcf_r: `-flto -Wl,-plugin-opt=-merge-constant`
```
-Wl,-plugin-opt=-lsr-in-nested-loop -Ofast -march=znver1
-fstruct-layout=3 -mllvm -vectorize-memory-aggressively
-mno-avx2 -mllvm -unroll-threshold=100 -fremap-arrays
-mllvm -inline-threshold=1000 -ljemalloc
```

525.x264_r: `Same as 500.perlbench_r`

557.xz_r: `Same as 505.mcf_r`

C++ benchmarks:

520.omnetpp_r: `-flto -Wl,-plugin-opt=-merge-constant`
```
-Wl,-plugin-opt=-lsr-in-nested-loop -Ofast -march=znver1
-finline-aggressive -mllvm -unroll-threshold=100
-fremap-arrays -mllvm -inline-threshold=1000 -ljemalloc
```

523.xalancbmk_r: `-m32 -flto -Wl,-plugin-opt=-merge-constant`
```
-Wl,-plugin-opt=-lsr-in-nested-loop -Ofast -march=znver1
-finline-aggressive -mllvm -unroll-threshold=100
-fremap-arrays -mllvm -inline-threshold=1000 -ljemalloc
```

531.deepsjeng_r: `Same as 520.omnetpp_r`

541.leela_r: `-flto -Wl,-plugin-opt=-merge-constant`
```
-Wl,-plugin-opt=-lsr-in-nested-loop
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=znver1
-mllvm -unroll-count=8 -mllvm -unroll-threshold=100
-ljemalloc
```

Fortran benchmarks:
```
-flto -Wl,-plugin-opt=-merge-constant
-Wl,-plugin-opt=-lsr-in-nested-loop -O3 -mavx2 -madx -funroll-loops
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Dell Inc.

PowerEdge R7425 (AMD EPYC 7251, 2.10 GHz

SPECrate2017_int_base = 85.0

SPECrate2017_int_peak = 90.5

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

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

Peak Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-ffast-math -Ofast -fdefault-integer-8 -fplugin=dragonegg.so
-fplugin-arg-dragonegg-llvm-option=-lsr-in-nested-loop
-fplugin-arg-dragonegg-llvm-option=-enable-iv-split
-fplugin-arg-dragonegg-llvm-option=-merge-constant
-fplugin-arg-dragonegg-llvm-option=-inline-threshold:1000
-fplugin-arg-dragonegg-llvm-option=-disable-vect-cmp -ljemalloc
-lgfortran -lamdlibm
```

Peak Other Flags

C benchmarks:

502.gcc_r: `-L/root/work/lib/jemalloc/lib32`

C++ benchmarks:

523.xalancbmk_r: `-L/root/work/lib/jemalloc/lib32`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/aocc100-flags-revC-I.2018-11-13.html
http://www.spec.org/cpu2017/flags/gcc.2018-02-16.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc100-flags-revC-I.2018-11-13.xml
http://www.spec.org/cpu2017/flags/gcc.2018-02-16.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 v1.0.5 on 2018-08-05 13:42:21-0400.
Report generated on 2018-11-13 15:14:03 by CPU2017 PDF formatter v6067.
Originally published on 2018-11-13.