SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate2017_fp_base =   316

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

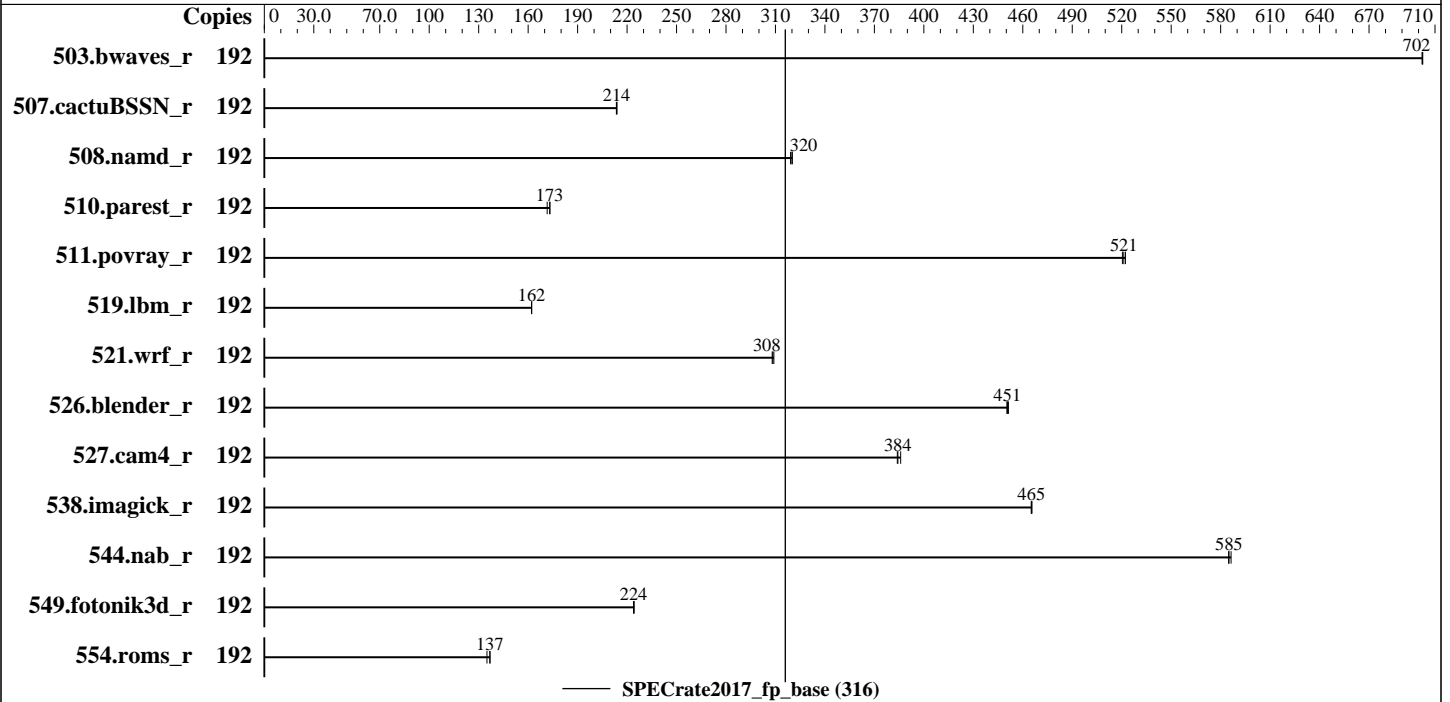SPECrate2017_fp_peak = Not Run

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

Test Date: Dec-2016
Hardware Availability: Oct-2016
Software Availability: Nov-2016

Benchmark	Copies	Result
503.bwaves_r	192	702
507.cactuBSSN_r	192	214
508.namd_r	192	320
510.parest_r	192	173
511.povray_r	192	521
519.lbm_r	192	162
521.wrf_r	192	308
526.blender_r	192	451
527.cam4_r	192	384
538.imagick_r	192	465
544.nab_r	192	585
549.fotonik3d_r	192	224
554.roms_r	192	137

SPECrate2017_fp_base (316)

Hardware

CPU Name: Intel Xeon E7-8890 v4
 Max MHz.: 3400
 Nominal: 2200
Enabled: 96 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 256 KB I+D on chip per core
 L3: 60 MB I+D on chip per chip
 Other: None
Memory: 512 GB (32 x 16 GB 2Rx8 PC4-2133P-R, running at 1600)
Storage: 1 x 480 GB SATA SSD
Other: None

Software

OS: SUSE Linux enterprise Server 12 SP1
 3.12.49-11-default
Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux;
 Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
Parallel: No
Firmware: 2.2.0
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: Not Applicable
Other: Microquill SmartHeap V10.2

SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_base =   316

SPECrate2017_fp_peak =   Not Run

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

Test Date: Dec-2016
Hardware Availability: Oct-2016
Software Availability: Nov-2016

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	192	2741	703	**2741**	**702**	2742	702							
507.cactuBSSN_r	192	1136	214	1138	214	**1138**	**214**							
508.namd_r	192	572	319	**570**	**320**	570	320							
510.parest_r	192	**2902**	**173**	2899	173	2928	172							
511.povray_r	192	**860**	**521**	858	522	861	520							
519.lbm_r	192	1248	162	**1248**	**162**	1249	162							
521.wrf_r	192	**1395**	**308**	1392	309	1396	308							
526.blender_r	192	648	451	649	450	**649**	**451**							
527.cam4_r	192	870	386	**874**	**384**	875	384							
538.imagick_r	192	1027	465	1026	466	**1026**	**465**							
544.nab_r	192	553	585	**552**	**585**	551	586							
549.fotonik3d_r	192	**3341**	**224**	3336	224	3342	224							
554.roms_r	192	**2231**	**137**	2260	135	2229	137							

SPECrate2017_fp_base =   **316**

SPECrate2017_fp_peak =   **Not Run**

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

Submit Notes

```
The config file option 'submit' was used.
```

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 = "/root/cpu2017/lib/ia32:/root/cpu2017/lib/intel64:/root/cpu2017/sh10.2"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runcpu command invoked through numactl i.e.:
 numactl --interleave=all runcpu <etc>
```

Dell Inc.

SPECrate2017_fp_base =   316

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_peak =   Not Run

CPU2017 License: 55   **Test Date:**   Dec-2016
Test Sponsor: Dell Inc.   **Hardware Availability:** Oct-2016
Tested by: Dell Inc.   **Software Availability:** Nov-2016

Platform Notes

```
BIOS settings:
Snoop Mode set to Cluster on Die
Virtualization Technology disabled
System Profile set to Custom
CPU Performance set to Hardware P States
C States set to Autonomous
C1E disabled
Energy Efficient Turbo disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Balanced Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2017/Docs/sysinfo
Rev: r5007 of 2016-11-15 fc8dc82f217779bedfed4d694d580ba9
running on linux-lbo5 Mon Dec 12 12:10:44 2016

This section contains SUT (System Under Test) info as seen by some common
utilities.
For more information on this section, see
http://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-8890 v4 @ 2.20GHz
      4 "physical id"s (chips)
      192 "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
      physical 2: 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 3: 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
   cache size : 30720 KB

The view from numactl --hardware follows.  WARNING: a numactl 'node' might or
might not correspond to a physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0 4 8 12 16 20 24 28 32 36 40 44 96 100 104 108 112 116 120 124
   128 132 136 140
   node 0 size: 64200 MB
   node 0 free: 63860 MB
   node 1 cpus: 1 5 9 13 17 21 25 29 33 37 41 45 97 101 105 109 113 117 121 125
```

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_base =   316

SPECrate2017_fp_peak =   Not Run

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

Test Date: Dec-2016
Hardware Availability: Oct-2016
Software Availability: Nov-2016

Platform Notes (Continued)

```
   129 133 137 141
   node 1 size: 64637 MB
   node 1 free: 64334 MB
   node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46 98 102 106 110 114 118 122 126
   130 134 138 142
   node 2 size: 64637 MB
   node 2 free: 64330 MB
   node 3 cpus: 3 7 11 15 19 23 27 31 35 39 43 47 99 103 107 111 115 119 123 127
   131 135 139 143
   node 3 size: 64637 MB
   node 3 free: 64332 MB
   node 4 cpus: 48 52 56 60 64 68 72 76 80 84 88 92 144 148 152 156 160 164 168
   172 176 180 184 188
   node 4 size: 64637 MB
   node 4 free: 64311 MB
   node 5 cpus: 49 53 57 61 65 69 73 77 81 85 89 93 145 149 153 157 161 165 169
   173 177 181 185 189
   node 5 size: 64637 MB
   node 5 free: 64277 MB
   node 6 cpus: 50 54 58 62 66 70 74 78 82 86 90 94 146 150 154 158 162 166 170
   174 178 182 186 190
   node 6 size: 64637 MB
   node 6 free: 64328 MB
   node 7 cpus: 51 55 59 63 67 71 75 79 83 87 91 95 147 151 155 159 163 167 171
   175 179 183 187 191
   node 7 size: 64635 MB
   node 7 free: 64326 MB
   node distances:
   node   0   1   2   3   4   5   6   7
     0:  10  21  21  21  11  21  21  21
     1:  21  10  21  21  21  11  21  21
     2:  21  21  10  21  21  21  11  21
     3:  21  21  21  10  21  21  21  11
     4:  11  21  21  21  10  21  21  21
     5:  21  11  21  21  21  10  21  21
     6:  21  21  11  21  21  21  10  21
     7:  21  21  21  11  21  21  21  10

 From /proc/meminfo
    MemTotal:       529059184 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12 SP1

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

(Continued on next page)

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_base = 316

SPECrate2017_fp_peak = Not Run

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

Test Date: Dec-2016
Hardware Availability: Oct-2016
Software Availability: Nov-2016

Platform Notes (Continued)

```
    SuSE-release:
       SUSE Linux Enterprise Server 12 (x86_64)
       VERSION = 12
       PATCHLEVEL = 1
       # 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-SP1"
       VERSION_ID="12.1"
       PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
       ID="sles"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:12:sp1"

  uname -a:
     Linux linux-lbo5 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
     (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 12 12:06

  SPEC is set to: /root/cpu2017
     Filesystem      Type  Size  Used Avail Use% Mounted on
     /dev/sda2       xfs   439G   13G  427G   3% /

  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. 2.2.0 09/29/2016
    Memory:
     32x 00AD00B300AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600
     MHz
     64x Not Specified Not Specified

  (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
CC   507.cactuBSSN_r(base) 511.povray_r(base) 519.lbm_r(base) 521.wrf_r(base)
     526.blender_r(base) 527.cam4_r(base) 538.imagick_r(base) 544.nab_r(base)
------------------------------------------------------------------------------
icc (ICC) 17.0.0 20160721
```

(Continued on next page)

SPEC CPU2017 Floating Point Rate Result

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_base = 316

SPECrate2017_fp_peak = Not Run

CPU2017 License:	55	**Test Date:**	Dec-2016
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Oct-2016
Tested by:	Dell Inc.	**Software Availability:**	Nov-2016

Compiler Version Notes (Continued)

```
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
--------------------------------------------------------------------------


==========================================================================
CXXC 507.cactuBSSN_r(base) 508.namd_r(base) 510.parest_r(base)
     511.povray_r(base) 526.blender_r(base)
--------------------------------------------------------------------------
icpc (ICC) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
--------------------------------------------------------------------------


==========================================================================
FC   503.bwaves_r(base) 507.cactuBSSN_r(base) 521.wrf_r(base)
     527.cam4_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
--------------------------------------------------------------------------
ifort (IFORT) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
--------------------------------------------------------------------------
```

Base Compiler Invocation

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

C++ benchmarks:
```
icpc -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
ifort -m64 icc -m64 -std=c11
```

Benchmarks using both C and C++:
```
icpc -m64 icc -m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```
icpc -m64 icc -m64 -std=c11 ifort -m64
```

Base Portability Flags

503.bwaves_r: `-DSPEC_LP64`
507.cactuBSSN_r: `-DSPEC_LP64`

(Continued on next page)

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

SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_base =   316

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55		**Test Date:**	Dec-2016
Test Sponsor:	Dell Inc.	**Hardware Availability:**	Oct-2016
Tested by:	Dell Inc.	**Software Availability:**	Nov-2016

Base Portability Flags (Continued)

508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32 -qopt-prefetch
-qopt-mem-layout-trans=3

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32
-qopt-prefetch -qopt-mem-layout-trans=3 -L/sh10.2 -lsmartheap64

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32 -qopt-prefetch
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs

Benchmarks using both C and C++:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32
-qopt-prefetch -qopt-mem-layout-trans=3 -L/sh10.2 -lsmartheap64

Benchmarks using Fortran, C, and C++:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32
-qopt-prefetch -qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-L/sh10.2 -lsmartheap64

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revD.html
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge13G-revB.html

SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8890 v4, 2.20 GHz)

SPECrate2017_fp_base = 316

SPECrate2017_fp_peak = Not Run

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Dec-2016

Hardware Availability: Oct-2016

Software Availability: Nov-2016

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

http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revD.xml

http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge13G-revB.xml

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

Tested with SPEC CPU2017 v0.904.0 on 2016-12-12 13:10:43-0500.

Report generated on 2018-10-31 12:42:34 by CPU2017 PDF formatter v6067.

Originally published on 2017-06-19.