



SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

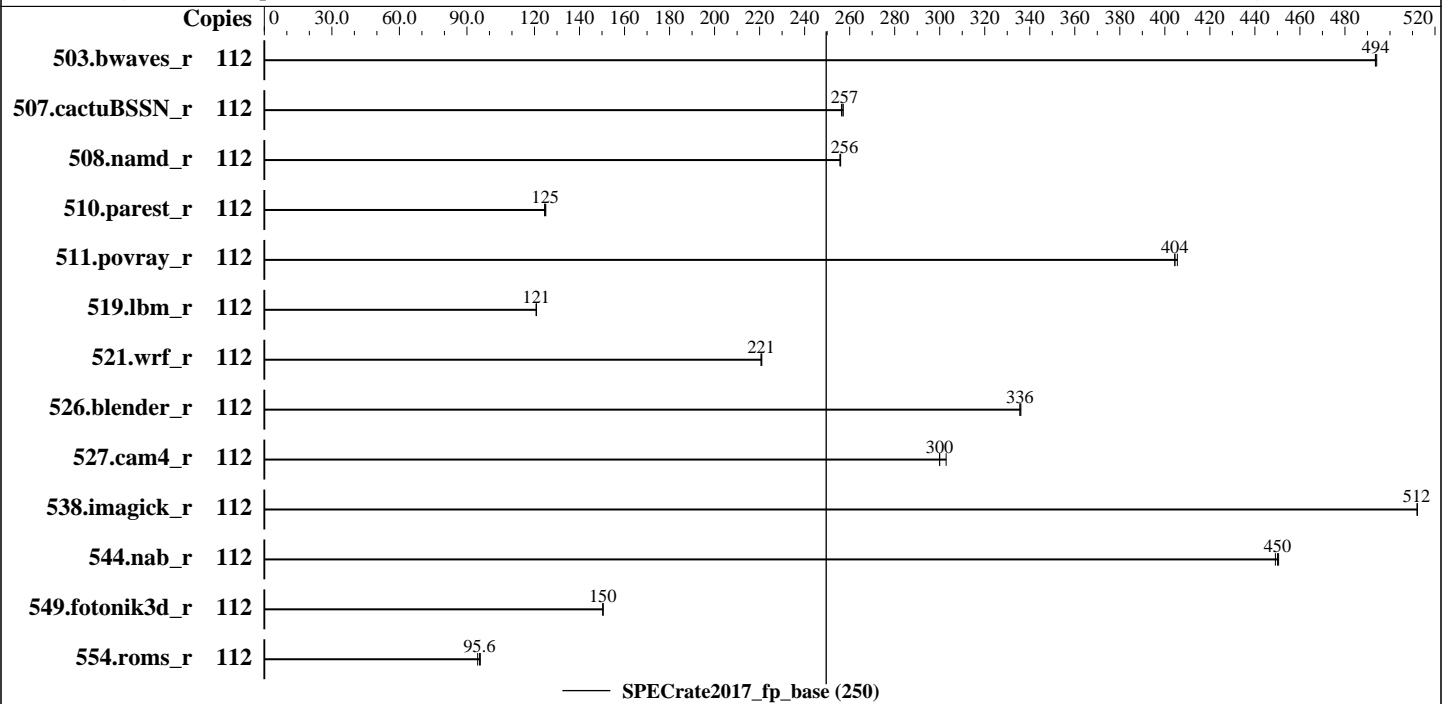
SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017



Hardware

CPU Name: Intel Xeon Platinum 8180
 Max MHz.: 3800
 Nominal: 2500
 Enabled: 56 cores, 2 chips, 2 threads/core
 Orderable: 1,2 chip(s)
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 38.5 MB I+D on chip per chip
 Other: None
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2666V-R)
 Storage: 1 TB SATA III, 7200 RPM
 Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2
 4.4.21-69-default
 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: Supermicro BIOS version 1.0 released Sep-2017
 File System: btrfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|-----------------|--------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------|---------|-------|---------|-------|---------|-------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 503.bwaves_r | 112 | 2273 | 494 | <u>2275</u> | <u>494</u> | 2276 | 494 | | | | | | | |
| 507.cactuBSSN_r | 112 | <u>552</u> | <u>257</u> | 553 | 256 | 551 | 257 | | | | | | | |
| 508.namd_r | 112 | <u>416</u> | <u>256</u> | 416 | 256 | 416 | 256 | | | | | | | |
| 510.parest_r | 112 | 2354 | 124 | <u>2348</u> | <u>125</u> | 2344 | 125 | | | | | | | |
| 511.povray_r | 112 | 645 | 406 | 647 | 404 | <u>647</u> | <u>404</u> | | | | | | | |
| 519.lbm_r | 112 | 976 | 121 | <u>977</u> | <u>121</u> | 978 | 121 | | | | | | | |
| 521.wrf_r | 112 | <u>1137</u> | <u>221</u> | 1137 | 221 | 1135 | 221 | | | | | | | |
| 526.blender_r | 112 | 508 | 336 | 508 | 336 | <u>508</u> | <u>336</u> | | | | | | | |
| 527.cam4_r | 112 | 653 | 300 | <u>653</u> | <u>300</u> | 647 | 303 | | | | | | | |
| 538.imagick_r | 112 | 544 | 512 | <u>544</u> | <u>512</u> | 544 | 512 | | | | | | | |
| 544.nab_r | 112 | 420 | 449 | 418 | 451 | <u>419</u> | <u>450</u> | | | | | | | |
| 549.fotonik3d_r | 112 | 2903 | 150 | <u>2902</u> | <u>150</u> | 2900 | 150 | | | | | | | |
| 554.roms_r | 112 | 1855 | 95.9 | 1878 | 94.8 | <u>1862</u> | <u>95.6</u> | | | | | | | |

SPECrate2017_fp_base = 250

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 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
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>



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Platform Notes

BIOS Settings:

Energy PERF BIAS CFG = Extreme Performance

SNC = Enabled

IMC Interleaving = 1 way

Patrol Scrub = Disabled

Sysinfo program /usr/cpu2017/bin/sysinfo

Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f

running on 196-225 Thu Oct 5 23:20:48 2017

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 8180 CPU @ 2.50GHz

2 "physical id"s (chips)

112 "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 : 28

siblings : 56

physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30

physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
28 29 30

From lscpu:

Architecture: x86_64

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

Byte Order: Little Endian

CPU(s): 112

On-line CPU(s) list: 0-111

Thread(s) per core: 2

Core(s) per socket: 28

Socket(s): 2

NUMA node(s): 4

Vendor ID: GenuineIntel

CPU family: 6

Model: 85

Model name: Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz

Stepping: 4

CPU MHz: 1000.000

CPU max MHz: 2501.0000

CPU min MHz: 1000.0000

BogoMIPS: 4999.99

Virtualization: VT-x

L1d cache: 32K

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Platform Notes (Continued)

```

L1i cache:          32K
L2 cache:           1024K
L3 cache:           39424K
NUMA node0 CPU(s): 0-3,7-9,14-17,21-23,56-59,63-65,70-73,77-79
NUMA node1 CPU(s): 4-6,10-13,18-20,24-27,60-62,66-69,74-76,80-83
NUMA node2 CPU(s): 28-31,35-37,42-45,49-51,84-87,91-93,98-101,105-107
NUMA node3 CPU(s): 32-34,38-41,46-48,52-55,88-90,94-97,102-104,108-111
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 sdbg
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 ida arat epb pln pts dtherm intel_pt
tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc

```

```

/proc/cpuinfo cache data
cache size : 39424 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 3 7 8 9 14 15 16 17 21 22 23 56 57 58 59 63 64 65 70 71 72 73 77 78
79
node 0 size: 192097 MB
node 0 free: 184200 MB
node 1 cpus: 4 5 6 10 11 12 13 18 19 20 24 25 26 27 60 61 62 66 67 68 69 74 75 76 80 81
82 83
node 1 size: 193521 MB
node 1 free: 186980 MB
node 2 cpus: 28 29 30 31 35 36 37 42 43 44 45 49 50 51 84 85 86 87 91 92 93 98 99 100
101 105 106 107
node 2 size: 193521 MB
node 2 free: 187238 MB
node 3 cpus: 32 33 34 38 39 40 41 46 47 48 52 53 54 55 88 89 90 94 95 96 97 102 103 104
108 109 110 111
node 3 size: 193518 MB
node 3 free: 187320 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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Platform Notes (Continued)

MemTotal: 791202564 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2
```

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

```
SuSE-release:
```

```
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
```

```
# 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-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

```
uname -a:
```

```
Linux 196-225 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67) x86_64
x86_64 x86_64 GNU/Linux
```

```
run-level 3 Oct 5 18:21 last=5
```

```
SPEC is set to: /usr/cpu2017
```

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2        btrfs    901G  289G  610G  33% /
```

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. 1.0 09/20/2017

Memory:

24x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666

(End of data from sysinfo program)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Compiler Version Notes

=====
CC 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)

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

=====
CXXC 508.namd_r(base) 510.parest_r(base)

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

=====
CC 511.povray_r(base) 526.blender_r(base)

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

=====
FC 507.cactuBSSN_r(base)

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

=====
FC 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)

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

=====
CC 521.wrf_r(base) 527.cam4_r(base)

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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Compiler Version Notes (Continued)

Copyright (C) 1985-2017 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  
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
```



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Supermicro

SuperServer 2029UZ-TN20R25M
X11DPU-Z+ (Intel Xeon Platinum 8180)

SPECrate2017_fp_base = 250

SPECrate2017_fp_peak = Not Run

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2017
Hardware Availability: Jul-2017
Software Availability: Oct-2017

Base Optimization Flags

C benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3
```

Fortran benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both C and C++:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3
```

Benchmarks using Fortran, C, and C++:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.html>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SKL-revB.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml>

<http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SKL-revB.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 2017-10-06 02:20:47-0400.

Report generated on 2018-10-31 15:32:46 by CPU2017 PDF formatter v6067.

Originally published on 2017-12-21.