



SPEC® CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19

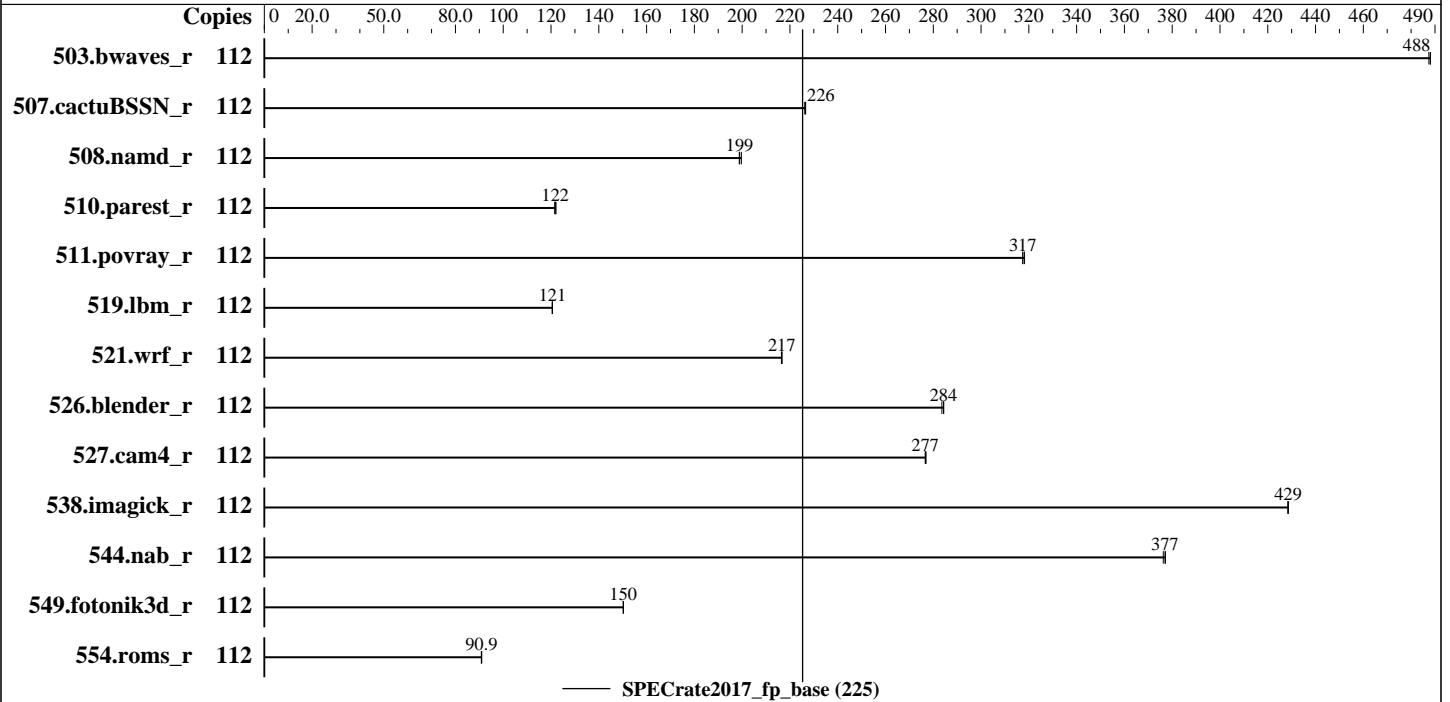
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2017

Hardware Availability: Dec-2017

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Platinum 8176M
 Max MHz.: 3800
 Nominal: 2100
 Enabled: 56 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: 38.5 MB I+D on chip per chip
 Other: None
 Memory: 192 GB (12 x 16 GB 2Rx4 PC4-2666V-R)
 Storage: 192 GB tmpfs
 Other: 1 x SATA M.2 SSD, 128 GB, used for swap

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: Fujitsu BIOS Version V1.00.0 R1.18.0 for D3854-A1x. Released Dec-2017 tested as V1.0.0.0 R1.9.6 for D3854-A1x Oct-2017
 File System: tmpfs
 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

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2017
Hardware Availability: Dec-2017
Software Availability: Sep-2017

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	112	<u>2301</u>	<u>488</u>	2304	487	2301	488							
507.cactuBSSN_r	112	<u>626</u>	<u>226</u>	626	227	627	226							
508.namd_r	112	535	199	<u>535</u>	<u>199</u>	533	200							
510.parest_r	112	2411	122	<u>2406</u>	<u>122</u>	2400	122							
511.povray_r	112	<u>824</u>	<u>317</u>	824	317	822	318							
519.lbm_r	112	979	121	<u>979</u>	<u>121</u>	980	120							
521.wrf_r	112	1158	217	1159	216	<u>1158</u>	<u>217</u>							
526.blender_r	112	600	284	601	284	<u>600</u>	<u>284</u>							
527.cam4_r	112	707	277	708	277	<u>708</u>	<u>277</u>							
538.imagick_r	112	650	428	650	429	<u>650</u>	<u>429</u>							
544.nab_r	112	501	376	<u>500</u>	<u>377</u>	500	377							
549.fotonik3d_r	112	2904	150	<u>2905</u>	<u>150</u>	2906	150							
554.roms_r	112	1955	91.0	<u>1958</u>	<u>90.9</u>	1959	90.8							

SPECrate2017_fp_base = 225

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"
Set Kernel Boot Parameter: nohz_full=1-111
Set CPU frequency governor to maximum performance with:
cpupower -c all frequency-set -g performance
Set tmpfs filesystem with:
mkdir /home/memory
mount -t tmpfs -o size=192g,rw tmpfs /home/memory
Process tuning settings:
echo 10000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 15000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
cpu idle state set with:
cpupower idle-set -d 1
cpupower idle-set -d 2
```



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2017
Hardware Availability: Dec-2017
Software Availability: Sep-2017

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/memory/speccpu/lib/ia32:/home/memory/speccpu/lib/intel64"
LD_LIBRARY_PATH = "\$LD_LIBRARY_PATH:/home/memory/speccpu/je5.0.1-32:/home/memory/speccpu/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>

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) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:
DCU Streamer Prefetcher = Disabled
Intel Virtualization Technology = Disabled
Power Technology = Custom
HWPM Support = Disabled
UPI Link Frequency Select = 10.4GT/s
Sub NUMA Clustering = Enabled
Stale AtoS = Enabled
LLC dead line alloc = Disabled
Sysinfo program /home/memory/speccpu/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-CX2560M4 Sat Nov 11 17:13:48 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 8176M CPU @ 2.10GHz
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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2017
Hardware Availability: Dec-2017
Software Availability: Sep-2017

Platform Notes (Continued)

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 8176M CPU @ 2.10GHz
Stepping:               4
CPU MHz:                2101.000
CPU max MHz:            2101.0000
CPU min MHz:            1000.0000
BogoMIPS:               4190.18
Virtualization:        VT-x
L1d cache:              32K
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
aperfperf 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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2017
Hardware Availability: Dec-2017
Software Availability: Sep-2017

Platform Notes (Continued)

```

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: 46871 MB
node 0 free: 46477 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: 48375 MB
node 1 free: 48086 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: 48375 MB
node 2 free: 39024 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: 48241 MB
node 3 free: 47852 MB
node distances:
node 0 1 2 3
0: 10 11 23 23
1: 11 10 23 23
2: 23 23 10 11
3: 23 23 11 10

```

```

From /proc/meminfo
MemTotal:      196468548 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"

```

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2017
Hardware Availability: Dec-2017
Software Availability: Sep-2017

Platform Notes (Continued)

CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

```
Linux linux-CX2560M4 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 Nov 10 21:39

SPEC is set to: /home/memory/speccpu

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
tmpfs	tmpfs	192G	8.8G	184G	5%	/home/memory

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 FUJITSU V1.0.0.0 R1.9.6 for D3854-A1x 10/06/2017

Memory:

12x Hynix HMA42GR7BJR4N-VK 16 GB 2 rank 2666
4x Not Specified Not Specified

(End of data from sysinfo program)

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.

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Nov-2017
Hardware Availability: Dec-2017
Software Availability: Sep-2017

Compiler Version Notes (Continued)

=====
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
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icc

Benchmarks using both C and C++:
icpc icc

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M, 2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2017

Hardware Availability: Dec-2017

Software Availability: Sep-2017

Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:

icpc icc ifort

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

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

(Continued on next page)



SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY CX2560 M4, Intel Xeon Platinum 8176M,
2.10GHz

SPECrate2017_fp_base = 225

SPECrate2017_fp_peak = Not Run

CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Nov-2017

Hardware Availability: Dec-2017

Software Availability: Sep-2017

Base Optimization Flags (Continued)

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
```

Base Other Flags

C benchmarks:

```
-m64 -std=c11
```

C++ benchmarks:

```
-m64
```

Fortran benchmarks:

```
-m64
```

Benchmarks using both Fortran and C:

```
-m64 -std=c11
```

Benchmarks using both C and C++:

```
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:

```
-m64 -std=c11
```

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/Fujitsu-Platform-Settings-V1.2-SKL-RevD.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/Fujitsu-Platform-Settings-V1.2-SKL-RevD.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 2017-11-11 17:13:47-0500.

Report generated on 2018-10-31 16:43:14 by CPU2017 PDF formatter v6067.

Originally published on 2018-02-21.