



SPEC® CPU2017 Floating Point Rate Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

SPECrate2017_fp_base = 24.6

ASUS Z170M-PLUS Motherboard (Intel Core i7-6700K)

SPECrate2017_fp_peak = Not Run

CPU2017 License: 13

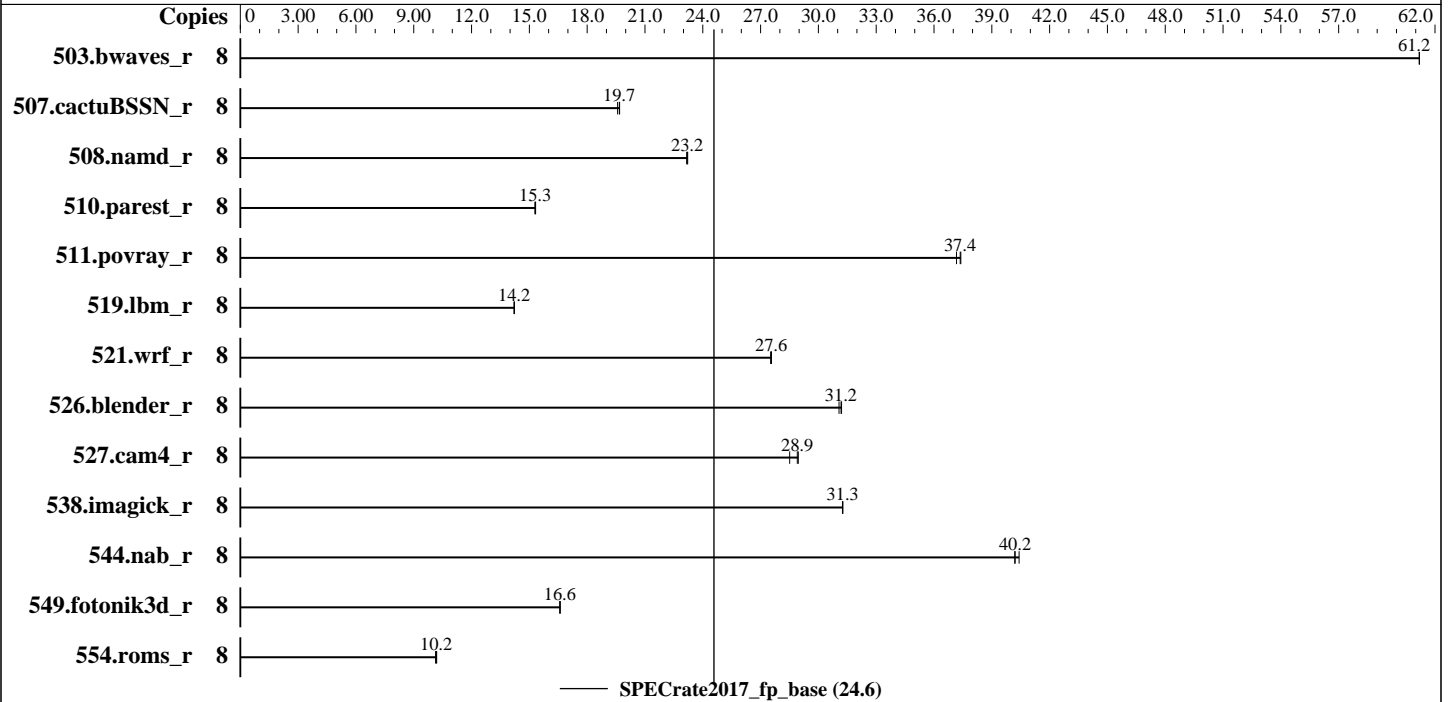
Test Sponsor: Intel Corporation

Tested by: Intel Corporation

Test Date: Dec-2016

Hardware Availability: Jan-2016

Software Availability: Sep-2016



Hardware

CPU Name: Intel Core i7-6700K
 Max MHz.: 4200
 Nominal: 4000
 Enabled: 4 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 256 KB I+D on chip per core
 L3: 8 MB I+D on chip per chip
 Other: None
 Memory: 32 GB (2 x 16 GB 2Rx8 PC4-3000N-U, running at 2133, G.SKILL Ripjaws F4-3000C14D-32GVK)
 Storage: 1.5 TB SATA HDD, 7200RPM
 Other: None

Software

OS: Red Hat Enterprise Linux Server release 7.2 (Maipo)
 3.10.0-327.el7.x86_64
 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: American Megatrends Inc. v0701 01/13/2016
 File System: xfs
 System State: Run level 5 (Multiuser Networking with GUI)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: Microquill SmartHeap V10.2



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	8	1311	61.2	1311	61.2	<u>1311</u>	<u>61.2</u>							
507.cactuBSSN_r	8	515	19.7	517	19.6	<u>515</u>	<u>19.7</u>							
508.namd_r	8	328	23.2	327	23.2	<u>328</u>	<u>23.2</u>							
510.parest_r	8	1366	15.3	<u>1367</u>	<u>15.3</u>	1369	15.3							
511.povray_r	8	<u>500</u>	<u>37.4</u>	503	37.2	500	37.4							
519.lbm_r	8	<u>593</u>	<u>14.2</u>	593	14.2	593	14.2							
521.wrf_r	8	650	27.6	<u>650</u>	<u>27.6</u>	651	27.5							
526.blender_r	8	<u>391</u>	<u>31.2</u>	390	31.2	392	31.1							
527.cam4_r	8	483	29.0	491	28.5	<u>484</u>	<u>28.9</u>							
538.imagick_r	8	637	31.2	636	31.3	<u>636</u>	<u>31.3</u>							
544.nab_r	8	333	40.4	335	40.2	<u>335</u>	<u>40.2</u>							
549.fotonik3d_r	8	1880	16.6	<u>1879</u>	<u>16.6</u>	1878	16.6							
554.roms_r	8	1248	10.2	1255	10.1	<u>1250</u>	<u>10.2</u>							

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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 = */home/specdev/workspace/cpu2017-rc4/lib/ia32:/home/specdev/workspace/cpu2017-rc4/lib/intel64:/home/specdev/workspace/cpu2017-rc4/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

Platform Notes

Sysinfo program /home/specdev/workspace/cpu2017-rc4/Docs/sysinfo
Rev: r5007 of 2016-11-15 fc8dc82f217779bedfed4d694d580ba9
running on mrcarrol-desky Tue Dec 13 11:12:40 2016

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Platform Notes (Continued)

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) Core(TM) i7-6700K CPU @ 4.00GHz
```

```
1 "physical id"s (chips)
```

```
8 "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 : 4
```

```
siblings : 8
```

```
physical 0: cores 0 1 2 3
```

```
cache size : 8192 KB
```

The view from numactl --hardware follows. WARNING: a numactl 'node' might or might not correspond to a physical chip.

```
available: 1 nodes (0)
```

```
node 0 cpus: 0 1 2 3 4 5 6 7
```

```
node 0 size: 32655 MB
```

```
node 0 free: 10791 MB
```

```
node distances:
```

```
node 0
```

```
0: 10
```

From /proc/meminfo

```
MemTotal: 32667216 kB
```

```
HugePages_Total: 0
```

```
Hugepagesize: 2048 kB
```

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

```
os-release:
```

```
NAME="Red Hat Enterprise Linux Server"
```

```
VERSION="7.2 (Maipo)"
```

```
ID="rhel"
```

```
ID_LIKE="fedora"
```

```
VERSION_ID="7.2"
```

```
PRETTY_NAME=Storage
```

```
ANSI_COLOR="0;31"
```

```
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
```

```
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
```

```
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
```

```
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server
```

```
uname -a:
```

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Platform Notes (Continued)

```
Linux mrcarrol-desky 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT
2015 x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 5 Dec 7 09:08
```

```
SPEC is set to: /home/specdev/workspace/cpu2017-rc4
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   1.5T   89G  1.5T   6% /home
```

```
Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'
```

```
(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  
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

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Base Compiler Invocation (Continued)

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

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/shl0.2 -lsmartheap64

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Base Optimization Flags (Continued)

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/shl0.2 -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/shl0.2 -lsmartheap64
```

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revE.html>

You can also download the XML flags source by saving the following link:

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

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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 2016-12-13 14:12:40-0500.

Report generated on 2017-10-24 16:59:37 by CPU2017 PDF formatter v5748.

Originally published on 2017-06-19.