SPEC® CPU2017 Floating Point Rate Result

ASUSTeK Computer Inc.

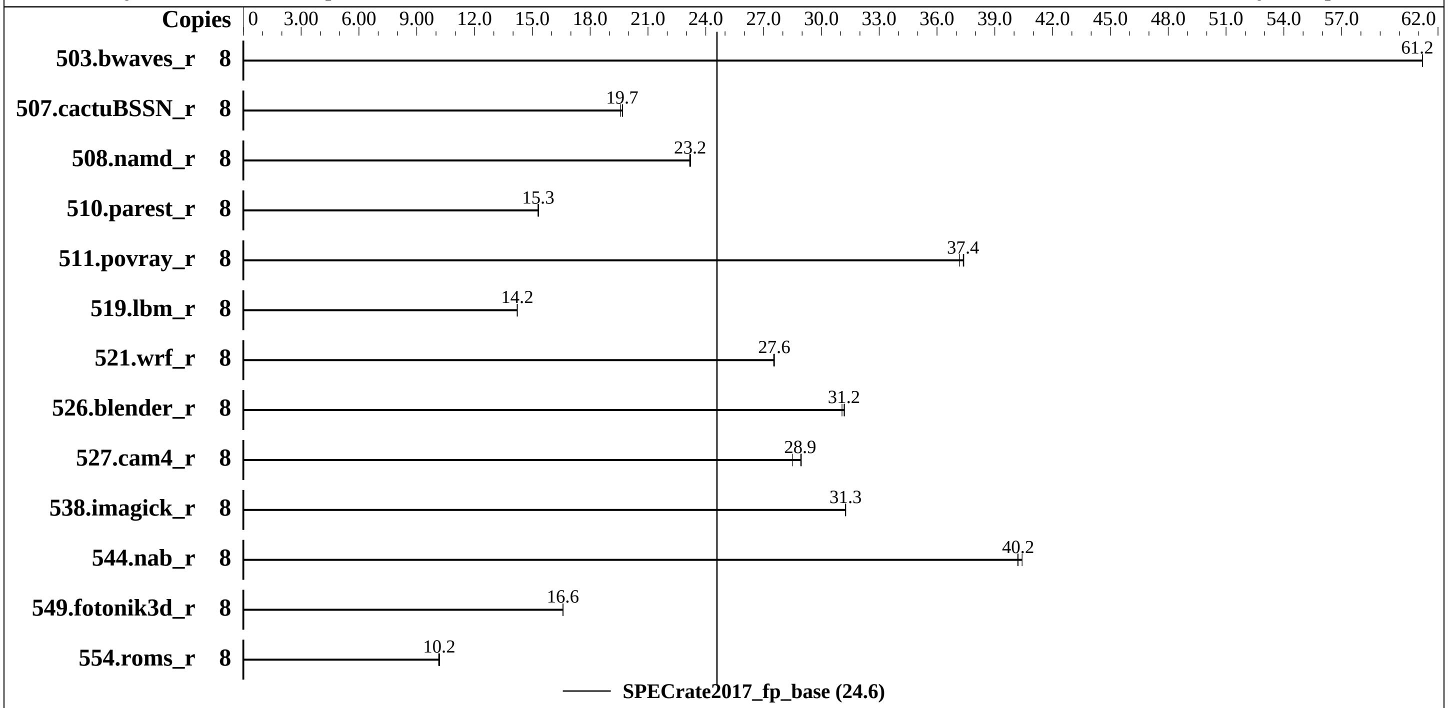
(Test Sponsor: Intel Corporation)

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

SPECrate2017_fp_base = 24.6

SPECrate2017_fp_peak = Not Run

CPU2017 License:	13	**Test Date:**	Dec-2016
Test Sponsor:	Intel Corporation	**Hardware Availability:**	Jan-2016
Tested by:	Intel Corporation	**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	**1311**	**61.2**							
507.cactuBSSN_r	8	515	19.7	517	19.6	**515**	**19.7**							
508.namd_r	8	328	23.2	327	23.2	**328**	**23.2**							
510.parest_r	8	1366	15.3	**1367**	**15.3**	1369	15.3							
511.povray_r	8	**500**	**37.4**	503	37.2	500	37.4							
519.lbm_r	8	**593**	**14.2**	593	14.2	593	14.2							
521.wrf_r	8	650	27.6	**650**	**27.6**	651	27.5							
526.blender_r	8	**391**	**31.2**	390	31.2	392	31.1							
527.cam4_r	8	483	29.0	491	28.5	**484**	**28.9**							
538.imagick_r	8	637	31.2	636	31.3	**636**	**31.3**							
544.nab_r	8	333	40.4	335	40.2	**335**	**40.2**							
549.fotonik3d_r	8	1880	16.6	**1879**	**16.6**	1878	16.6							
554.roms_r	8	1248	10.2	1255	10.1	**1250**	**10.2**							

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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 mrcarro1-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 mrcarro1-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/sh10.2 -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/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 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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