SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Fujitsu

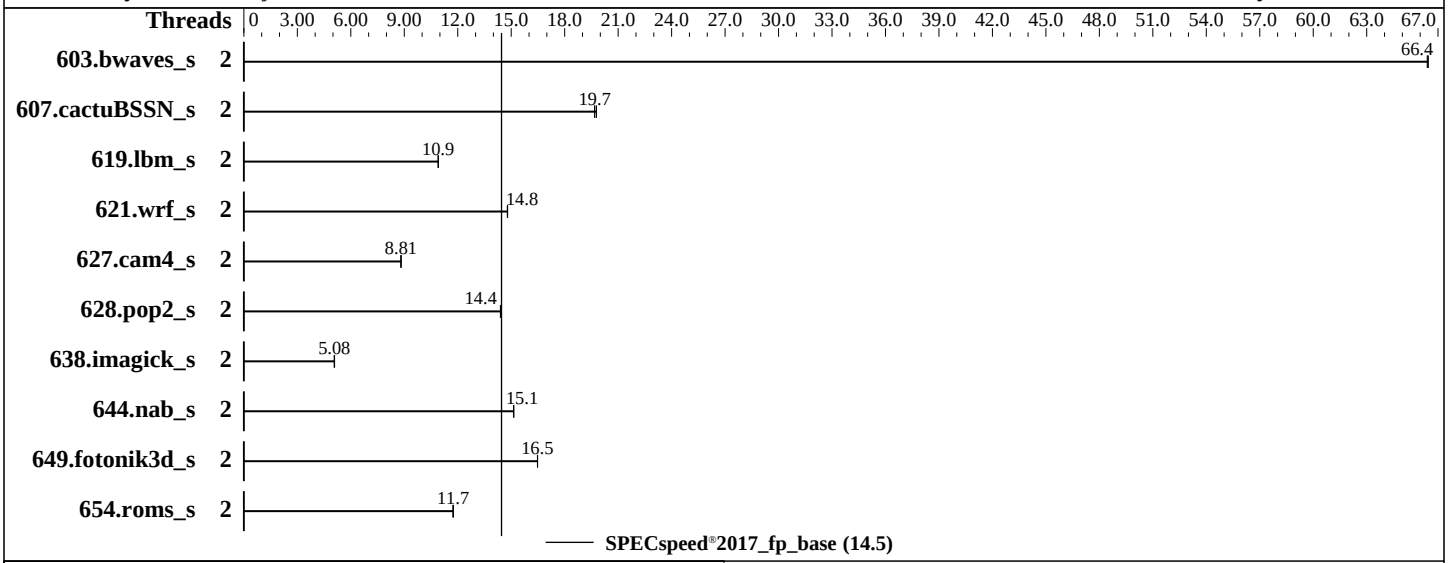
PRIMERGY TX1330 M5, Intel Pentium Gold G6405, 4.10GHz

SPECspeed®2017_fp_base = 14.5

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Feb-2022
Hardware Availability: Mar-2022
Software Availability: Jun-2021



Hardware

CPU Name:	Intel Pentium Gold G6405
Max MHz:	4100
Nominal:	4100
Enabled:	2 cores, 1 chip
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:	4 MB I+D on chip per chip
Other:	None
Memory:	32 GB (2 x 16 GB 2Rx8 PC4-3200AA-E, running at 2667)
Storage:	1 x SATA M.2 SSD, 240GB
Other:	None

Software

OS:	SUSE Linux Enterprise Server 15 SP3 5.3.18-57-default
Compiler:	Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux; C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux
Parallel:	Yes
Firmware:	Fujitsu BIOS Version V5.0.0.22 R1.31.0 for D3931-A1x. Released Mar-2022 tested as V5.0.0.22 R1.20.0 for D3931-A1x Jan-2022
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	jemalloc memory allocator V5.0.1
Power Management:	BIOS set to prefer performance at the cost of additional power usage

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

Fujitsu

PRIMERGY TX1330 M5, Intel Pentium Gold G6405, 4.10GHz

SPECspeed®2017_fp_base = 14.5

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Feb-2022
Hardware Availability: Mar-2022
Software Availability: Jun-2021

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	2	889	66.4	888	66.5	**888**	**66.4**							
607.cactuBSSN_s	2	843	19.8	847	19.7	**847**	**19.7**							
619.lbm_s	2	480	10.9	480	10.9	**480**	**10.9**							
621.wrf_s	2	**894**	**14.8**	895	14.8	894	14.8							
627.cam4_s	2	**1005**	**8.81**	1006	8.81	1005	8.82							
628.pop2_s	2	825	14.4	824	14.4	**825**	**14.4**							
638.imagick_s	2	2834	5.09	**2839**	**5.08**	2846	5.07							
644.nab_s	2	1154	15.1	**1154**	**15.1**	1154	15.1							
649.fotonik3d_s	2	553	16.5	**553**	**16.5**	553	16.5							
654.roms_s	2	**1340**	**11.7**	1342	11.7	1340	11.8							

SPECspeed®2017_fp_base = 14.5

SPECspeed®2017_fp_peak = Not Run

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

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH =
     "/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

```
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
memory using Redhat Enterprise Linux 8.0
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
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: 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.
Yes: 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.
jemalloc, a general purpose malloc implementation
```

(Continued on next page)

General Notes (Continued)

```
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS configuration:
HyperThreading = Disabled
Package C-State un-demotion = Enabled
REFRESH_2X_MODE = 2- Enabled HOT only
FAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
running on localhost Fri Feb 11 10:16:14 2022

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) Pentium(R) Gold G6405 CPU @ 4.10GHz
      1  "physical id"s (chips)
      2 "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 : 2
      siblings  : 2
      physical 0: cores 0 1

From lscpu from util-linux 2.36.2:
     Architecture:                    x86_64
     CPU op-mode(s):                  32-bit, 64-bit
     Byte Order:                      Little Endian
     Address sizes:                   39 bits physical, 48 bits virtual
     CPU(s):                          2
     On-line CPU(s) list:             0,1
     Thread(s) per core:              1
     Core(s) per socket:              2
     Socket(s):                       1
     NUMA node(s):                    1
     Vendor ID:                       GenuineIntel
     CPU family:                      6
     Model:                           165
     Model name:                      Intel(R) Pentium(R) Gold G6405 CPU @ 4.10GHz
     Stepping:                        3
     CPU MHz:                         3879.227
```

(Continued on next page)

Platform Notes (Continued)

```
      CPU max MHz:                     4100.0000
      CPU min MHz:                     800.0000
      BogoMIPS:                        8199.79
      Virtualization:                  VT-x
      L1d cache:                       64 KiB
      L1i cache:                       64 KiB
      L2 cache:                        512 KiB
      L3 cache:                        4 MiB
      NUMA node0 CPU(s):               0,1
      Vulnerability Itlb multihit:     KVM: Mitigation: VMX disabled
      Vulnerability L1tf:              Not affected
      Vulnerability Mds:               Not affected
      Vulnerability Meltdown:          Not affected
      Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via
      prctl and seccomp
      Vulnerability Spectre v1:        Mitigation; usercopy/swapgs barriers and __user
      pointer sanitization
      Vulnerability Spectre v2:        Mitigation; Enhanced IBRS, IBPB conditional, RSB
      filling
      Vulnerability Srbds:             Not affected
      Vulnerability Tsx async abort:   Not affected
      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 cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3
      sdbg cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
      xsave rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single ssbd ibrs ibpb
      stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust
      smep erms invpcid mpx rdseed smap clflushopt intel_pt xsaveopt xsavec xgetbv1 xsaves
      dtherm arat pln pts hwp hwp_notify hwp_act_window hwp_epp md_clear flush_l1d
      arch_capabilities

  From lscpu --cache:
       NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL SETS PHY-LINE COHERENCY-SIZE
       L1d       32K      64K    8 Data            1   64        1             64
       L1i       32K      64K    8 Instruction     1   64        1             64
       L2       256K     512K    4 Unified         2 1024        1             64
       L3         4M       4M   16 Unified         3 4096        1             64

  /proc/cpuinfo cache data
     cache size : 4096 KB

  From numactl --hardware
  WARNING: a numactl 'node' might or might not correspond to a physical chip.
    available: 1 nodes (0)
    node 0 cpus: 0 1
    node 0 size: 31546 MB
```

(Continued on next page)

Platform Notes (Continued)

```
  node 0 free: 31142 MB
  node distances:
  node   0
    0:  10

From /proc/meminfo
   MemTotal:       32303464 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
   powersave

From /etc/*release* /etc/*version*
   os-release:
      NAME="SLES"
      VERSION="15-SP3"
      VERSION_ID="15.3"
      PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
      ID="sles"
      ID_LIKE="suse"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:15:sp3"

uname -a:
   Linux localhost 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021
   (ba3c2e9/lp-5d9e8aa) x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):                        KVM: Mitigation: VMX disabled
CVE-2018-3620 (L1 Terminal Fault):                     Not affected
Microarchitectural Data Sampling:                      Not affected
CVE-2017-5754 (Meltdown):                              Not affected
CVE-2018-3639 (Speculative Store Bypass):              Mitigation: Speculative Store
                                                       Bypass disabled via prctl and
                                                       seccomp
CVE-2017-5753 (Spectre variant 1):                     Mitigation: usercopy/swapgs
                                                       barriers and __user pointer
                                                       sanitization
CVE-2017-5715 (Spectre variant 2):                     Mitigation: Enhanced IBRS, IBPB:
                                                       conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort):               Not affected

run-level 3 Feb 11 10:15
```

(Continued on next page)

Platform Notes (Continued)

```
 SPEC is set to: /home/Benchmark/speccpu
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda4      xfs   180G   44G  137G  24% /home

 From /sys/devices/virtual/dmi/id
     Vendor:         FUJITSU
     Product:        PRIMERGY TX1330 M5
     Product Family: SERVER
     Serial:         EWBUxxxxxx

 Additional information from dmidecode 3.2 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.
   Memory:
     2x Samsung M391A2K43DB1-CWE 16 GB 2 rank 3200, configured at 2667

 BIOS:
    BIOS Vendor:       FUJITSU // American Megatrends International, LLC.
    BIOS Version:      V5.0.0.22 R1.20.0 for D3931-A1x
    BIOS Date:         01/11/2022
    BIOS Revision:     1.20

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C               | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
  64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
C++, C, Fortran | 607.cactuBSSN_s(base)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
  64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.1 Build 20201112_000000
```

(Continued on next page)

Compiler Version Notes (Continued)

```
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
Fortran         | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
Fortran, C      | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
  64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icc

Benchmarks using Fortran, C, and C++:
icpc icc ifort

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG

(Continued on next page)

Base Portability Flags (Continued)

628.pop2_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl`
638.imagick_s: `-DSPEC_LP64`
644.nab_s: `-DSPEC_LP64`
649.fotonik3d_s: `-DSPEC_LP64`
654.roms_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-m64 -std=c11 -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP -mbranches-within-32B-boundaries`

Fortran benchmarks:
`-m64 -Wl,-z,muldefs -DSPEC_OPENMP -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -nostandard-realloc-lhs -mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Benchmarks using both Fortran and C:
`-m64 -std=c11 -Wl,-z,muldefs -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Benchmarks using Fortran, C, and C++:
`-m64 -std=c11 -Wl,-z,muldefs -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-RKL-RevD.html`
`http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-RKL-RevD.xml`
`http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml`

SPEC CPU and SPECspeed are registered trademarks 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 CPU®2017 v1.1.8 on 2022-02-10 20:16:14-0500.
Report generated on 2022-03-16 13:58:55 by CPU2017 PS formatter v6442.
Originally published on 2022-03-16.