SPEC CPU®2017 Floating Point Rate Result

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Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero SS400TR-12L
(3.40 GHz, Intel Xeon E-2224)

$SPECrate®2017\_fp\_base = 33.8$

$SPECrate®2017\_fp\_peak = 33.9$

CPU2017 License: 006042	**Test Date:** Nov-2021
Test Sponsor: Netweb Pte Ltd	**Hardware Availability:** Apr-2021
Tested by: Tyrone Systems	**Software Availability:** Jun-2021

Copies

Benchmark	Copies	Base	Peak
503.bwaves_r	4	72.2	72.2
507.cactuBSSN_r	4	53.1	
508.namd_r	4	24.7	
510.parest_r	4	18.6	18.6
511.povray_r	4	37.3	42.0
519.lbm_r	4	25.9	
521.wrf_r	4	34.5	32.5
526.blender_r	4	29.1	
527.cam4_r	4	33.7	
538.imagick_r	4	95.4	
544.nab_r	4	40.6	40.6
549.fotonik3d_r	4	22.0	
554.roms_r	4	15.1	15.1

SPECrate®2017_fp_base (33.8)   SPECrate®2017_fp_peak (33.9)

Hardware

CPU Name: Intel Xeon E-2224
 Max MHz: 4600
 Nominal: 3400
Enabled: 4 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: 8 MB I+D on chip per chip
 Other: None
Memory: 128 GB (4 x 32 GB 2Rx4 PC4-2933P-R, running at 2666)
Storage: 1 x 480 GB SATA SSD
Other: None

Software

OS: CentOS Linux release 8.4.2105
 Kernel 4.18.0-305.3.1.el8.x86_64
Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;
 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: No
Firmware: Version 1.6 released May-2021
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: Prefer performance at the cost of additional power usage

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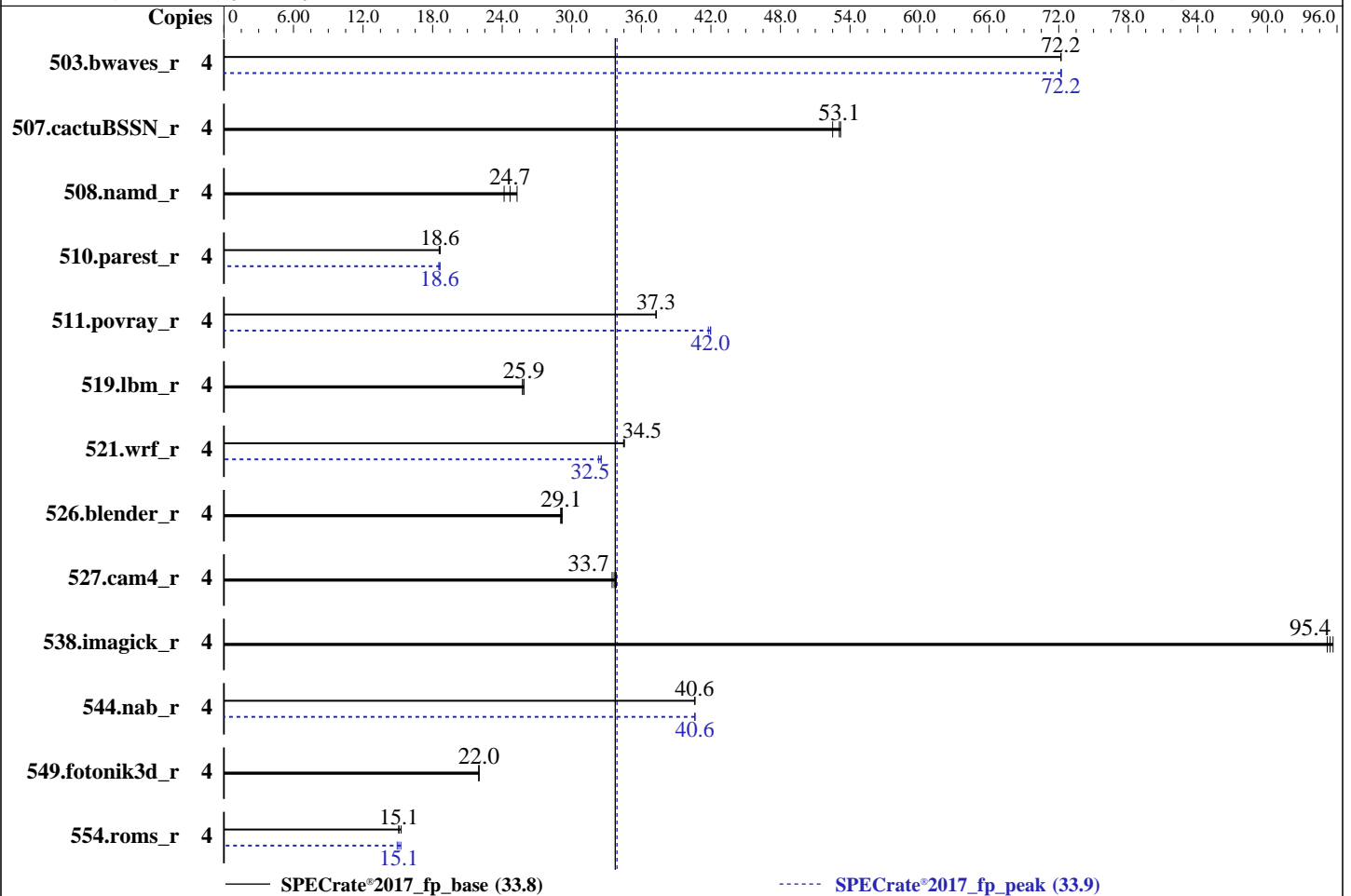SPECrate®2017_fp_peak = 33.9

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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	4	556	72.2	**556**	**72.2**	556	72.2	4	**556**	**72.2**	556	72.2	555	72.2
507.cactuBSSN_r	4	95.2	53.2	96.5	52.5	**95.4**	**53.1**	4	95.2	53.2	96.5	52.5	**95.4**	**53.1**
508.namd_r	4	**154**	**24.7**	157	24.2	150	25.3	4	**154**	**24.7**	157	24.2	150	25.3
510.parest_r	4	561	18.6	**562**	**18.6**	564	18.6	4	**562**	**18.6**	565	18.5	562	18.6
511.povray_r	4	**251**	**37.3**	251	37.3	250	37.3	4	**223**	**42.0**	222	42.0	224	41.8
519.lbm_r	4	164	25.7	163	25.9	**163**	**25.9**	4	164	25.7	163	25.9	**163**	**25.9**
521.wrf_r	4	259	34.5	260	34.5	**260**	**34.5**	4	277	32.3	**275**	**32.5**	275	32.5
526.blender_r	4	**209**	**29.1**	210	29.0	209	29.2	4	**209**	**29.1**	210	29.0	209	29.2
527.cam4_r	4	207	33.8	**208**	**33.7**	209	33.5	4	207	33.8	**208**	**33.7**	209	33.5
538.imagick_r	4	105	95.2	104	95.7	**104**	**95.4**	4	105	95.2	104	95.7	**104**	**95.4**
544.nab_r	4	166	40.6	166	40.6	**166**	**40.6**	4	166	40.6	166	40.6	**166**	**40.6**
549.fotonik3d_r	4	708	22.0	**709**	**22.0**	709	22.0	4	708	22.0	**709**	**22.0**	709	22.0
554.roms_r	4	416	15.3	**421**	**15.1**	422	15.1	4	**421**	**15.1**	425	14.9	416	15.3

SPECrate®2017_fp_base =	**33.8**
SPECrate®2017_fp_peak =	**33.9**

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"

General Notes

Binaries compiled locally by Netweb
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

(Continued on next page)

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Test Date: Nov-2021

Hardware Availability: Apr-2021

Software Availability: Jun-2021

General Notes (Continued)

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.

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-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

 jemalloc, a general purpose malloc implementation
 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

```
 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
 running on spec Sat Nov 20 07:03:07 2021

 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) E-2224 CPU @ 3.40GHz
       1  "physical id"s (chips)
       4 "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  : 4
       physical 0: cores 0 1 2 3

 From lscpu from util-linux 2.32.1:
       Architecture:        x86_64
       CPU op-mode(s):      32-bit, 64-bit
       Byte Order:          Little Endian
       CPU(s):              4
       On-line CPU(s) list: 0-3
       Thread(s) per core:  1
       Core(s) per socket:  4
       Socket(s):           1
       NUMA node(s):        1
       Vendor ID:           GenuineIntel
       BIOS Vendor ID:      Intel(R) Corporation
       CPU family:          6
       Model:               158
```

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Hardware Availability: Apr-2021

Software Availability: Jun-2021

Platform Notes (Continued)

```
          Model name:           Intel(R) Xeon(R) E-2224 CPU @ 3.40GHz
          BIOS Model name:      Intel(R) Xeon(R) E-2224 CPU @ 3.40GHz
          Stepping:             10
          CPU MHz:              4431.212
          CPU max MHz:          4600.0000
          CPU min MHz:          800.0000
          BogoMIPS:             6816.00
          L1d cache:            32K
          L1i cache:            32K
          L2 cache:             256K
          L3 cache:             8192K
          NUMA node0 CPU(s):    0-3
          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 tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl smx est tm2 ssse3 sdbg
    fma cx16 xtpr pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer xsave
    avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb invpcid_single pti ssbd
    ibrs ibpb stibp fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm mpx
    rdseed adx smap clflushopt intel_pt xsaveopt xsavec xgetbv1 xsaves dtherm ida arat
    pln pts hwp hwp_notify hwp_act_window hwp_epp md_clear flush_l1d

 /proc/cpuinfo cache data
    cache size : 8192 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 2 3
   node 0 size: 128821 MB
   node 0 free: 119163 MB
   node distances:
   node   0
     0:  10

 From /proc/meminfo
    MemTotal:       131913240 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /sbin/tuned-adm active
     Current active profile: throughput-performance

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

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

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CPU2017 License: 006042		**Test Date:**	Nov-2021
Test Sponsor:	Netweb Pte Ltd	**Hardware Availability:**	Apr-2021
Tested by:	Tyrone Systems	**Software Availability:**	Jun-2021

Platform Notes (Continued)

```
   centos-release: CentOS Linux release 8.4.2105
   centos-release-upstream: Derived from Red Hat Enterprise Linux 8.4
   os-release:
      NAME="CentOS Linux"
      VERSION="8"
      ID="centos"
      ID_LIKE="rhel fedora"
      VERSION_ID="8"
      PLATFORM_ID="platform:el8"
      PRETTY_NAME="CentOS Linux 8"
      ANSI_COLOR="0;31"
   redhat-release: CentOS Linux release 8.4.2105
   system-release: CentOS Linux release 8.4.2105
   system-release-cpe: cpe:/o:centos:centos:8

uname -a:
   Linux spec 4.18.0-305.3.1.el8.x86_64 #1 SMP Tue Jun 1 16:14:33 UTC 2021 x86_64 x86_64
   x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):                       KVM: Vulnerable
CVE-2018-3620 (L1 Terminal Fault):                    Mitigation: PTE Inversion
Microarchitectural Data Sampling:                 Mitigation: Clear CPU buffers; SMT
                                                      disabled
CVE-2017-5754 (Meltdown):                             Mitigation: PTI
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: Full generic
                                                      retpoline, IBPB: conditional,
                                                      IBRS_FW, STIBP: disabled, RSB
                                                      filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Mitigation: Microcode
CVE-2019-11135 (TSX Asynchronous Abort):          Mitigation: Clear CPU buffers; SMT
                                                      disabled


run-level 3 Nov 20 02:58

SPEC is set to: /home/cpu2017
   Filesystem          Type  Size  Used Avail Use% Mounted on
   /dev/mapper/cl-home xfs   372G  263G  109G  71% /home

From /sys/devices/virtual/dmi/id
```

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Platform Notes (Continued)

```
        Vendor:         Tyrone Systems
        Product:        Tyrone Camarero SS400TR-12L
        Serial:         0123456789

  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:
     4x SK Hynix HMAA4GU7AJR8N-WM 32 GB 2 rank 2933, configured at 2667


  BIOS:
    BIOS Vendor:       American Megatrends Inc.
    BIOS Version:      1.6
    BIOS Date:         05/28/2021
    BIOS Revision:     5.13

  (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C                   | 519.lbm_r(base, peak) 538.imagick_r(base, peak)
                    | 544.nab_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++                 | 508.namd_r(base, peak) 510.parest_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++, C              | 511.povray_r(peak)
------------------------------------------------------------------------------
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
```

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Compiler Version Notes (Continued)

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


==============================================================================
C++, C           | 511.povray_r(base) 526.blender_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
-------------------------------------------------------------------------------


==============================================================================
C++, C           | 511.povray_r(peak)
------------------------------------------------------------------------------
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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           | 511.povray_r(base) 526.blender_r(base, peak)
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Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
-------------------------------------------------------------------------------


==============================================================================
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
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
```

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Compiler Version Notes (Continued)

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


==============================================================================
Fortran          | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)
                 | 554.roms_r(base, peak)
-------------------------------------------------------------------------------
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       | 521.wrf_r(peak)
-------------------------------------------------------------------------------
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.
-------------------------------------------------------------------------------


==============================================================================
Fortran, C       | 521.wrf_r(base) 527.cam4_r(base, peak)
-------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on
  Intel(R) 64, Version 2021.1 Build 20201112_000000
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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.
-------------------------------------------------------------------------------


==============================================================================
Fortran, C       | 521.wrf_r(base) 527.cam4_r(base, peak)
```

(Continued on next page)

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Compiler Version Notes (Continued)

```
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Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
  Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icx

Benchmarks using both C and C++:
icpx icx

Benchmarks using Fortran, C, and C++:
icpx icx 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

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Tested by:	Tyrone Systems	**Software Availability:**	Jun-2021

Base Portability Flags (Continued)

554.roms_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc -L/usr/local/je5.0.1-64/lib
```

C++ benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc -L/usr/local/je5.0.1-64/lib
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries -ljemalloc -L/usr/local/je5.0.1-64/lib
```

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/je5.0.1-64/lib
```

Benchmarks using both C and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries -ljemalloc -L/usr/local/je5.0.1-64/lib
```

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/je5.0.1-64/lib
```

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU®2017 Floating Point Rate Result

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Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)

SPECrate®2017_fp_base = 33.8

Tyrone Camarero SS400TR-12L
(3.40 GHz, Intel Xeon E-2224)

SPECrate®2017_fp_peak = 33.9

CPU2017 License: 006042   **Test Date:**   Nov-2021
Test Sponsor: Netweb Pte Ltd   **Hardware Availability:** Apr-2021
Tested by: Tyrone Systems   **Software Availability:** Jun-2021

Peak Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:

521.wrf_r: `ifort icc`

527.cam4_r: `ifort icx`

Benchmarks using both C and C++:

511.povray_r: `icpc icc`

526.blender_r: `icpx icx`

Benchmarks using Fortran, C, and C++:
`icpx icx ifort`

Peak Portability Flags

    Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

519.lbm_r: `basepeak = yes`

538.imagick_r: `basepeak = yes`

544.nab_r: `-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX2 -flto`
`-Ofast -qopt-mem-layout-trans=4`
`-fimf-accuracy-bits=14:sqrt`
`-mbranches-within-32B-boundaries -ljemalloc`
`-L/usr/local/je5.0.1-64/lib`

(Continued on next page)

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Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero SS400TR-12L
(3.40 GHz, Intel Xeon E-2224)

SPECrate®2017_fp_base = 33.8

SPECrate®2017_fp_peak = 33.9

CPU2017 License: 006042		**Test Date:**	Nov-2021
Test Sponsor:	Netweb Pte Ltd	**Hardware Availability:**	Apr-2021
Tested by:	Tyrone Systems	**Software Availability:**	Jun-2021

Peak Optimization Flags (Continued)

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX2 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-ljemalloc -L/usr/local/je5.0.1-64/lib

Fortran benchmarks:

503.bwaves_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-ljemalloc -L/usr/local/je5.0.1-64/lib

549.fotonik3d_r: basepeak = yes

554.roms_r: Same as 503.bwaves_r

Benchmarks using both Fortran and C:

521.wrf_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/je5.0.1-64/lib -ljemalloc

527.cam4_r: basepeak = yes

Benchmarks using both C and C++:

511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/je5.0.1-64/lib -ljemalloc

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

Tyrone Systems
(Test Sponsor: Netweb Pte Ltd)

Tyrone Camarero SS400TR-12L
(3.40 GHz, Intel Xeon E-2224)

SPECrate®2017_fp_base = 33.8

SPECrate®2017_fp_peak = 33.9

CPU2017 License: 006042		**Test Date:**	Nov-2021
Test Sponsor:	Netweb Pte Ltd	**Hardware Availability:**	Apr-2021
Tested by:	Tyrone Systems	**Software Availability:**	Jun-2021

Peak Optimization Flags (Continued)

507.cactuBSSN_r: basepeak = yes

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

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

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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