



SPEC CPU®2017 Floating Point Speed Result

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xFusion

SPECSpeed®2017_fp_base = 514

FusionServer 2288H V8 (Intel Xeon 6980P)

SPECSpeed®2017_fp_peak = 514

CPU2017 License: 6488

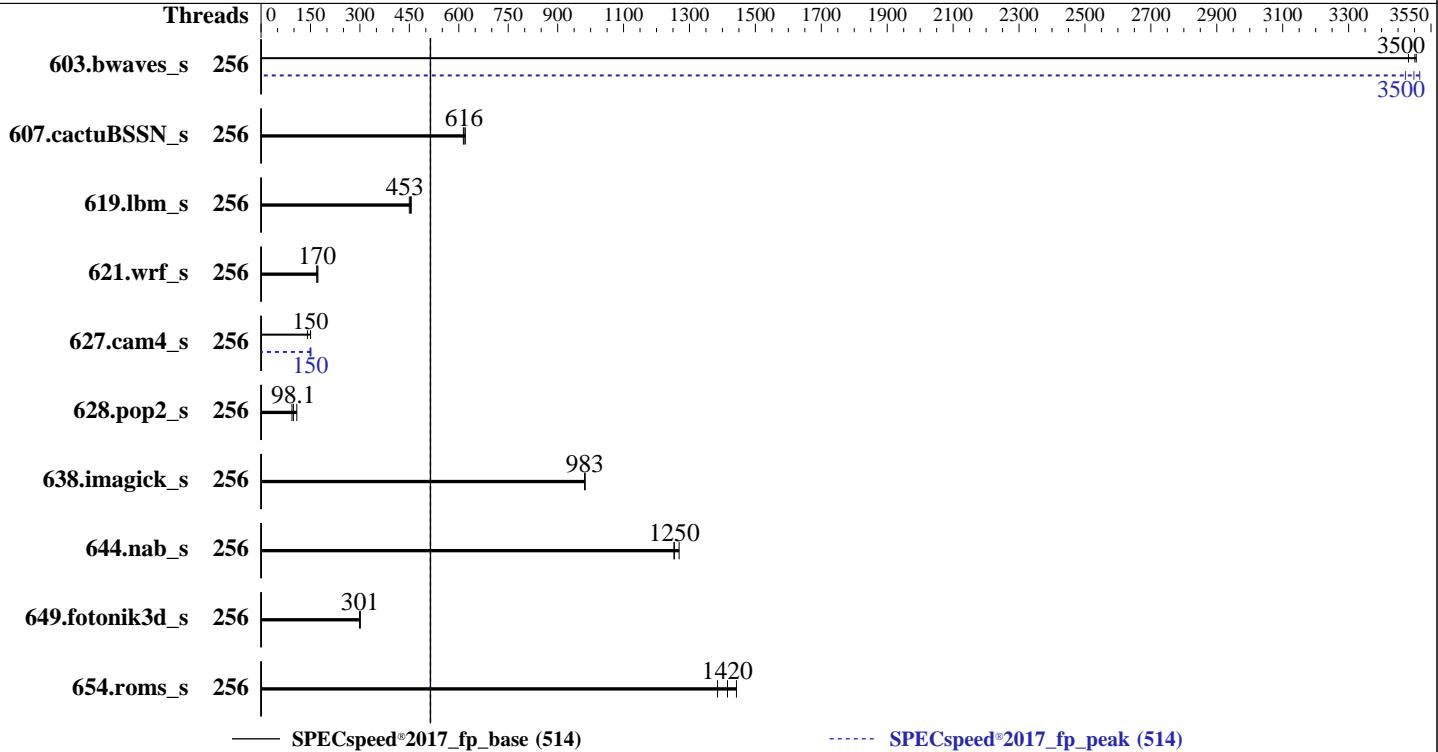
Test Date: Mar-2025

Test Sponsor: xFusion

Hardware Availability: Apr-2025

Tested by: xFusion

Software Availability: Jun-2024



Hardware		Software	
CPU Name:	Intel Xeon 6980P	OS:	SUSE Linux Enterprise Server 15 SP6
Max MHz:	3900	Compiler:	6.4.0-150600.21-default
Nominal:	2000	Parallel:	C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux;
Enabled:	256 cores, 2 chips	Firmware:	Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;
Orderable:	2 chips	File System:	Yes
Cache L1:	64 KB I + 48 KB D on chip per core	System State:	Version 01.01.06.05 Released Feb-2025
L2:	2 MB I+D on chip per core	Base Pointers:	Run level 3 (multi-user)
L3:	504 MB I+D on chip per chip	Peak Pointers:	64-bit
Other:	None	Other:	64-bit
Memory:	768 GB (24 x 32 GB 2Rx8 PC5-88/44B-M)	Power Management:	jemalloc memory allocator V5.0.1
Storage:	1 x 7.68 TB NVMe SSD		BIOS and OS set to prefer performance at the cost of additional power usage
Other:	CPU Cooling: Air		



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	256	<u>16.9</u>	3500	16.9	3480	16.8	3510	256	16.8	3520	17.0	3470	<u>16.9</u>	3500
607.cactuBSSN_s	256	<u>27.1</u>	616	27.2	614	26.9	620	256	<u>27.1</u>	616	27.2	614	<u>26.9</u>	620
619.lbm_s	256	11.5	456	11.6	450	<u>11.6</u>	453	256	11.5	456	11.6	450	<u>11.6</u>	453
621.wrf_s	256	76.7	173	<u>77.7</u>	170	78.2	169	256	76.7	173	<u>77.7</u>	170	78.2	169
627.cam4_s	256	59.0	150	<u>59.0</u>	150	63.0	141	256	<u>59.0</u>	150	59.6	149	58.6	151
628.pop2_s	256	<u>121</u>	98.1	127	93.8	109	108	256	<u>121</u>	98.1	127	93.8	109	108
638.imagick_s	256	<u>14.7</u>	983	14.7	983	14.7	982	256	<u>14.7</u>	983	14.7	983	14.7	982
644.nab_s	256	<u>13.9</u>	1250	13.9	1250	13.8	1270	256	<u>13.9</u>	1250	13.9	1250	13.8	1270
649.fotonik3d_s	256	30.3	301	30.5	299	<u>30.3</u>	301	256	30.3	301	30.5	299	<u>30.3</u>	301
654.roms_s	256	<u>11.1</u>	1420	11.4	1390	10.9	1440	256	<u>11.1</u>	1420	11.4	1390	10.9	1440
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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"
Kernel Boot Parameter set with : nohz_full=1-255

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/root/speccpu/lib/intel64:/root/speccpu/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB 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

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



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Platform Notes

BIOS configuration:

Performance Profile Set to Load Balance

Enable LP [Global] Set to Single LP

SNC Set to Enabled

```
Sysinfo program /root/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Wed Mar 12 13:21:00 2025
```

SUT (System Under Test) info as seen by some common utilities.

Table of contents

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS

```
1. uname -a
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
13:21:00 up 49 min, 1 user, load average: 68.77, 186.49, 202.66
USER      TTY      FROM          LOGIN@    IDLE      JCPU      PCPU WHAT
root      tty2          -           12:36     43:32    0.91s   0.00s -bash
```

3. Username
From environment variable \$USER: root

4. ulimit -a

core file size	(blocks, -c)	unlimited
data seg size	(kbytes, -d)	unlimited
scheduling priority	(-e)	0
file size	(blocks, -f)	unlimited

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Platform Notes (Continued)

```
pending signals          (-i) 3092225
max locked memory      (kbytes, -l) 8192
max memory size        (kbytes, -m) unlimited
open files              (-n) 1024
pipe size               (512 bytes, -p) 8
POSIX message queues   (bytes, -q) 819200
real-time priority      (-r) 0
stack size               (kbytes, -s) unlimited
cpu time                (seconds, -t) unlimited
max user processes      (-u) 3092225
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
```

```
-----  
5. sysinfo process ancestry  
/usr/lib/systemd/systemd --switched-root --system --deserialize=42  
login -- root  
-bash  
-bash  
-bash  
runcpu --nobuild --action validate --define default-platform-flags -c  
  ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=256 --tune base,peak -o all --define smt-on  
  --define drop_caches fpspeed  
runcpu --nobuild --action validate --define default-platform-flags --configfile  
  ic2024.1-lin-sapphirerapids-speed-20240308.cfg --define cores=256 --tune base,peak --output_format all  
  --define smt-on --define drop_caches --nopower --runmode speed --tune base:peak --size refspeed fpspeed  
  --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.006/templogs/preenv.fpspeed.006.0.log --lognum 006.0  
  --from_runcpu 2  
specperl $SPEC/bin/sysinfo  
$SPEC = /root/speccpu
```

```
-----  
6. /proc/cpuinfo  
model name      : Intel(R) Xeon(R) 6980P  
vendor_id       : GenuineIntel  
cpu family     : 6  
model          : 173  
stepping        : 1  
microcode       : 0x1000380  
bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs bhi  
cpu cores      : 128  
siblings        : 128  
2 physical ids (chips)  
256 processors (hardware threads)  
physical id 0: core ids 0-42,64-106,128-169  
physical id 1: core ids 0-41,64-106,128-170  
physical id 0: apicids  
0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72  
,74,76,78,80,82,84,128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,17  
0,172,174,176,178,180,182,184,186,188,190,192,194,196,198,200,202,204,206,208,210,212,256,258,260,262,264  
,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,308,310,312,314,316,  
318,320,322,324,326,328,330,332,334,336,338  
physical id 1: apicids  
512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,5  
64,566,568,570,572,574,576,578,580,582,584,586,588,590,592,594,640,642,644,646,648,650,652,654,656,658,66  
0,662,664,666,668,670,672,674,676,678,680,682,684,686,688,690,692,694,696,698,700,702,704,706,708,710,712  
,714,716,718,720,722,724,768,770,772,774,776,778,780,782,784,786,788,790,792,794,796,798,800,802,804,806,  
808,810,812,814,816,818,820,822,824,826,828,830,832,834,836,838,840,842,844,846,848,850,852  
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for  
virtualized systems. Use the above data carefully.
```

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Platform Notes (Continued)

7. lscpu

```
From lscpu from util-linux 2.39.3:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 52 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 256
On-line CPU(s) list: 0-255
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) 6980P
BIOS Model name: Intel(R) Xeon(R) 6980P CPU @ 2.0GHz
BIOS CPU family: 179
CPU family: 6
Model: 173
Thread(s) per core: 1
Core(s) per socket: 128
Socket(s): 2
Stepping: 1
CPU(s) scaling MHz: 21%
CPU max MHz: 3900.0000
CPU min MHz: 800.0000
BogoMIPS: 4000.00
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mttr 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 aperf mperf tsc_known_freq pnpi
pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xprv pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt
tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm
3dnowprefetch cpuid_fault epb cat_13 cat_12 cdp_13 intel_ppin cdp_12
ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow flexpriority ept
vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid
rtm cqmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt
clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
xgetbv1 xsaves cqmq_llc cqmq_occup_llc cqmq_mbm_total cqmq_mbm_local
split_lock_detect user_shstck avx_vnni avx512_bf16 wbnoinvd dtherm ida
arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req vnmi avx512vbm
umip pku ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni
avx512_bitalgo tme avx512_vpopcntdq la57 rdpid bus_lock_detect
cldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk
pconfig arch_lbr ibt amx_bf16 avx512_fp16 amx_tile amx_int8 flush_l1d
arch_capabilities
Virtualization: VT-x
L1d cache: 12 MiB (256 instances)
L1i cache: 16 MiB (256 instances)
L2 cache: 512 MiB (256 instances)
L3 cache: 1008 MiB (2 instances)
NUMA node(s): 6
NUMA node0 CPU(s): 0-42
NUMA node1 CPU(s): 43-85
NUMA node2 CPU(s): 86-127
NUMA node3 CPU(s): 128-169
NUMA node4 CPU(s): 170-212
NUMA node5 CPU(s): 213-255
Vulnerability Gather data sampling: Not affected
Vulnerability Itlb multihit: Not affected
```

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Platform Notes (Continued)

Vulnerability Lltf:	Not affected
Vulnerability Mds:	Not affected
Vulnerability Meltdown:	Not affected
Vulnerability Mmio stale data:	Not affected
Vulnerability Reg file data sampling:	Not affected
Vulnerability Retbleed:	Not affected
Vulnerability Spec rstack overflow:	Not affected
Vulnerability Spec store bypass:	Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:	Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:	Mitigation; Enhanced / Automatic IBRS; IBPB conditional; RSB filling; PBRSB-eIBRS Not affected; BHI BHI_DIS_S
Vulnerability Srbds:	Not affected
Vulnerability Tsx async abort:	Not affected

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	12M	12	Data	1	64	1	64
L1i	64K	16M	16	Instruction	1	64	1	64
L2	2M	512M	16	Unified	2	2048	1	64
L3	504M	1008M	16	Unified	3	516096	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 6 nodes (0-5)

node 0 cpus: 0-42

node 0 size: 128501 MB

node 0 free: 126272 MB

node 1 cpus: 43-85

node 1 size: 129012 MB

node 1 free: 128071 MB

node 2 cpus: 86-127

node 2 size: 129012 MB

node 2 free: 128245 MB

node 3 cpus: 128-169

node 3 size: 129012 MB

node 3 free: 128234 MB

node 4 cpus: 170-212

node 4 size: 129012 MB

node 4 free: 127142 MB

node 5 cpus: 213-255

node 5 size: 128532 MB

node 5 free: 127863 MB

node distances:

node	0	1	2	3	4	5
0:	10	12	12	21	21	21
1:	12	10	12	21	21	21
2:	12	12	10	21	21	21
3:	21	21	21	10	12	12
4:	21	21	21	12	10	12
5:	21	21	21	12	12	10

9. /proc/meminfo

MemTotal: 791639488 kB

10. who -r

run-level 3 Mar 12 12:36 last=5

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Platform Notes (Continued)

```
-----  
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)  
Default Target Status  
graphical      degraded  
  
-----  
12. Failed units, from systemctl list-units --state=failed  
UNIT           LOAD   ACTIVE SUB   DESCRIPTION  
* sep5.service    loaded failed  failed  systemd script to load sep5 driver at boot time  
* udisks2.service loaded failed  failed  Disk Manager  
  
-----  
13. Services, from systemctl list-unit-files  
STATE          UNIT FILES  
enabled        YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd bluetooth cron  
                  display-manager getty@ issue-generator kbdsettings kdump kdump-early kdump-notify klog  
lvm2-monitor nscd nvmefc-boot-connections nvmf-autoconnect postfix purge-kernels rollback  
rsyslog sep5 smartd sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6  
wickedd-nanny  
enabled-runtime systemd-remount-fs  
disabled       accounts-daemon autoyast-initscripts blk-availability bluetooth-mesh boot-sysctl  
ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell ebttables  
exchange-bmc-os-info firewalld fsidd gpm grub2-once haveged ipmi ipmievd irqbalance  
issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb  
ostree-remount rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@  
smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd systemd-boot-check-no-failures  
systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync  
systemd-timesyncd udisks2 update-system-flatpaks upower vncserver@  
indirect        systemd-userdbd wickedd  
  
-----  
14. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default  
root=UUID=6e3dc6a0-eb5c-4adf-9eb8-8aef9c14cf2c  
nohz_full=1-255  
splash=silent  
mitigations=auto  
quiet  
security=apparmor  
crashkernel=365M,high  
crashkernel=72M,low  
  
-----  
15. cpupower frequency-info  
analyzing CPU 23:  
    current policy: frequency should be within 800 MHz and 3.90 GHz.  
              The governor "performance" may decide which speed to use  
              within this range.  
    boost state support:  
      Supported: yes  
      Active: yes  
  
-----  
16. sysctl  
kernel.numa_balancing          1  
kernel.randomize_va_space       2  
vm.compaction_proactiveness    20  
vm.dirty_background_bytes       0  
vm.dirty_background_ratio      10  
vm.dirty_bytes                 0
```

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Platform Notes (Continued)

```
vm.dirty_expire_centisecs      3000
vm.dirty_ratio                 20
vm.dirty_writeback_centisecs   500
vm.dirtytime_expire_seconds    43200
vm.extfrag_threshold          500
vm.min_unmapped_ratio         1
vm.nr_hugepages                0
vm.nr_hugepages_mempolicy      0
vm.nr_overcommit_hugepages     0
vm.swappiness                  60
vm.watermark_boost_factor     15000
vm.watermark_scale_factor      10
vm.zone_reclaim_mode           0

-----
17. /sys/kernel/mm/transparent_hugepage
    defrag           always defer defer+madvise [madvise] never
    enabled          [always] madvise never
    hpage_pmd_size  2097152
    shmem_enabled   always within_size advise [never] deny force

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
    alloc_sleep_millisecs  60000
    defrag                 1
    max_ptes_none          511
    max_ptes_shared         256
    max_ptes_swap           64
    pages_to_scan           4096
    scan_sleep_millisecs   10000

-----
19. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP6

-----
20. Disk information
SPEC is set to: /root/speccpu
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p3  btrfs  1.5T  332G  1.2T  23%  /root

-----
21. /sys/devices/virtual/dmi/id
Product:        2288H V8
Product Family: Birch Stream

-----
22. dmidecode
Additional information from dmidecode 3.4 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:
  24x Micron MTC20F2085S1HC88XD1 WCCCC 32 GB 2 rank 8800

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
```

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Platform Notes (Continued)

BIOS Vendor: INSYDE Corp.
BIOS Version: 01.01.06.05
BIOS Date: 02/26/2025
BIOS Revision: 6.5

Compiler Version Notes

=====
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)
=====

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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=====

=====
C++, C, Fortran | 607.cactubssn_s(base, peak)
=====

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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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=====

=====
Fortran | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak) 654.roms_s(base, peak)
=====

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
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=====
Fortran, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)
=====

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Base Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

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SPEC CPU®2017 Floating Point Speed Result

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xFusion

SPECspeed®2017_fp_base = 514

FusionServer 2288H V8 (Intel Xeon 6980P)

SPECspeed®2017_fp_peak = 514

CPU2017 License: 6488

Test Date: Mar-2025

Test Sponsor: xFusion

Hardware Availability: Apr-2025

Tested by: xFusion

Software Availability: Jun-2024

Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:

icpx icx ifx

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
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:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fopenmp -nostandard-realloc-lhs
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fopenmp
-DSPEC_OPENMP -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP -Wno-implicit-int
```

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Tested by: xFusion

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Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-mprefer-vector-width=512 -nostandard-realloc-lhs -align array32byte  
-auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Peak Compiler Invocation

C benchmarks:

icx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

```
603.bwaves_s: -w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xsapphirerapids  
-Ofast -ffast-math -fsto -mfpmath=sse -funroll-loops  
-qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs  
-align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib  
-ljemalloc
```

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CPU2017 License: 6488

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Test Sponsor: xFusion

Hardware Availability: Apr-2025

Tested by: xFusion

Software Availability: Jun-2024

Peak Optimization Flags (Continued)

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

627.cam4_s: -w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -fsto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-GNR-V1.0.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/xFusion-Platform-Settings-GNR-V1.0.xml>

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