SPEC CPU®2017 Integer Rate Result

xFusion

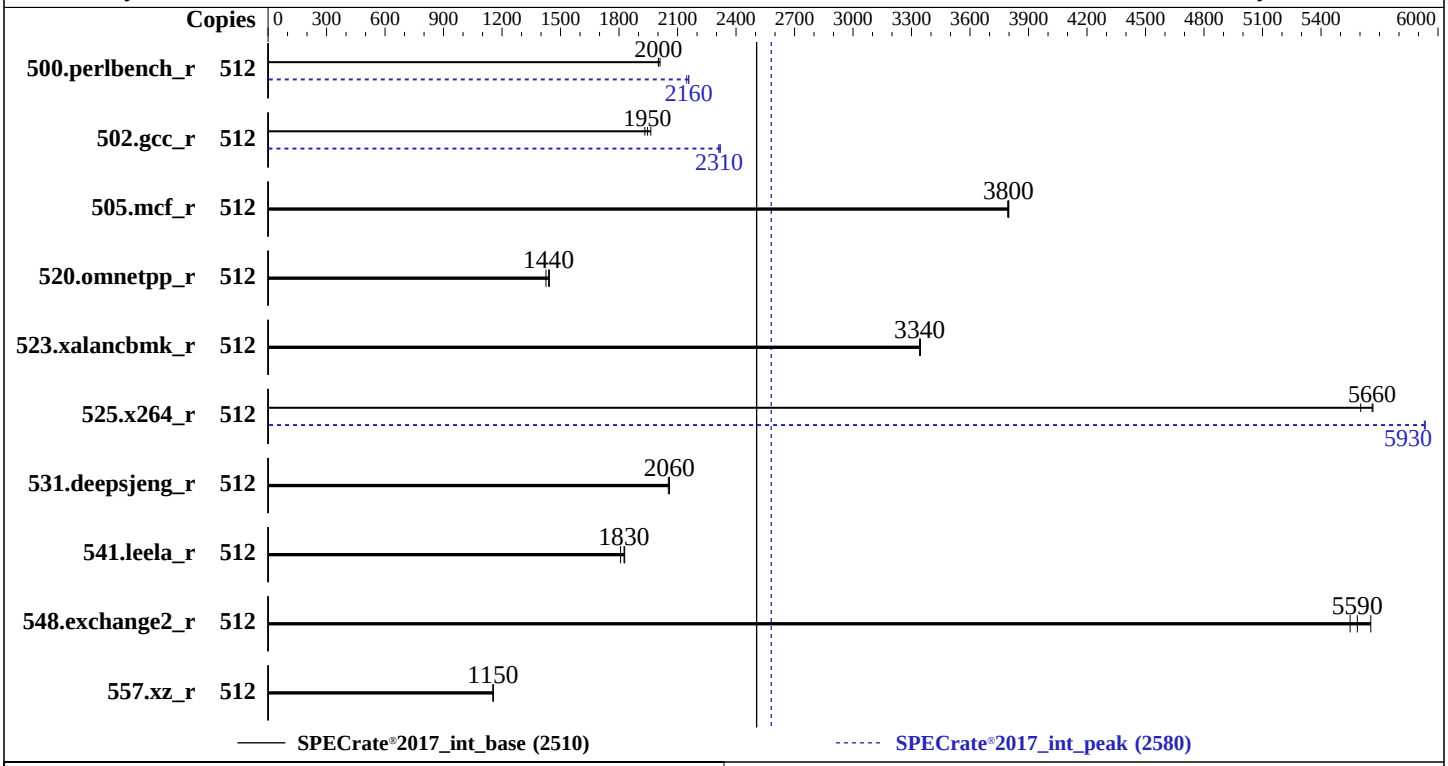
FusionServer 2288H V8 (Intel Xeon 6980P)

SPECrate®2017_int_base = 2510

SPECrate®2017_int_peak = 2580

CPU2017 License: 6488
Test Sponsor: xFusion
Tested by: xFusion

Test Date: Mar-2025
Hardware Availability: Apr-2025
Software Availability: Jun-2024



Hardware

CPU Name:	Intel Xeon 6980P
Max MHz:	3900
Nominal:	2000
Enabled:	256 cores, 2 chips, 2 threads/core
Orderable:	2 chips
Cache L1:	64 KB I + 48 KB D on chip per core
L2:	2 MB I+D on chip per core
L3:	504 MB I+D on chip per chip
Other:	None
Memory:	768 GB (24 x 32 GB 2Rx8 PC5-88/44B-M)
Storage:	1 x 7.68 TB NVMe SSD
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 15 SP6 6.4.0-150600.21-default
Compiler:	C/C++: Version 2024.1 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2024.1 of Intel Fortran Compiler for Linux;
Parallel:	No
Firmware:	Version 01.01.06.05 Released Feb-2025
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other:	jemalloc memory allocator V5.0.1
Power Management:	BIOS set to prefer performance at the cost of additional power usage.

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	512	405	2010	407	2000	**407**	**2000**	512	378	2160	**378**	**2160**	380	2150
502.gcc_r	512	369	1960	**373**	**1950**	375	1930	512	313	2320	**313**	**2310**	314	2310
505.mcf_r	512	218	3800	**218**	**3800**	218	3790	512	218	3800	**218**	**3800**	218	3790
520.omnetpp_r	512	471	1430	**467**	**1440**	466	1440	512	471	1430	**467**	**1440**	466	1440
523.xalancbmk_r	512	162	3340	**162**	**3340**	162	3350	512	162	3340	**162**	**3340**	162	3350
525.x264_r	512	160	5600	**158**	**5660**	158	5670	512	151	5930	**151**	**5930**	151	5930
531.deepsjeng_r	512	286	2050	285	2060	**285**	**2060**	512	286	2050	285	2060	**285**	**2060**
541.leela_r	512	**464**	**1830**	469	1810	464	1830	512	**464**	**1830**	469	1810	464	1830
548.exchange2_r	512	**240**	**5590**	237	5660	242	5550	512	**240**	**5590**	237	5660	242	5550
557.xz_r	512	**479**	**1150**	479	1160	479	1150	512	**479**	**1150**	479	1160	479	1150

SPECrate®2017_int_base = 2510

SPECrate®2017_int_peak = 2580

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"
Kernel Boot Parameter set with : nohz_full=1-255
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/root/speccpu/lib/intel64:/root/speccpu/lib/ia32:/root/speccpu/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

General Notes

```
Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
memory using Red Hat Enterprise Linux 8.4
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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
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)
```

(Continued on next page)

General Notes (Continued)

```
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

```
BIOS configuration:
Performance Profile Set to Performance
SNC Set to Enabled

Sysinfo program /root/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on sbtyCcuEkl Mon Mar 17 20:42:33 2025

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

------------------------------------------------------------
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------------------------------------------------------------
 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. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent_hugepage
17. /sys/kernel/mm/transparent_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -a
  Linux sbtyCcuEkl 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
   20:42:33 up 3 min,  1 user,  load average: 1.19, 1.26, 0.54
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                20:40    9.00s  1.21s  0.04s -bash

------------------------------------------------------------
3. Username
  From environment variable $USER:  root
```

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Platform Notes (Continued)

```
------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 3093152
  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) 3093152
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=31
 login -- root
 -bash
 -bash
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 -c
   ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=256 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak -o all intrate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 --configfile
   ic2024.1-lin-sapphirerapids-rate-20240308.cfg --define smt-on --define cores=256 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base,peak --output_format all --nopower
   --runmode rate --tune base:peak --size refrate intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --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        : 256
    2 physical ids (chips)
    512 processors (hardware threads)
    physical id 0: core ids 0-42,64-106,128-169
    physical id 1: core ids 0-42,64-106,128-169
    physical id 0: apicids 0-85,128-213,256-339
    physical id 1: apicids 512-597,640-725,768-851
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
  virtualized systems.  Use the above data carefully.

------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.39.3:
```

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Platform Notes (Continued)

```
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):                          512
On-line CPU(s) list:             0-511
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:              2
Core(s) per socket:              128
Socket(s):                       2
Stepping:                        1
BogoMIPS:                        4000.00
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 ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr 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_l3 cat_l2 cdp_l3 intel_ppin cdp_l2 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 cqm rdt_a avx512f
                                 avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd
                                 sha_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc
                                 cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect
                                 user_shstk avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts vnmi
                                 avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq
                                 avx512_vnni avx512_bitalg 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):               0-42,256-298
NUMA node1 CPU(s):               43-85,299-341
NUMA node2 CPU(s):               86-127,342-383
NUMA node3 CPU(s):               128-170,384-426
NUMA node4 CPU(s):               171-213,427-469
NUMA node5 CPU(s):               214-255,470-511
Vulnerability Gather data sampling:  Not affected
Vulnerability Itlb multihit:     Not affected
Vulnerability L1tf:              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
```

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Platform Notes (Continued)

```
  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: 0-42,256-298
  node 0 size: 128493 MB
  node 0 free: 127808 MB
  node 1 cpus: 43-85,299-341
  node 1 size: 129001 MB
  node 1 free: 128504 MB
  node 2 cpus: 86-127,342-383
  node 2 size: 129002 MB
  node 2 free: 128554 MB
  node 3 cpus: 128-170,384-426
  node 3 size: 129001 MB
  node 3 free: 128473 MB
  node 4 cpus: 171-213,427-469
  node 4 size: 128963 MB
  node 4 free: 128153 MB
  node 5 cpus: 214-255,470-511
  node 5 size: 128851 MB
  node 5 free: 128426 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:       791872660 kB

------------------------------------------------------------
10. who -r
  run-level 3 Mar 17 20:40

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         apparmor auditd cron getty@ issue-generator kbdsettings nvmefc-boot-connections
```

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Platform Notes (Continued)

```
                  nvmf-autoconnect postfix purge-kernels rollback sshd systemd-pstore wicked wickedd-auto4
                  wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
  enabled-runtime systemd-remount-fs
  disabled        boot-sysctl ca-certificates chrony-wait chronyd console-getty cups cups-browsed
                  debug-shell grub2-once haveged irqbalance issue-add-ssh-keys kexec-load rpmconfigcheck
                  serial-getty@ systemd-boot-check-no-failures systemd-confext systemd-network-generator
                  systemd-sysext systemd-time-wait-sync systemd-timesyncd
  indirect        pcscd systemd-userdbd wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
  root=UUID=1a39641f-9f03-4ba8-aef3-c2c6e6d2a43f
  nohz_full=1-255
  splash=silent
  mitigations=auto
  quiet
  security=apparmor

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 269:
    Unable to determine current policy
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. 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
  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

------------------------------------------------------------
16. /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

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
```

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Platform Notes (Continued)

```
   max_ptes_none             511
   max_ptes_shared           256
   max_ptes_swap              64
   pages_to_scan            4096
   scan_sleep_millisecs    10000

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

------------------------------------------------------------
19. Disk information
SPEC is set to: /root/speccpu
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p3 xfs   1.5T   47G  1.5T   4% /

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

------------------------------------------------------------
21. 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


------------------------------------------------------------
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       INSYDE Corp.
   BIOS Version:      01.01.06.05
   BIOS Date:         02/26/2025
   BIOS Revision:     6.5
```

Compiler Version Notes

```
==============================================================================================================
C       | 502.gcc_r(peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
        | 557.xz_r(base, peak)
--------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C       | 502.gcc_r(peak)
```

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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------

============================================================================================================
C       | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
        | 557.xz_r(base, peak)
------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------

============================================================================================================
C++     | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
        | 541.leela_r(base, peak)
------------------------------------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------

============================================================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.1.0 Build 20240308
Copyright (C) 1985-2024 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64

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Base Portability Flags (Continued)

541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc

C++ benchmarks:
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64

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Peak Portability Flags (Continued)

523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc

502.gcc_r: -m32 -L/opt/intel/oneapi/compiler/2024.1/lib32 -std=gnu89
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

505.mcf_r: basepeak = yes

525.x264_r: -w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fno-alias
-L/opt/intel/oneapi/compiler/2024.1/lib -lqkmalloc

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: basepeak = yes

(Continued on next page)

Peak Optimization Flags (Continued)

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `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`

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

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