



# SPEC CPU®2017 Integer Rate Result

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## Fujitsu

PRIMERGY RX4770 M7, Intel Xeon Platinum 8444H, 2.90GHz

SPECrate®2017\_int\_base = 649

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 19

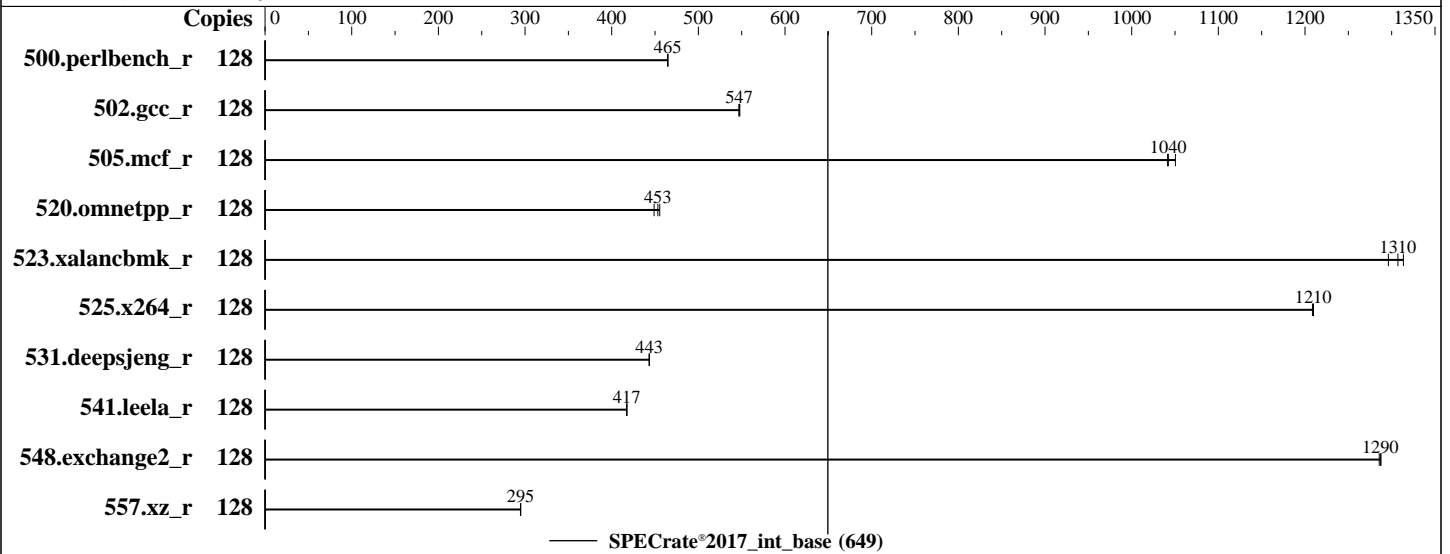
Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Platinum 8444H  
 Max MHz: 4000  
 Nominal: 2900  
 Enabled: 64 cores, 4 chips, 2 threads/core  
 Orderable: 2,4 chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 45 MB I+D on chip per chip  
 Other: None  
 Memory: 2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 1.92 TB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4  
 5.14.21-150400.22-default  
 Compiler: C/C++: Version 2023.0 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2023.0 of Intel Fortran Compiler  
 for Linux;  
 Parallel: No  
 Firmware: Fujitsu BIOS Version V1.0.0.0 R1.10.0 for  
 D3984-A1x. Released Jun-2023  
 tested as V1.0.0.0 R1.2.0 for D3984-A1x May-2023  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: BIOS set to prefer performance at  
 the cost of additional power usage



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	128	438	465	<b><u>439</u></b>	<b><u>465</u></b>	439	465							
502.gcc_r	128	<b><u>331</u></b>	<b><u>547</u></b>	331	547	331	548							
505.mcf_r	128	197	1050	<b><u>198</u></b>	<b><u>1040</u></b>	199	1040							
520.omnetpp_r	128	374	449	<b><u>370</u></b>	<b><u>453</u></b>	369	455							
523.xalancbmk_r	128	<b><u>103</u></b>	<b><u>1310</u></b>	103	1310	104	1300							
525.x264_r	128	185	1210	<b><u>185</u></b>	<b><u>1210</u></b>	185	1210							
531.deepsjeng_r	128	331	443	<b><u>331</u></b>	<b><u>443</u></b>	331	443							
541.leela_r	128	508	417	<b><u>508</u></b>	<b><u>417</u></b>	508	418							
548.exchange2_r	128	260	1290	261	1290	<b><u>261</u></b>	<b><u>1290</u></b>							
557.xz_r	128	469	295	<b><u>469</u></b>	<b><u>295</u></b>	469	295							

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

## Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk\_r / 623.xalancbmk\_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 [https://www.spec.org/cpu2017/Docs/runrules.html#rule\\_1.4](https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4)), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

## 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"

## Environment Variables Notes

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

```
LD_LIBRARY_PATH =
"/home/Benchmark/speccpu/lib/intel64:/home/Benchmark/speccpu/lib/ia32:/home/Benchmark/speccpu/je5.0.1-32"
MALLOC_CONF = "retain:true"
```



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## 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)  
 is mitigated in the system as tested and documented.

## Platform Notes

BIOS configuration:  
 DCU Streamer Prefetcher = Disabled  
 Package C State limit = C0  
 LLC Dead Line Alloc = Disabled  
 CPU Performance Boost = Aggressive  
 SNC (Sub NUMA) = Enable SNC4  
 FAN Control = Full

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo  
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
 running on localhost Thu Jun 1 03:37:34 2023

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 249 (249.11+suse.124.g2bc0b2c447)
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

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### Platform Notes (Continued)

- 1. `uname -a`  
Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT\_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)  
x86\_64 x86\_64 x86\_64 GNU/Linux
- 2. `w`  
03:37:34 up 1 min, 1 user, load average: 3.68, 2.27, 0.89  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 03:37 14.00s 2.63s 0.38s /home/Benchmark/ptu-unified/ptu -i 500000  
-filter 0x3f -ts -csv -log -logdir . -logname ptu\_intrate\_SPR\_2017\_withptu\_202306010337
- 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  
pending signals (-i) 8253992  
max locked memory (kbytes, -l) 64  
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) 8253992  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited
- 5. `sysinfo process ancestry`  
/usr/lib/systemd/systemd --switched-root --system --deserialize 30  
login -- root  
-bash  
-bash  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 -c  
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --define physicalfirst  
--define invoke\_with\_interleave --define drop\_caches --tune base -o all intrate  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=128 --configfile  
ic2023.0-lin-sapphirerapids-rate-20221201.cfg --define smt-on --define cores=64 --define physicalfirst  
--define invoke\_with\_interleave --define drop\_caches --tune base --output\_format all --nopower --runmode  
rate --tune base --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 = /home/Benchmark/speccpu
- 6. `/proc/cpuinfo`  
model name : Intel(R) Xeon(R) Platinum 8444H  
vendor\_id : GenuineIntel  
cpu family : 6  
model : 143  
stepping : 8  
microcode : 0x2b0001b0

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### Platform Notes (Continued)

```
bugs          : spectre_v1 spectre_v2 spec_store_bypass swappg
cpu cores     : 16
siblings      : 32
4 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-15
physical id 1: core ids 0-15
physical id 2: core ids 0-15
physical id 3: core ids 0-15
physical id 0: apicids 0-31
physical id 1: apicids 128-159
physical id 2: apicids 256-287
physical id 3: apicids 384-415
```

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 2.37.2:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         46 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                128
On-line CPU(s) list:   0-127
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Platinum 8444H
CPU family:            6
Model:                143
Thread(s) per core:    2
Core(s) per socket:    16
Socket(s):             4
Stepping:              8
CPU max MHz:           4000.0000
CPU min MHz:           800.0000
BogoMIPS:              5800.00
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 aperfperf tsc_known_freq pni pclmulqdq dtes64 monitor
                        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
                        invpcid_single intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced
                        tpr_shadow vnmi 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 avx_vnni avx512_bf16 wbnoinvd dtherm ida
                        arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req 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 avx512_fp16
                        amx_tile flush_lld arch_capabilities
Virtualization:        VT-x
L1d cache:             3 MiB (64 instances)
L1i cache:             2 MiB (64 instances)
L2 cache:              128 MiB (64 instances)
L3 cache:              180 MiB (4 instances)
```

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### Platform Notes (Continued)

```

NUMA node(s):                16
NUMA node0 CPU(s):           0-3,64-67
NUMA node1 CPU(s):           4-7,68-71
NUMA node2 CPU(s):           8-11,72-75
NUMA node3 CPU(s):           12-15,76-79
NUMA node4 CPU(s):           16-19,80-83
NUMA node5 CPU(s):           20-23,84-87
NUMA node6 CPU(s):           24-27,88-91
NUMA node7 CPU(s):           28-31,92-95
NUMA node8 CPU(s):           32-35,96-99
NUMA node9 CPU(s):           36-39,100-103
NUMA node10 CPU(s):          40-43,104-107
NUMA node11 CPU(s):          44-47,108-111
NUMA node12 CPU(s):          48-51,112-115
NUMA node13 CPU(s):          52-55,116-119
NUMA node14 CPU(s):          56-59,120-123
NUMA node15 CPU(s):          60-63,124-127
Vulnerability Itlb multihit:  Not affected
Vulnerability Lltf:           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

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	3M	12	Data	1	64	1	64
L1i	32K	2M	8	Instruction	1	64	1	64
L2	2M	128M	16	Unified	2	2048	1	64
L3	45M	180M	15	Unified	3	49152	1	64

8. numactl --hardware

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

```

available: 16 nodes (0-15)
node 0 cpus: 0-3,64-67
node 0 size: 128600 MB
node 0 free: 127948 MB
node 1 cpus: 4-7,68-71
node 1 size: 129021 MB
node 1 free: 128752 MB
node 2 cpus: 8-11,72-75
node 2 size: 129021 MB
node 2 free: 128787 MB
node 3 cpus: 12-15,76-79
node 3 size: 129021 MB
node 3 free: 128853 MB
node 4 cpus: 16-19,80-83
node 4 size: 129021 MB
node 4 free: 128792 MB
node 5 cpus: 20-23,84-87
node 5 size: 129021 MB
node 5 free: 128832 MB
node 6 cpus: 24-27,88-91
node 6 size: 129021 MB
node 6 free: 128827 MB
node 7 cpus: 28-31,92-95

```

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```

node 7 size: 128987 MB
node 7 free: 128778 MB
node 8 cpus: 32-35,96-99
node 8 size: 129021 MB
node 8 free: 128882 MB
node 9 cpus: 36-39,100-103
node 9 size: 129021 MB
node 9 free: 128879 MB
node 10 cpus: 40-43,104-107
node 10 size: 129021 MB
node 10 free: 128906 MB
node 11 cpus: 44-47,108-111
node 11 size: 129021 MB
node 11 free: 128872 MB
node 12 cpus: 48-51,112-115
node 12 size: 129021 MB
node 12 free: 128927 MB
node 13 cpus: 52-55,116-119
node 13 size: 129021 MB
node 13 free: 128866 MB
node 14 cpus: 56-59,120-123
node 14 size: 129021 MB
node 14 free: 128889 MB
node 15 cpus: 60-63,124-127
node 15 size: 128650 MB
node 15 free: 128532 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
0:  10 12 12 12 21 21 21 21 21 21 21 21 21 21 21 21
1:  12 10 12 12 21 21 21 21 21 21 21 21 21 21 21 21
2:  12 12 10 12 21 21 21 21 21 21 21 21 21 21 21 21
3:  12 12 12 10 21 21 21 21 21 21 21 21 21 21 21 21
4:  21 21 21 21 10 12 12 12 21 21 21 21 21 21 21 21
5:  21 21 21 21 12 10 12 12 21 21 21 21 21 21 21 21
6:  21 21 21 21 12 12 10 12 21 21 21 21 21 21 21 21
7:  21 21 21 21 12 12 10 21 21 21 21 21 21 21 21 21
8:  21 21 21 21 21 21 21 21 10 12 12 12 21 21 21 21
9:  21 21 21 21 21 21 21 21 12 10 12 12 21 21 21 21
10: 21 21 21 21 21 21 21 21 12 12 10 12 21 21 21 21
11: 21 21 21 21 21 21 21 21 12 12 10 21 21 21 21 21
12: 21 21 21 21 21 21 21 21 21 21 21 21 10 12 12 12
13: 21 21 21 21 21 21 21 21 21 21 21 21 12 10 12 12
14: 21 21 21 21 21 21 21 21 21 21 21 21 12 12 10 12
15: 21 21 21 21 21 21 21 21 21 21 21 21 12 12 12 10

```

```

-----
9. /proc/meminfo
   MemTotal:      2113046856 kB

```

```

-----
10. who -r
    run-level 3 Jun 1 03:36

```

```

-----
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
    Default Target   Status
    multi-user       degraded

```

```

-----
12. Failed units, from systemctl list-units --state=failed

```

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### Platform Notes (Continued)

UNIT           LOAD   ACTIVE SUB   DESCRIPTION  
\* sep5.service loaded failed failed systemd script to load sep5 driver at boot time

-----  
13. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	YaST2-Firstboot YaST2-Second-Stage apparmor auditd bluetooth cron display-manager getty@ haveged irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog sep5 smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime	systemd-remount-fs
disabled	accounts-daemon appstream-sync-cache autofs 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 firewallld gpm grub2-once haveged-switch-root ipmi ipmievdev iscsi-init iscsid iscsiuiio issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb ostree-remount rdisc rpcbind rpmconfigcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd sysstat systemd-boot-check-no-failures systemd-network-generator systemd-sysextd systemd-time-wait-sync systemd-timesyncd udisks2 upower
indirect	wickedd

-----  
14. Linux kernel boot-time arguments, from /proc/cmdline

BOOT\_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default  
root=UUID=9e2670af-d584-4578-97c8-36df0cfc1166  
splash=silent  
mitigations=auto  
quiet  
security=apparmor  
crashkernel=324M,high  
crashkernel=72M,low

-----  
15. cpupower frequency-info

analyzing CPU 0:  
current policy: frequency should be within 800 MHz and 4.00 GHz.  
The governor "powersave" 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
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

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### Platform Notes (Continued)

```

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+madvice [madvice] never
enabled         [always] madvice 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 SP4

```

```

-----
20. Disk information
SPEC is set to: /home/Benchmark/speccpu
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   1.8T  79G  1.7T   5% /

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:          FUJITSU
Product:         PRIMERGY RX4770 M7
Product Family: SERVER
Serial:          EWCDXXXXXX

```

```

-----
22. dmidecode
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:
13x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
4x Samsung M321R8GA0BB0-CQKEG 64 GB 2 rank 4800
15x Samsung M321R8GA0BB0-CQKVG 64 GB 2 rank 4800

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:          FUJITSU
BIOS Version:         V1.0.0.0 R1.2.0 for D3984-Alx
BIOS Date:            05/12/2023
BIOS Revision:        1.2
Firmware Revision:    2.25

```



# SPEC CPU®2017 Integer Rate Result

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## Fujitsu

PRIMERGY RX4770 M7, Intel Xeon Platinum 8444H, 2.90GHz

SPECrate®2017\_int\_base = 649

SPECrate®2017\_int\_peak = Not Run

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

**Test Date:** Jun-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022

## Compiler Version Notes

-----  
C | 500.perlbench\_r(base) 502.gcc\_r(base) 505.mcf\_r(base) 525.x264\_r(base) 557.xz\_r(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
-----

-----  
C++ | 520.omnetpp\_r(base) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base) 541.leela\_r(base)  
-----

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.  
-----

-----  
Fortran | 548.exchange2\_r(base)  
-----

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201  
Copyright (C) 1985-2022 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  
541.leela\_r: -DSPEC\_LP64  
548.exchange2\_r: -DSPEC\_LP64  
557.xz\_r: -DSPEC\_LP64



# SPEC CPU<sup>®</sup>2017 Integer Rate Result

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CPU2017 License: 19

Test Sponsor: Fujitsu

Tested by: Fujitsu

Test Date: Jun-2023

Hardware Availability: Jun-2023

Software Availability: Dec-2022

## 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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
-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/usr/local/intel/compiler/2023.0.0/linux/compiler/lib/intel64_lin  
-lqkmalloc
```

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.0-SPR-RevB.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU<sup>®</sup>2017 v1.1.9 on 2023-05-31 14:37:33-0400.

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