Fujitsu
PRIMEQUEST 4400E, Intel Xeon Platinum 8444H, 2.90GHz

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

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

SPECrate®2017_int_base = 650
SPECrate®2017_int_peak = Not Run

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 R0.20.0 for D3984-A1x Apr-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
SPEC CPU®2017 Integer Rate Result
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak Copies</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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<td>440</td>
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<td>525.x264_r</td>
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<tr>
<td>557.xz_r</td>
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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), 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This result is left in the SPEC results database for historical reference.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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Hardware Availability: Jun-2023
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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 numacl1 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
System date was wrongly set. The actual date is Apr-2023

Sysinfo program /home/Benchmark/speccpu/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Fri Apr 29 21:16:06 2022

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

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------------------------------------------------------------
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2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numacl1 --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. systcl
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`
   21:16:06 up 16 min, 1 user, load average: 0.08, 0.15, 0.41
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                21:15   14.00s  2.72s  0.15s /home/Benchmark/PTU/ptat -mon -i 5000000
   -filter 0x3f -ts -y

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) 8253996
   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) 8253996
   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
   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 -o all intrate --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

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Platform Notes (Continued)

microcode : 0x2b0001b0
bugs : spectre_v1 spectre_v2 spec_store_bypass swapgs
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.

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

Virtualization:
VT-x
L1d cache: 3 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 128 MiB (64 instances)
### Platform Notes (Continued)

- **L3 cache:** 180 MiB (4 instances)
- **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 L1tf:** Not affected
- **Vulnerability Mds:** Not affected
- **Vulnerability Meltdown:** Not affected
- **Vulnerability Spec store bypass:** Mitigation; Speculative Store Bypass disabled via prctl and seccomp
- **Vulnerability Spectre v1:** Mitigation; usercopy/swapgs barriers and __user pointer sanitization
- **Vulnerability Spectre v2:** Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
- **Vulnerability Srbds:** Not affected
- **Vulnerability Txs async abort:** Not affected

---

### From lscpu --cache:

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

---

8. `numactl --hardware`

**NOTE:** A numactl 'node' might or might not correspond to a physical chip.
Platform Notes (Continued)

node 7 cpus: 28-31, 92-95
node 7 size: 129021 MB
node 7 free: 128757 MB
node 8 cpus: 32-35, 96-99
node 8 size: 129021 MB
node 8 free: 128738 MB
node 9 cpus: 36-39, 100-103
node 9 size: 129021 MB
node 9 free: 128706 MB
node 10 cpus: 40-43, 104-107
node 10 size: 129021 MB
node 10 free: 128717 MB
node 11 cpus: 44-47, 108-111
node 11 size: 129021 MB
node 11 free: 128773 MB
node 12 cpus: 48-51, 112-115
node 12 size: 129021 MB
node 12 free: 128775 MB
node 13 cpus: 52-55, 116-119
node 13 size: 129021 MB
node 13 free: 128773 MB
node 14 cpus: 56-59, 120-123
node 14 size: 129021 MB
node 14 free: 128770 MB
node 15 cpus: 60-63, 124-127
node 15 size: 128650 MB
node 15 free: 128417 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  12  12  12  12  12  12  12  12  12  12  12  12
1:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
2:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
3:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
4:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
5:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
6:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
7:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
8:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
9:  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
10: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
11: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
12: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
13: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
14: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12
15: 12  12  12  12  12  12  12  12  12  12  12  12  12  12  12  12

--- /proc/meminfo
MemTotal: 2113047980 kB

---
10. who -r
run-level 3 Apr 29 21:00

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

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Platform Notes (Continued)

12. Failed units, from systemctl list-units --state=failed
   * 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@
           havedeg irqbalance iscsi issue-generator kbdsettings kdump kdump-early klog lvm2-monitor
           nsd 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 autosfs autostart-initscripts blk-availability
           bluetooth-mesh boot-ssysctl ca-certificates chrony-wait chronyd console-getty cups
cups-browsed debug-shell ebttables exchange-bmc-os-info firewalld gpm grub2-once
           havedeg-switch-root ipmi ipmielvd iscsi-1init iscsidisc iscsiuiio issue-add-ssh-keys kexec-load
           lnumask man-db-create multipathd nfs nfs-bikmap nmz numad ostree-remount rdisc rpsbind
           rpmcnfcheck rsyncd rtkit-daemon serial-getty@ smartd_generate_opts smb snmpd snmptrapd
           speech-dispatcher systemd-boot-check-no-failures systemd-network-generator systemd-sysext
           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=8b4cf1a0-f943-46c1-a409-c2bca0c1173e
    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.compression_proactive 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.dirty_time_expired 43200
    vm.extrfrag_threshold 500
    vm.min_unmapped_ratio 1
    vm.nr_hugepages 0
    vm.nr_hugepages_mempolicy 0
    vm.nr_overcommit_mempolicy 0

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### Platform Notes (Continued)

```
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 SP4

---------------------------------------------------------------------------
20. Disk information
   SPEC is set to: /home/Benchmark/speccpu
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   1.8T   55G  1.7T   4% /

---------------------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
   Vendor: FUIJITSU LIMITED

---------------------------------------------------------------------------
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 SMI BIOS" standard.
   Memory:
   9x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
   4x Samsung M321R8GA0BB0-CQKFG 64 GB 2 rank 4800
   1x Samsung M321R8GA0BB0-CQKMG 64 GB 2 rank 4800
   18x Samsung M321R8GA0BB0-CQKVQ 64 GB 2 rank 4800

---------------------------------------------------------------------------
23. BIOS
   (This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor: FUIJITSU
   BIOS Version: V1.0.0.0 R0.20.0 for D3986-A1
   BIOS Date: 04/28/2023
   BIOS Revision: 0.20
   Firmware Revision: 1.0
```
**SPEC CPU®2017 Integer Rate Result**

**Fujitsu**

**PRIMEQUEST 4400E, Intel Xeon Platinum 8444H, 2.90GHz**

| SPECrate®2017_int_base = | 650 |
| SPECrate®2017_int_peak = | Not Run |

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

**Compiler Version Notes**

```plaintext
<table>
<thead>
<tr>
<th>C</th>
<th>perlbench_r(base) gcc_r(base) mcf_r(base) x264_r(base) xz_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2022 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C++</th>
<th>omnetpp_r(base) xalancbmk_r(base) deepsjeng_r(base) leela_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fortran</th>
<th>exchange2_r(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2022 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>
```

**Base Compiler Invocation**

- **C benchmarks:** icx
- **C++ benchmarks:** icpx
- **Fortran benchmarks:** ifx

**Base Portability Flags**

```plaintext
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
```

**Test Date:** Apr-2023  
**Hardware Availability:** Jun-2023  
**Software Availability:** Dec-2022
Fujitsu
PRIMEQUEST 4400E, Intel Xeon Platinum 8444H, 2.90GHz

SPECrate®2017_int_base = 650
SPECrate®2017_int_peak = Not Run

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

Test Date: Apr-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

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.

Tested with SPEC CPU®2017 v1.1.9 on 2022-04-29 08:16:05-0400.
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