<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed²017_int_base</th>
<th>SPECspeed²017_int_peak</th>
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<td>gcc</td>
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<td>mcf</td>
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<td>omnetpp</td>
<td>16</td>
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<td></td>
</tr>
<tr>
<td>xalancbmk</td>
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<td>27.4</td>
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<tr>
<td>x264</td>
<td>16</td>
<td></td>
<td>22.5</td>
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<tr>
<td>deepsjeng</td>
<td>16</td>
<td>7.31</td>
<td>23.1</td>
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<tr>
<td>leela</td>
<td>16</td>
<td>5.92</td>
<td></td>
</tr>
<tr>
<td>exchange2</td>
<td>16</td>
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</tr>
<tr>
<td>xz</td>
<td>16</td>
<td></td>
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</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Platinum 8444H
- **Max MHz:** 4000
- **Nominal:** 2900
- **Enabled:** 16 cores, 1 chip
- **Orderable:** 1 chip
- **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:** 256 GB (8 x 32 GB 2Rx8 PC5-4800B-R)
- **Storage:** 1 x 240 GB SATA III SSD
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 15 SP4
- **Kernel:** 5.14.21-150400.22-default
- **Compiler:** C/C++: Version 2022.1 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;
- **Parallel:** Yes
- **Firmware:** Version 1.0a released Nov-2022
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** Jemalloc memory allocator V5.0.1
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage.
Supermicro
SuperServer SYS-521E-WR
(X13SEW-TF, Intel Xeon Platinum 8444H)

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td></td>
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<td></td>
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<td>76.3</td>
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<td>631.deepsjeng_s</td>
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<td>5.92</td>
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<td>290</td>
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</table>

SPECspeed®2017_int_base = 14.3
SPECspeed®2017_int_peak = 14.6

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.xalanchmk_r / 623.xalanchmk_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.

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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "\%/home/cpu2017/lib/intel64:/home/cpu2017/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

(Continued on next page)
General Notes (Continued)

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.


Platform Notes

BIOS Settings:
Power Technology = Custom
Power Performance Tuning = BIOS Controls EPB
ENERGY_PERF_BIAS_CFG mode = Performance
DCU Streamer Prefetcher = Disable
Hyper-Threading [ALL]= Disable
LLC Dead Line Alloc = Disable
KTI Prefetch = Enable
Stale AtoS = Disable
Patrol Scrub = Disable

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e616acaf64d
running on 135-173-251.engtw Wed Nov 30 10:54:28 2022

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8444H
 1 "physical id"s (chips)
 16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 16
siblings : 16
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

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): 16
On-line CPU(s) list: 0-15
Vendor ID: GenuineIntel
Model name: Intel(R) Xeon(R) Platinum 8444H
CPU family: 6
Model: 143
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 1
Stepping: 6

(Continued on next page)
**SPEC CPU®2017 Integer Speed Result**

Copyright 2017-2024 Standard Performance Evaluation Corporation

**Supermicro**
SuperServer SYS-521E-WR (X13SEW-TF, Intel Xeon Platinum 8444H)

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**SPECspeed®2017_int_base = 14.3**  
**SPECspeed®2017_int_peak = 14.6**

---

**Platform Notes (Continued)**

- **Frequency boost:** enabled
- **CPU max MHz:** 2900.0000
- **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 as ht tm pbe syscall nx pdelgb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmpref tsc_known_freq pni pclmulqdq dtses64 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 3nowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmon hle avx2 smep bm2l emms invpcid rtm cqm mdt dcm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_hni avx512bw avx512vl xsavesopt xsaveopt xsavec xsaveopt cgcm mcm cmer cmovpat cmov_mbm cmov_mbm_local split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm tina arat pln pts avx512vbmi umip pu ospe waitpkg avx512_vbmi2 gnvi vaes vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpogcntdq ia57 rdpid bus_lock_detect clidemote movdiri movdir64b enqcmd form md_clear serialize tsxlatx rconf arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities

- **Virtualization:** VT-x
- **L1d cache:** 768 KIB (16 instances)
- **L1i cache:** 512 KIB (16 instances)
- **L2 cache:** 32 MIB (16 instances)
- **L3 cache:** 45 MIB (1 instance)
- **NUMA node(s):** 1
- **NUMA node0 CPU(s):** 0-15
- **Vulnerability Itlb multihit:** Not affected
- **Vulnerability Ltif:** Not affected
- **Vulnerability Mds:** Not affected
- **Vulnerability Rm:** Not affected
- **Vulnerability Spec store bypass:** Mitigation; Speculative Store Bypass disabled via prctl and seccomp
- **Vulnerability Spectre v1:** Mitigation; usercopy/swapsgs barriers and __user pointer sanitization
- **Vulnerability Spectre v2:** Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
- **Vulnerability Srbds:** Not affected
- **Vulnerability Tsz async abort:** Not affected

From lscpu --cache:

<table>
<thead>
<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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<tbody>
<tr>
<td>L1d</td>
<td>48K</td>
<td>768K</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
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<tr>
<td>L1i</td>
<td>32K</td>
<td>512K</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L2</td>
<td>2M</td>
<td>32M</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>45M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>49152</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

From numactl --hardware

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

<table>
<thead>
<tr>
<th></th>
<th>cache size</th>
<th>460800 KB</th>
</tr>
</thead>
</table>

From /proc/cpuinfo cache data

(Continued on next page)
From /proc/meminfo
MemTotal: 263617632 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP4"
VERSION_ID="15.4"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP4"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp4"
uname -a:
Linux 135-173-251.engtw 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

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass): Mitigation: usercopy/swapsgs barriers and __user pointer sanitation
CVE-2017-5753 (Spectre variant 1): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2017-5715 (Spectre variant 2): Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 Nov 30 10:41

SPEC is set to: /home/cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 221G 8.0G 214G 4% /

From /sys/devices/virtual/dmi/id
Vendor: Supermicro
Product: Super Server
Product Family: Family
Serial: 0123456789

Additional information from dmidecode 3.2 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.
Memory:
8x Samsung M321R4GA3BB6-CQKEG 32 GB 2 rank 4800

BIOS:
Supermicro
SuperServer SYS-521E-WR
(X13SEW-TF, Intel Xeon Platinum 8444H)

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Compiler Version Notes

C
| 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak) 657.xz_s(base, peak)
| 657.xz_s(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

C++
| 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak)
| 641.leela_s(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Fortran
| 648.exchange2_s(base, peak)

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2022.1.0 Build 20220316
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
**SPEC CPU®2017 Integer Speed Result**

### Supermicro

SuperServer SYS-521E-WR  
(X13SEW-TF, Intel Xeon Platinum 8444H)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
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<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>14.6</td>
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**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Tested by:** Supermicro

**Test Date:** Nov-2022  
**Hardware Availability:** Jan-2023  
**Software Availability:** Jun-2022

### Base Portability Flags (Continued)

- 620.omnetpp_s: -DSPEC_LP64
- 623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
- 625.x264_s: -DSPEC_LP64
- 631.deepsjeng_s: -DSPEC_LP64
- 641.leela_s: -DSPEC_LP64
- 648.exchange2_s: -DSPEC_LP64
- 657.xz_s: -DSPEC_LP64

### Base Optimization Flags

**C benchmarks:**

- -m64  -std=c11  -Wl,-z,muldefs -xCORE-AVX512  -O3  -ffast-math -flto
- -mfpmath=sse  -funroll-loops -qopt-mem-layout-trans=4  -fiopenmp
- -DSPEC_OPENMP  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

**C++ benchmarks:**

- -m64  -Wl,-z,muldefs -xCORE-AVX512  -O3  -ffast-math -flto
- -mfpmath=sse  -funroll-loops -qopt-mem-layout-trans=4
- -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

**Fortran benchmarks:**

- -m64  -Wl,-z,muldefs -xCORE-AVX512  -O3  -ffast-math -flto
- -mfpmath=sse  -funroll-loops -qopt-mem-layout-trans=4
- -nostandard-realloc-lhs -align array32byte
- -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

### Peak Compiler Invocation

**C benchmarks:**

- icx

**C++ benchmarks:**

- icpx

**Fortran benchmarks:**

- ifx
## SPEC CPU®2017 Integer Speed Result

**Supermicro**  
SuperServer SYS-521E-WR  
(X13SEW-TF, Intel Xeon Platinum 8444H)  

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**CPU2017 License**: 001176  
**Test Sponsor**: Supermicro  
**Tested by**: Supermicro  
**Test Date**: Nov-2022  
**Hardware Availability**: Jan-2023  
**Software Availability**: Jun-2022

### Peak Portability Flags

Same as Base Portability Flags

### Peak Optimization Flags

**C benchmarks**:

- `600.perlbench_s`: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1) -fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -fno-strict-overflow -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

- `602.gcc_s`: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1) -fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

- `605.mcf_s`: basepeak = yes

- `625.x264_s`: -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

- `657.xz_s`: basepeak = yes

**C++ benchmarks**:

- `620.omnetpp_s`: basepeak = yes

- `623.xalancbmk_s`: basepeak = yes

- `631.deepsjeng_s`: basepeak = yes

- `641.leela_s`: basepeak = yes

**Fortran benchmarks**:

- `648.exchange2_s`: basepeak = yes
## SPEC CPU®2017 Integer Speed Result

**Supermicro**  
SuperServer SYS-521E-WR  
(X13SEW-TF , Intel Xeon Platinum 8444H)

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</table>

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


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


---

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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 v1.1.8 on 2022-11-29 21:54:28-0500.  
Report generated on 2024-01-29 17:15:22 by CPU2017 PDF formatter v6716.  
Originally published on 2023-01-10.