NEC Corporation
Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

Hardware
CPU Name: Intel Xeon E3-1230 v6
Max MHz.: 3900
Nominal: 3500
Enabled: 4 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 256 KB I+D on chip per core
L3: 8 MB I+D on chip per chip
Other: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)
Storage: 1 x 1 TB SATA, 7200 RPM
Other: None

Software
OS: Red Hat Enterprise Linux Server release 7.4
(Maipo)
Kernel 3.10.0-693.21.1.el7.x86_64
Compiler: C/C++: Version 18.0.2.199 of Intel C/C++
Compiler for Linux:
Fortran: Version 18.0.2.199 of Intel Fortran
Compiler for Linux
Parallel: No
Firmware: Version 5.0.4008 06/07/2018 released Aug-2018
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
SPEC CPU2017 Integer Rate Result

NEC Corporation

Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>8</td>
<td>588</td>
<td>21.6</td>
<td>583</td>
<td>21.9</td>
<td>588</td>
<td>21.7</td>
<td>8</td>
<td>485</td>
<td>26.3</td>
<td>489</td>
<td>26.0</td>
<td>486</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>8</td>
<td>448</td>
<td>25.3</td>
<td>449</td>
<td>25.2</td>
<td>451</td>
<td>25.1</td>
<td>8</td>
<td>374</td>
<td>30.3</td>
<td>376</td>
<td>30.2</td>
<td>375</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>8</td>
<td>387</td>
<td>33.4</td>
<td>389</td>
<td>33.2</td>
<td>405</td>
<td>31.9</td>
<td>8</td>
<td>387</td>
<td>33.4</td>
<td>389</td>
<td>33.2</td>
<td>405</td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>8</td>
<td>651</td>
<td>16.1</td>
<td>652</td>
<td>16.1</td>
<td>652</td>
<td>16.1</td>
<td>8</td>
<td>651</td>
<td>16.1</td>
<td>652</td>
<td>16.1</td>
<td>652</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>8</td>
<td>334</td>
<td>25.3</td>
<td>332</td>
<td>25.4</td>
<td>335</td>
<td>25.2</td>
<td>8</td>
<td>268</td>
<td>31.6</td>
<td>266</td>
<td>31.7</td>
<td>266</td>
</tr>
<tr>
<td>525.x264_r</td>
<td>8</td>
<td>246</td>
<td>57.0</td>
<td>248</td>
<td>56.5</td>
<td>244</td>
<td>57.3</td>
<td>8</td>
<td>232</td>
<td>60.5</td>
<td>235</td>
<td>59.6</td>
<td>228</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>8</td>
<td>370</td>
<td>24.7</td>
<td>371</td>
<td>24.7</td>
<td>374</td>
<td>24.5</td>
<td>8</td>
<td>370</td>
<td>24.7</td>
<td>371</td>
<td>24.7</td>
<td>374</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>8</td>
<td>607</td>
<td>21.8</td>
<td>609</td>
<td>21.8</td>
<td>617</td>
<td>21.5</td>
<td>8</td>
<td>616</td>
<td>21.5</td>
<td>606</td>
<td>21.9</td>
<td>594</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>8</td>
<td>404</td>
<td>51.9</td>
<td>404</td>
<td>51.9</td>
<td>403</td>
<td>52.0</td>
<td>8</td>
<td>404</td>
<td>51.9</td>
<td>404</td>
<td>51.9</td>
<td>403</td>
</tr>
<tr>
<td>557.xz_r</td>
<td>8</td>
<td>449</td>
<td>19.3</td>
<td>447</td>
<td>19.3</td>
<td>490</td>
<td>17.6</td>
<td>8</td>
<td>449</td>
<td>19.3</td>
<td>447</td>
<td>19.3</td>
<td>490</td>
</tr>
</tbody>
</table>

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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"

General Notes

Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"

Binaries compiled on a system with 1x Intel Core i7-6700K CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5
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

Yes: 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.

(Continued on next page)
SPEC CPU2017 Integer Rate Result
Copyright 2017-2018 Standard Performance Evaluation Corporation

NEC Corporation
Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Test Date: Nov-2018
Tested by: NEC Corporation
Hardware Availability: Apr-2017
Software Availability: Mar-2018

General Notes (Continued)
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS Settings:
Power Management Policy: Custom
Energy Performance: Performance
DCU Streamer Prefetcher: Disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on t110i Wed Nov 28 10:41:45 2018

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) CPU E3-1230 v6 @ 3.50GHz
   1 "physical id"s (chips)
   8 "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 : 4
siblings : 8
physical 0: cores 0 1 2 3

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 8
On-line CPU(s) list: 0-7
Thread(s) per core: 2
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Xeon(R) CPU E3-1230 v6 @ 3.50GHz
Stepping: 9
CPU MHz: 3699.746
CPU max MHz: 3900.000

(Continued on next page)
SPEC CPU2017 Integer Rate Result

NEC Corporation
Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Tested by: NEC Corporation

Test Date: Nov-2018
Hardware Availability: Apr-2017
Software Availability: Mar-2018

Platform Notes (Continued)

CPU min MHz: 800.0000
BogoMIPS: 7008.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 8192K
NUMA node0 CPU(s): 0-7

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 rdtscl
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmpref eagerfpu pni pclmulqdq dtsc64 monitor ds_cpl vmx smx est tm2 ssse3 fma
cx16 xtpre pdcm pcid sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
avx f16c rdrand lahf_lm abm 3dnowprefetch epb invpcid_single intel_pt spec_ctrl
ibpb_support tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2
smep bmi2 ets invpcid rtm mpx rdseed adx smap clflushopt xsaveopt xsavec xgetbv1
dtherm ida arat pln pts hwp hwp_notify hwp_act_window hwp_epp

/proc/cpuinfo cache data
  cache size: 8192 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
  physical chip.
  available: 1 nodes (0)
  node 0 cpus: 0 1 2 3 4 5 6 7
  node 0 size: 65479 MB
  node 0 free: 63614 MB
  node distances:
    node 0
    0: 10

From /proc/meminfo
  MemTotal: 65919684 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux Server"
    VERSION="7.4 (Maipo)"
    ID=rhel
    ID_LIKE="fedora"
    VARIANT="Server"
    VARIANT_ID="server"
    VERSION_ID="7.4"
    PRETTY_NAME="Red Hat Enterprise Linux Server 7.4 (Maipo)"
  redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)

(Continued on next page)
SPEC CPU2017 Integer Rate Result

NEC Corporation

Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Tested by: NEC Corporation

Test Date: Nov-2018
Hardware Availability: Apr-2017
Software Availability: Mar-2018

Platform Notes (Continued)

system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.4:ga:server

uname -a:
    Linux t110i 3.10.0-693.21.1.el7.x86_64 #1 SMP Fri Feb 23 18:54:16 UTC 2018 x86_64
    x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: Load fences
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS (kernel)

run-level 3 Nov 28 10:36

SPEC is set to: /home/cpu2017
    Filesystem    Type Size Used Avail Use% Mounted on
    /dev/sda3      ext4  909G  124G  739G  15% /

Additional information from dmidecode 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.
    BIOS American Megatrends Inc. 5.0.4008 06/07/2018
    Memory:
        4x Micron 18ASF2G72AZ-2G3B1 16 GB 2 rank 2400

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
     557.xz_r(base)
==============================================================================
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================

==============================================================================
CC  500.perlbench_r(peak) 502.gcc_r(peak) 505.mcf_r(peak) 525.x264_r(peak)
     557.xz_r(peak)
==============================================================================
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

(Continued on next page)
NEC Corporation
Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Tested by: NEC Corporation

Test Date: Nov-2018
Hardware Availability: Apr-2017
Software Availability: Mar-2018

Compiler Version Notes (Continued)

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64
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

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-L/usr/local/je5.0.1-64/lib -ljemalloc

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64 -std=c11

502.gcc_r.icc -m32 -std=c11 -L/home/prasad/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):
icpc -m64

523.xalancbmk_r.icpc -m32 -L/home/prasad/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64
NEC Corporation

Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Test Date: Nov-2018
Tested by: NEC Corporation
Hardware Availability: Apr-2017
Software Availability: Mar-2018

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
523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -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: -Wl,-z,muldefs -prof-gen(pass l) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-fno-strict-overflow -L/usr/local/je5.0.1-64/lib
-ljemalloc

502.gcc_r: -Wl,-z,muldefs -prof-gen(pass l) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

505.mcf_r: basepeak = yes

520.omnetpp_r: basepeak = yes

C++ benchmarks:

523.xalancbmk_r: -Wl,-z,muldefs -prof-gen(pass l) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

531.deepsjeng_r: basepeak = yes

541.leela_r: -Wl,-z,muldefs -prof-gen(pass l) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3

(Continued on next page)
SPEC CPU2017 Integer Rate Result

NEC Corporation
Express5800/T110i (Intel Xeon E3-1230 v6)

SPECrate2017_int_base = 27.3
SPECrate2017_int_peak = 29.1

CPU2017 License: 9006
Test Sponsor: NEC Corporation
Tested by: NEC Corporation
Test Date: Nov-2018
Hardware Availability: Apr-2017
Software Availability: Mar-2018

Peak Optimization Flags (Continued)

541.leela_r (continued):
-L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
548.exchange2_r: basepeak = yes

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:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2017 v1.0.5 on 2018-11-27 20:41:45-0500.
Report generated on 2018-12-26 12:56:02 by CPU2017 PDF formatter v6067.
Originally published on 2018-12-25.