SPEC® CPU2017 Integer Rate Result

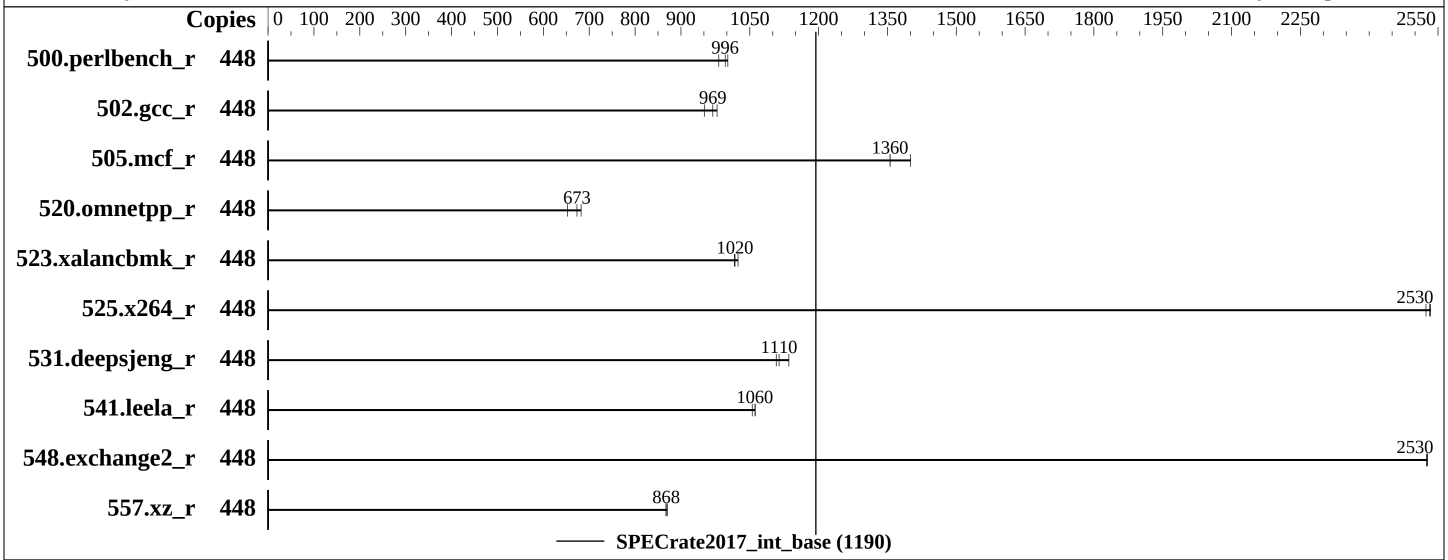
Huawei

Huawei 8100 V5 (Intel Xeon Platinum 8180)

SPECrate2017_int_base = 1190

SPECrate2017_int_peak = Not Run

CPU2017 License:	3175	**Test Date:**	Nov-2017
Test Sponsor:	Huawei	**Hardware Availability:**	Dec-2017
Tested by:	Huawei	**Software Availability:**	Sep-2017



Hardware

CPU Name:	Intel Xeon Platinum 8180
Max MHz.:	3800
Nominal:	2500
Enabled:	224 cores, 8 chips, 2 threads/core
Orderable:	4,8 chips
Cache L1:	32 KB I + 32 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	38.5 MB I+D on chip per chip
Other:	None
Memory:	1536 GB (48 x 32 GB 2Rx4 PC4-2666V-R)
Storage:	2 x 300 GB SAS, 10K RPM
Other:	None

Software

OS:	SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
Compiler:	C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
Parallel:	No
Firmware:	Version 0.65 released Dec-2017
File System:	ext4
System State:	Run level 5 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	jemalloc: jemalloc memory allocator library V5.0.1; jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets; jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5; jemalloc: sources avilable from jemalloc.net or releases

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	448	**716**	**996**	712	1000	726	982							
502.gcc_r	448	667	951	648	979	**654**	**969**							
505.mcf_r	448	517	1400	**534**	**1360**	534	1360							
520.omnetpp_r	448	861	682	**873**	**673**	900	653							
523.xalancbmk_r	448	462	1020	**465**	**1020**	466	1020							
525.x264_r	448	311	2520	310	2530	**310**	**2530**							
531.deepsjeng_r	448	452	1140	**461**	**1110**	464	1110							
541.leela_r	448	699	1060	**699**	**1060**	703	1060							
548.exchange2_r	448	465	2530	**465**	**2530**	464	2530							
557.xz_r	448	556	870	558	867	**557**	**868**							

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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"
```

General Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/home/speccpu2017/lib/ia32:/home/speccpu2017/lib/intel64"
LD_LIBRARY_PATH = "/home/speccpu2017/je5.0.1-32:/home/speccpu2017/je5.0.1-64"
 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.4
 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>
```

Platform Notes

```
BIOS configuration:
Sub NUMA Cluster£¤SNC£'set to enabled
IMC (Integrated memory controller) Interleaving set to 1 way interleave
Xtended Prediction Table (XPT) Prefetch set to Enable
Memory Patrol Scrub set to Disable
Last Level Cache (LLC) Prefetch set to Disable
Sysinfo program /home/speccpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-s4x9 Thu Dec  7 21:45:43 2017

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 8180 CPU @ 2.50GHz
      8  "physical id"s (chips)
      448 "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 : 28
      siblings  : 56
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30
      physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27
      28 29 30

From lscpu:
     Architecture:          x86_64
     CPU op-mode(s):        32-bit, 64-bit
     Byte Order:            Little Endian
     CPU(s):                448
     On-line CPU(s) list:   0-447
     Thread(s) per core:    2
     Core(s) per socket:    28
```

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Platform Notes (Continued)

```
Socket(s):               8
NUMA node(s):            16
Vendor ID:               GenuineIntel
CPU family:              6
Model:                   85
Model name:              Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
Stepping:                4
CPU MHz:                 2501.000
CPU max MHz:             2501.0000
CPU min MHz:             1000.0000
BogoMIPS:                5000.05
Virtualization:          VT-x
L1d cache:               32K
L1i cache:               32K
L2 cache:                1024K
L3 cache:                39424K
NUMA node0 CPU(s):       0-3,7-9,14-17,21-23,224-227,231-233,238-241,245-247
NUMA node1 CPU(s):       4-6,10-13,18-20,24-27,228-230,234-237,242-244,248-251
NUMA node2 CPU(s):       28-31,35-37,42-45,49-51,252-255,259-261,266-269,273-275
NUMA node3 CPU(s):       32-34,38-41,46-48,52-55,256-258,262-265,270-272,276-279
NUMA node4 CPU(s):       56-59,63-65,70-73,77-79,280-283,287-289,294-297,301-303
NUMA node5 CPU(s):       60-62,66-69,74-76,80-83,284-286,290-293,298-300,304-307
NUMA node6 CPU(s):       84-87,91-93,98-101,105-107,308-311,315-317,322-325,329-331
NUMA node7 CPU(s):       88-90,94-97,102-104,108-111,312-314,318-321,326-328,332-335
NUMA node8 CPU(s):
112-115,119-121,126-129,133-135,336-339,343-345,350-353,357-359
NUMA node9 CPU(s):
116-118,122-125,130-132,136-139,340-342,346-349,354-356,360-363
NUMA node10 CPU(s):
140-143,147-149,154-157,161-163,364-367,371-373,378-381,385-387
NUMA node11 CPU(s):
144-146,150-153,158-160,164-167,368-370,374-377,382-384,388-391
NUMA node12 CPU(s):
168-171,175-177,182-185,189-191,392-395,399-401,406-409,413-415
NUMA node13 CPU(s):
172-174,178-181,186-188,192-195,396-398,402-405,410-412,416-419
NUMA node14 CPU(s):
196-199,203-205,210-213,217-219,420-423,427-429,434-437,441-443
NUMA node15 CPU(s):
200-202,206-209,214-216,220-223,424-426,430-433,438-440,444-447
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
aperfmperf eagerfpu 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 ida arat epb pln pts dtherm intel_pt
tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
```

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Platform Notes (Continued)

```
      erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd
      avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc

 /proc/cpuinfo cache data
    cache size : 39424 KB

 From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a
 physical chip.
   available: 16 nodes (0-15)
   node 0 cpus: 0 1 2 3 7 8 9 14 15 16 17 21 22 23 224 225 226 227 231 232 233 238 239 240
   241 245 246 247
   node 0 size: 94995 MB
   node 0 free: 94347 MB
   node 1 cpus: 4 5 6 10 11 12 13 18 19 20 24 25 26 27 228 229 230 234 235 236 237 242 243
   244 248 249 250 251
   node 1 size: 96764 MB
   node 1 free: 96348 MB
   node 2 cpus: 28 29 30 31 35 36 37 42 43 44 45 49 50 51 252 253 254 255 259 260 261 266
   267 268 269 273 274 275
   node 2 size: 96764 MB
   node 2 free: 96399 MB
   node 3 cpus: 32 33 34 38 39 40 41 46 47 48 52 53 54 55 256 257 258 262 263 264 265 270
   271 272 276 277 278 279
   node 3 size: 96764 MB
   node 3 free: 96286 MB
   node 4 cpus: 56 57 58 59 63 64 65 70 71 72 73 77 78 79 280 281 282 283 287 288 289 294
   295 296 297 301 302 303
   node 4 size: 96764 MB
   node 4 free: 96402 MB
   node 5 cpus: 60 61 62 66 67 68 69 74 75 76 80 81 82 83 284 285 286 290 291 292 293 298
   299 300 304 305 306 307
   node 5 size: 96764 MB
   node 5 free: 96358 MB
   node 6 cpus: 84 85 86 87 91 92 93 98 99 100 101 105 106 107 308 309 310 311 315 316 317
   322 323 324 325 329 330 331
   node 6 size: 96764 MB
   node 6 free: 96408 MB
   node 7 cpus: 88 89 90 94 95 96 97 102 103 104 108 109 110 111 312 313 314 318 319 320
   321 326 327 328 332 333 334 335
   node 7 size: 96764 MB
   node 7 free: 96418 MB
   node 8 cpus: 112 113 114 115 119 120 121 126 127 128 129 133 134 135 336 337 338 339
   343 344 345 350 351 352 353 357 358 359
   node 8 size: 96764 MB
   node 8 free: 96386 MB
   node 9 cpus: 116 117 118 122 123 124 125 130 131 132 136 137 138 139 340 341 342 346
   347 348 349 354 355 356 360 361 362 363
```


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Platform Notes (Continued)

```
    node 9 size: 96764 MB
    node 9 free: 96409 MB
    node 10 cpus: 140 141 142 143 147 148 149 154 155 156 157 161 162 163 364 365 366 367
    371 372 373 378 379 380 381 385 386 387
    node 10 size: 96764 MB
    node 10 free: 96421 MB
    node 11 cpus: 144 145 146 150 151 152 153 158 159 160 164 165 166 167 368 369 370 374
    375 376 377 382 383 384 388 389 390 391
    node 11 size: 96764 MB
    node 11 free: 96410 MB
    node 12 cpus: 168 169 170 171 175 176 177 182 183 184 185 189 190 191 392 393 394 395
    399 400 401 406 407 408 409 413 414 415
    node 12 size: 96764 MB
    node 12 free: 96401 MB
    node 13 cpus: 172 173 174 178 179 180 181 186 187 188 192 193 194 195 396 397 398 402
    403 404 405 410 411 412 416 417 418 419
    node 13 size: 96764 MB
    node 13 free: 96385 MB
    node 14 cpus: 196 197 198 199 203 204 205 210 211 212 213 217 218 219 420 421 422 423
    427 428 429 434 435 436 437 441 442 443
    node 14 size: 96764 MB
    node 14 free: 96417 MB
    node 15 cpus: 200 201 202 206 207 208 209 214 215 216 220 221 222 223 424 425 426 430
    431 432 433 438 439 440 444 445 446 447
    node 15 size: 96604 MB
    node 15 free: 96286 MB
    node distances:
    node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
      0:  10  20  20  20  20  20  20  20  20  20  20  20  20  20  20  20
      1:  20  10  20  20  20  20  20  20  20  20  20  20  20  20  20  20
      2:  20  20  10  20  20  20  20  20  20  20  20  20  20  20  20  20
      3:  20  20  20  10  20  20  20  20  20  20  20  20  20  20  20  20
      4:  20  20  20  20  10  20  20  20  20  20  20  20  20  20  20  20
      5:  20  20  20  20  20  10  20  20  20  20  20  20  20  20  20  20
      6:  20  20  20  20  20  20  10  20  20  20  20  20  20  20  20  20
      7:  20  20  20  20  20  20  20  10  20  20  20  20  20  20  20  20
      8:  20  20  20  20  20  20  20  20  10  20  20  20  20  20  20  20
      9:  20  20  20  20  20  20  20  20  20  10  20  20  20  20  20  20
     10:  20  20  20  20  20  20  20  20  20  20  10  20  20  20  20  20
     11:  20  20  20  20  20  20  20  20  20  20  20  10  20  20  20  20
     12:  20  20  20  20  20  20  20  20  20  20  20  20  10  20  20  20
     13:  20  20  20  20  20  20  20  20  20  20  20  20  20  10  20  20
     14:  20  20  20  20  20  20  20  20  20  20  20  20  20  20  10  20
     15:  20  20  20  20  20  20  20  20  20  20  20  20  20  20  20  10

  From /proc/meminfo
     MemTotal:       1583408756 kB
```

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Platform Notes (Continued)

```
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 /usr/bin/lsb_release -d
    SUSE Linux Enterprise Server 12 SP2

 From /etc/*release* /etc/*version*
    SuSE-release:
       SUSE Linux Enterprise Server 12 (x86_64)
       VERSION = 12
       PATCHLEVEL = 2
       # This file is deprecated and will be removed in a future service pack or release.
       # Please check /etc/os-release for details about this release.
    os-release:
       NAME="SLES"
       VERSION="12-SP2"
       VERSION_ID="12.2"
       PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
       ID="sles"
       ANSI_COLOR="0;32"
       CPE_NAME="cpe:/o:suse:sles:12:sp2"

 uname -a:
    Linux linux-s4x9 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 5 Dec 7 21:43

 SPEC is set to: /home/speccpu2017
    Filesystem     Type  Size  Used Avail Use% Mounted on
    /dev/sda4      ext4  1.2T  255G  944G  22% /home

 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 INSYDE Corp. 0.65 11/01/2017
   Memory:
    48x NO DIMM NO DIMM
    48x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666

 (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) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
 CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
      541.leela_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
 FC  548.exchange2_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

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:
-Wl,-z,muldefs -xCORE-AVX512 -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-AVX512 -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-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc

Base Other Flags

C benchmarks:
-m64 -std=c11

C++ benchmarks:
-m64

Fortran benchmarks:
-m64

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html
http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.7.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml
http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.7.xml

Huawei

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SPECrate2017_int_peak = Not Run

CPU2017 License:	3175	**Test Date:**	Nov-2017
Test Sponsor:	Huawei	**Hardware Availability:**	Dec-2017
Tested by:	Huawei	**Software Availability:**	Sep-2017

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