SPEC CPU®2017 Integer Rate Result

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Altos Computing Inc.

$SPECrate^{®}2017\_int\_base = 504$

BrainSphere R580 F4 (Intel Xeon Gold 6248)

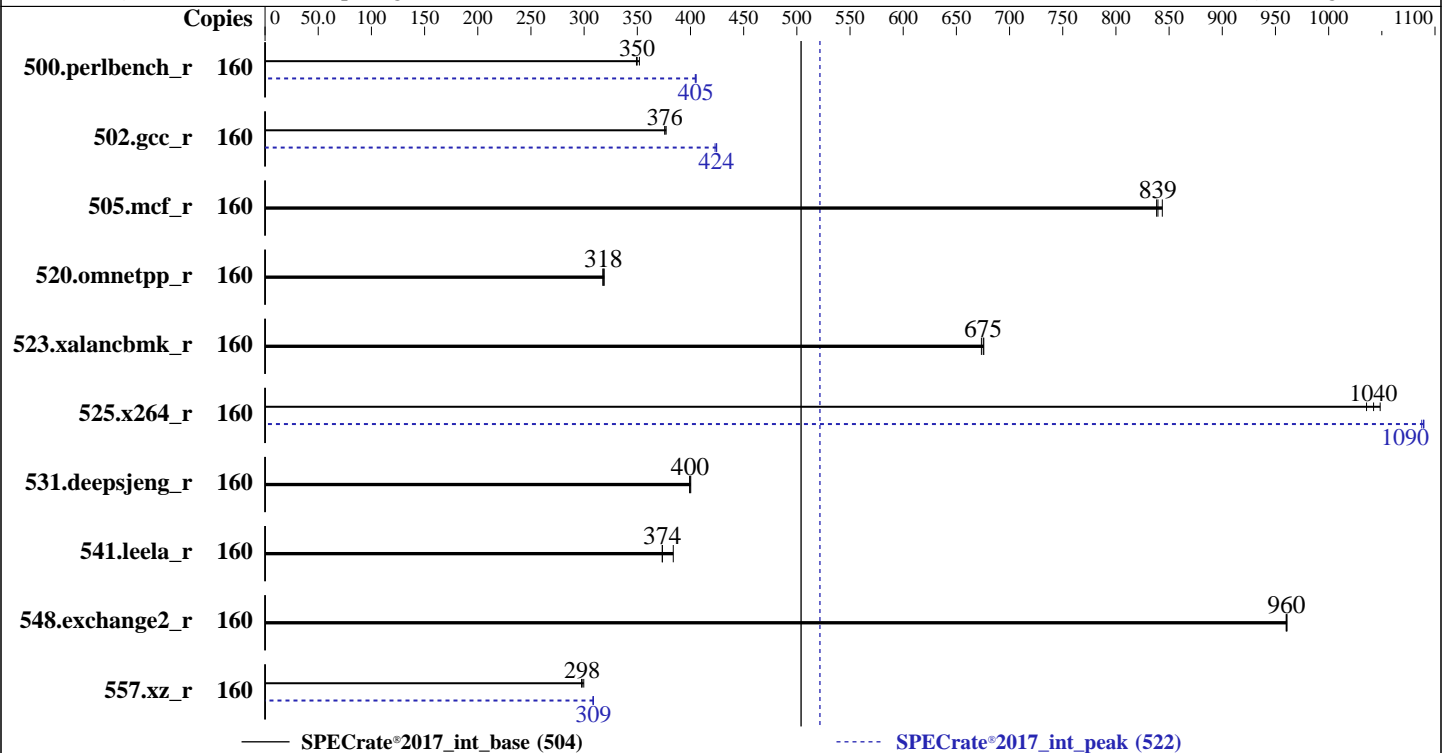$SPECrate^{®}2017\_int\_peak = 522$

CPU2017 License: 97   **Test Date:** May-2022
Test Sponsor: Altos Computing Inc.   **Hardware Availability:** Jul-2019
Tested by: Altos Computing Inc.   **Software Availability:** Aug-2020

Benchmark	Copies	Base	Peak
500.perlbench_r	160	350	405
502.gcc_r	160	376	424
505.mcf_r	160	839	
520.omnetpp_r	160	318	
523.xalancbmk_r	160	675	
525.x264_r	160	1040	1090
531.deepsjeng_r	160	400	
541.leela_r	160	374	
548.exchange2_r	160	960	
557.xz_r	160	298	309

SPECrate®2017_int_base (504) — SPECrate®2017_int_peak (522)

Hardware

CPU Name: Intel Xeon Gold 6248
 Max MHz: 3900
 Nominal: 2500
Enabled: 80 cores, 4 chips, 2 threads/core
Orderable: 2,4 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 27.5 MB I+D on chip per chip
 Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933V-R)
Storage: 1 x 1.6 TB SATA SSD
Other: None

Software

OS: Red Hat Enterprise Linux release 8.2 (Ootpa)
 4.18.0-193.el8.x86_64
Compiler: C/C++: Version 19.1.2.275 of Intel C/C++
 Compiler Build 20200623 for Linux;
 Fortran: Version 19.1.2.275 of Intel Fortran
 Compiler Build 20200623 for Linux
Parallel: No
Firmware: Version 3.1 released Oct-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost
 of additional power usage

SPEC CPU®2017 Integer Rate Result
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Altos Computing Inc.

BrainSphere R580 F4 (Intel Xeon Gold 6248)

SPECrate®2017_int_base = 504

SPECrate®2017_int_peak = 522

CPU2017 License: 97　　　　　　　　　　　　　　　　　**Test Date:**　　　　　May-2022
Test Sponsor:　　Altos Computing Inc.　　　　　　　**Hardware Availability:** Jul-2019
Tested by:　　　　Altos Computing Inc.　　　　　　　**Software Availability:**　Aug-2020

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	160	729	349	**728**	**350**	724	352	160	628	405	630	404	**629**	**405**
502.gcc_r	160	601	377	603	376	**603**	**376**	160	534	425	**534**	**424**	535	423
505.mcf_r	160	308	838	**308**	**839**	306	844	160	308	838	**308**	**839**	306	844
520.omnetpp_r	160	658	319	661	318	**660**	**318**	160	658	319	661	318	**660**	**318**
523.xalancbmk_r	160	**250**	**675**	251	674	250	676	160	**250**	**675**	251	674	250	676
525.x264_r	160	**269**	**1040**	271	1040	267	1050	160	257	1090	258	1090	**257**	**1090**
531.deepsjeng_r	160	459	399	458	400	**459**	**400**	160	459	399	458	400	**459**	**400**
541.leela_r	160	709	373	**709**	**374**	690	384	160	709	373	**709**	**374**	690	384
548.exchange2_r	160	436	961	**436**	**960**	437	960	160	436	961	**436**	**960**	437	960
557.xz_r	160	581	298	**580**	**298**	577	300	160	**560**	**309**	561	308	560	309
SPECrate®2017_int_base =		**504**												
SPECrate®2017_int_peak =		**522**												

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"
```

Environment Variables Notes

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

General Notes

```
 Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM
 memory using Redhat Enterprise Linux 8.0
 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.:
```

(Continued on next page)

Altos Computing Inc.

BrainSphere R580 F4 (Intel Xeon Gold 6248)

$SPECrate^{®}2017\_int\_base = 504$

$SPECrate^{®}2017\_int\_peak = 522$

CPU2017 License:	97	**Test Date:**	May-2022
Test Sponsor:	Altos Computing Inc.	**Hardware Availability:**	Jul-2019
Tested by:	Altos Computing Inc.	**Software Availability:**	Aug-2020

General Notes (Continued)

```
 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.
 jemalloc, a general purpose malloc implementation
 built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
 sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS Configuration:
Power Policy Quick Settings set to Max Performance
IMC set to 1-way interleave
Sub_NUMA Cluster set to enabled

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d
 running on rhel82 Thu May 26 01:07:47 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) Gold 6248 CPU @ 2.50GHz
       4  "physical id"s (chips)
       160 "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 : 20
       siblings  : 40
       physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
       physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
       physical 2: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
       physical 3: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

 From lscpu from util-linux 2.32.1:
       Architecture:        x86_64
       CPU op-mode(s):      32-bit, 64-bit
       Byte Order:          Little Endian
       CPU(s):              160
       On-line CPU(s) list: 0-159
       Thread(s) per core:  2
```

(Continued on next page)

Altos Computing Inc.

SPECrate®2017_int_base = 504

BrainSphere R580 F4 (Intel Xeon Gold 6248)

SPECrate®2017_int_peak = 522

CPU2017 License: 97

Test Sponsor: Altos Computing Inc.

Tested by: Altos Computing Inc.

Test Date: May-2022

Hardware Availability: Jul-2019

Software Availability: Aug-2020

Platform Notes (Continued)

```
        Core(s) per socket:   20
        Socket(s):            4
        NUMA node(s):         8
        Vendor ID:            GenuineIntel
        CPU family:           6
        Model:                85
        Model name:           Intel(R) Xeon(R) Gold 6248 CPU @ 2.50GHz
        Stepping:             5
        CPU MHz:              3199.990
        CPU max MHz:          3900.0000
        CPU min MHz:          1000.0000
        BogoMIPS:             5000.00
        Virtualization:       VT-x
        L1d cache:            32K
        L1i cache:            32K
        L2 cache:             1024K
        L3 cache:             28160K
        NUMA node0 CPU(s):    0-2,5,6,10-12,15,16,80-82,85,86,90-92,95,96
        NUMA node1 CPU(s):    3,4,7-9,13,14,17-19,83,84,87-89,93,94,97-99
        NUMA node2 CPU(s):    20-22,25,26,30-32,35,36,100-102,105,106,110-112,115,116
        NUMA node3 CPU(s):    23,24,27-29,33,34,37-39,103,104,107-109,113,114,117-119
        NUMA node4 CPU(s):    40-42,45,46,50-52,55,56,120-122,125,126,130-132,135,136
        NUMA node5 CPU(s):    43,44,47-49,53,54,57-59,123,124,127-129,133,134,137-139
        NUMA node6 CPU(s):    60-62,65,66,70-72,75,76,140-142,145,146,150-152,155,156
        NUMA node7 CPU(s):    63,64,67-69,73,74,77-79,143,144,147-149,153,154,157-159
        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
    aperfmperf 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 cdp_l3
    invpcid_single intel_ppin ssbd mba ibrs ibpb stibp tpr_shadow vnmi flexpriority ept
    vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a
    avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
    xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
    dtherm ida arat pln pts pku ospke flush_l1d arch_capabilities

 /proc/cpuinfo cache data
    cache size : 28160 KB

 From numactl --hardware
 WARNING: a numactl 'node' might or might not correspond to a physical chip.
   available: 8 nodes (0-7)
   node 0 cpus: 0 1 2 5 6 10 11 12 15 16 80 81 82 85 86 90 91 92 95 96
   node 0 size: 95082 MB
   node 0 free: 94947 MB
   node 1 cpus: 3 4 7 8 9 13 14 17 18 19 83 84 87 88 89 93 94 97 98 99
```

(Continued on next page)

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Test Date: May-2022
Hardware Availability: Jul-2019
Software Availability: Aug-2020

Platform Notes (Continued)

```
  node 1 size: 96763 MB
  node 1 free: 96645 MB
  node 2 cpus: 20 21 22 25 26 30 31 32 35 36 100 101 102 105 106 110 111 112 115 116
  node 2 size: 96763 MB
  node 2 free: 96631 MB
  node 3 cpus: 23 24 27 28 29 33 34 37 38 39 103 104 107 108 109 113 114 117 118 119
  node 3 size: 96763 MB
  node 3 free: 96640 MB
  node 4 cpus: 40 41 42 45 46 50 51 52 55 56 120 121 122 125 126 130 131 132 135 136
  node 4 size: 96763 MB
  node 4 free: 96460 MB
  node 5 cpus: 43 44 47 48 49 53 54 57 58 59 123 124 127 128 129 133 134 137 138 139
  node 5 size: 96763 MB
  node 5 free: 96624 MB
  node 6 cpus: 60 61 62 65 66 70 71 72 75 76 140 141 142 145 146 150 151 152 155 156
  node 6 size: 96735 MB
  node 6 free: 96594 MB
  node 7 cpus: 63 64 67 68 69 73 74 77 78 79 143 144 147 148 149 153 154 157 158 159
  node 7 size: 96760 MB
  node 7 free: 96352 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  11  21  21  21  21  21  21
    1:  11  10  21  21  21  21  21  21
    2:  21  21  10  11  21  21  21  21
    3:  21  21  11  10  21  21  21  21
    4:  21  21  21  21  10  11  21  21
    5:  21  21  21  21  11  10  21  21
    6:  21  21  21  21  21  21  10  11
    7:  21  21  21  21  21  21  11  10

 From /proc/meminfo
    MemTotal:       790934548 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /sbin/tuned-adm active
     Current active profile: latency-performance

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

 From /etc/*release* /etc/*version*
    os-release:
       NAME="Red Hat Enterprise Linux"
       VERSION="8.2 (Ootpa)"
       ID="rhel"
```

(Continued on next page)

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Platform Notes (Continued)

```
        ID_LIKE="fedora"
        VERSION_ID="8.2"
        PLATFORM_ID="platform:el8"
        PRETTY_NAME="Red Hat Enterprise Linux 8.2 (Ootpa)"
        ANSI_COLOR="0;31"
    redhat-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
    system-release: Red Hat Enterprise Linux release 8.2 (Ootpa)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:8.2:ga

  uname -a:
    Linux rhel82 4.18.0-193.el8.x86_64 #1 SMP Fri Mar 27 14:35:58 UTC 2020 x86_64 x86_64
    x86_64 GNU/Linux


  Kernel self-reported vulnerability status:

  CVE-2018-12207 (iTLB Multihit):             KVM: Mitigation: Split huge pages
  CVE-2018-3620 (L1 Terminal Fault):           Not affected
  Microarchitectural Data Sampling:            Vulnerable: Clear CPU buffers
                                               attempted, no microcode; SMT
                                               vulnerable
  CVE-2017-5754 (Meltdown):                    Not affected
  CVE-2018-3639 (Speculative Store Bypass):    Mitigation: Speculative Store
                                               Bypass disabled via prctl and
                                               seccomp
  CVE-2017-5753 (Spectre variant 1):           Mitigation: usercopy/swapgs
                                               barriers and __user pointer
                                               sanitization
  CVE-2017-5715 (Spectre variant 2):           Mitigation: Full generic
                                               retpoline, IBPB: conditional,
                                               IBRS_FW, STIBP: conditional, RSB
                                               filling
  CVE-2020-0543 (Special Register Buffer Data Sampling): No status reported
  CVE-2019-11135 (TSX Asynchronous Abort):     Vulnerable: Clear CPU buffers
                                               attempted, no microcode; SMT
                                               vulnerable


  run-level 3 May 26 01:02

  SPEC is set to: /home/cpu2017
    Filesystem              Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs   1.5T   74G  1.4T   6% /home

  From /sys/devices/virtual/dmi/id
    Vendor:          Altos
    Product:         BrainSphere R580 F4
    Product Family:  BrainSphere
    Serial:          aa112233445566778899bb
```

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Platform Notes (Continued)

```
 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:
     24x NO DIMM NO DIMM
     24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

 BIOS:
    BIOS Vendor:       American Megatrends Inc.
    BIOS Version:      3.1
    BIOS Date:         10/09/2019
    BIOS Revision:     5.14

 (End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 19.1.2.275
  Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
         | 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version
  19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.2.275 Build 20200623
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)
https://www.spec.org/

Altos Computing Inc.

SPECrate®2017_int_base = 504

BrainSphere R580 F4 (Intel Xeon Gold 6248)

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CPU2017 License: 97   **Test Date:** May-2022
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Compiler Version Notes (Continued)

```
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 19.1.2.275
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Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
         | 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version
  19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.2.275 Build 20200623
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on IA-32, Version 19.1.2.275
  Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
         | 525.x264_r(base, peak) 557.xz_r(base)
------------------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version
  19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C        | 500.perlbench_r(peak) 557.xz_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
  Version 19.1.2.275 Build 20200623
Copyright (C) 1985-2020 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

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Altos Computing Inc.

BrainSphere R580 F4 (Intel Xeon Gold 6248)

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CPU2017 License: 97　　　　　　　　　　　　　　　　　　　**Test Date:** May-2022
Test Sponsor: Altos Computing Inc.　　　　　　　　　　**Hardware Availability:** Jul-2019
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Compiler Version Notes (Continued)

```
==============================================================================
C++      | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak)
         | 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version
  19.1.2.275 Build 20200604
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran | 548.exchange2_r(base, peak)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
  64, Version 19.1.2.275 Build 20200623
Copyright (C) 1985-2020 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`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

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Base Optimization Flags

C benchmarks:

```
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin
-lqkmalloc
```

C++ benchmarks:

```
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Fortran benchmarks:

```
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Peak Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

Fortran benchmarks:
```
ifort
```

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: `-DSPEC_LP64 -DSPEC_LINUX`

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Altos Computing Inc.

BrainSphere R580 F4 (Intel Xeon Gold 6248)

SPECrate®2017_int_base = 504

SPECrate®2017_int_peak = 522

CPU2017 License: 97　　　　　　　　　　　　　　　　　　**Test Date:**　　　May-2022
Test Sponsor:　Altos Computing Inc.　　　　　　　　**Hardware Availability:** Jul-2019
Tested by:　　　Altos Computing Inc.　　　　　　　　**Software Availability:**　Aug-2020

Peak Portability Flags (Continued)

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 1) `-prof-use`(pass 2)
`-xCORE-AVX512 -ipo -O3 -no-prec-div`
`-qopt-mem-layout-trans=4 -fno-strict-overflow`
`-mbranches-within-32B-boundaries`
`-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

502.gcc_r: `-m32`
`-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/ia32_lin`
`-std=gnu89`
`-Wl,-plugin-opt=-x86-branches-within-32B-boundaries`
`-Wl,-z,muldefs -fprofile-generate`(pass 1)
`-fprofile-use=default.profdata`(pass 2) `-xCORE-AVX512 -flto`
`-Ofast`(pass 1) `-O3 -ffast-math -qnextgen`
`-qopt-mem-layout-trans=4 -L/usr/local/jemalloc32-5.0.1/lib`
`-ljemalloc`

505.mcf_r: basepeak = yes

525.x264_r: `-m64 -qnextgen -std=c11`
`-Wl,-plugin-opt=-x86-branches-within-32B-boundaries`
`-Wl,-z,muldefs -xCORE-AVX512 -flto -O3 -ffast-math`
`-qopt-mem-layout-trans=4 -fno-alias`
`-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

557.xz_r: `-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div`
`-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries`
`-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.3.275/linux/compiler/lib/intel64_lin`
`-lqkmalloc`

C++ benchmarks:

(Continued on next page)

Altos Computing Inc.

BrainSphere R580 F4 (Intel Xeon Gold 6248)

SPECrate®2017_int_base = 504

SPECrate®2017_int_peak = 522

CPU2017 License: 97
Test Sponsor: Altos Computing Inc.
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Test Date: May-2022
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Software Availability: Aug-2020

Peak Optimization Flags (Continued)

520.omnetpp_r: `basepeak = yes`

523.xalancbmk_r: `basepeak = yes`

531.deepsjeng_r: `basepeak = yes`

541.leela_r: `basepeak = yes`

Fortran benchmarks:

548.exchange2_r: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.html`
`http://www.spec.org/cpu2017/flags/Altos-Platform-Settings-V1.0-revA2.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml`
`http://www.spec.org/cpu2017/flags/Altos-Platform-Settings-V1.0-revA2.xml`

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

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