SPEC® CPU2017 Integer Rate Result

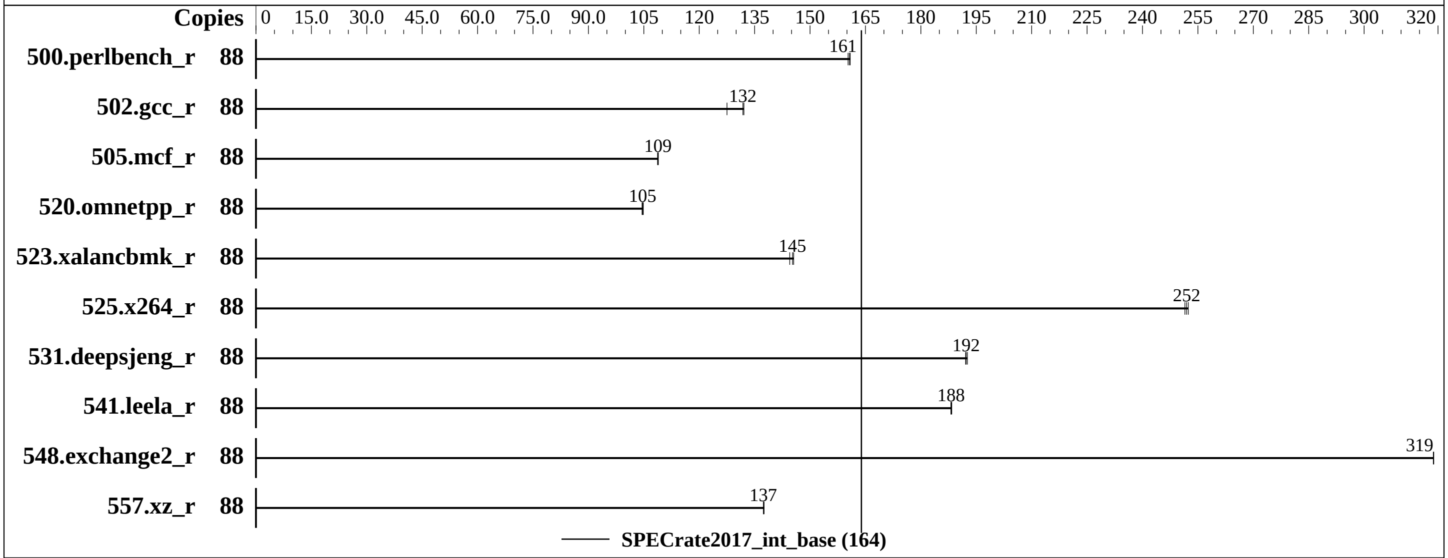
Fujitsu

PRIMERGY RX2560 M2, Intel Xeon E5-2699A v4, 2.40GHz

SPECrate2017_int_base = 164

SPECrate2017_int_peak = Not Run

CPU2017 License:	19	**Test Date:**	Dec-2016
Test Sponsor:	Fujitsu	**Hardware Availability:**	Oct-2016
Tested by:	Fujitsu	**Software Availability:**	Nov-2016



Hardware

CPU Name:	Intel Xeon E5-2699A v4
Max MHz.:	3600
Nominal:	2400
Enabled:	44 cores, 2 chips, 2 threads/core
Orderable:	1,2 chips
Cache L1:	32 KB I + 32 KB D on chip per core
L2:	256 KB I+D on chip per core
L3:	55 MB I+D on chip per chip
Other:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
Storage:	1 x 960GB, SAS3, SSD
Other:	None

Software

OS:	SUSE Linux Enterprise Server 12 SP2 RC2 4.4.19-60-default
Compiler:	C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux
Parallel:	No
Firmware:	Fujitsu R1.7.0
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	Not Applicable
Other:	Microquill SmartHeap V10.2

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	88	**872**	**161**	874	160	871	161							
502.gcc_r	88	977	128	943	132	**945**	**132**							
505.mcf_r	88	1308	109	1305	109	**1307**	**109**							
520.omnetpp_r	88	**1103**	**105**	1105	105	1101	105							
523.xalancbmk_r	88	643	145	638	146	**640**	**145**							
525.x264_r	88	610	252	**612**	**252**	613	251							
531.deepsjeng_r	88	525	192	524	193	**525**	**192**							
541.leela_r	88	**774**	**188**	775	188	774	188							
548.exchange2_r	88	**723**	**319**	723	319	723	319							
557.xz_r	88	692	137	691	138	**692**	**137**							

SPECrate2017_int_base = 164

SPECrate2017_int_peak = Not Run

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

Submit Notes

```
The config file option 'submit' was used.
```

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/spec/cpu2017/lib/ia32:/home/spec/cpu2017/lib/intel64:/home/spec/cpu2017/sh10.2"

 Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
 memory using Redhat Enterprise Linux 7.2
 Transparent Huge Pages enabled by default
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runcpu command invoked through numactl i.e.:
 numactl --interleave=all runcpu <etc>
```

Platform Notes

```
 BIOS configuration:
 Energy Performance = Performance
 Utilization Profile = Unbalanced
 QPI snoop mode: Cluster on Die
```

(Continued on next page)

Platform Notes (Continued)

```
    COD Enable = Enabled, Early Snoop = Disabled, Home Snoop Dir OSB = Disabled
CPU C1E Support = Disabled
Sysinfo program /home/spec/cpu2017/Docs/sysinfo
Rev: r5007 of 2016-11-15 fc8dc82f217779bedfed4d694d580ba9
running on linux-tw9h Sun Dec 11 17:26:03 2016

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

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2699A v4 @ 2.40GHz
      2 "physical id"s (chips)
      88 "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 : 22
      siblings  : 44
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
      28
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
      28
   cache size : 28160 KB

The view from numactl --hardware follows.  WARNING: a numactl 'node' might or
might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 44 45 46 47 48 49 50 51 52 53 54
  node 0 size: 64200 MB
  node 0 free: 63861 MB
  node 1 cpus: 11 12 13 14 15 16 17 18 19 20 21 55 56 57 58 59 60 61 62 63 64 65
  node 1 size: 64508 MB
  node 1 free: 64225 MB
  node 2 cpus: 22 23 24 25 26 27 28 29 30 31 32 66 67 68 69 70 71 72 73 74 75 76
  node 2 size: 64508 MB
  node 2 free: 64224 MB
  node 3 cpus: 33 34 35 36 37 38 39 40 41 42 43 77 78 79 80 81 82 83 84 85 86 87
  node 3 size: 64384 MB
  node 3 free: 64102 MB
  node distances:
  node   0   1   2   3
    0:  10  11  21  21
    1:  11  10  21  21
    2:  21  21  10  11
    3:  21  21  11  10
```

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Platform Notes (Continued)

```
From /proc/meminfo
   MemTotal:       263784808 kB
   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-tw9h 4.4.19-60-default #1 SMP Fri Aug 26 12:54:34 UTC 2016
   (a3a3ea6) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 10 17:42

SPEC is set to: /home/spec/cpu2017
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   852G   30G  823G   4% /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 FUJITSU // American Megatrends Inc. V5.0.0.11 R1.7.0 for D3289-B1x
  04/21/2016
  Memory:
   8x NO DIMM NO DIMM
   16x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz
```

(Continued on next page)

Platform Notes (Continued)

```
(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) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
     541.leela_r(base)
------------------------------------------------------------------------------
icpc (ICC) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------

==============================================================================
FC   548.exchange2_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 17.0.0 20160721
Copyright (C) 1985-2016 Intel Corporation.  All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

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`

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Base Portability Flags (Continued)

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:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3`

C++ benchmarks:
`-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-p32 -qopt-prefetch -qopt-mem-layout-trans=3 -L/sh10.2 -lsmartheap64`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -qopt-mem-layout-trans=3 -nostandard-realloc-lhs`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revD.html
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic17.0-official-linux64-revD.xml
http://www.spec.org/cpu2017/flags/Fujitsu-Platform-Settings-V1.2-BDW-RevD.xml

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