SPEC® CPU2017 Integer Rate Result

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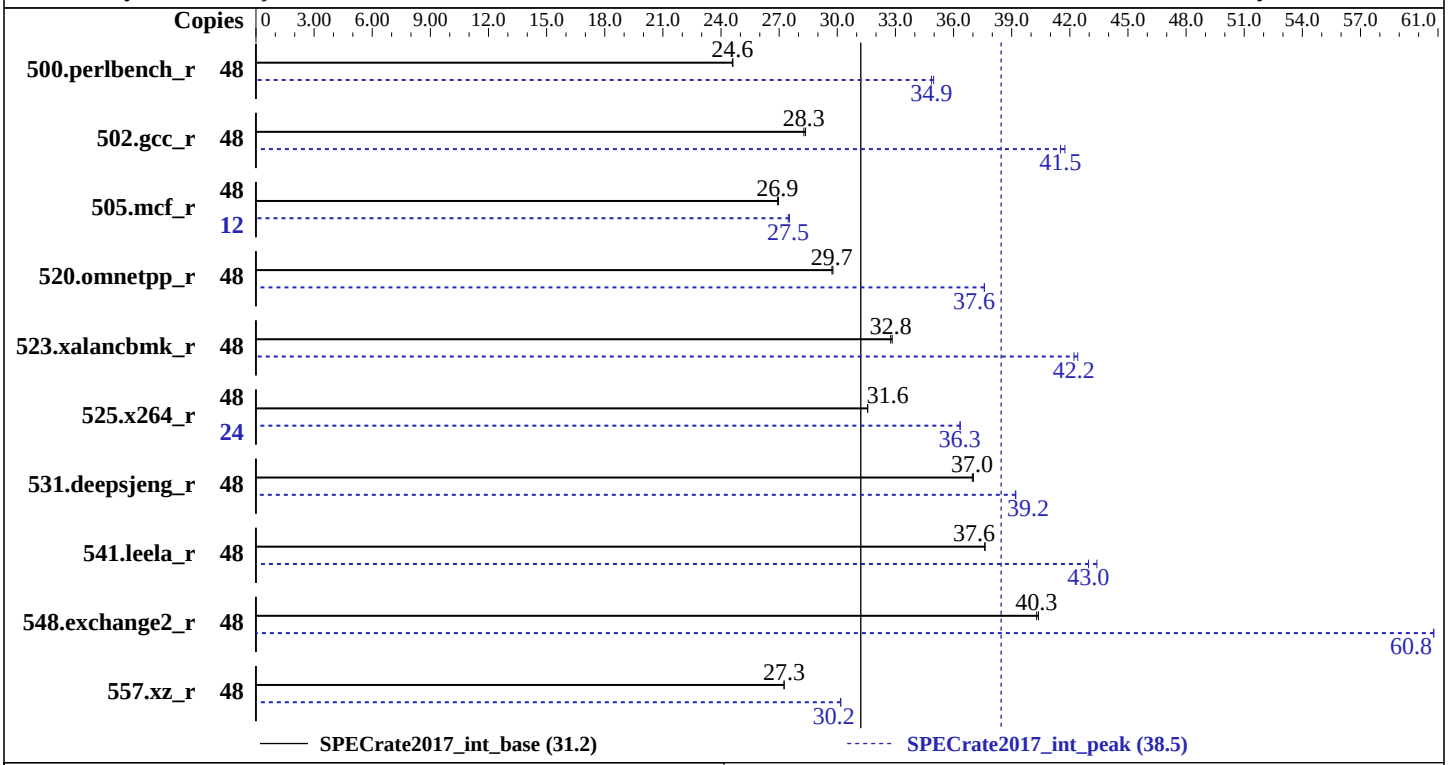
Fujitsu
Fujitsu SPARC M12-1

SPECrate2017_int_base = 31.2

SPECrate2017_int_peak = 38.5

CPU2017 License: 19
Test Sponsor: Fujitsu
Tested by: Fujitsu

Test Date: Dec-2017
Hardware Availability: Apr-2017
Software Availability: Jul-2017



Hardware

CPU Name:	SPARC64 XII
Max MHz.:	3200
Nominal:	3200
Enabled:	6 cores, 1 chip, 8 threads/core
Orderable:	1 CPU chip; 2, 3, 4, .. 6 cores
Cache L1:	64 KB I + 64 KB D on chip per core
L2:	512 KB I+D on chip per core
L3:	16 MB I+D on chip per chip
Other:	None
Memory:	512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)
Storage:	1 x 600 GB 10K RPM SAS (for system disk)
Other:	None

Software

OS:	Oracle Solaris 11.3 SRU 24.4
Compiler:	C/C++/Fortran: Version 12.6 of Oracle Developer Studio
Parallel:	No
Firmware:	Fujitsu HCP Version 3040 released Oct-2017
File System:	tmpfs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other:	None

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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	48	**3108**	**24.6**	3104	24.6			48	2185	35.0	**2192**	**34.9**		
502.gcc_r	48	**2404**	**28.3**	2396	28.4			48	1628	41.7	**1637**	**41.5**		
505.mcf_r	48	**2881**	**26.9**	2877	27.0			12	**706**	**27.5**	704	27.5		
520.omnetpp_r	48	2115	29.8	**2119**	**29.7**			48	**1676**	**37.6**	1675	37.6		
523.xalancbmk_r	48	1544	32.8	**1547**	**32.8**			48	1195	42.4	**1201**	**42.2**		
525.x264_r	48	2662	31.6	**2663**	**31.6**			24	**1157**	**36.3**	1156	36.3		
531.deepsjeng_r	48	**1488**	**37.0**	1486	37.0			48	**1404**	**39.2**	1403	39.2		
541.leela_r	48	**2114**	**37.6**	2112	37.6			48	1832	43.4	**1850**	**43.0**		
548.exchange2_r	48	3114	40.4	**3122**	**40.3**			48	**2070**	**60.8**	2069	60.8		
557.xz_r	48	1902	27.3	**1902**	**27.3**			48	**1719**	**30.2**	1717	30.2		

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

Submit Notes

```
Processes were assigned to specific processors using 'pbind' commands.
The config file option 'submit' was used, along with a list of
processors in the 'BIND' variable, to generate the pbind commands.
(For details, please see the config file.)
```

Operating System Notes

```
Shell Environments:
   ulimit -s 131072 was used to limit the space consumed by the stack
   (and therefore make more space available to the heap).

   The "Logical Domains Manager" service was turned off using the command "svcadm disable ldmd".

System Tunables:
(/etc/system parameters)
   autoup = 86400
      Causes pages older than the listed number of seconds to be written by fsflush.
   doiflush = 0
      Controls whether file system metadata syncs will be executed during fsflush invocations.
   dopageflush = 0
      Controls whether memory is examined for modified pages during fsflush invocations.
   zfs:zfs_arc_max=1073741824
      Determines the maximum size of the ZFS Adaptive Replacement Cache (ARC).
```

General Notes

```
File System:
 tmpfs: output_root was used to put run directories in /tmp/cpu2017
 zfs: operating system
```

Platform Notes

```
Sysinfo program /export/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on H1S-202-D0 Fri Dec  8 21:32:41 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 /usr/sbin/psrinfo
   SPARC64-XII (chipid 0, clock 3200 MHz)
   1 chips
   48 threads
   3200 MHz

From kstat:        6 cores

From prtconf: 521728 Megabytes

/etc/release:
     Oracle Solaris 11.3 SPARC
uname -a:
   SunOS H1S-202-D0 5.11 11.3 sun4v sparc sun4v

disk: df -h /export/cpu2017
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G    61G       287G    18%    /export

(End of data from sysinfo program)
```

Compiler Version Notes

```
==============================================================================
 CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base)
      541.leela_r(base)
------------------------------------------------------------------------------
CC: Studio 12.6 Sun C++ 5.15 SunOS_sparc 2017/05/30
------------------------------------------------------------------------------

==============================================================================
```

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Compiler Version Notes (Continued)

```
CXXC 520.omnetpp_r(peak) 531.deepsjeng_r(peak) 541.leela_r(peak)
------------------------------------------------------------------------------
CC: Studio 12.6 Sun C++ 5.15 SunOS_sparc 2017/05/30
------------------------------------------------------------------------------

==============================================================================
 CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
      557.xz_r(base)
------------------------------------------------------------------------------
cc: Studio 12.6 Sun C 5.15 SunOS_sparc 2017/05/30
------------------------------------------------------------------------------

==============================================================================
CC   500.perlbench_r(peak) 502.gcc_r(peak) 505.mcf_r(peak) 525.x264_r(peak)
     557.xz_r(peak)
------------------------------------------------------------------------------
cc: Studio 12.6 Sun C 5.15 SunOS_sparc 2017/05/30
------------------------------------------------------------------------------

==============================================================================
 FC  548.exchange2_r(base)
------------------------------------------------------------------------------
f90: Studio 12.6 Fortran 95 8.8 SunOS_sparc 2017/05/30
------------------------------------------------------------------------------

==============================================================================
FC   548.exchange2_r(peak)
------------------------------------------------------------------------------
f90: Studio 12.6 Fortran 95 8.8 SunOS_sparc 2017/05/30
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Base Portability Flags

500.perlbench_r: `-DSPEC_SOLARIS_SPARC`
502.gcc_r: `-D_FILE_OFFSET_BITS=64`
505.mcf_r: `-D_FILE_OFFSET_BITS=64`
520.omnetpp_r: `-D_FILE_OFFSET_BITS=64`
523.xalancbmk_r: `-DSPEC_SOLARIS -D_FILE_OFFSET_BITS=64`
525.x264_r: `-D_FILE_OFFSET_BITS=64`
531.deepsjeng_r: `-D_FILE_OFFSET_BITS=64`
541.leela_r: `-D_FILE_OFFSET_BITS=64`
548.exchange2_r: `-D_FILE_OFFSET_BITS=64`
557.xz_r: `-D_FILE_OFFSET_BITS=64`

Base Optimization Flags

C benchmarks:
`-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M -xsegment_align=4M -xthroughput`

C++ benchmarks:
`-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M -xsegment_align=4M -xthroughput -library=stdcxx4 -template=extdef -lfast`

Fortran benchmarks:
`-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M -xsegment_align=4M -xthroughput`

Base Other Flags

C benchmarks:
`-xjobs=8`

C++ benchmarks:
`-xjobs=8`

Fortran benchmarks:
`-xjobs=8`

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xO4
-xalias_level=layout -xinline_param=level:3 -lfast

502.gcc_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xtarget=sparc64xplus
-xipo=1 -xinline_param=level:3 -xprefetch=no%auto
-xthroughput=no -lfast

505.mcf_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xalias_level=strong
-xprefetch=no%auto -xthroughput=no

525.x264_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xunroll=3
-xprefetch=no%auto -W2,-Afully_unroll:always=on

557.xz_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xalias_level=std
-xprefetch=latx:0.4 -lbsdmalloc

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Peak Optimization Flags (Continued)

C++ benchmarks:

520.omnetpp_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xalias_level=compatible
-xprefetch=latx:0.4 -library=stdcxx4 -template=extdef
-lfast

523.xalancbmk_r: -m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -library=stlport4
-xprefetch=no%auto -xunroll=2 -lfast

531.deepsjeng_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput -xalias_level=compatible
-xinline_param=level:1 -xunroll=2 -xprefetch=no%auto
-library=stlport4

541.leela_r: -xprofile=collect:./feedback -xprofile=use:./feedback -m32
-fast -xtarget=sparc64xii -xipo=2 -xpagesize=256M
-xsegment_align=256M -xthroughput
-xinline_param=max_growth:500 -xprefetch=no%auto
-std=c++03 -library=no%stlport4 -xthroughput=no
-Wc,-Qiselect-funcalign=4
-Qoption iropt -Afully_unroll:always=on
-xinline_param=level:3

Fortran benchmarks:
-xprofile=collect:./feedback -xprofile=use:./feedback -m32 -fast
-xtarget=sparc64xii -xipo=2 -xpagesize=256M -xsegment_align=256M
-xthroughput -xtarget=sparc64xplus -xprefetch=no%auto
-Qoption iropt -Afully_unroll:always=on

Peak Other Flags

C benchmarks:
-xjobs=8

C++ benchmarks:
-xjobs=8

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Peak Other Flags (Continued)

Fortran benchmarks:
`-xjobs=8`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/Oracle-Developer-Studio12.6.html`
`http://www.spec.org/cpu2017/flags/Fujitsu-M12-1.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/Oracle-Developer-Studio12.6.xml`
`http://www.spec.org/cpu2017/flags/Fujitsu-M12-1.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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