SPEC® CPU2017 Integer Rate Result

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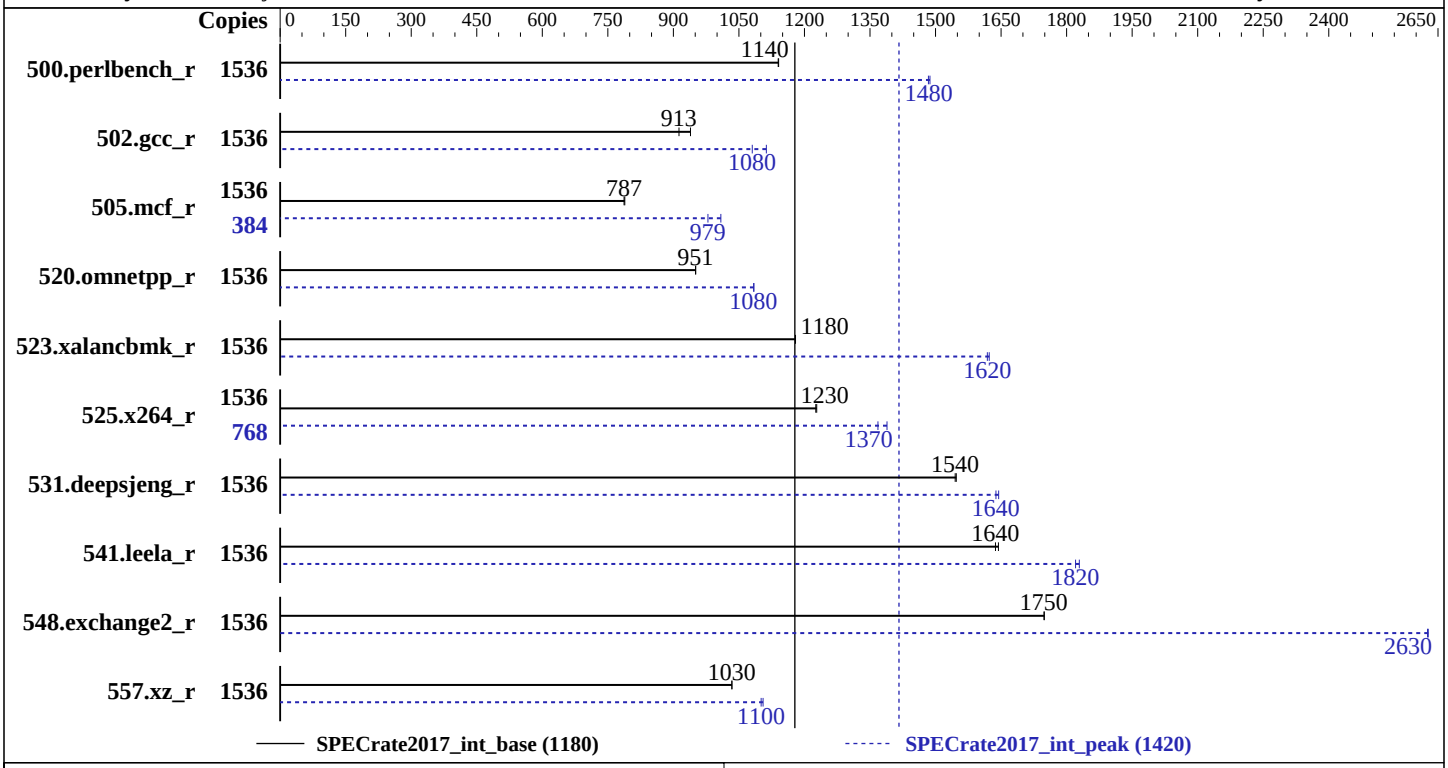
Fujitsu
Fujitsu SPARC M12-2S

SPECrate2017_int_base = 1180

SPECrate2017_int_peak = 1420

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

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



Hardware

CPU Name:	SPARC64 XII
Max MHz.:	4350
Nominal:	4250
Enabled:	192 cores, 16 chips, 8 threads/core
Orderable:	1 to 16 BBs; each BB contains 1 or 2 CPU chips; 2, 3, 4, .. 384 cores
Cache L1:	64 KB I + 64 KB D on chip per core
L2:	512 KB I+D on chip per core
L3:	32 MB I+D on chip per chip
Other:	None
Memory:	8 TB (256 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	1536	2143	1140	**2145**	**1140**			1536	1644	1490	**1648**	**1480**		
502.gcc_r	1536	**2383**	**913**	2316	939			1536	**2013**	**1080**	1955	1110		
505.mcf_r	1536	**3154**	**787**	3147	789			384	**634**	**979**	615	1010		
520.omnetpp_r	1536	**2120**	**951**	2119	951			1536	1859	1080	**1860**	**1080**		
523.xalancbmk_r	1536	**1375**	**1180**	1375	1180			1536	999	1620	**1002**	**1620**		
525.x264_r	1536	2190	1230	**2194**	**1230**			768	968	1390	**983**	**1370**		
531.deepsjeng_r	1536	**1139**	**1540**	1137	1550			1536	**1074**	**1640**	1070	1640		
541.leela_r	1536	1547	1640	**1554**	**1640**			1536	**1397**	**1820**	1391	1830		
548.exchange2_r	1536	**2302**	**1750**	2301	1750			1536	**1532**	**2630**	1532	2630		
557.xz_r	1536	1604	1030	**1605**	**1030**			1536	**1507**	**1100**	1501	1110		

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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

```
The Building Block (BB) is just a Fujitsu SPARC M12-2S that is the basic
unit to be expanded as if stacking up children's blocks.

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

Binaries were compiled on a system with 2x SPARC64 XII CPU + 1TB Memory using Oracle Solaris 11.3 SRU 24.4
```

Platform Notes

```
Firmware Settings:
(XSCF operations)
   Set High Speed Mode via XSCF command "sethsmode -s on".

Sysinfo program /export/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on H2S-230-D0 Fri Nov  3 08:33:52 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 4250 MHz)
   SPARC64-XII (chipid 1, clock 4250 MHz)
   SPARC64-XII (chipid 10, clock 4250 MHz)
   SPARC64-XII (chipid 11, clock 4250 MHz)
   SPARC64-XII (chipid 12, clock 4250 MHz)
   SPARC64-XII (chipid 13, clock 4250 MHz)
   SPARC64-XII (chipid 14, clock 4250 MHz)
   SPARC64-XII (chipid 15, clock 4250 MHz)
   SPARC64-XII (chipid 2, clock 4250 MHz)
   SPARC64-XII (chipid 3, clock 4250 MHz)
   SPARC64-XII (chipid 4, clock 4250 MHz)
   SPARC64-XII (chipid 5, clock 4250 MHz)
   SPARC64-XII (chipid 6, clock 4250 MHz)
   SPARC64-XII (chipid 7, clock 4250 MHz)
   SPARC64-XII (chipid 8, clock 4250 MHz)
   SPARC64-XII (chipid 9, clock 4250 MHz)
   16 chips
   1536 threads
   4250 MHz

From kstat:      192 cores
```

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Platform Notes (Continued)

```
 From prtconf: 8375296 Megabytes

 /etc/release:
      Oracle Solaris 11.3 SPARC
 uname -a:
    SunOS H2S-230-D0 5.11 11.3 sun4v sparc sun4v

 disk: df -h /export/cpu2017
 Filesystem             Size   Used  Available Capacity  Mounted on
 rpool/export           547G   118G       106G    53%    /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
------------------------------------------------------------------------------

==============================================================================
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)
------------------------------------------------------------------------------
```

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Compiler Version Notes (Continued)

```
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: -DSPEC_GCC_MANGLE -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 -xalias_level=weak

C++ benchmarks:
-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M

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Base Optimization Flags (Continued)

C++ benchmarks (continued):
-xsegment_align=4M -xthroughput -std=c++03 -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

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

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Peak Portability Flags (Continued)

548.exchange2_r: -D_FILE_OFFSET_BITS=64
557.xz_r: -D_FILE_OFFSET_BITS=64

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

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 -xprefetch=no%auto
-library=stlport4 -lfast

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Peak Optimization Flags (Continued)

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
-std=c++03

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
-xthroughput=no -Wc,-Qiselect-funcalign=4
-Qoption iropt -Afully_unroll:always=on -std=c++03

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

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-M12-2S.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-M12-2S.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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