



SPEC® CPU2017 Integer Rate Result

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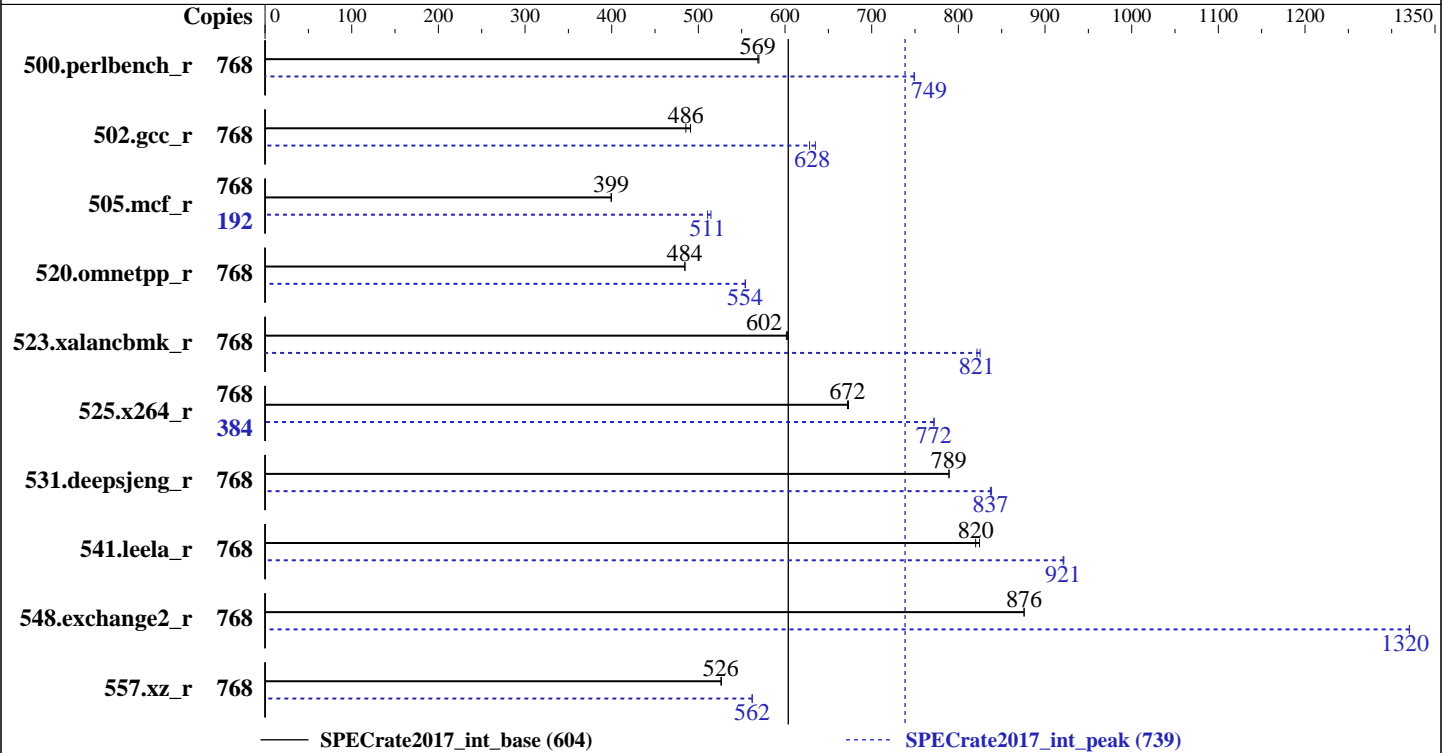
Fujitsu Fujitsu SPARC M12-2S

SPECrate2017_int_base = 604

SPECrate2017_int_peak = 739

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.: 4350
 Nominal: 4250
 Enabled: 96 cores, 8 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: 4 TB (128 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	768	2145	570	<u>2150</u>	<u>569</u>			768	1632	749	<u>1633</u>	<u>749</u>		
502.gcc_r	768	2215	491	<u>2239</u>	<u>486</u>			768	1713	635	<u>1731</u>	<u>628</u>		
505.mcf_r	768	<u>3108</u>	<u>399</u>	3106	400			192	603	515	<u>608</u>	<u>511</u>		
520.omnetpp_r	768	<u>2081</u>	<u>484</u>	2079	485			768	1818	554	<u>1819</u>	<u>554</u>		
523.xalancbmk_r	768	<u>1348</u>	<u>602</u>	1346	603			768	983	825	<u>987</u>	<u>821</u>		
525.x264_r	768	<u>2001</u>	<u>672</u>	1998	673			384	871	772	<u>871</u>	<u>772</u>		
531.deepsjeng_r	768	<u>1115</u>	<u>789</u>	1115	789			768	<u>1052</u>	<u>837</u>	1050	838		
541.leela_r	768	<u>1551</u>	<u>820</u>	1543	824			768	1380	922	<u>1381</u>	<u>921</u>		
548.exchange2_r	768	2297	876	<u>2298</u>	<u>876</u>			768	1524	1320	<u>1524</u>	<u>1320</u>		
557.xz_r	768	<u>1577</u>	<u>526</u>	1575	527			768	1475	562	<u>1476</u>	<u>562</u>		

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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).



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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-227-D0 Sat Dec 2 11:38:12 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 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)

8 chips

768 threads

4250 MHz

From kstat: 96 cores

From prtconf: 4187136 Megabytes

/etc/release:

Oracle Solaris 11.3 SPARC

uname -a:

SunOS H2S-227-D0 5.11 11.3 sun4v sparc sun4v

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Platform Notes (Continued)

```
disk: df -h /export/cpu2017
Filesystem      Size  Used Available Capacity  Mounted on
rpool/export    547G  11G   257G      5%    /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)  
-----
```

```
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  
-----
```



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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
-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
```

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Base Other Flags (Continued)

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
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
```

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Peak Optimization Flags (Continued)

```
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
```

```
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
```

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Peak Optimization Flags (Continued)

541.leela_r (continued):

```
-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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