

## Ruby trunk - Bug #7142

### mingw TestFloat#test\_round\_with\_precision failure

10/11/2012 10:13 PM - h.shirosaki (Hiroshi Shirosaki)

<b>Status:</b> Closed	
<b>Priority:</b> Normal	
<b>Assignee:</b>	
<b>Target version:</b> 2.0.0	
<b>ruby -v:</b> ruby 2.0.0dev (2012-10-09 trunk 37127) [i386-mingw32]	<b>Backport:</b>

#### Description

=begin

Trunk ruby on Windows XP x86 with mingw-w64 gcc 4.7.2 has the following test failure.

1) Failure:

test\_round\_with\_precision(TestFloat) [C:/Users/Worker/Jenkins/workspace/ruby-trunk-x86-build/test/ruby/test\_float.rb:389]: expected but was

.

I get the failure with make test-all TESTS="-qv -n test\_round\_with\_precision".

But it's strange that I don't get the failure with make test-all TESTS="-qv ruby/test\_float.rb".

And This failure doesn't occur on Win7.

Floating-point precision seems to be changed for some reason. Mingw-w64 has own pow() implementation and the precision of pow(10, ndigits) is not proper.

I found calling ({\_controlfp(\_PC\_64, \_MCW\_PC)}) before pow() improves precision and fixes this failure.

I'll commit this patch if there is no other better fix.

Index: include/ruby/win32.h

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--- include/ruby/win32.h (revision 37136)

+++ include/ruby/win32.h (working copy)

@@ -764,7 +764,7 @@

} /\* extern "C" { \*/

#endif

+#ifndef MINGW64

+#if defined(MINGW64)

/\*

- Use powl() instead of broken pow() of x86\_64-w64-mingw32.
- This workaround will fix test failures in test\_bignum.rb, @@ -775,6 +775,24 @@ { return powl(x, y); } +#elif defined(\_\_MINGW64\_VERSION\_MAJOR) +/\*
  - \* Set floating point precision for pow() of mingw-w64 x86.
  - \* With default precision the result is not proper on WinXP.
  - \*/ +static inline double +rb\_w32\_pow(double x, double y) +{
  - double r;
  - unsigned int default\_control = \_controlfp(0, 0);
  - \_controlfp(\_PC\_64, \_MCW\_PC);
  - r = pow(x, y);
  - /\* Restore setting \*/
  - \_controlfp(default\_control, \_MCW\_PC);
  - return r; +} +#endif +#if defined(MINGW64\_VERSION\_MAJOR) || defined(MINGW64\_\_) #define pow rb\_w32\_pow #endif

=end

#### Associated revisions

Revision 8d236bc0 - 10/12/2012 01:30 PM - shirosaki

win32.h: set floating point precision for pow()

- include/ruby/win32.h (rb\_w32\_pow): set floating point precision for mingw-w64 x86 pow(). This improves the precision of pow() on Windows XP for TestFloat#test\_round\_with\_precision failure. [ruby-core:47911] [Bug #7142]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@37168 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

#### Revision 37168 - 10/12/2012 01:30 PM - shirosaki

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## History

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### #1 - 10/12/2012 10:30 PM - Anonymous

- Status changed from Open to Closed

- % Done changed from 0 to 100

This issue was solved with changeset r37168.  
Hiroshi, thank you for reporting this issue.  
Your contribution to Ruby is greatly appreciated.  
May Ruby be with you.

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