Ruby master - Bug #7142

mingw TestFloat#test_round_with_precision failure

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

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

**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

===================================================================
--- include/ruby/win32.h   (revision 37136)
+++ include/ruby/win32.h   (working copy)
@@ -764,7 +764,7 @@
}  /* extern "C" { */
#endif
-#ifdef 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 @@
+* 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

#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.