Ruby master - Bug #7485

ruby cannot build on mingw32 or FreeBSD 8 due to missing __sync_val_compare_and_swap

12/01/2012 07:38 AM - drbrain (Eric Hodel)

<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>drbrain (Eric Hodel)</td>
</tr>
<tr>
<td>Target version:</td>
<td>2.0.0</td>
</tr>
<tr>
<td>ruby -v:</td>
<td>trunk</td>
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</tbody>
</table>

**Description**
mingw32 GCC has the other atomic builtins but not this one. The attached patch checks for the GCC builtins used in ruby_atomic.h but not checked for by configure.

**Related issues:**
Related to Ruby master - Feature #7427: Update Rubygems

**Associated revisions**

Revision 40f89c17 - 12/14/2012 09:18 PM - drbrain (Eric Hodel)

- configure.in (HAVE_GCC_ATOMIC_BUILTINS): Set -march=i486 to enable __sync_val_compare_and_swap. Patch by KOSAKI Motohiro. [ruby-trunk - Bug #7485]

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**History**

#1 - 12/01/2012 08:41 AM - nobu (Nobuyoshi Nakada)
__sync_or_and_fetch wasn't available in Apple derivative gcc.

#2 - 12/01/2012 09:11 AM - shyouhei (Shyouhei Urabe)
Why do we have to bother old broken compiler?

I guess -march=i486 enable __sync_val_compare_and_swap.

Hmmm, if it can help, should add it by the default on mingw32?

Just tested several native compilers on Windows 7 (without your patch) here are the results for those that define HAVE_GCC_ATOMIC_BUILTINS:

C:\Users\Luis\Code\ruby\ruby\build>gcc --version
gcc (tdm-1) 4.5.2

C:\Users\Luis\Code\ruby\ruby\build>cat .ext/include/i386-mingw32/ruby/config.h | grep ATOMIC
#define HAVE_GCC_ATOMIC_BUILTINS 1

In all scenarios it found the atomic builtins

On Windows XP (32bits), ATOMIC do get defined:

C:\Code\ruby\ruby\build>ver
Microsoft Windows XP [Version 5.1.2600]

C:\Code\ruby\ruby\build>gcc --version
gcc (rubenvb-4.7.2-release) 4.7.2

C:\Code\ruby\ruby\build>cat .ext\include\i386-mingw32\ruby\config.h | grep ATOMIC
#define HAVE_GCC_ATOMIC_BUILTINS 1

I was also able to compile Ruby without issues with "make all test"

I don't get the problem reported on this ticket on neither my systems.

I'm missing something?

Thank you.

I agree with Luis' results and think we've just not fully debugged Eric's XP VM setup as in #7427.

With this snippet [http://pastie.org/5460872](http://pastie.org/5460872) and Kosaki-san's feedback I see:

mingw-w64 32bit gcc 4.7.2

With this snippet [http://pastie.org/5460872](http://pastie.org/5460872) and Kosaki-san's feedback I see:
collect2.exe: error: ld returned 1 exit status

mingw 32bit gcc 4.6.2

C:sandbox>gcc --version
gcc (GCC) 4.6.2

C:sandbox>gcc -Wall -o atomics.exe gcc_atomic.c
C:sandbox>gcc -Wall -march={i486,i586,i686,native,core2} -o atomics.exe gcc_atomic.c
C:sandbox>gcc -Wall -march={i486,i586,i686,native,core2} -o atomics.exe gcc_atomic.c
C:sandbox>gcc -Wall -o atomics.exe gcc_atomic.c

C:sandbox>gcc -Wall -march={i486,i586,i686,native,core2} -o atomics.exe gcc_atomic.c
C:sandbox>gcc -Wall -march={i486,i586,i686,native,core2} -o atomics.exe gcc_atomic.c

Bottom line: even with these snippet results I see no build failures due to the current mingw32 build configuration.

#7 - 12/12/2012 10:35 AM - drbrain (Eric Hodel)
- Subject changed from ruby cannot build on mingw32 due to missing __sync_val_compare_and_swap to ruby cannot build on mingw32 or FreeBSD 8 due to missing __sync_val_compare_and_swap

#8 - 12/12/2012 10:42 AM - drbrain (Eric Hodel)

=begin
I'm also experiencing this on FreeBSD 8 with gcc 4.2.1:

$ gcc -v
Using built-in specs.
Target: i386-undermydesk-freebsd
Configured with: FreeBSD/i386 system compiler
Thread model: posix
gcc version 4.2.1 20070719 [FreeBSD]
$ make
linking miniruby
thread.o(.text+0x3f20): In function rb_threadptr_execute_interrupts':
/data/home/drbrain/Work/svn/ruby/thread.c:1807: undefined reference to __sync_val_compare_and_swap_4'
*** Error code 1

Stop in /data/home/drbrain/Work/svn/ruby.

So it seems to be an old GCC issue, not a mingw-specific issue.

Is ruby 2.0 abandoning gcc 4.2.x?

=end

#9 - 12/12/2012 11:05 AM - kosaki (Motohiro KOSAKI)

Hi

Does following patch fix your issue?

diff --git a/configure.in b/configure.in
index c916cd5..4a34334 100644
--- a/configure.in
+++ b/configure.in
@@ -1534,7 +1534,7 @@ AS_CASE([$target_os],
-AS_CASE([$target_cpu-$target_os],
-i[3-6]86-linux*, [AC_CACHE_CHECK([for __sync_val_compare_and_swap], [rb_cv_gcc_co
+AS_CASE([$target_cpu-$target_os],
-i[3-6]86*, [AC_CACHE_CHECK([for __sync_val_compare_and_swap], [rb_cv_gcc_co

#10 - 12/14/2012 09:57 AM - drbrain (Eric Hodel)

This patch works, thanks!

#11 - 12/14/2012 05:36 PM - kosaki (Motohiro KOSAKI)

- Status changed from Open to Assigned
drbrain (Eric Hodel), could you please commit the patch instead of me? I have no test environment and I don't like commit w/o make test-all.

#12 - 12/15/2012 04:20 AM - drbrain (Eric Hodel)
I have confirmed it fixes mingw32 as well, I will commit it after lunch. Thanks for the patch!

#13 - 12/15/2012 06:18 AM - drbrain (Eric Hodel)
- Status changed from Assigned to Closed
- % Done changed from 0 to 100

This issue was solved with changeset r38386.
Eric, thank you for reporting this issue.
Your contribution to Ruby is greatly appreciated.
May Ruby be with you.

- configure.in (HAVE_GCC_ATOMIC_BUILTINS): Set -march=i486 to enable __sync_val_compare_and_swap. Patch by KOSAKI Motohiro.  [ruby-trunk - Bug #7485]

#14 - 12/15/2012 06:21 AM - drbrain (Eric Hodel)
Please check my ChangeLog message for accuracy.

#15 - 12/15/2012 06:36 AM - kosaki (Motohiro KOSAKI)

Please check my ChangeLog message for accuracy.

Looks correct, thank you!

Files
configure.in.mingw32_gcc_builtins.patch  517 Bytes  12/01/2012  drbrain (Eric Hodel)