

## 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)

<b>Status:</b>	Closed	
<b>Priority:</b>	Normal	
<b>Assignee:</b>	drbrain (Eric Hodel)	
<b>Target version:</b>	2.0.0	
<b>ruby -v:</b>	trunk	
<b>Description</b>		<b>Backport:</b>
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.		
<b>Related issues:</b>		
Related to Ruby master - Feature #7427: Update Rubygems		<b>Closed</b> <b>11/24/2012</b>

#### 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]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@38386 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

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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)

[nobu \(Nobuyoshi Nakada\)](#) Why do we have to bother old broken compiler?

**#3 - 12/01/2012 01:52 PM - kosaki (Motohiro KOSAKI)**

I guess -march=i486 enable \_\_sync\_val\_compare\_and\_swap.

**#4 - 12/02/2012 10:41 AM - nobu (Nobuyoshi Nakada)**

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

**#5 - 12/02/2012 06:19 PM - luislavena (Luis Lavena)**

Hello,

I 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
```

```
C:\Users\Luis\Code\ruby\ruby\build>gcc --version
gcc (tdm-1) 4.6.1
```

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

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

```
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.

**#6 - 12/03/2012 12:55 AM - jonforums (Jon Forums)**

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> and Kosaki-san's feedback I see:

## mingw-w64 32bit gcc 4.7.2

```
C:\sandbox>gcc --version
gcc (rubenvb-4.7.2-release) 4.7.2
```

```
C:\sandbox>gcc -Wall -o atomics.exe gcc_atomic.c
```

```
C:\sandbox>atomics.exe
Got 1
```

```
C:\sandbox>gcc -Wall -march=i386 -o atomics.exe gcc_atomic.c
C:\Users\Jon\AppData\Local\Temp\ccK9GPwk.o:gcc_atomic.c:(.text+0x2e): undefined reference to `__sync_val_compare_and_swap_4'
```

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:\Users\Jon\AppData\Local\Temp\ccpeH4Vt.o:gcc_atomic.c:(.text+0x2e): undefined reference
to `__sync_val_compare_and_swap_4'
collect2: ld returned 1 exit status
```

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

```
C:\Users\Jon\Documents\CDev\sandbox>atomics.exe
Got 1
```

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*, [
+AS_CASE(["$target_cpu-$target_os"], [i[3-6]86-*, [
AC_CACHE_CHECK([for __sync_val_compare_and_swap], [rb_cv_gcc_co
AC_TRY_LINK([unsigned long atomic_var;],
[
```

### #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*

- Assignee changed from nobu (Nobuyoshi Nakada) to drbrain (Eric Hodel)

[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**

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<code>configure.in.mingw32_gcc_builtins.patch</code>	517 Bytes	12/01/2012	<a href="#">drbrain (Eric Hodel)</a>
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