

Ruby trunk - Bug #11962

Ruby 2.3.0 causing compile failure on extensions using a C++ compiler

01/06/2016 05:14 PM - v0dro (Sameer Deshmukh)

Status:	Closed		
Priority:	Normal		
Assignee:	nobu (Nobuyoshi Nakada)		
Target version:			
ruby -v:	2.3.0	Backport:	2.1: DONTNEED, 2.2: DONE, 2.3: DONE

Description

Hello,

I'm a contributor with the SciRuby foundation, and we have a gem called [nmatrix](#), which is a ruby gem for linear algebra processing in Ruby.

For representing different types of data, nmatrix makes heavy use of C++ templates, which requires compilation with g++. Currently we wrap the code that defines ruby functions at C level in an extern "C" {} block in a .cpp file and use g++ to compile the file as a whole.

Upgrading to ruby 2.3.0 has caused a problem because of [this change implemented in the internals of the ruby C API](#).

As specified in the GCC docs (<https://gcc.gnu.org/onlinedocs/gcc/Other-Builtins.html>) the function "__builtin_choose_expr" (that has been introduced in the latest Ruby C API) is available only for C. Thus the change is rendering our C++ extensions useless.

You can see the compile error being caused in nmatrix here: <https://github.com/SciRuby/nmatrix/issues/429>

I have come up with [a temporary fix for this](#), but its only patch work and will need to be done by every single extension employing a C++ compiler.

Looking forward to a positive response from you.

Associated revisions

Revision 98e565ec - 01/07/2016 01:35 PM - mrkn (Kenta Murata)

- ruby.h: undef HAVE_BUILTIN_BUILTIN_CHOOSE_EXPR_CONSTANT_P and HAVE_BUILTIN_BUILTIN_TYPES_COMPATIBLE_P on C++. [ruby-core:72736] [Bug #11962]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@53455 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 53455 - 01/07/2016 01:35 PM - mrkn (Kenta Murata)

- ruby.h: undef HAVE_BUILTIN_BUILTIN_CHOOSE_EXPR_CONSTANT_P and HAVE_BUILTIN_BUILTIN_TYPES_COMPATIBLE_P on C++. [ruby-core:72736] [Bug #11962]

Revision 53455 - 01/07/2016 01:35 PM - mrkn (Kenta Murata)

- ruby.h: undef HAVE_BUILTIN_BUILTIN_CHOOSE_EXPR_CONSTANT_P and HAVE_BUILTIN_BUILTIN_TYPES_COMPATIBLE_P on C++. [ruby-core:72736] [Bug #11962]

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Revision 53455 - 01/07/2016 01:35 PM - mrkn (Kenta Murata)

- ruby.h: undef HAVE_BUILTIN_BUILTIN_CHOOSE_EXPR_CONSTANT_P and HAVE_BUILTIN_BUILTIN_TYPES_COMPATIBLE_P on C++. [ruby-core:72736] [Bug #11962]

Revision d3c464d9 - 03/28/2016 02:18 PM - nagachika (Tomoyuki Chikanaga)

merge revision(s) 53455: [Backport #11962]

```
* ruby.h: undef HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P
and HAVE_BUILTIN___BUILTIN_TYPES_COMPATIBLE_P on C++.
[ruby-core:72736] [Bug #11962]
```

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/branches/ruby_2_2@54315 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 54315 - 03/28/2016 02:18 PM - nagachika (Tomoyuki Chikanaga)

merge revision(s) 53455: [Backport #11962]

```
* ruby.h: undef HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P
and HAVE_BUILTIN___BUILTIN_TYPES_COMPATIBLE_P on C++.
[ruby-core:72736] [Bug #11962]
```

Revision 0cf072ab - 03/29/2016 06:03 AM - naruse (Yui NARUSE)

merge revision(s) 53455: [Backport #11962]

```
* ruby.h: undef HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P
and HAVE_BUILTIN___BUILTIN_TYPES_COMPATIBLE_P on C++.
[ruby-core:72736] [Bug #11962]
```

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/branches/ruby_2_3@54364 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 54364 - 03/29/2016 06:03 AM - naruse (Yui NARUSE)

merge revision(s) 53455: [Backport #11962]

```
* ruby.h: undef HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P
and HAVE_BUILTIN___BUILTIN_TYPES_COMPATIBLE_P on C++.
[ruby-core:72736] [Bug #11962]
```

History

#1 - 01/07/2016 12:28 AM - hsbt (Hiroshi SHIBATA)

- Assignee set to nobu (Nobuyoshi Nakada)

#2 - 01/07/2016 07:16 AM - mrkn (Kenta Murata)

Can I fix it by the following change?

```
diff --git a/include/ruby/ruby.h b/include/ruby/ruby.h
index 7aabf5b..72523c6 100644
--- a/include/ruby/ruby.h
+++ b/include/ruby/ruby.h
@@ -874,7 +874,7 @@ struct RBasic {
  VALUE rb_obj_hide(VALUE obj);
  VALUE rb_obj_reveal(VALUE obj, VALUE klass); /* do not use this API to change class information */

-#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P)
+#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P) && !defined(__cplusplus)
  # define RB_OBJ_WB_UNPROTECT_FOR(type, obj) \
    __extension__( \
      __builtin_choose_expr( \
```

#3 - 01/07/2016 12:33 PM - mrkn (Kenta Murata)

I found the other place to be fixed.

The following patch is the complete version.

```
diff --git a/include/ruby/ruby.h b/include/ruby/ruby.h
index 7aabf5b..a2f42c8 100644
--- a/include/ruby/ruby.h
+++ b/include/ruby/ruby.h
@@ -620,7 +620,7 @@ int ruby_safe_level_2_warning(void) __attribute__((warning("$SAFE=2 to 4 are obs
  # ifdef RUBY_EXPORT
  #   define ruby_safe_level_2_warning() ruby_safe_level_2_error()
  # endif
-#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P)
+#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P) && !defined(__cplusplus)
  # define RUBY_SAFE_LEVEL_INVALID_P(level) \
```

```

__extension__(\
  __builtin_choose_expr(\
@@ -874,7 +874,7 @@ struct RBasic {
  VALUE rb_obj_hide(VALUE obj);
  VALUE rb_obj_reveal(VALUE obj, VALUE klass); /* do not use this API to change class information */

-#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P)
+#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P) && !defined(__cplusplus)
  # define RB_OBJ_WB_UNPROTECT_FOR(type, obj) \
    __extension__( \
      __builtin_choose_expr( \
@@ -1376,7 +1376,7 @@ rb_data_object_wrap_warning(VALUE klass, void *ptr, RUBY_DATA_FUNC mark, RUBY_DA
    return rb_data_object_wrap(klass, ptr, mark, free);
  }

-#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P)
+#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR_CONSTANT_P) && !defined(__cplusplus)
  #define rb_data_object_wrap_warning(klass, ptr, mark, free) \
    __extension__( \
      __builtin_choose_expr( \
diff --git a/include/ruby/st.h b/include/ruby/st.h
index 190bad2..97c08b1 100644
--- a/include/ruby/st.h
+++ b/include/ruby/st.h
@@ -59,7 +59,7 @@ struct st_hash_type {

#define ST_INDEX_BITS (sizeof(st_index_t) * CHAR_BIT)

-#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR) && defined(HAVE_BUILTIN___BUILTIN_TYPES_COMPATIBLE_P)
+#if defined(HAVE_BUILTIN___BUILTIN_CHOOSE_EXPR) && defined(HAVE_BUILTIN___BUILTIN_TYPES_COMPATIBLE_P) && !def
ined(__cplusplus)
  # define ST_DATA_COMPATIBLE_P(type) \
    __builtin_choose_expr(__builtin_types_compatible_p(type, st_data_t), 1, 0)
#else

```

#4 - 01/07/2016 01:35 PM - mrkn (Kenta Murata)

- Status changed from Open to Closed

Applied in changeset r53455.

- ruby.h: undef HAVE_BUILTIN_BUILTIN_CHOOSE_EXPR_CONSTANT_P and HAVE_BUILTIN_BUILTIN_TYPES_COMPATIBLE_P on C++. [ruby-core:72736] [Bug #11962]

#5 - 01/28/2016 07:39 PM - vo.x (Vit Ondruch)

- Backport changed from 2.0.0: UNKNOWN, 2.1: UNKNOWN, 2.2: UNKNOWN, 2.3: UNKNOWN to 2.0.0: UNKNOWN, 2.1: UNKNOWN, 2.2: UNKNOWN, 2.3: REQUIRED

#6 - 01/28/2016 08:11 PM - vo.x (Vit Ondruch)

BTW this causes issues compiling SWIG:

<https://github.com/swig/swig/issues/593>

#7 - 02/29/2016 08:13 PM - terceiro (Antonio Terceiro)

We are trying to transition Debian unstable to ruby2.3, it would be very helpful to have this applied to the 2.3 branch.

#8 - 03/24/2016 07:04 AM - usa (Usaku NAKAMURA)

- Backport changed from 2.0.0: UNKNOWN, 2.1: UNKNOWN, 2.2: UNKNOWN, 2.3: REQUIRED to 2.1: DONTNEED, 2.2: REQUIRED, 2.3: REQUIRED

#9 - 03/28/2016 02:19 PM - nagachika (Tomoyuki Chikanaga)

- Backport changed from 2.1: DONTNEED, 2.2: REQUIRED, 2.3: REQUIRED to 2.1: DONTNEED, 2.2: DONE, 2.3: REQUIRED

Backported into ruby_2_2 branch at r54315.

#10 - 03/29/2016 06:05 AM - naruse (Yui NARUSE)

- Backport changed from 2.1: DONTNEED, 2.2: DONE, 2.3: REQUIRED to 2.1: DONTNEED, 2.2: DONE, 2.3: DONE

ruby_2_3 r54364 merged revision(s) 53455.