Ruby master - Feature #11170

[PATCH] use ivar indices for generic ivars

05/23/2015 01:34 AM - normalperson (Eric Wong)

<table>
<thead>
<tr>
<th>Status:</th>
<th>Closed</th>
</tr>
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<tbody>
<tr>
<td>Priority:</td>
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</tr>
<tr>
<td>Assignee:</td>
<td></td>
</tr>
<tr>
<td>Target version:</td>
<td></td>
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</tbody>
</table>

**Description**

- [PATCH 1/2] variable.c: extract common functions for generic ivar
  
  [http://80x24.org/spew/m/4e9df8a150a121c894fe142bde5e5f1c15d43e5e94.txt](http://80x24.org/spew/m/4e9df8a150a121c894fe142bde5e5f1c15d43e5e94.txt)

- [PATCH 2/2] variable.c: use indices for generic ivars
  
  [http://80x24.org/spew/m/aabb09c886a23ea496722b13f2b39da8606b8180.txt](http://80x24.org/spew/m/aabb09c886a23ea496722b13f2b39da8606b8180.txt)

This reduces memory overhead of ivars for common types such as T_DATA the same way T_OBJECT does it.

For 9992 accepted clients on an OpenSSL server, this reduces RSS memory from 77160K to 69248K on x86-64 with the attached ossl.rb script. Connecting client process was reduced from 246312K to 230724K RSS.

OpenSSL 1.0.1e-2+deb7u16 on Debian 7

**Associated revisions**

Revision 9d9ae7f - 05/29/2015 11:42 PM - normal

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For 9992 accepted clients on an OpenSSL server, this reduces memory from 77160K to 69248K with the script in [https://bugs.ruby-lang.org/issues/11170](https://bugs.ruby-lang.org/issues/11170)

- variable.c (static int special_generic_ivar): move
  - (rb_generic_ivar_table): rewrite for compatibility (gen_ivtbl_bytes)
  - new function (generic_ivar_get): update to use ivar index (generic_ivar_update)
  - ditto (generic_ivar_set)
  - ditto (generic_ivar_defined)
  - ditto (generic_ivar_remove)
  - ditto (rb_mark_generic_ivar)
  - ditto (givar_i)
  - ditto (rb_free_generic_ivar)
  - ditto (rb_mark_generic_ivar_tbl)
  - ditto (rb_generic_ivar_memsze)
  - ditto (rb_copy_generic_ivar)
  - ditto (rb_ivar_set)
  - ditto (rb_ivar_foreach)
  - ditto (rb_ivar_count)
  - ditto (givar_mark_i)
  - remove (gen_ivtbl_mark)
  - new function (gen_ivar_each)
  - ditto (iv_index_tbl_extend)
  - update for struct ivar_update (iv_index_tbl_newsize) [ruby-core:69323] [Feature #11170]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@50678 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 50678 - 05/29/2015 11:42 PM - normalperson (Eric Wong)

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[ruby-core:69323] [Feature #11170]

Revision f6cd5825 - 05/30/2015 12:20 AM - normal
variable.c: avoid compatibility table with generic ivars

This recovers and improves performance of Marshal.dump/load on Time objects compared to when we implemented generic ivars entirely using st_table.
This also recovers some performance on other generic ivar objects, but does not bring Marshal.dump/load performance up to previous speeds.

benchmark results:
minimum results in each 10 measurements.
Execution time (sec)
name    trunk   geniv   after
marshal_dump_flo        0.343   0.334   0.335
marshal_dump_load_geniv 0.487   0.527   0.495
marshal_dump_load_time  1.262   1.401   1.257

Speedup ratio: compare with the result of ‘trunk’ (greater is better)
name    geniv   after
marshal_dump_flo        1.026   1.023
marshal_dump_load_geniv 0.925   0.985
marshal_dump_load_time  0.901   1.004

- include/ruby/intern.h (rb_generic_ivar_table): deprecate
- internal.h (rb_attr_delete): declare
- marshal.c (has_ivars): use rb_ivar_foreach (w_ivar): ditto (w_object): update for new interface
- time.c (time_mload): use rb_attr_delete
- variable.c (generic_ivar_delete): implement (rb_ivar_delete): ditto (rb_attr_delete): ditto [ruby-core:69323] [Feature #11170]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@50680 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

Revision 50680 - 05/30/2015 12:20 AM - normalperson (Eric Wong)
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History

#1 - 05/23/2015 01:35 AM - normalperson (Eric Wong)
- File ossl_11170.rb added

Attached standalone test script, increase "ulimit -n" as necessary.

#2 - 05/23/2015 02:19 AM - ko1 (Koichi Sasada)
+1.

T_CLASS/T_MODULE can use same technique, but it seems not so many use-cases.

#3 - 05/29/2015 12:58 AM - normalperson (Eric Wong)

After the original patch, rb_generic_ivar_table() is much more expensive but kept for compatibility reasons. I propose deprecating it, I'm not sure if any 3rd party C-exts use it.

http://80x24.org/spew/m/1432859944-14374-1-git-send-email-e@80x24.org.txt

[PATCH 3/2] avoid compatibility table with generic ivars

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#4 - 05/29/2015 11:43 PM - Anonymous
- Status changed from Open to Closed

Applied in changeset r50678.

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Files

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<thead>
<tr>
<th>File</th>
<th>Size</th>
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<th>Author</th>
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<tbody>
<tr>
<td>ivar-reduce-combined.patch</td>
<td>17.2 KB</td>
<td>05/23/2015</td>
<td>normalperson (Eric Wong)</td>
</tr>
<tr>
<td>ossl_11170.rb</td>
<td>1.74 KB</td>
<td>05/23/2015</td>
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