Ruby master - Feature #11170

[PATCH] use ivar indices for generic ivars

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

| Status: | Closed |
| Priority: | Normal |
| Assignee: | |
| Target version: | |

**Description**

- [PATCH 1/2] variable.c: extract common functions for generic ivar
  
  [http://80x24.org/spew/m/4e9df8a150a121c894fe142be5e5fc15d43e5e94.txt](http://80x24.org/spew/m/4e9df8a150a121c894fe142be5e5fc15d43e5e94.txt)
  
- [PATCH 2/2] variable.c: use indices for generic ivars
  
  [http://80x24.org/spew/m/aabb09c886a23e4a496722b13f2b39da8606b8180.txt](http://80x24.org/spew/m/aabb09c886a23e4a496722b13f2b39da8606b8180.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 9d9aea7f - 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_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_memsize): 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): ditto

[ruby-core:93932] [Feature #11170]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@50678 b2dd03c8-39d4-4d8f-98f8-823fe69b080e

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

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

Revision 6cd5825 - 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.

07/26/2021
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)**

<table>
<thead>
<tr>
<th>name</th>
<th>trunk</th>
<th>geniv</th>
<th>after</th>
</tr>
</thead>
<tbody>
<tr>
<td>marshal_dump_flo</td>
<td>0.343</td>
<td>0.334</td>
<td>0.335</td>
</tr>
<tr>
<td>marshal_dump_load_geniv</td>
<td>0.487</td>
<td>0.527</td>
<td>0.495</td>
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<td>marshal_dump_load_time</td>
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**Speedup ratio:** compare with the result of 'trunk' (greater is better)

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- internal.h (rb_attr_delete): declare
- marshal.c (has_ivars): use rb_ivar_foreach (w_iivar): 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]

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

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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>
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