[PATCH] use ivar indices for generic ivars

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
variable.c: use indices for generic ivars

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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

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

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<tr>
<th>Name</th>
<th>Trunk (sec)</th>
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Speedup ratio: compare with the result of 'trunk' (greater is better)

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- variable.c (generic_ivar_delete): implement (rb_ivar_delete): ditto (rb_attr_delete): ditto [ruby-core:69323] [Feature #11170]

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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11/07/2021
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- 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_ij): ditto (rb_free_generic_ivar): ditto (rb_mark_generic_ivar_tbl): ditto
  [ruby-core:69323] [Feature #11170]

Files

<table>
<thead>
<tr>
<th>Files</th>
<th>Size</th>
<th>Last modified</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>ssl_11170.rb</td>
<td>1.74 KB</td>
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