

## Ruby trunk - Bug #9227

### use opt\_aset ?

12/08/2013 11:01 AM - tmm1 (Aman Gupta)

<b>Status:</b> Closed	
<b>Priority:</b> Normal	
<b>Assignee:</b> ko1 (Koichi Sasada)	
<b>Target version:</b> 2.1.0	
<b>ruby -v:</b> trunk	<b>Backport:</b> 1.9.3: UNKNOWN, 2.0.0: UNKNOWN
<b>Description</b>	
I noticed we have an opt_aset instruction, but nothing is using it. Is there some reason?	
<pre>diff --git a/compile.c b/compile.c index 812f692..9d9f14f 100644 --- a/compile.c +++ b/compile.c @@ -1955,6 +1955,11 @@ iseq_specialized_instruction(rb_iseq_t *iseq, INSN *iobj) case idAREF: SP_INSN(aref); return COMPILE_OK; } break;  • case 2: • switch (ci-&gt;mid) { • case idASET: SP_INSN(aset); return COMPILE_OK; • } • break; } } if (ci-&gt;flag &amp; VM_CALL_ARGS_SKIP_SETUP) {</pre>	

#### Associated revisions

##### Revision bd892d05 - 12/11/2013 06:38 AM - tmm1 (Aman Gupta)

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug #9227] [ruby-core:58956]

git-svn-id: svn+ssh://ci.ruby-lang.org/ruby/trunk@44136 b2dd03c8-39d4-4d8f-98ff-823fe69b080e

##### Revision 44136 - 12/11/2013 06:38 AM - tmm1 (Aman Gupta)

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug #9227] [ruby-core:58956]

##### Revision 44136 - 12/11/2013 06:38 AM - tmm1 (Aman Gupta)

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug #9227] [ruby-core:58956]

##### Revision 44136 - 12/11/2013 06:38 AM - tmm1 (Aman Gupta)

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug #9227] [ruby-core:58956]

#### Revision 44136 - 12/11/2013 06:38 AM - tmm1 (Aman Gupta)

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug #9227] [ruby-core:58956]

#### Revision 44136 - 12/11/2013 06:38 AM - tmm1 (Aman Gupta)

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug #9227] [ruby-core:58956]

## History

---

### #1 - 12/08/2013 11:10 AM - tmm1 (Aman Gupta)

Maybe some minor improvement on microbenchmarks.

Before patch:

```
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.54s user 0.02s system 99% cpu 1.572 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.58s user 0.02s system 99% cpu 1.608 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.54s user 0.02s system 99% cpu 1.565 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.57s user 0.02s system 99% cpu 1.605 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.54s user 0.02s system 99% cpu 1.569 total
```

After patch:

```
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.51s user 0.02s system 99% cpu 1.535 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.52s user 0.02s system 99% cpu 1.545 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.49s user 0.02s system 99% cpu 1.515 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.54s user 0.02s system 99% cpu 1.567 total
./miniruby -I. benchmark/bm_so_k_nucleotide.rb > /dev/null 1.50s user 0.02s system 99% cpu 1.530 total
```

### #2 - 12/09/2013 07:30 PM - ko1 (Koichi Sasada)

- Assignee set to ko1 (Koichi Sasada)

I forget why I remove it.

Maybe I can't measure improvement (and possible to have trouble with this insn).

If there are no regression, I don't against to use it.

### #3 - 12/11/2013 12:57 PM - tmm1 (Aman Gupta)

I did some more microbenchmarks. In the Array#[Fixnum]= case, the new instruction makes a huge difference.

Before:

```
array aset      1.430000  0.000000  1.430000 ( 1.430370)
array aset      1.430000  0.000000  1.430000 ( 1.429422)
array aset      1.520000  0.000000  1.520000 ( 1.544912)
array aset      1.440000  0.000000  1.440000 ( 1.444454)
```

After:

```
array aset      0.910000  0.000000  0.910000 ( 0.908866)
array aset      0.910000  0.000000  0.910000 ( 0.910356)
array aset      0.890000  0.000000  0.890000 ( 0.891267)
array aset      0.920000  0.000000  0.920000 ( 0.921012)
```

Benchmark:

```
require 'benchmark'
Benchmark.bmbm(20) do |b|
  ary = [1,2,3,4]
  b.report('array aset') do
    10_000_000.times do
      ary[2] = 2
      ary[3] = 3
    end
  end
end
```

Here's a copy of the patch that applies on trunk:

```
diff --git a/compile.c b/compile.c
index af11baf..25e3652 100644
--- a/compile.c
+++ b/compile.c
@@ -1955,6 +1955,11 @@ iseq_specialized_instruction(rb_iseq_t *iseq, INSN *iobj)
 case idAREF: SP_INSN(aref); return COMPILE_OK;
 }
 break;

• case 2:
• switch (ci->mid) {
• case idASET: SP_INSN(aset); return COMPILE_OK;
• }
• break; } } if (ci->flag & VM_CALL_ARGS_SKIP_SETUP) {
```

**#4 - 12/11/2013 01:00 PM - ko1 (Koichi Sasada)**

OK. Please enable it.

**#5 - 12/11/2013 03:38 PM - tmm1 (Aman Gupta)**

- *Status changed from Open to Closed*

- *% Done changed from 0 to 100*

This issue was solved with changeset [r44136](#).

Aman, thank you for reporting this issue.

Your contribution to Ruby is greatly appreciated.

May Ruby be with you.

---

compile.c: add opt\_aset instruction for faster Hash#[]= and Array#[]=

- compile.c (iseq\_specialized\_instruction): emit opt\_aset instruction to optimize Hash#[]= and Array#[]= when called with Fixnum argument. [Bug [#9227](#)]