

Ruby - Bug #20905

Ruby VM hangs while using ractors

11/22/2024 09:32 AM - ivoanjo (Ivo Anjo)

Status:	Closed	
Priority:	Normal	
Assignee:	ractor	
Target version:	4.0	
ruby -v:	ruby 3.4.0preview2 (2024-10-07 master 32c733f57b) +PRISM [x86_64-linux]	Backport: 3.1: UNKNOWN, 3.2: UNKNOWN, 3.3: UNKNOWN

Description

Hey! While doing some experiments with Ractors I ran into a Ruby VM hang. I see it both on Ruby 3.4.0-preview2 and 3.3.5, but not Ruby 3.2, so this may be related to the M:N scheduling.

How to reproduce:

```
puts RUBY_DESCRIPTION

def counter_loop
  counter = 0
  counter += 1 while counter < 100_000_000
end

ractors = 10.times.map { Ractor.new { Thread.new { counter_loop }; counter_loop } }
counter_loop
ractors.map(&:take)
```

This example never finishes for me. At some point all threads finish work, and the Ruby process will be stuck at 0% cpu.

```
ruby 3.4.0preview2 (2024-10-07 master 32c733f57b) +PRISM [x86_64-linux]
warning: Ractor is experimental, and the behavior may change in future versions of Ruby! Also there are many implementation issues.
...(hangs)...
```

Reducing the number of ractor seems to make the issue go away, so there may be some timing/thread switching issues involved.

Furthermore, all threads seem to be stuck waiting:

```
(gdb) info threads
Id      Target Id                               Frame
* 1      Thread 0x7836ef0b6c00 (LWP 445418) "ruby"      __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024bda30) at ./nptl/futex-internal.c:57
  2      Thread 0x7836d4800640 (LWP 445419) "ruby"      0x00007836ee725e2e in epoll_wait (epfd=4, events=events@entry=0x7836ef0a8adc <timer_th+28>, maxevents=maxevents@entry=16, timeout=timeout@entry=-1) at ../sysdeps/unix/sysv/linux/epoll_wait.c:30
  3      Thread 0x7836d3fff640 (LWP 445420) "rc-example7-2.*" __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6434) at ./nptl/futex-internal.c:57
  4      Thread 0x7836b29ff640 (LWP 445421) "rc-example7-2.*" __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6434) at ./nptl/futex-internal.c:57
  5      Thread 0x7836b28fe640 (LWP 445422) "rc-example7-2.*" __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
  6      Thread 0x7836b27fd640 (LWP 445423) "rc-example7-2.*" __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
  7      Thread 0x7836b26fc640 (LWP 445424) "rc-example7-2.*" __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
  8      Thread 0x7836b25fb640 (LWP 445425) "rc-example7-2.*" __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
```

```

e=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6430) at ./nptl/futex-inte
rnal.c:57
  9   Thread 0x7836b24fa640 (LWP 445426) "rc-example7-2.*" __futex_abstimed_wait_common64 (privat
e=0, cancel=true, abstime=0x0, op=393, expected=0, futex_word=0x59a4024b6430) at ./nptl/futex-inte
rnal.c:57
(gdb) thread apply all bt

Thread 9 (Thread 0x7836b24fa640 (LWP 445426) "rc-example7-2.*"):
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex
_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute
x_word=0x59a4024b6430) at ./nptl/futex-internal.c:87
#2 __GI__futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6430, expected=
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at
./nptl/futex-internal.c:139
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n
ptl/pthread_cond_wait.c:627
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/
thread_pthread.c:1292
#7 nt_start (ptr=0x59a40251e800) at src/ruby-3.4.0-preview2/thread_pthread.c:2287
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81

Thread 8 (Thread 0x7836b25fb640 (LWP 445425) "rc-example7-2.*"):
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex
_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute
x_word=0x59a4024b6430) at ./nptl/futex-internal.c:87
#2 __GI__futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6430, expected=
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at
./nptl/futex-internal.c:139
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n
ptl/pthread_cond_wait.c:627
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/
thread_pthread.c:1292
#7 nt_start (ptr=0x59a4025224e0) at src/ruby-3.4.0-preview2/thread_pthread.c:2287
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81

Thread 7 (Thread 0x7836b26fc640 (LWP 445424) "rc-example7-2.*"):
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex
_word=0x59a4024b6430) at ./nptl/futex-internal.c:57
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute
x_word=0x59a4024b6430) at ./nptl/futex-internal.c:87
#2 __GI__futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6430, expected=
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at
./nptl/futex-internal.c:139
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n
ptl/pthread_cond_wait.c:627
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/
thread_pthread.c:1292
#7 nt_start (ptr=0x59a4025adf00) at src/ruby-3.4.0-preview2/thread_pthread.c:2287
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81

```

```
Thread 6 (Thread 0x7836b27fd640 (LWP 445423) "rc-example7-2.*"):  
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex  
_word=0x59a4024b6430) at ./nptl/futex-internal.c:57  
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute  
x_word=0x59a4024b6430) at ./nptl/futex-internal.c:87  
#2 __GI___futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6430, expected=  
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at  
./nptl/futex-internal.c:139  
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0  
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503  
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n  
ptl/pthread_cond_wait.c:627  
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0  
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222  
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/  
thread_pthread.c:1292  
#7 nt_start (ptr=0x59a40263bc20) at src/ruby-3.4.0-preview2/thread_pthread.c:2287  
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442  
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81
```

```
Thread 5 (Thread 0x7836b28fe640 (LWP 445422) "rc-example7-2.*"):
```

```
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex  
_word=0x59a4024b6430) at ./nptl/futex-internal.c:57  
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute  
x_word=0x59a4024b6430) at ./nptl/futex-internal.c:87  
#2 __GI___futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6430, expected=  
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at  
./nptl/futex-internal.c:139  
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0  
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503  
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n  
ptl/pthread_cond_wait.c:627  
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0  
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222  
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/  
thread_pthread.c:1292  
#7 nt_start (ptr=0x59a40276bc80) at src/ruby-3.4.0-preview2/thread_pthread.c:2287  
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442  
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81
```

```
Thread 4 (Thread 0x7836b29ff640 (LWP 445421) "rc-example7-2.*"):
```

```
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex  
_word=0x59a4024b6434) at ./nptl/futex-internal.c:57  
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute  
x_word=0x59a4024b6434) at ./nptl/futex-internal.c:87  
#2 __GI___futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6434, expected=  
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at  
./nptl/futex-internal.c:139  
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0  
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503  
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n  
ptl/pthread_cond_wait.c:627  
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0  
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222  
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/  
thread_pthread.c:1292  
#7 nt_start (ptr=0x59a402729730) at src/ruby-3.4.0-preview2/thread_pthread.c:2287  
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442  
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81
```

```
Thread 3 (Thread 0x7836d3fff640 (LWP 445420) "rc-example7-2.*"):
```

```
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex  
_word=0x59a4024b6434) at ./nptl/futex-internal.c:57  
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute  
x_word=0x59a4024b6434) at ./nptl/futex-internal.c:87  
#2 __GI___futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024b6434, expected=
```

```

expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at
./nptl/futex-internal.c:139
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024b63d0
, cond=0x59a4024b6408) at ./nptl/pthread_cond_wait.c:503
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0x59a4024b63d0) at ./n
ptl/pthread_cond_wait.c:627
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024b6408, mutex=mutex@entry=0
x59a4024b63d0) at src/ruby-3.4.0-preview2/thread_pthread.c:222
#6 0x00007836eece2e53 in ractor_sched_deq (cr=0x0, vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/
thread_pthread.c:1292
#7 nt_start (ptr=0x59a4024bb430) at src/ruby-3.4.0-preview2/thread_pthread.c:2287
#8 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442
#9 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81

Thread 2 (Thread 0x7836d4800640 (LWP 445419) "ruby"):
#0 0x00007836ee725e2e in epoll_wait (epfd=4, events=events@entry=0x7836ef0a8adc <timer_th+28>, ma
xevents=maxevents@entry=16, timeout=timeout@entry=-1) at ../sysdeps/unix/sysv/linux/epoll_wait.c:3
0
#1 0x00007836eecdca8d in event_wait (vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/thread_pthread
.c:2940
#2 timer_thread_polling (vm=0x59a4024b6330) at src/ruby-3.4.0-preview2/thread_pthread_mn.c:908
#3 timer_thread_func (ptr=0x59a4024b6330) at src/ruby-3.4.0-preview2/thread_pthread.c:3067
#4 0x00007836ee694ac3 in start_thread (arg=<optimised out>) at ./nptl/pthread_create.c:442
#5 0x00007836ee726850 in clone3 () at ../sysdeps/unix/sysv/linux/x86_64/clone3.S:81

Thread 1 (Thread 0x7836ef0b6c00 (LWP 445418) "ruby"):
#0 __futex_abstimed_wait_common64 (private=0, cancel=true, abstime=0x0, op=393, expected=0, futex
_word=0x59a4024bda30) at ./nptl/futex-internal.c:57
#1 __futex_abstimed_wait_common (cancel=true, private=0, abstime=0x0, clockid=0, expected=0, fute
x_word=0x59a4024bda30) at ./nptl/futex-internal.c:87
#2 __GI___futex_abstimed_wait_cancelable64 (futex_word=futex_word@entry=0x59a4024bda30, expected=
expected@entry=0, clockid=clockid@entry=0, abstime=abstime@entry=0x0, private=private@entry=0) at
./nptl/futex-internal.c:139
#3 0x00007836ee693a41 in __pthread_cond_wait_common (abstime=0x0, clockid=0, mutex=0x59a4024bdb80
, cond=0x59a4024bda08) at ./nptl/pthread_cond_wait.c:503
#4 __pthread_cond_wait (cond=cond@entry=0x59a4024bda08, mutex=mutex@entry=0x59a4024bdb80) at ./n
ptl/pthread_cond_wait.c:627
#5 0x00007836eecd77dd in rb_native_cond_wait (cond=cond@entry=0x59a4024bda08, mutex=mutex@entry=0
x59a4024bdb80) at src/ruby-3.4.0-preview2/thread_pthread.c:222
#6 0x00007836eecd90d9 in thread_sched_wait_running_turn (sched=sched@entry=0x59a4024bdb80, th=0x5
9a4024b88c0, can_direct_transfer=can_direct_transfer@entry=false) at src/ruby-3.4.0-preview2/threa
d_pthread.c:863
#7 0x00007836eecd9f4a in rb_ractor_sched_sleep (ec=ec@entry=0x59a4024bdd20, cr=cr@entry=0x59a4024
bda60, ubf=ubf@entry=0x7836eec341f0 <ractor_sleep_interrupt>) at src/ruby-3.4.0-preview2/thread_pt
hread.c:1349
#8 0x00007836eec34de6 in ractor_sleep_with_cleanup (cf_data=0x7ffcaale7640, cf_func=0x7836eec35b7
0 <ractor_wait_take_cleanup>, wait_status=wait_taking, cr=0x59a4024bda60, ec=0x59a4024bdd20) at ra
ctor.c:691
#9 ractor_wait_take (take_basket=0x7ffcaale7650, r=0x59a4027851d0, cr=0x59a4024bda60, ec=0x59a402
4bdd20) at ractor.c:1220
#10 ractor_take (r=0x59a4027851d0, ec=0x59a4024bdd20) at ractor.c:1241
#11 builtin_inline_class_711 (ec=0x59a4024bdd20, self=<optimised out>) at src/ruby-3.4.0-preview2/
ractor.rb:712
#12 0x00007836eed30fe7 in invoke_bf (argv=<optimised out>, bf=<optimised out>, reg_cfp=<optimised
out>, ec=<optimised out>) at src/ruby-3.4.0-preview2/vm_inshelper.c:7330
#13 vm_invoke_builtin_delegate (cfp=<optimised out>, bf=<optimised out>, cfp=<optimised out>, bf=<
optimised out>, start_index=<optimised out>, ec=<optimised out>) at src/ruby-3.4.0-preview2/vm_ins
nhelper.c:7353
#14 vm_invoke_builtin_delegate (start_index=<optimised out>, bf=<optimised out>, cfp=<optimised ou
t>, ec=<optimised out>) at src/ruby-3.4.0-preview2/vm_inshelper.c:7342
#15 vm_exec_core (ec=0x59a4024bdd20) at src/ruby-3.4.0-preview2/insns.def:1632
#16 0x00007836eed34c1a in rb_vm_exec (ec=0x59a4024bdd20) at vm.c:2564
#17 0x00007836eed3b222 in vm_call0_cc (ec=0x59a4024bdd20, recv=132176890167200, id=<optimised out>
, argc=<optimised out>, argv=<optimised out>, cc=<optimised out>, kw_splat=0) at src/ruby-3.4.0-pr
eview2/vm_eval.c:101
#18 0x00007836eed3d9e4 in rb_call0 (ec=0x59a4024bdd20, recv=132176890167200, mid=6081, argc=0, arg
v=<optimised out>, call_scope=<optimised out>, self=132177315121880) at src/ruby-3.4.0-preview2/vm

```

```
_eval.c:554
#19 0x00007836eed3e6f6 in rb_call (scope=<optimised out>, argv=0x7ffcaale7b40, argc=0, mid=6081, r
ecv=132176890167200) at src/ruby-3.4.0-preview2/vm_eval.c:873
#20 rb_funcall_with_block_kw (recv=132176890167200, mid=6081, argc=0, argv=0x7ffcaale7b40, passed_
procval=4, kw_splat=<optimised out>) at src/ruby-3.4.0-preview2/vm_eval.c:1192
#21 0x00007836eed39e38 in vm_yield_with_cref (is_lambda=0, cref=0x0, kw_splat=0, argv=0x7ffcaale7b
38, argc=1, ec=<optimised out>) at vm.c:1646
#22 vm_yield (kw_splat=0, argv=0x7ffcaale7b38, argc=1, ec=<optimised out>) at vm.c:1654
#23 rb_yield_0 (argv=0x7ffcaale7b38, argc=1) at src/ruby-3.4.0-preview2/vm_eval.c:1344
#24 rb_yield (val=<optimised out>) at src/ruby-3.4.0-preview2/vm_eval.c:1360
#25 0x00007836eea68efc in rb_ary_collect (ary=132177315121880) at array.c:3714
#26 0x00007836eed1b03c in vm_call_cfunc_with_frame_ (stack_bottom=<optimised out>, argv=<optimised
out>, argc=0, calling=<optimised out>, reg_cfp=0x7836edffefa0, ec=0x59a4024bdd20) at src/ruby-3.4
.0-preview2/vm_inshelper.c:3788
#27 vm_call_cfunc_with_frame (ec=0x59a4024bdd20, reg_cfp=0x7836edffefa0, calling=<optimised out>)
at src/ruby-3.4.0-preview2/vm_inshelper.c:3834
#28 0x00007836eed217f0 in vm_sendish (ec=0x59a4024bdd20, reg_cfp=0x7836edffefa0, cd=0x59a4027833f0
, block_handler=<optimised out>, method_explorer=mexp_search_method) at src/ruby-3.4.0-preview2/vm
_callinfo.h:415
#29 0x00007836eed2edd1 in vm_exec_core (ec=0x59a4024bdd20) at src/ruby-3.4.0-preview2/insns.def:85
1
#30 0x00007836eed34c1a in rb_vm_exec (ec=0x59a4024bdd20) at vm.c:2564
#31 0x00007836eed46e8b in rb_iseq_eval_main (iseq=iseq@entry=0x7836edea70f8) at vm.c:2830
#32 0x00007836eeb3d895 in rb_ec_exec_node (ec=ec@entry=0x59a4024bdd20, n=n@entry=0x7836edea70f8) a
t eval.c:281
#33 0x00007836eeb4140b in ruby_run_node (n=0x7836edea70f8) at eval.c:319
#34 0x000059a400cd1187 in rb_main (argv=0x7ffcaale8118, argc=2) at ./main.c:43
#35 main (argc=<optimised out>, argv=<optimised out>) at ./main.c:62
```

History

#1 - 01/06/2025 09:55 PM - luke-gru (Luke Gruber)

I took a look at this, and it occurs due to an issue in the ractor and thread scheduler. Sometimes a ractor is not enqueued when it should be, therefore all native threads are blocked on ractor_sched_deq and they can't continue even if there is more work.

I made a PR for this issue here, but I don't know if it is an acceptable fix. I'm fairly certain about it, though.

<https://github.com/ruby/ruby/pull/12520>

#2 - 05/08/2025 10:38 PM - jhawthorn (John Hawthorn)

- Assignee set to ractor

#3 - 05/12/2025 11:16 PM - hsb (Hiroshi SHIBATA)

- Status changed from Open to Assigned

#4 - 05/13/2025 02:47 PM - byroot (Jean Boussier)

I was able to reproduce the bug, and rebasing [@luke-gru \(Luke Gruber\)](#)'s patch does indeed fix the hang (I reduced 100M to 10M though cause it's very long otherwise).

[@jhawthorn \(John Hawthorn\)](#) or [@tenderlovmaking \(Aaron Patterson\)](#) could you review the PR? The patch make sense to me, but considering my very limited understanding of the scheduler, it doesn't say much.

#5 - 05/23/2025 06:09 PM - jhawthorn (John Hawthorn)

I had trouble reproducing this, but found that it does reproduce when limiting the number of CPUs. ex.

```
taskset -c 1-3 ruby test.rb
```

#6 - 06/05/2025 06:11 PM - jhawthorn (John Hawthorn)

- Status changed from Assigned to Closed

- Target version set to 4.0

After [@ko1](#)'s merge of Ractor::Ports this no longer reproduces. ☹☹

[@luke-gru \(Luke Gruber\)](#) and I paired on this both before and after. It seems like what fixed this is removing a check from the end of co_start when a thread terminates (which had a potential race). With that gone it seems like this should be fixed!