CoCoA-5 - Bug #1443

Illegal instruction

10 Mar 2020 13:59 - John Abbott

Status:	Closed	**Start date:**	10 Mar 2020
Priority:	Urgent	**Due date:**	
Assignee:	John Abbott	**% Done:**	100%
Category:	Release	**Estimated time:**	4.19 hours
Target version:	CoCoA-5.4.0	**Spent time:**	4.20 hours

Description

I sent a compressed stripped binary to Matteo via email, but he reports a problem with **Illegal instruction**.

Investigate and fix.

Related issues:

Related to CoCoA-5 - Support #1445: Automatic way to produce statically linke...	**New**	**12 Mar 2020**

History

#1 - 10 Mar 2020 14:02 - John Abbott

- Status changed from New to In Progress

- % Done changed from 0 to 10

I do not know what the problem can be at the moment.

I would not expect stripping a binary to cause such a problem; anyway, I have sent a split, compressed, unstripped binary, and am awaiting feedback.

A possibility is that the compiler on my "recent" processor, used some machine instructions which do not exist on some "old" processor.
I'm not sure what compilation flags to set to force the binary to be portable.

#2 - 10 Mar 2020 14:08 - John Abbott

- % Done changed from 10 to 20

~~Maybe the correct flag is **-march=i686**.~~ **NO! This did not work** (see comment 5)

Presumably this has to be specified for all external libraries as well.... groan! 8-{

I wonder why we have not had any problems before... am I barking up the wrong tree?

#3 - 11 Mar 2020 12:27 - John Abbott

- Assignee set to John Abbott

I'm still waiting for feedback from Matteo.

#4 - 12 Mar 2020 13:37 - John Abbott

- Related to Support #1445: Automatic way to produce statically linked CoCoAInterpreter added

#5 - 12 Mar 2020 15:33 - John Abbott

It seems that **--march=i686** is **not correct**. It says that it does not support x86_64 instruction set :-(
Investigating.

#6 - 12 Mar 2020 15:40 - John Abbott

- % Done changed from 20 to 30

There is information on the web page:

`https://gcc.gnu.org/onlinedocs/gcc-4.5.3/gcc/i386-and-x86_002d64-Options.html`

So far compilation is proceeding with **--mtune=generic** (and no **--march** option).
I hope Matteo can test it for me...

#7 - 12 Mar 2020 15:55 - John Abbott

It could also be that the "illegal instruction" does not come from CoCoA at all, but is in one of the already compiled libraries... 8-{

I can recompile some of the libraries, but surely not MSat. Also it could be tedious having to recompile readline...

Note: it seems that CoCoA queries all libraries for their version info as soon as it is started, and without the user calling the VersionInfo function.

#8 - 14 Mar 2020 20:29 - John Abbott

The illegal instruction seems to be coming from the statically linked GMP library -- that is **libgmp.a** (and/or libgmpxx.a) from my computer.

I have downloaded the latest GMP, and will try with that.

#9 - 14 Mar 2020 21:46 - John Abbott

OK, I do not know what is going on. This is **really annoying!**

I have compiled CoCoA-5 with the **generic** option (which should guarantee that it works with all x86-64 processors).
I have compiled gmp-6.2.0 with the **--enable-fat** option which should make it work with all x86-64 processors.
The resulting CoCoAInterpreter starts, but as soon I run VersionInfo() it gives an "illegal instruction".

Conclusion: we cannot have a portable release with statically linked GMP!

What to do??? I'm pretty annoyed -- I'm visiting Dorothee and did not want to waste so much time fruitlessly.

#10 - 20 Mar 2020 12:22 - John Abbott

- Target version changed from CoCoA-5.3.0 to CoCoA-5.4.0

I have postponed this issue to the next release. This release we used the workaround to compile on a different machine, which seems to produce a trouble-free binary (but how can we guarantee this?)

Is the problem inside libgmp.a? Why did **--enable-fat** not work as I expected?

Ideally each person should compile on their own machine, but this may not be possible if the user cannot "become root".

#11 - 07 Aug 2020 16:18 - John Abbott

Siamo ancora in contatto con Matteo?

#12 - 12 Oct 2021 09:12 - John Abbott

Esiste ancora questo problema? Non ho piu` sentito niente.
Possiamo semplicement chiudere l'issue?

#13 - 03 Feb 2022 19:37 - John Abbott

- Status changed from In Progress to Closed

- % Done changed from 30 to 100

- Estimated time set to 4.19 h

This issue has been dormant for 2 years. I suppose whatever the problem was has gone away.
Closing!