AVR Workshop 1 – Supplement: Problems Communicating with the Butterfly.

6/25/08 Joe Pardue © 2008

In a perfect world an inexpensive device like the AVR Butterfly would plug right into a PC and work first time every time. But the world of PCs and microcontrollers is far from perfect (about 3,287 miles to the south-west in fact) so expect some problems. This avocation requires an affinity for debugging, a process akin to running down an unlighted corridor with a flashlight that cuts on and off, usually cutting off just after you've tripped over something or ran into a wall. Do you remember how in all the really good horror movies, the soon-to-be-very-abused-person seems to think that pointing the flashlight into his own eyes while backing around a corner is a good idea? Right before the monster-who-likes-stupid-snacks eats him? Yeah, debugging is like that. Some folks hate debugging and should quit reading right here and go find something else to do with their time. Others like debugging and should have their meds adjusted. I'm neutral on the topic (actually I'm lying, I hate it) but it is an integral part of mucking about with software and hardware.

This supplement will cover three common general problems that might keep you from contacting the Butterfly for Smiley's Workshop1, and two specific problems that might keep you from connecting to AVRProg in Smiley's Workshop 2.

There seem to be three common general ways to have a failure to communicate with the PC. First is that you've got a bad solder joint. Second is that you already have the Butterfly COM port open by another program. Third is that you are using a flaky USB to RS232 converter.

There are two common problems that occur when you try to communicate with AVRProg, a topic we will see in Smiley's Workshop 2. First is that you aren't following the instructions. Second, you have it connected to a COM port greater than COM4.

General Serial Port Problems – For Workshop 1

The port is already open.

Do you have the COM port already open by another program, such as a terminal, or another iteration of AVRProg that you neglected to close? This has bitten me a number of times.

Bad Solder, Bad, Bad, Bad…

Were you able to download your name to the Butterfly? If so then your solder is okay. If not then you might have a bad solder joint. Anyway, it won't hurt to resolder the serial connection to the butterfly and to the DB9 connection. If you don't know how to solder then Google: 'solder tutorial'; it takes about five minutes to become proficient.

You are using a flaky USB to RS232 serial converter cable.

The AVR Butterfly RS232 converter is 'economical' meaning that it barely works even with a good RS232 input. A number of folks have reported on AVRFreaks that they can't get the Butterfly to work, but when they try a different converter cable from a different company it works just fine. I have several brands of converter cables an all mine work so I can't verify or fix this problem.

Problems talking to AVRProg – For Workshop 2

So, Bucky, you plugged your cable in to the PC and the Butterfly expecting to use it with AVRProg to talk to your AVR bootloader and got this:

What? Is it blind? The board is right there, plugged in and you know the connection works because you downloaded your name. So what to do?

You aren't following the instructions.

Now don't go pffftzz and skip this section since this is were most folks go wrong. You'd be surprised at how many folks think they did follow instructions, but didn't.

What you do is:

- **While holding the joystick button pressed to the center, recycle power by removing the battery and re-inserting it** (or shorting the reset line to ground if you know how to do that).
- Press the joystick button to the center and hold it down BEFORE OPENNING AVRPROG.
- If you still get the 'No supported board' message, open a terminal program on the PC. I recommend either the Simple Terminal or the Developer Terminal available on

www.smileymicros.com. Brays terminal is good too and you can even use HyperTerminal, though it can be tricky with that one.

- In the terminal open the COM port connected to the Butterfly.
- Do the cycle power while pressing the joystick to the center thing and you should receive a stream of ?????.
- Let me repeat: **WITH THE JOYSTICK BUTTON PRESSED TO THE CENTER – REMOVE THE BATTERY AND PUT IT BACK IN**. Then each time you press the joystick button to the center you will see the ?????? on your termnal. The reason I am over emphasizing this is that I get several emails see several threads a week on AVRFreaks from folks who have a 'dead' Butterfly but actually refused to follow the simple steps in red.

If you don't see the questions marks, AVRProg won't see them either. I have received over two dozen 'dead' Butterflies and only one was really dead. A couple had bad solder joints, but the rest worked just fine. Some folks apparently won't follow directions.

You have it connected to a COM port greater than COM4.

Okay, so it is going to be hard:
AVRProg is hardwired to use only COM1 to COM4. Most of the converters I'm familiar with install a virtual COM port driver; one for each new device added to the PC and each one permanently captures a COM port number. Thus some lucky folks get their converter installed early and get a COM port of 4 or less, while others get ports higher than COM4 which AVRProg won't find, but will give the highly informative error message shown above. That message implies all sorts of things, none of which lead to a solution.

A solution to this problem is to kill one of the COM1-4 names and usurp that name with the converter you are trying to use. This works, but be fore-warned, it may cause a potential long-term problem in that you didn't really kill the COM driver whose name you just stole so if you happen to plug it in while you've got your newly renamed converter plugged in, they will both respond and one hell of an argument might ensue (actually Windows will probably just go nuts and do something totally irrelevant and unexpected) [TODO: test this on a friend's computer]. So make sure that you aren't going to be doing any AVRProg-raming when you are also running some other USB converter based device that might claim the same COM port name.

And here is how to reset the COM number for your USB RS232 converter:

1. Click Start button, the Settings thingee, and then Control Panel doowab.

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2. Click the System wossname .

3. Click on the Hardware tab – and don’t laugh at my antique machine.

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4. Click on the Device Manager Button

5. Click on your USB device (here it is USB Serial Port COM11)

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6. Click on the Port Settings tab.

7. Click on the Advanced Button

8. Change the COM Port Number from COM11 to COM3 (or which ever of the COM1 to 4 you decide to use, COM1 probably being a very bad idea.)

9. Note that it says COM3 (in use), click on it anyway.

10. Here you take a leap of faith. (Usually followed by aaahhhiiiiieeee… splat!)

11. Well, now you've gone and done it! You've got your USB to RS232 serial converter where it will work with AVRProg, and you've had the opportunity to restore your faith with a few mumbled prayers begging God not to hurt you for having two devices both thinking they are COM3. And, who knows, maybe she won't hurt you (today at least).

12. Send $25 bucks to my favorite charity: me.