Athena Troubleshooting

Monday, May 03 2004 @ 12:31 PM EDT

In this article we will show you how to trouble shoot Athena programming problems.

Note that this applies to the AthenaHS, Athen485 and Perseus chips as well.

The Athena was designed with simplicity and cost in mind. However even the simplest problem can be frustrating and very mind boggling.

This is a set of trouble shooting procedures that will help you isolate problems when trying to program the Athena class microcontrollers.

You must have version 1.0.8 or later of the Athena software installed. If not you can download it **here.**

Comport selection

Open the Com Port selection form from the settings menu.

This form is used to perform all the tests. A few things need to be done before testing.

- Select an available com port
- connect that comport to a cable

Some Com Port Notes

You can not share com ports with the Athena software. This means if some other software is using the com port the Athena software will not work. Close the other application before starting the Athena software.

Window's will also let you use a comport for synchronization with Pocket PC's or other hand held computers. If you must use that com port you must shut down these services.

You can not program the Athena with background process like printing running. You can not run the Athena software on a Web or FTP server.

Why?

When the Athena software sends a byte of data to the Athena chip the Athena has 1 second to respond. If there is no response the software assumes an error. When the Athena sends a response it expects a response within 50ms. It the Athena does not receive the proper response it will go into error mode.

In some cases the software can recover but if too many errors are detected the program sequence will fail.

When process like background printing occur they can cause small pauses in other programs. Since the timing on the Athena is so critical this is not acceptable.

An Example

I have a test machine that has an external USB CD Rom. When I run a popular Music program it causes the machine to lock for about a second every 15 seconds or so. This has something to do with the Music software checking the external CD Rom drive. This will cause the Athena Software upload to fail. I my case its easy to fix. Don't run the Music Software while I'm programming the Athena.

The Tests

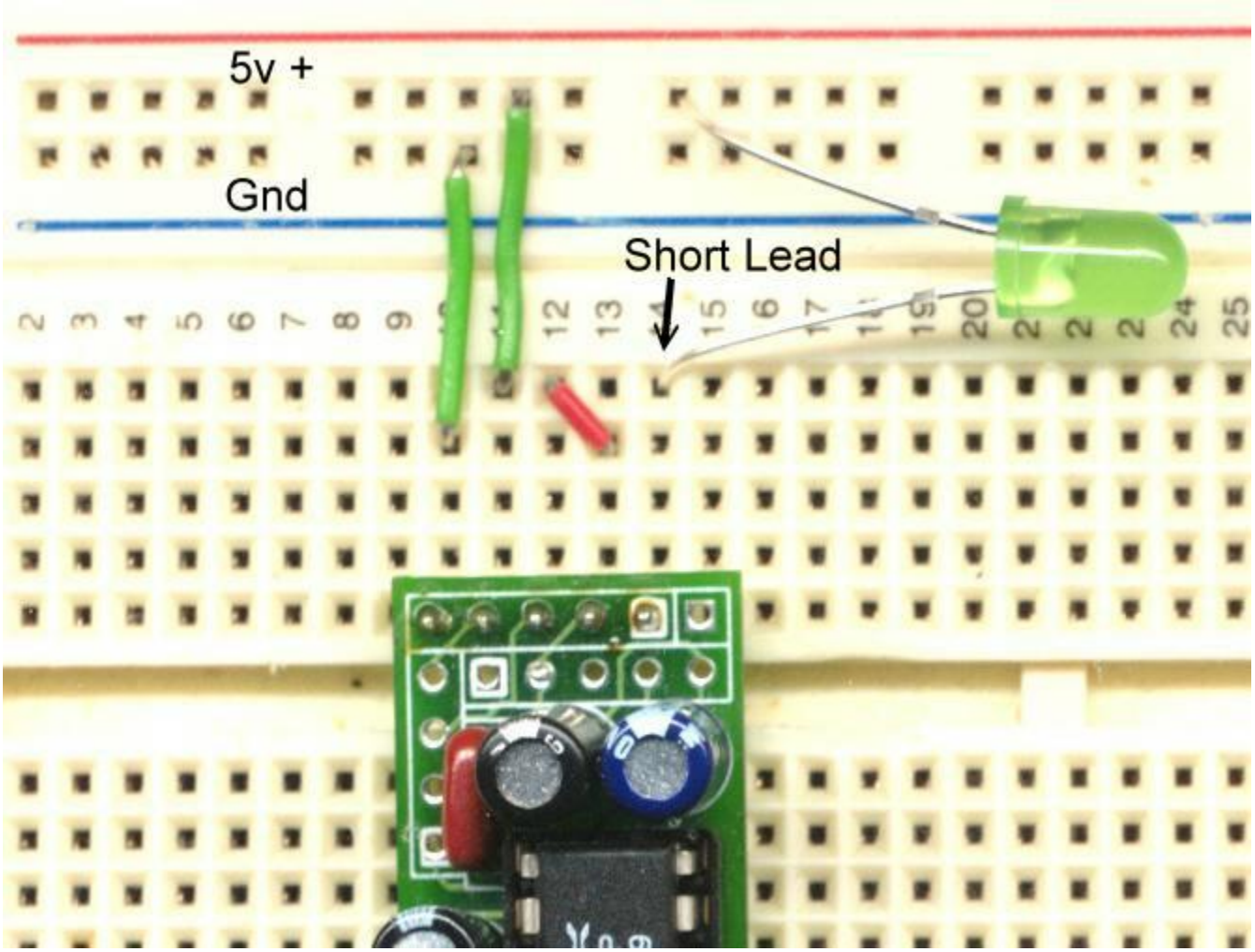
You have to start some where. It will depend on what kind of RS232 driver you are using.

- EZ232 Test
- EDU and Carrier #3 test

Testing the RS232 Driver

In order to program the Athena you need to use an RS232 Driver. These are small inexpensive chips that convert the RS232 levels to TTL levels need by the Athena. You can build your own RS232 Driver or use one of ours.

Lets look at testing the EZ232 driver. There are two tests that need to be performed. A reset test and a loop back test.



Step 1: Connect the EZ232 as shown here. Pin 1 (left most pin in picture) is connected to Gnd. Pin 2 is connected to 5v.

Step 2: Place a jumper between pins 3 and 4.

Step 3: Connect a LED (short lead to pin 5) (long lead to 5v)

Step 4: Hit the Loop Test button.

Result: The software should pop up a window indicating that the test passed. If it does not proceed to the **cable test**. If it passes the test proceed to step 5.

Step 5: Hit the LED Test button.

Result: The LED should blink then go back out. If this test passed and step 4 passes as well, your EZ RS232 driver is functioning properly. Proceed to **Athena Test**.

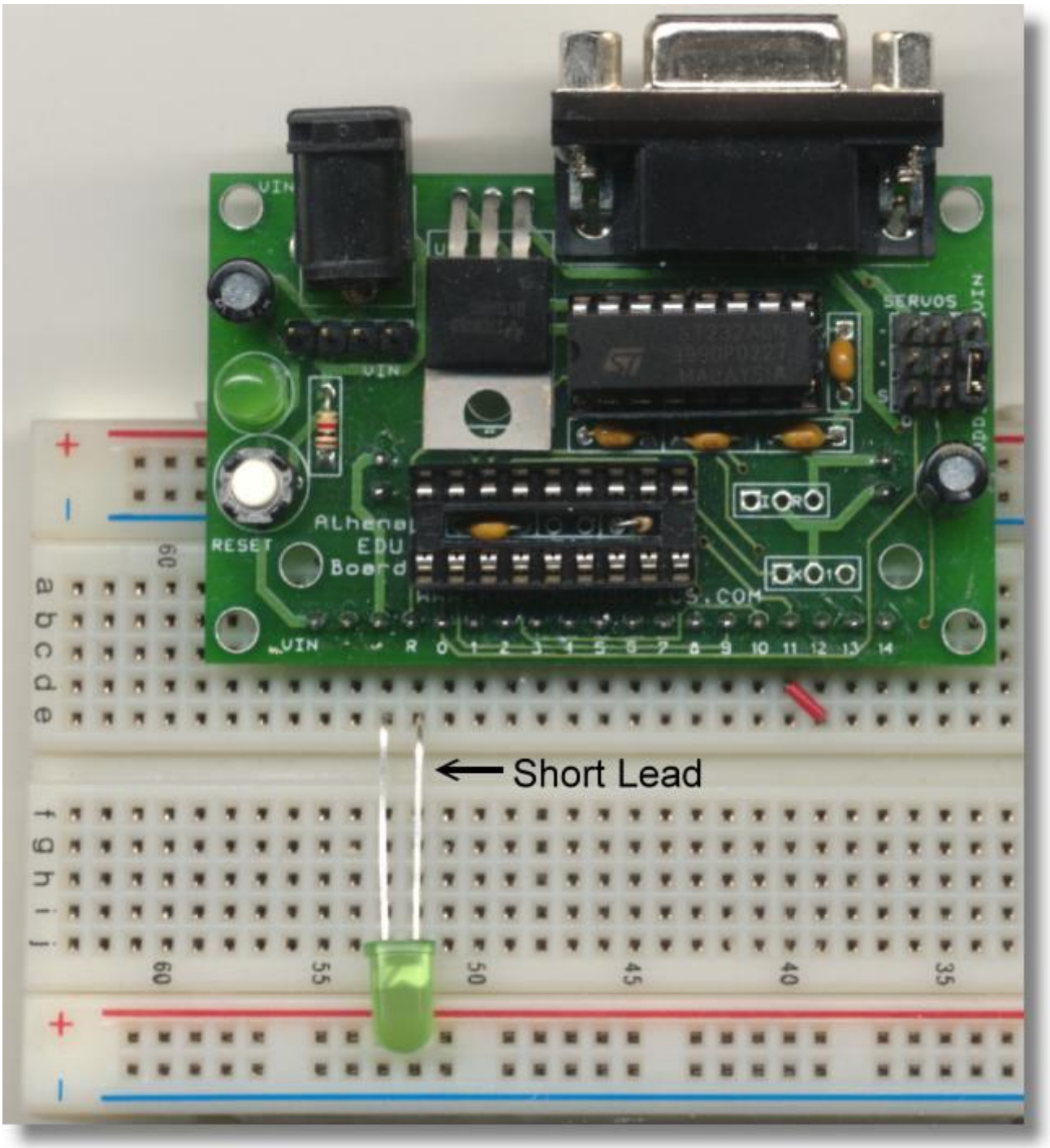
If it does not blink these are some possible causes.

- Cable does not supply DTR or bad cable.
- Blown RS232 Chip or bad connection on PCB.
- PC com port does not support DTR.
- Cable is a cross-over cable and must be replaced.

Testing the EDU and Carrier 3 Driver

The EDU and Athena Carrier #3 have a built in RS232 Driver. To test that this driver is performing properly follow the following steps.

Note that the picture for the EDU is shown. The ports and pins discussed are the same on Carrier #3. Depending on the header you used you may have to get creative with your connections.



Step 1: Attach the PC cable to Board. Remove the Athena Chip.

Step 2: Connect Power to board

Step 3: Connect jumper across ports 11 and 12.

Step 4: Connect LED (short lead to Pin marked R) (long lead to pin marked +)

Step 5: Hit the Loop Test button.

Result: The software should pop up a window indicating that the test passed. If it does not proceed to the **cable test**. If it passes the test proceed to step 5.

Step 5: Hit the LED Test button.

Result: The LED should blink then go back out. If this test passed and step 4 passes as well, the driver is functioning properly. Proceed to **Athena Test**.

If it does not blink these are the possible causes.

- Cable does not supply DTR or bad cable.
- Blown RS232 Chip or bad connection on PCB.
- PC com port does not support DTR.
- Cable is a cross-over cable and must be replaced.

Athena Test

If you know the RS232 Driver is working properly you can run the Athena Test.

Step 1: Connect the RS232 Driver to the Athena. You may be using a raw chip or on of our carriers. The Athena manual has instructions for the Carrier 1 and raw chip. The driver is built-in to the EDU and carrier #3.

Step 2: Provide power to the circuit and connect the PC cable.

Step 3: Hit the Chip Test Button.

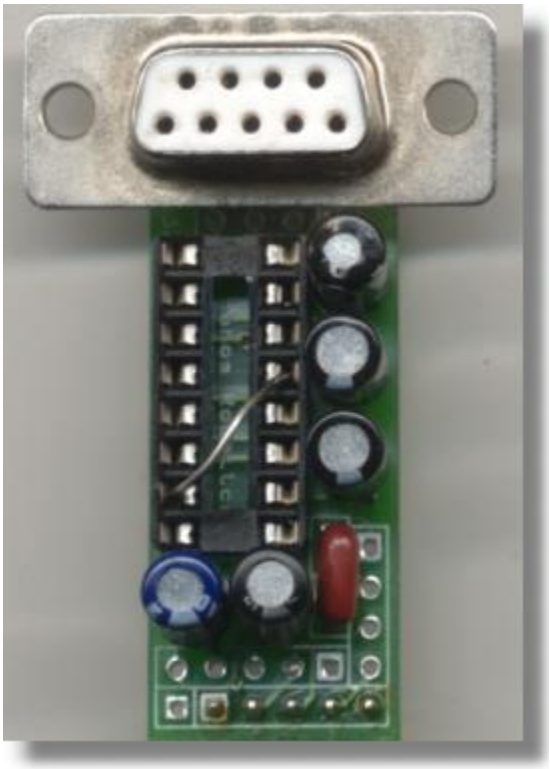
Result The Athena will indicate pass or fail. If the test passes you should be able to program the Athena chip with no problems. However keep in mind that the background process that we talked about earlier could still cause programming problems. If the test fails the problem could be one of the following:

- The Athena Chip has been blown.

- Wiring Error.
- short on the carrier board.
- Cold solder joint on the carrier board. Hit each pad on the board with the soldering iron.

Cable Test on the EZRS232

To test the cable (TX and RX) you must tie pins 2 and 3 on the cable together.



Step 1: To do this using the EZ232 driver remove the power and RS232 driver chip from the board.

Step 2: Connect a jumper between pins 7 and 13 on the socket as shown.

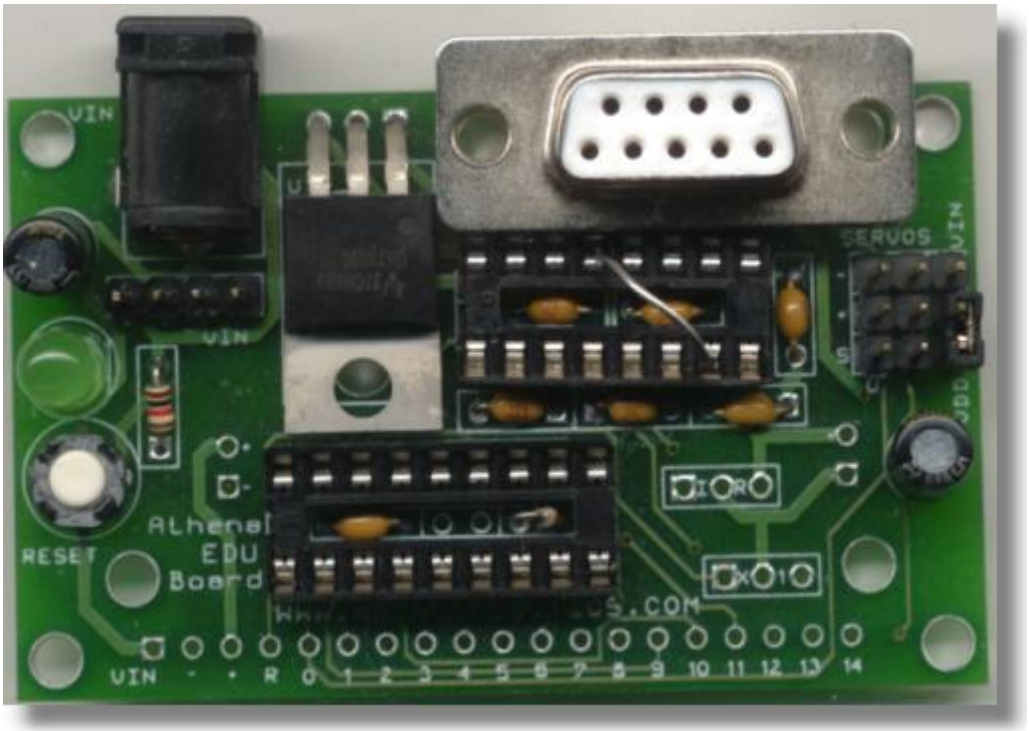
Step 3: Connect the cable to the PC and EZ232 driver.

Step 4: Hit the Loop Test Button.

Result: the software will indicate pass or fail. If the test passes your cable has checked out. (Tx, RX, Gnd Leads) If the test fails then the problem can be ether with the cable or PC. If you know the cable is good then the problem could be with the com port on your PC.

Cable Test on the EDU or Carrier

To test the cable (TX and RX) you must tie pins 2 and 3 on the cable together.



Step 1: Remove the power and RS232 driver chip from the board.

Step 2: Connect a jumper between pins 7 and 13 on the socket as shown.

Step 3: Connect the cable to the PC and EZ232 driver.

Step 4: Hit the Loop Test Button.

Result: The software will indicate pass or fail. If the test passes your cable has checked out. (Tx, RX, Gnd Leads) If the test fails then the problem can be ether with the cable or PC. If you know the cable is good then the problem could be

with the com port on your PC.

Still having problems

If you just cant figure it out. **Contact US**

Please indicate the tests you have done and the results. We will also need the exact Kronos Robotic components you are using IE. EZ232 and Raw Athena Chip. Or EDU board. The more information you give us the more likely we can help you.

0 comments

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http://kronosrobotics.com/gl/article.php?story=20040503123107513