

Core429 Daughter Board Programming and Testing Procedure v1.1

This guide provides instructions to program the Platform8051 Development Board and test the Core429 Daughter Board.

Note: Steps 1-31 can be performed once because only one correctly programmed Platform8051 Board is needed to test multiple Core429 Daughter Boards. Step 32 and above are required to test each Core429 Daughter Board.

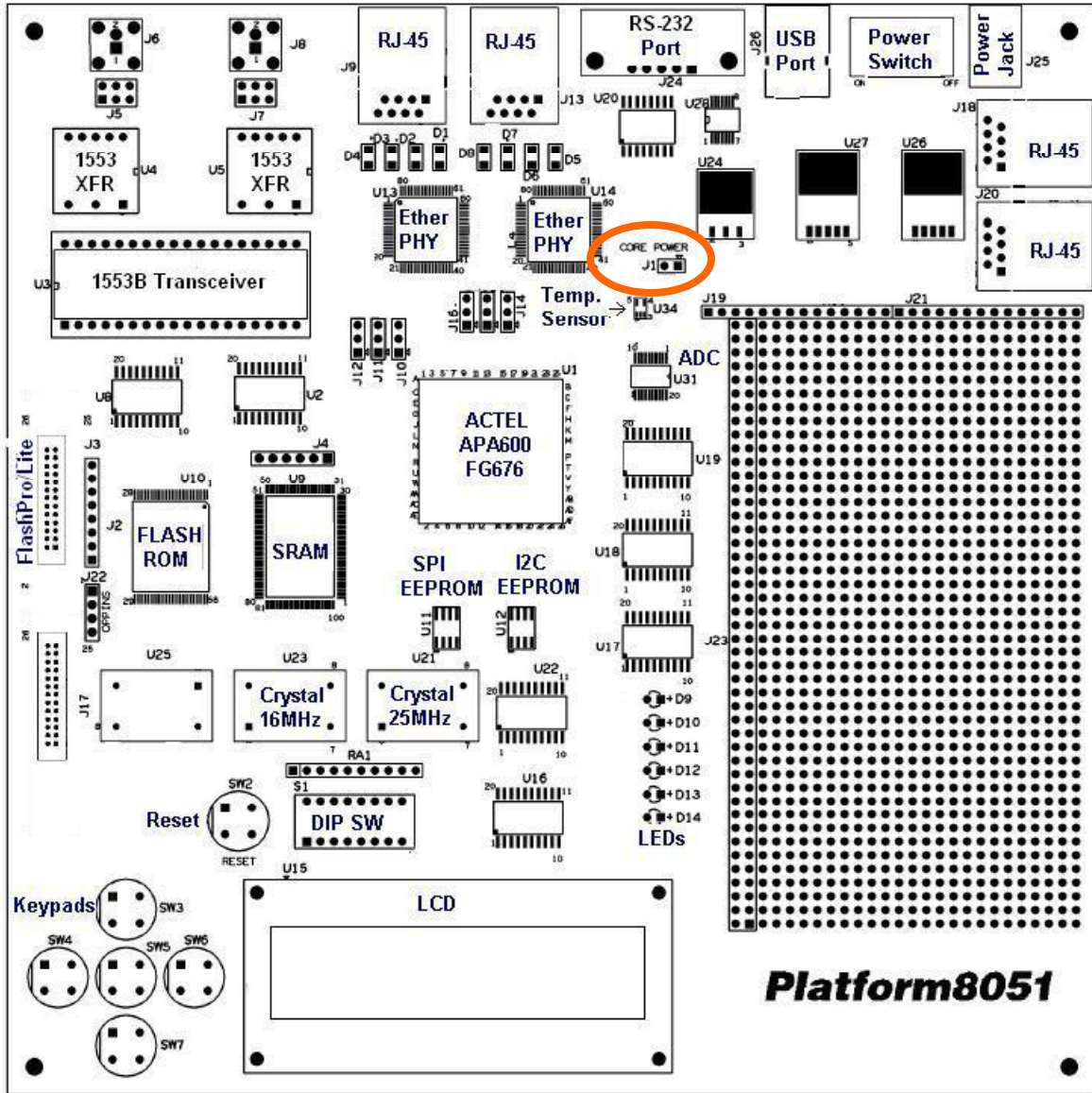
1. Requirements

- a. A PC with one available parallel port.
- b. The Platform8051 Development Board (**fully tested** & known working).
- c. Core429 Daughter Card.
- d. 2 DB9 test cables.
- e. 9V Power supply.
- f. FlashPro Lite Programmer.

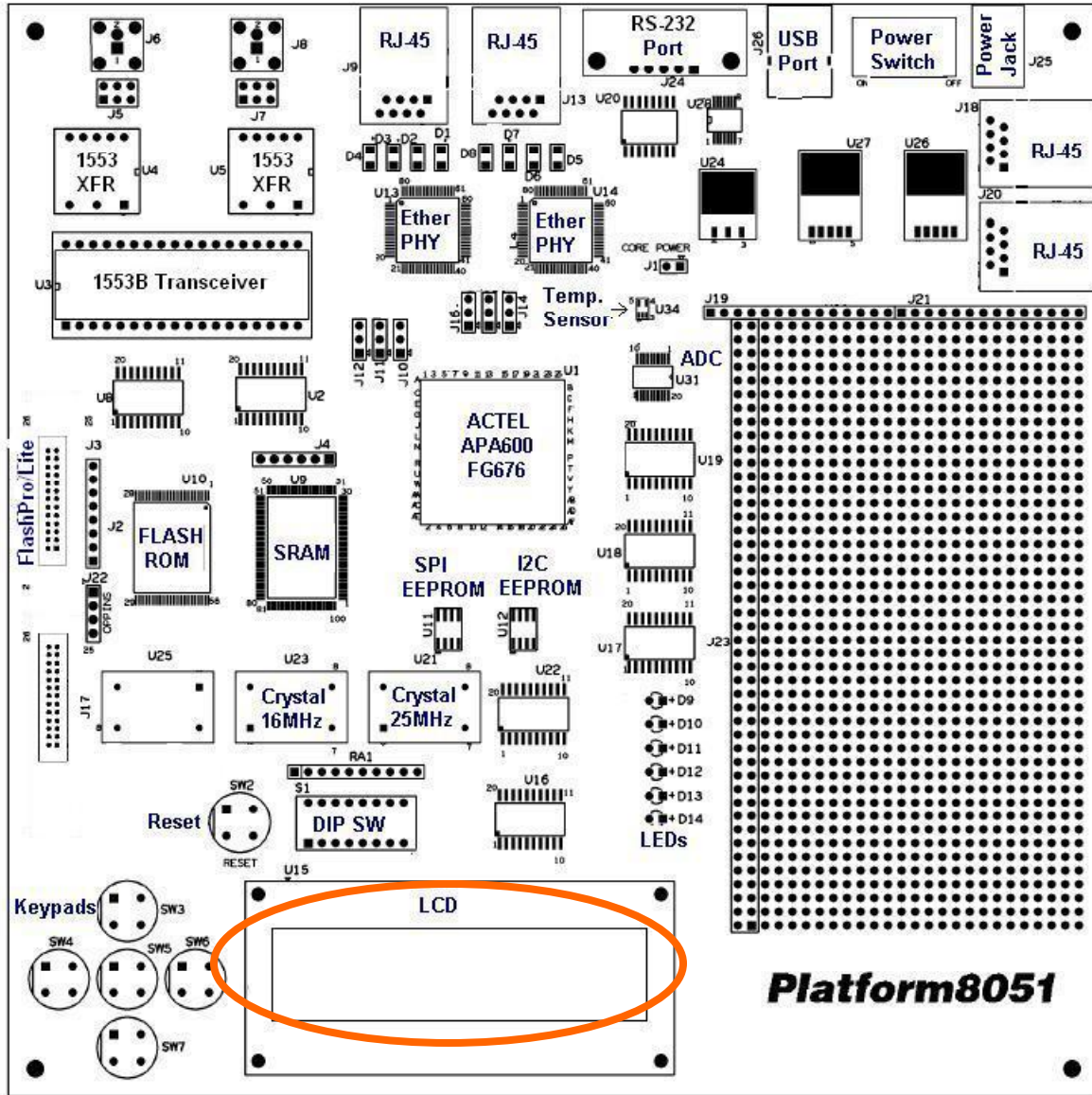
2. Prepare the PC

- a. Install FlashPro 3.2 or later.
A FlashPro 3.2 CD can be found in the Core429 Devkit, insert the CD and follow the on-screen instructions.
- b. Install FS2 debugger.
A FS2 ISA-Actel51 Debugger CD can be found in the Core429 Devkit, insert the CD and follow the on-screen instructions.
- c. Insert the Core429 Development Kit CD.

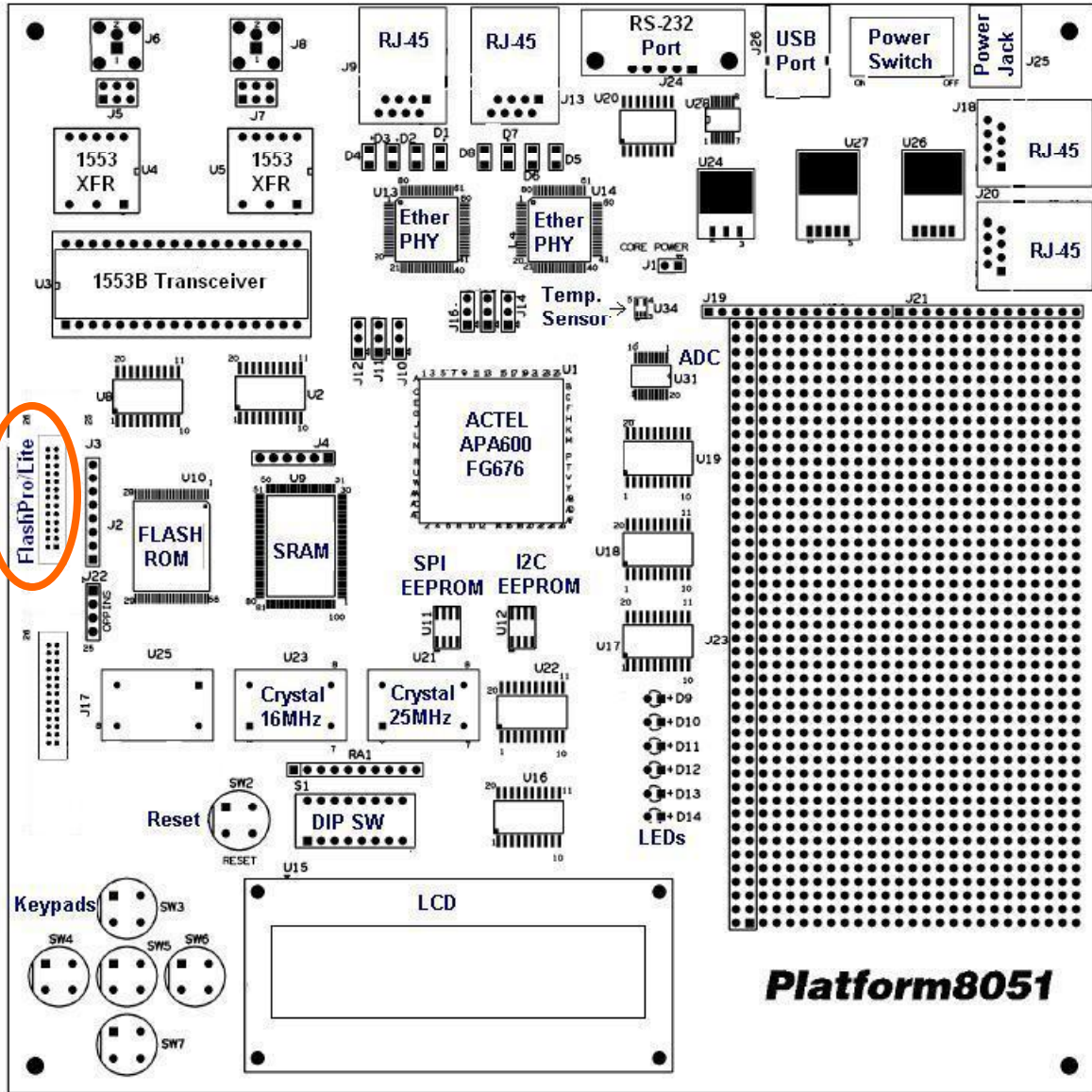
3. Install jumper “J1” (if not already installed).



4. Peel off the plastic cover on the LCD (if not already removed).

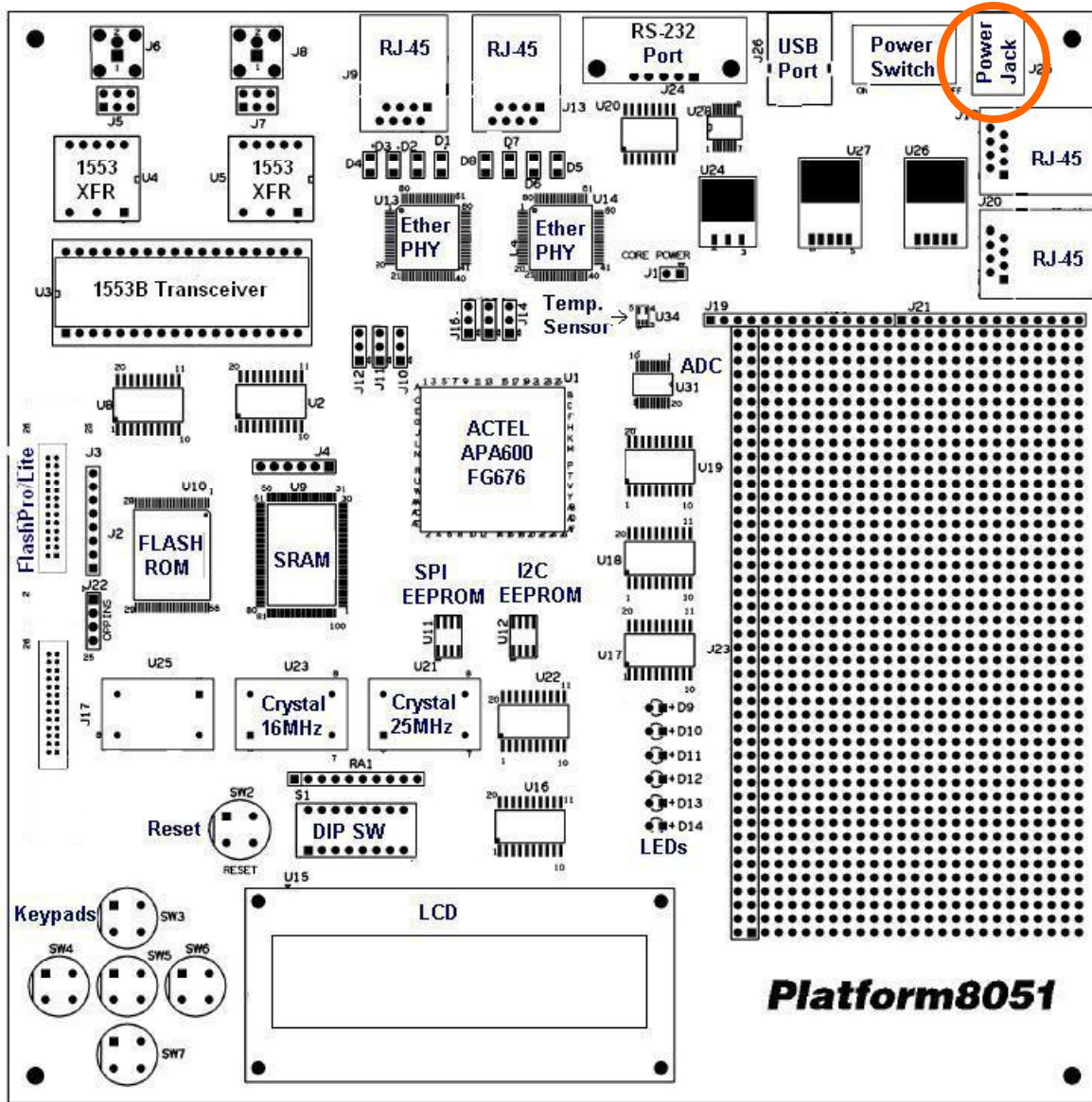


5. Connect FlashPro Lite (not FlashPro) to the pf8051 board.



6. Connect the FlashPro Lite to the PC's parallel port.

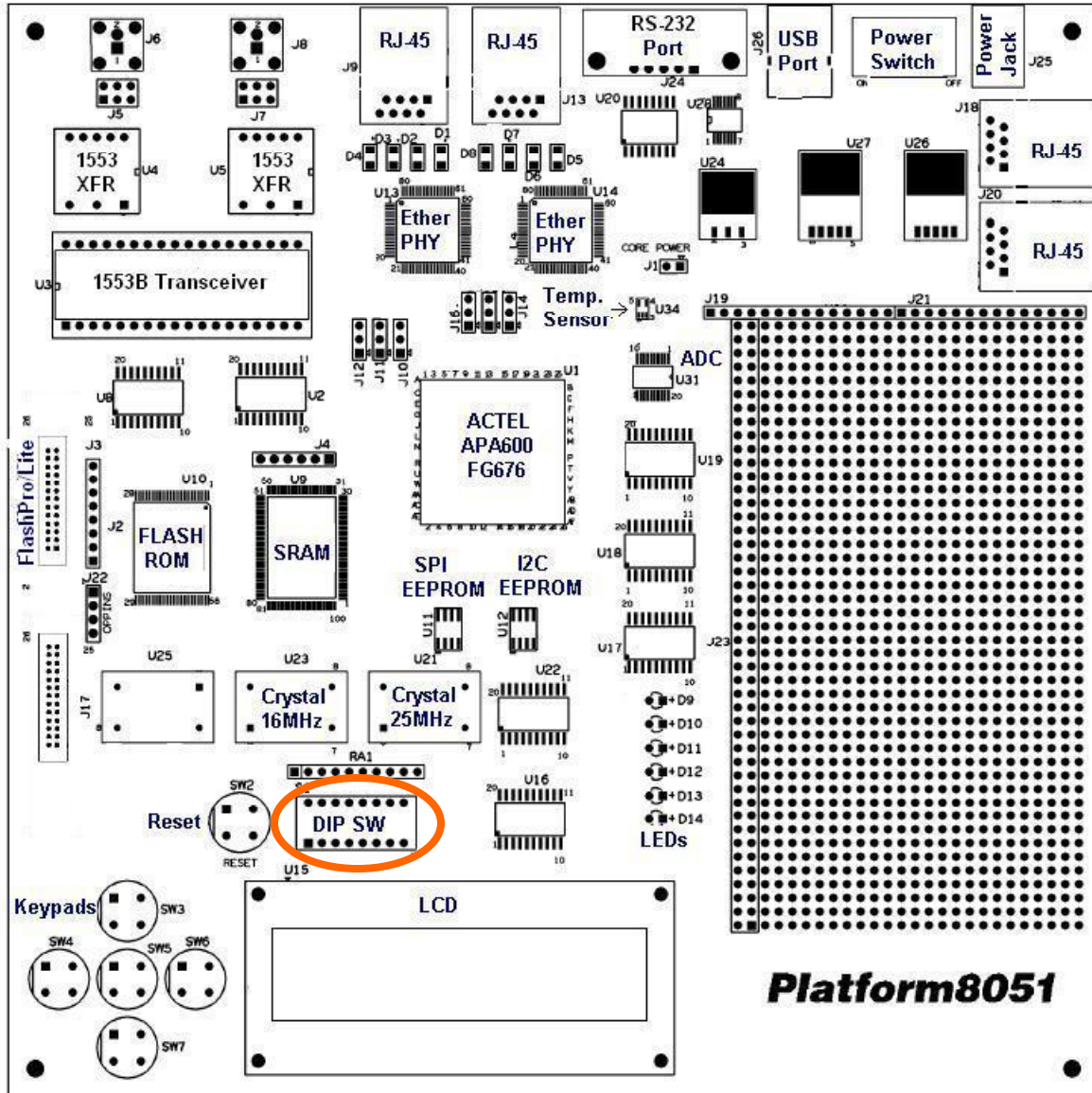
7. Connect the power supply to the pf8051 board (ensure the switch is off).



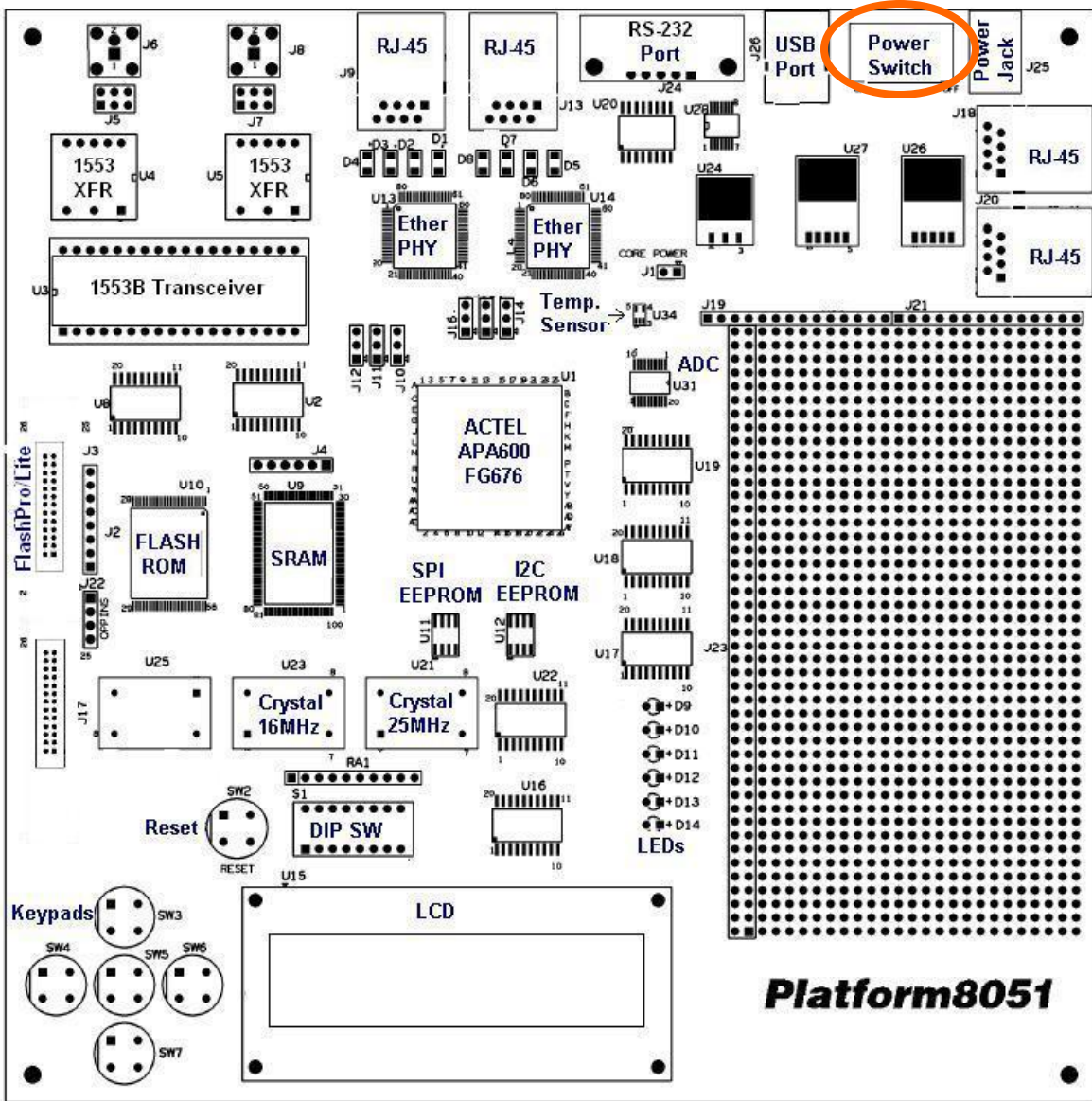
8. Set the DIPSWITCH.

There are 8 switches on the DIPSWITCH:

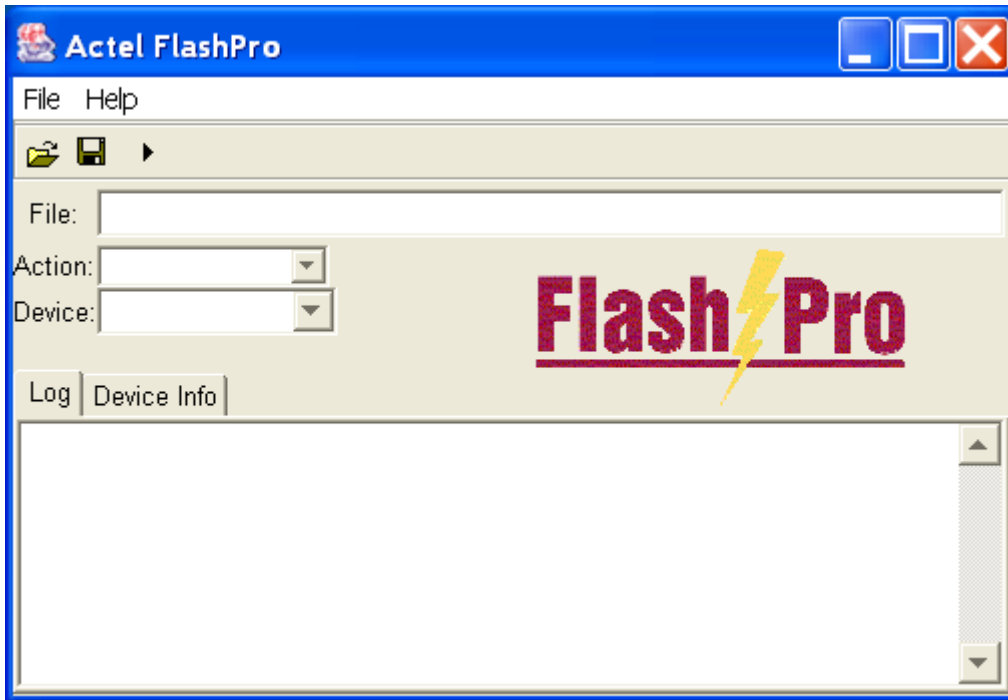
- a. 1-6 should be set to "closed", push the small button to the side opposite the one marked "open"
- b. 7-8 should be set to "open", push the small button to the side marked "open"



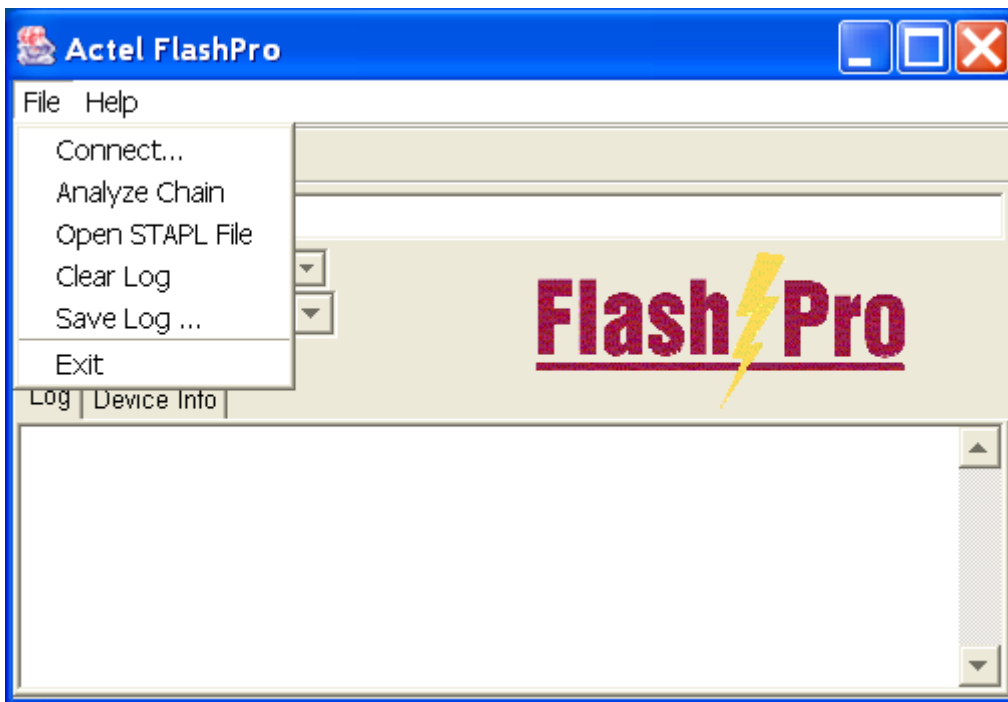
9. Turn on the power by sliding the power switch (SW1) to the left.



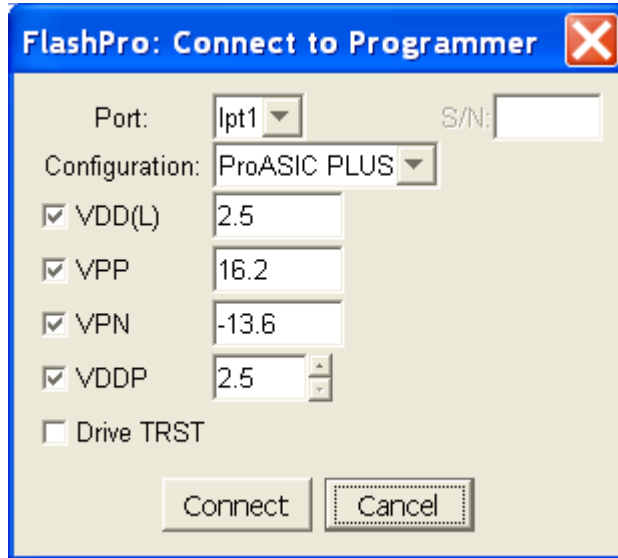
10. Run the FlashPro software on the PC.



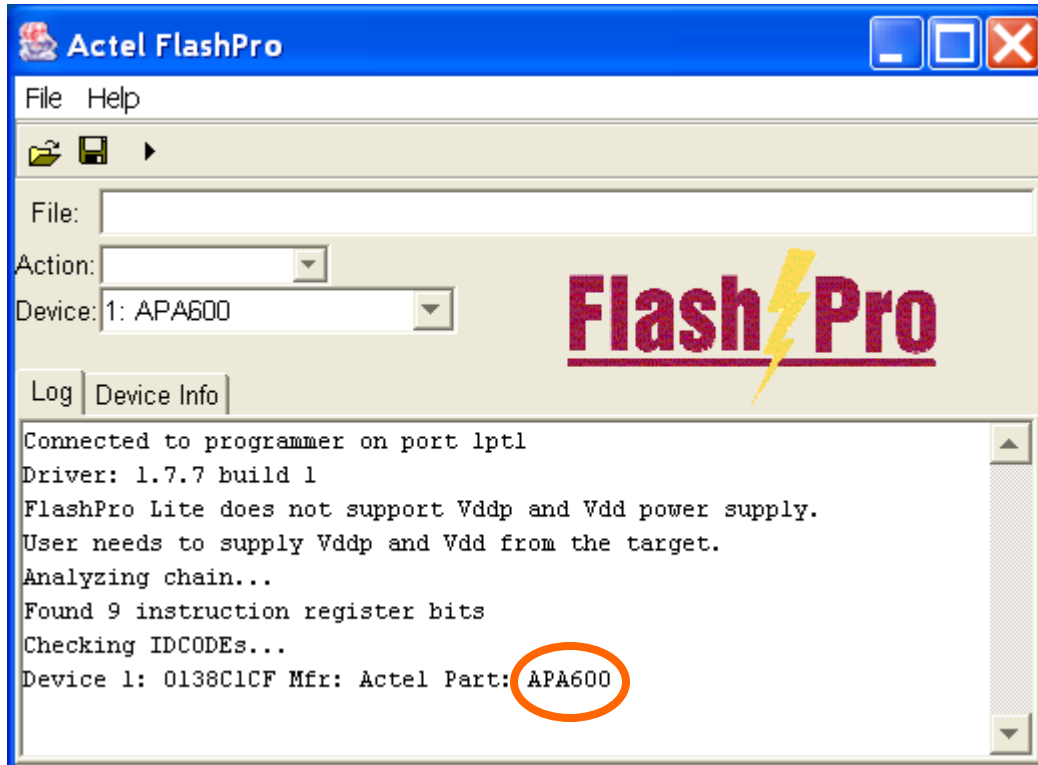
11. Select: “File -> Connect...”



12. Click “Connect”.

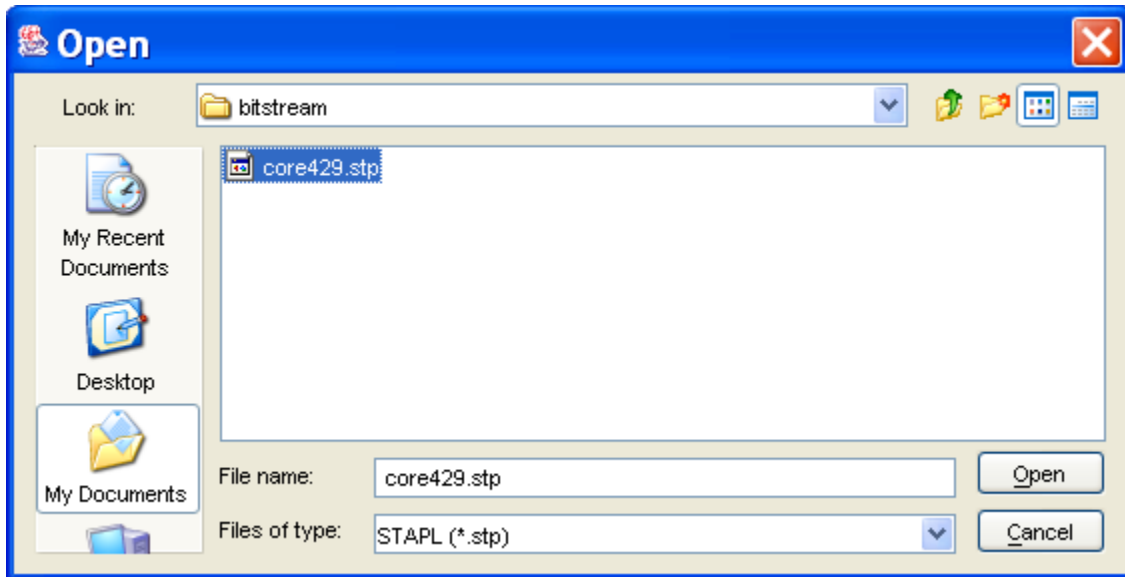


13. Select “File -> Analyze Chain”.

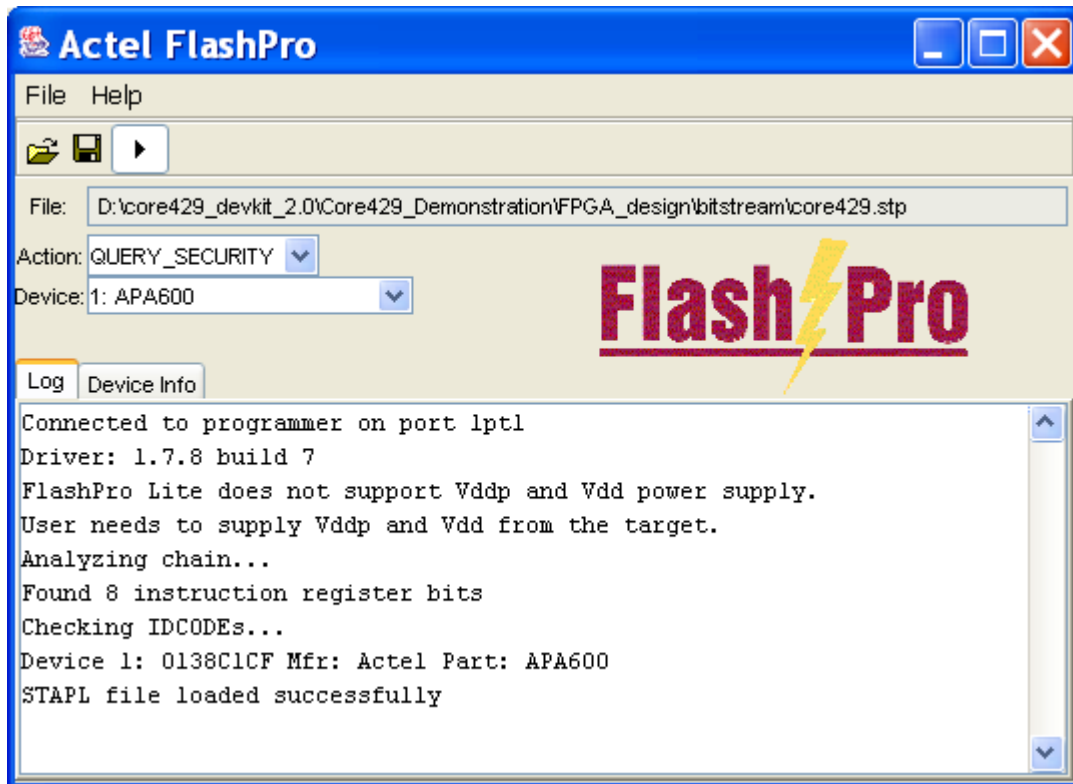


Check that APA600 appears in the above window.

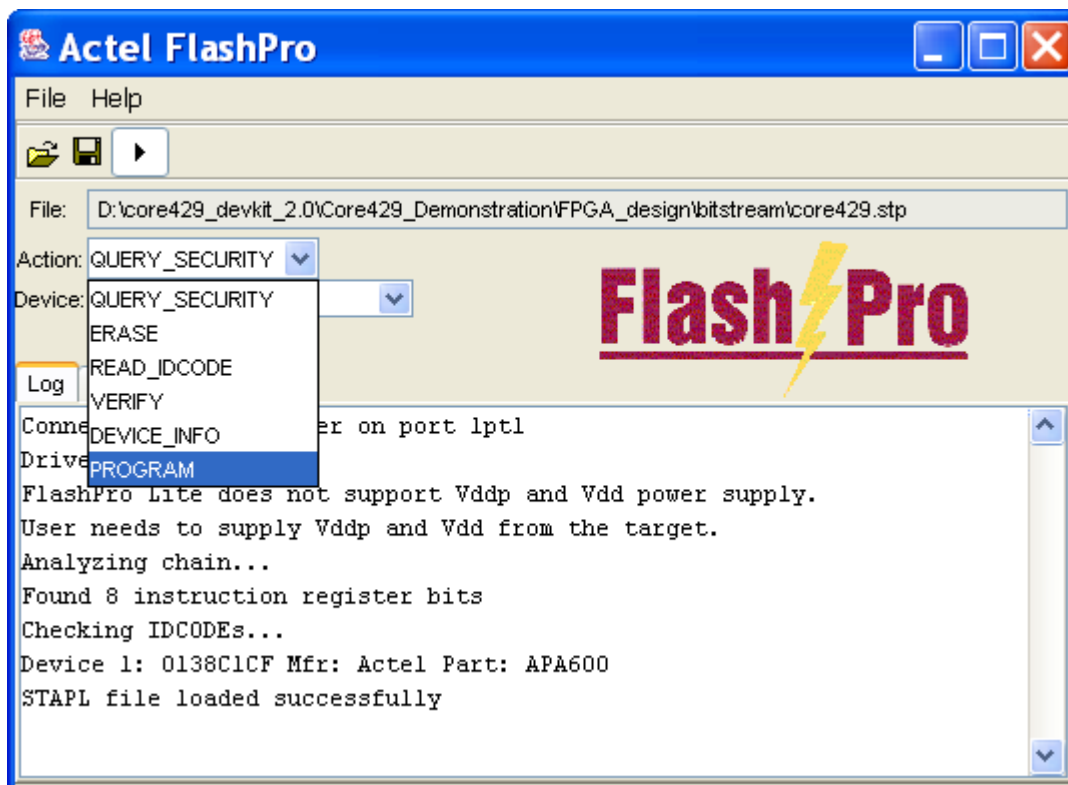
14. Select “File -> Open STAPL File”.



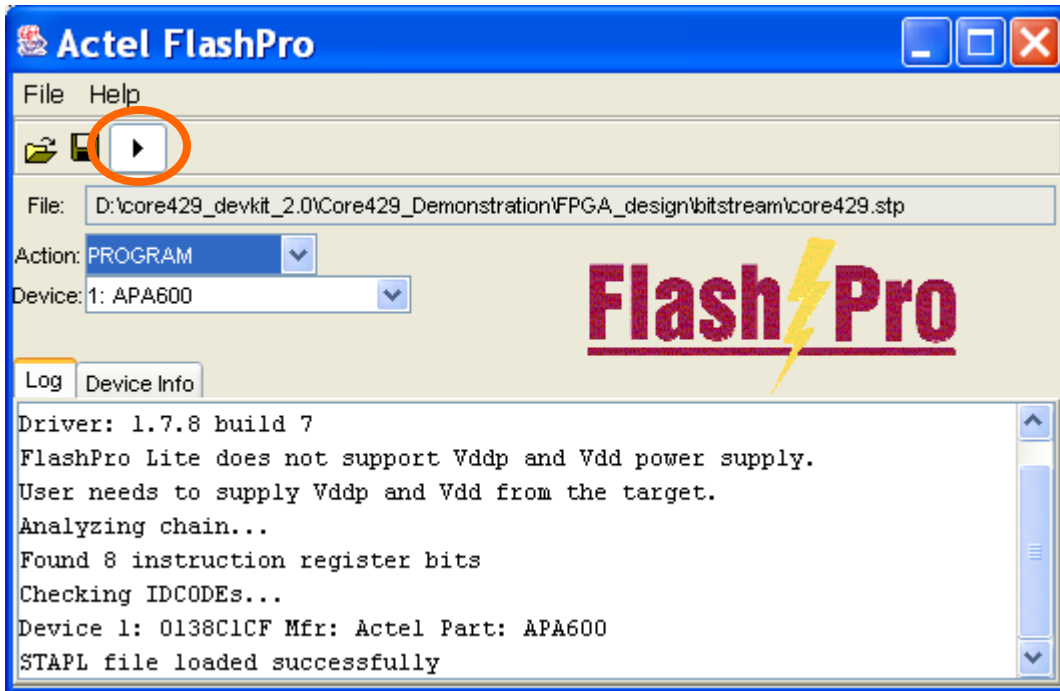
15. Browse to “<CD Drive>:/
core429_devkit_2.0/Core429_Demonstration/FPGA_design/bitstream/”,
select “core429.stp” and click “Open”.



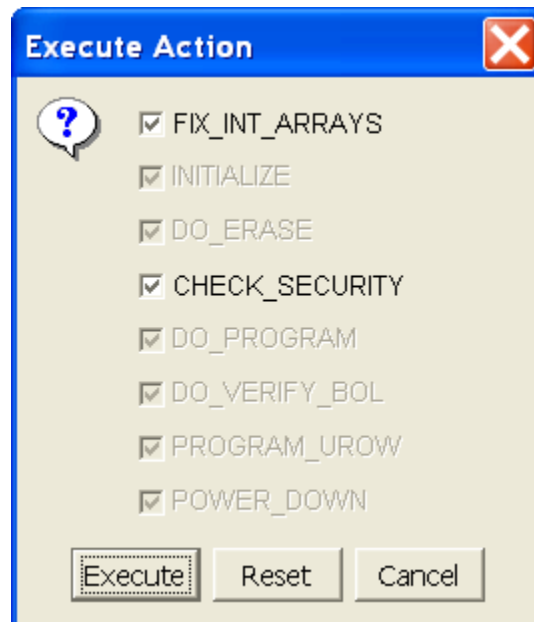
16. Select “Action -> PROGRAM”.



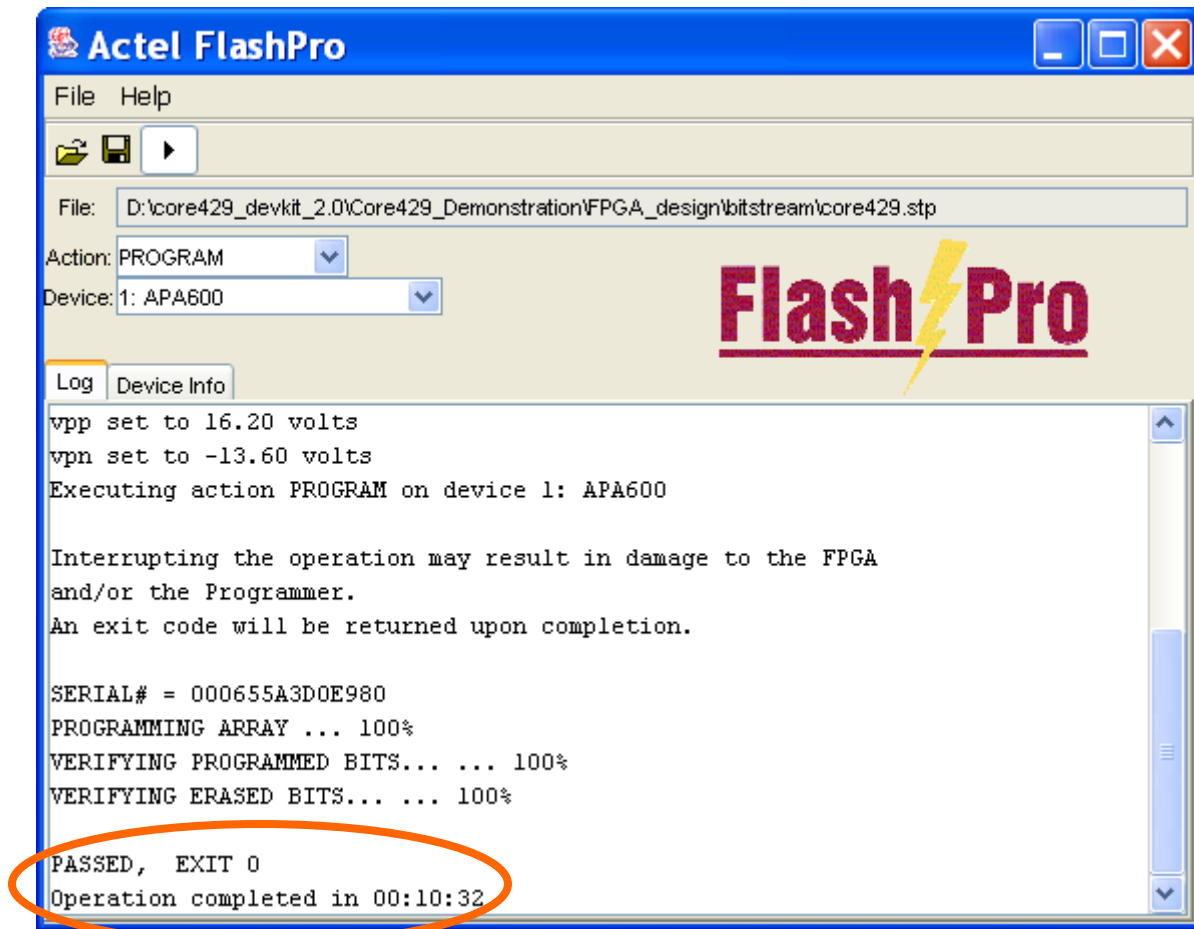
17. Click the “Play” button circled below:



18. Click on “Execute”.

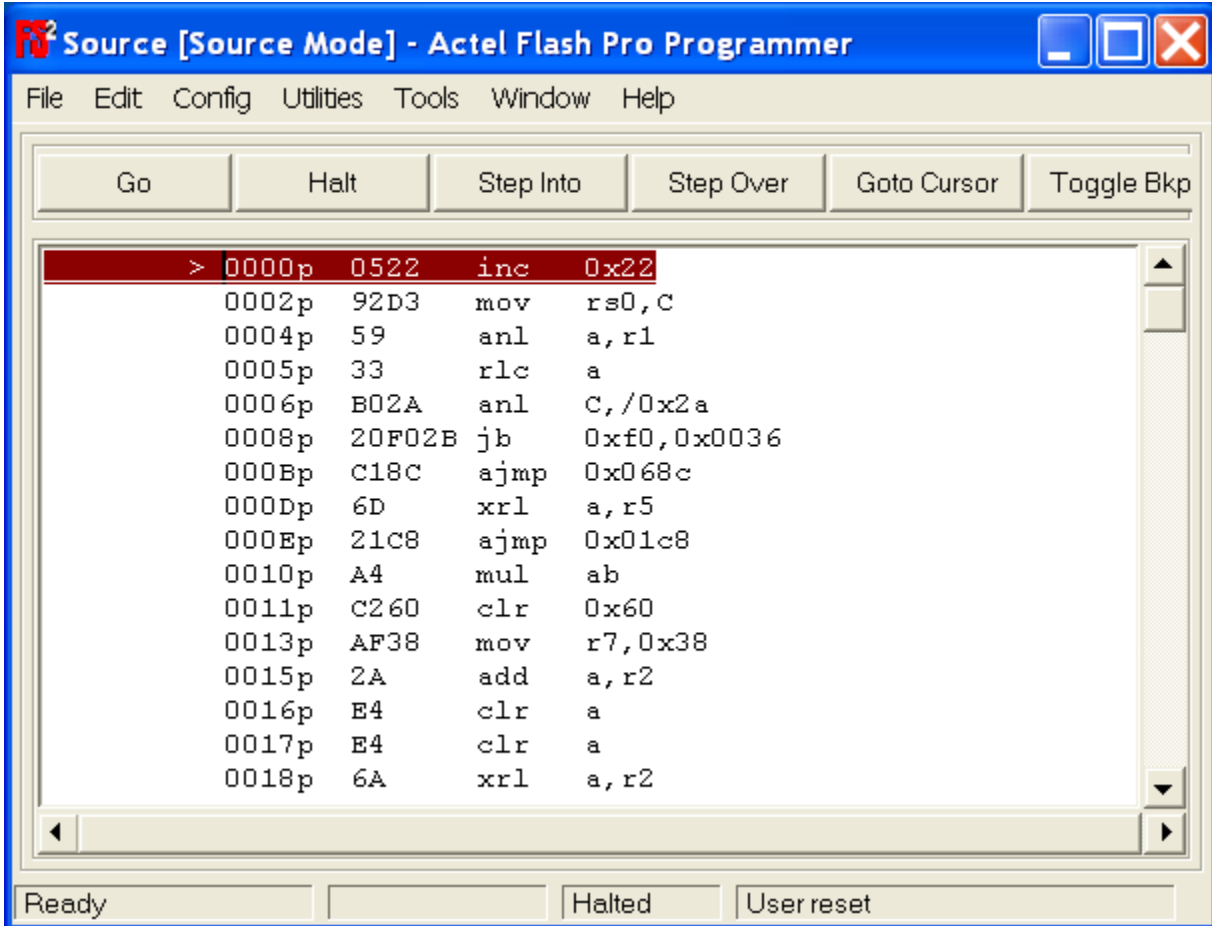


19. Wait until the message “PASSED, EXIT 0” appears at the bottom of the window (approximately 10 minutes).

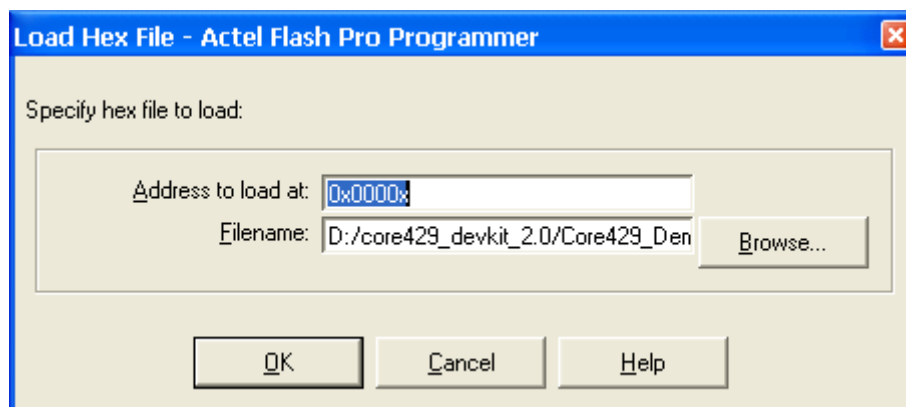


20. Select “File -> Exit”.

21. Start “FS2 Debugger” on the PC by clicking “Start -> Programs -> FS2 -> FS2 ISA-Actel51 Debugger”. (If Debugger fails to start, exit program, power cycle the PF8051 board, then start FS2 Debugger again)

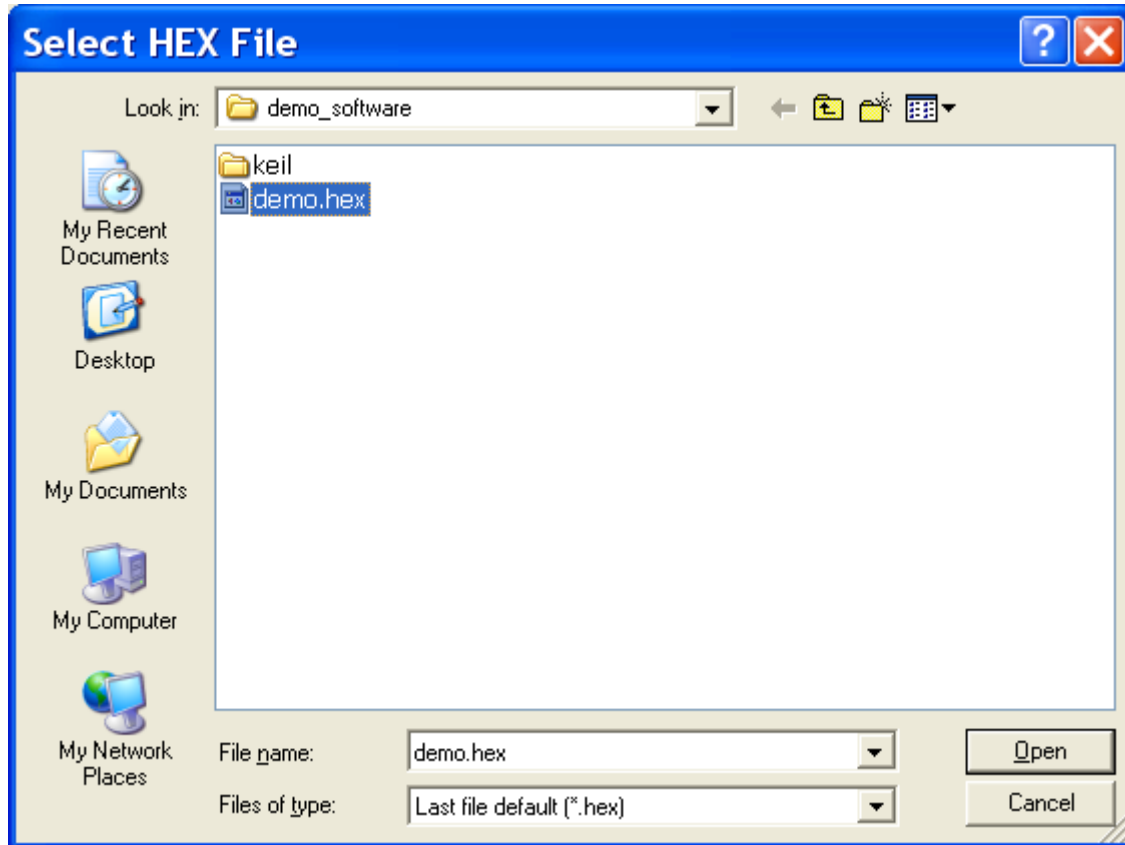


22. Select “Tools-> Load Hex”, enter “0x0000x” in the “Address to load at” field.

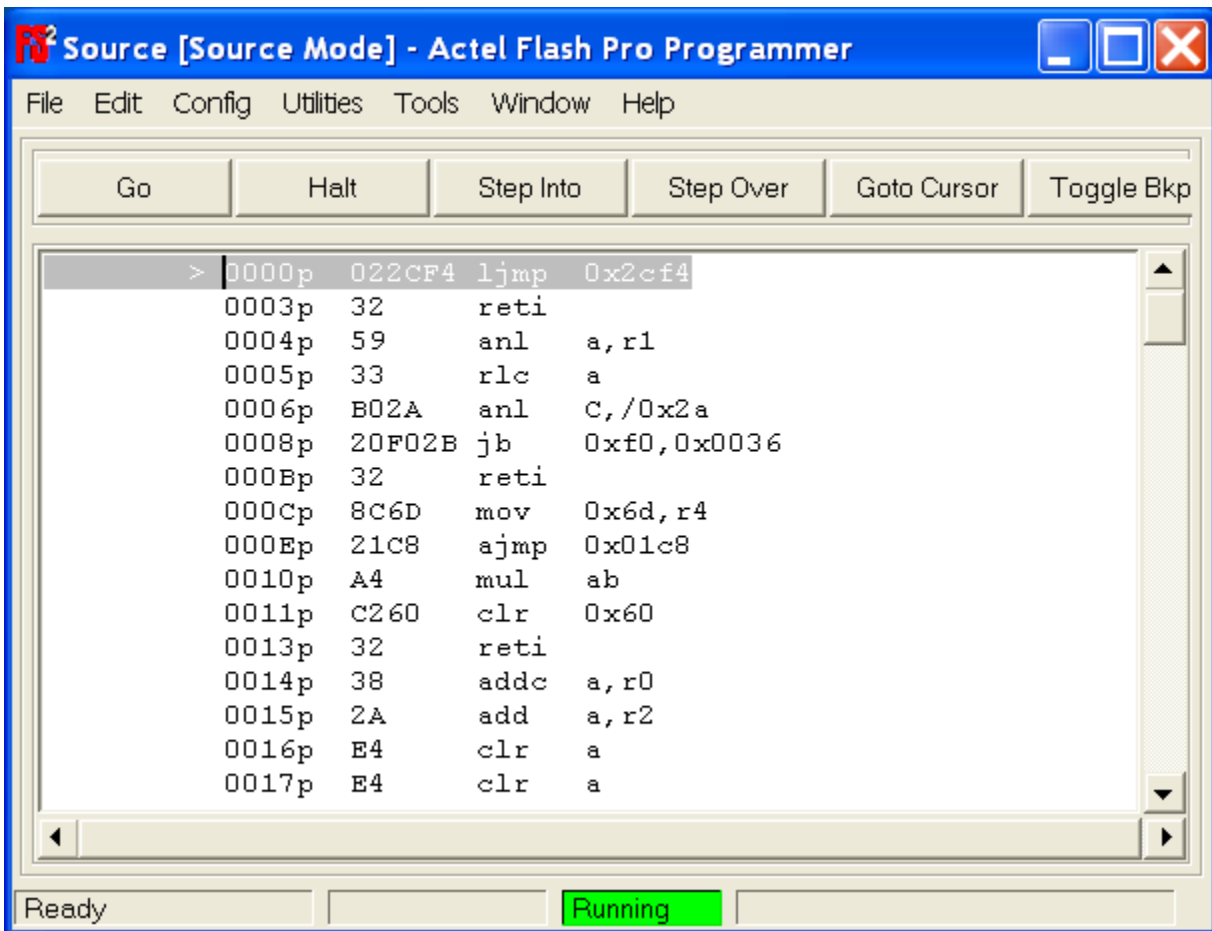


23. Browse to “<CD Drive>:/

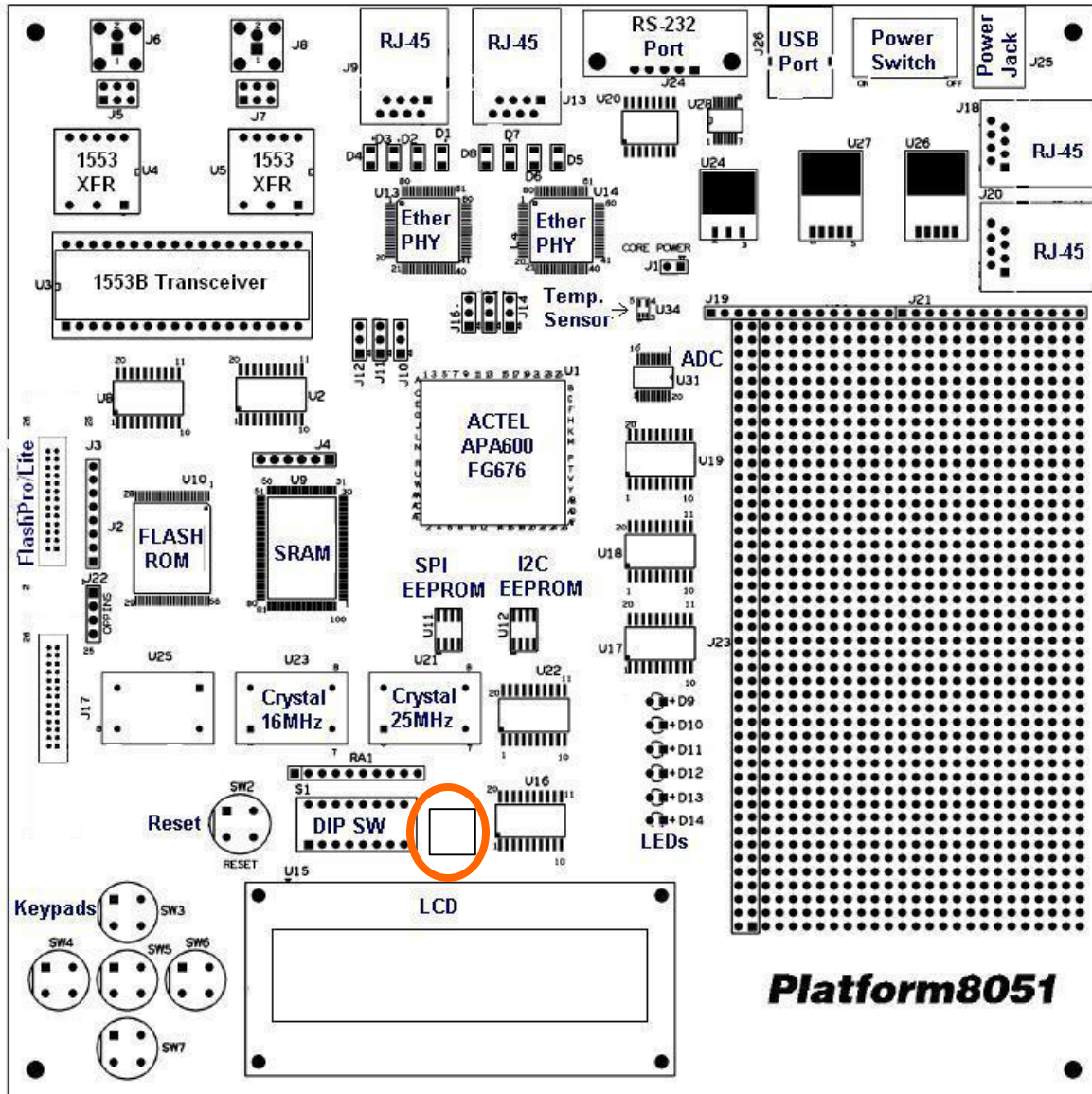
Core429_devkit_2.0/Core429_Demonstration/demo_software/”, select “demo.hex” and click “Open” then “OK”.



24. Wait for about 30 seconds and click on “Go”, the message “Running” should appear in green at the bottom of the window.



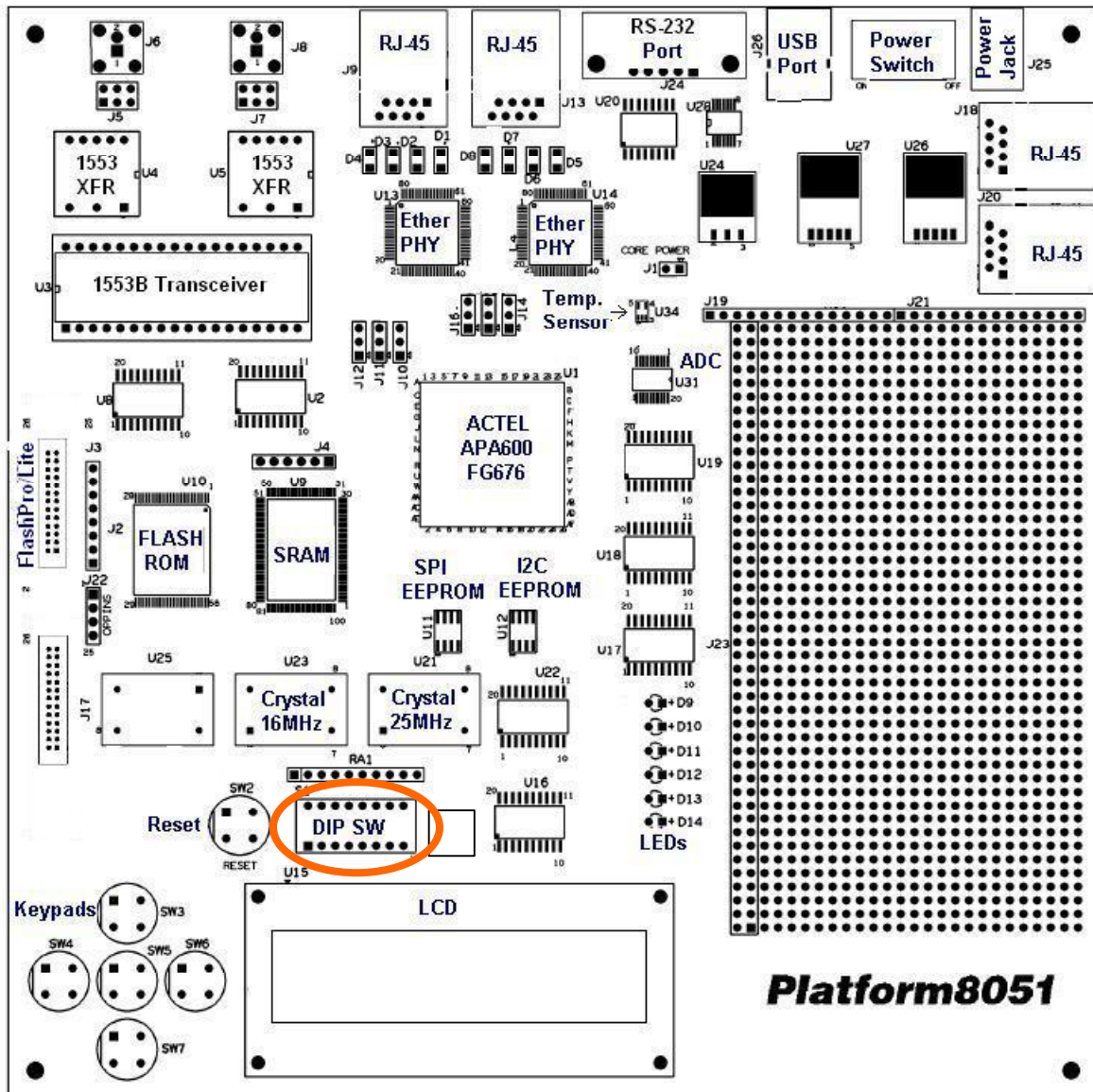
25. Adjust the screw on the LCD contrast control (circled below) until the characters on the LCD are clear.



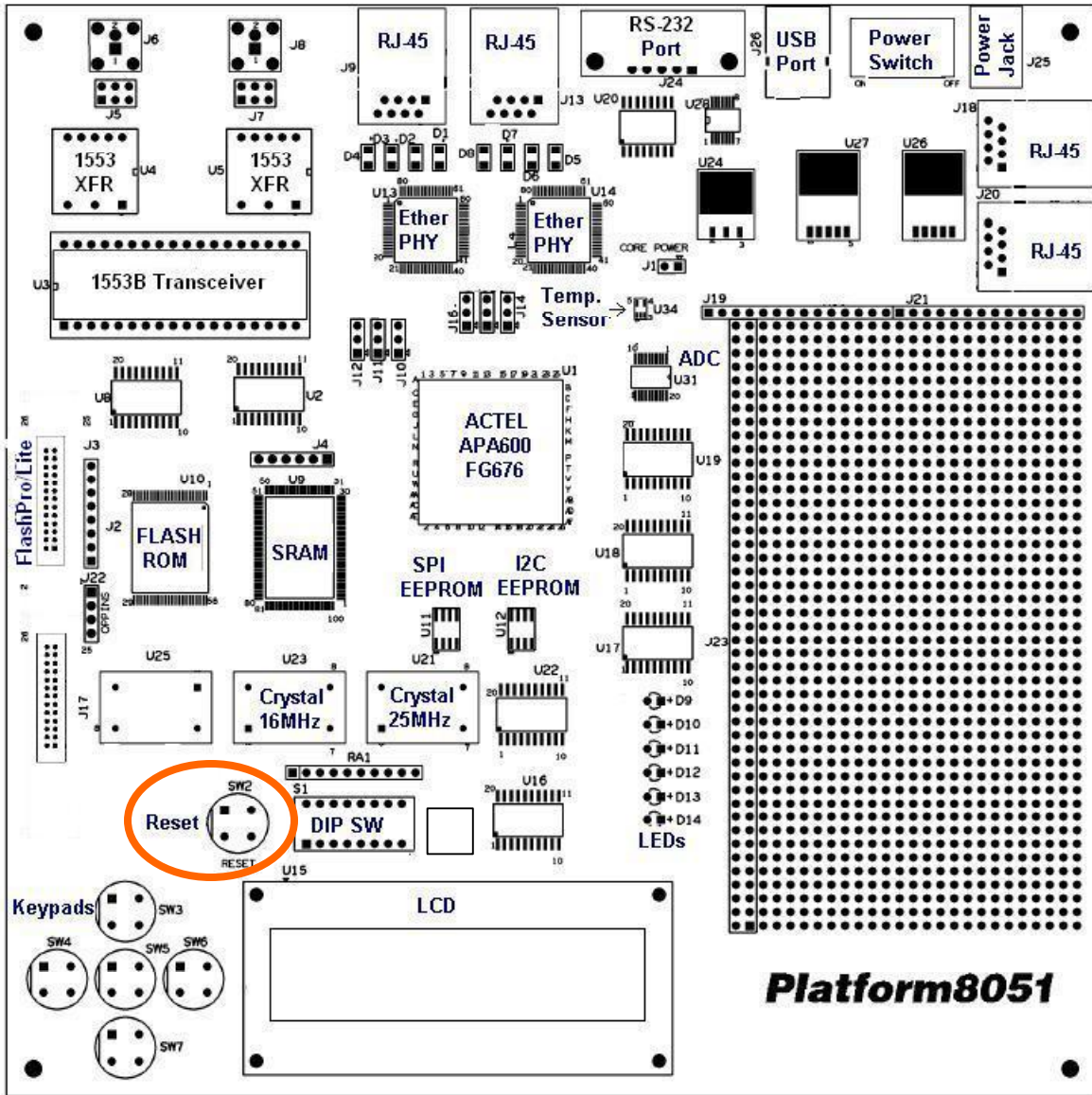
26. Set the DIPSWITCH

There are 8 switches on the DIPSWITCH:

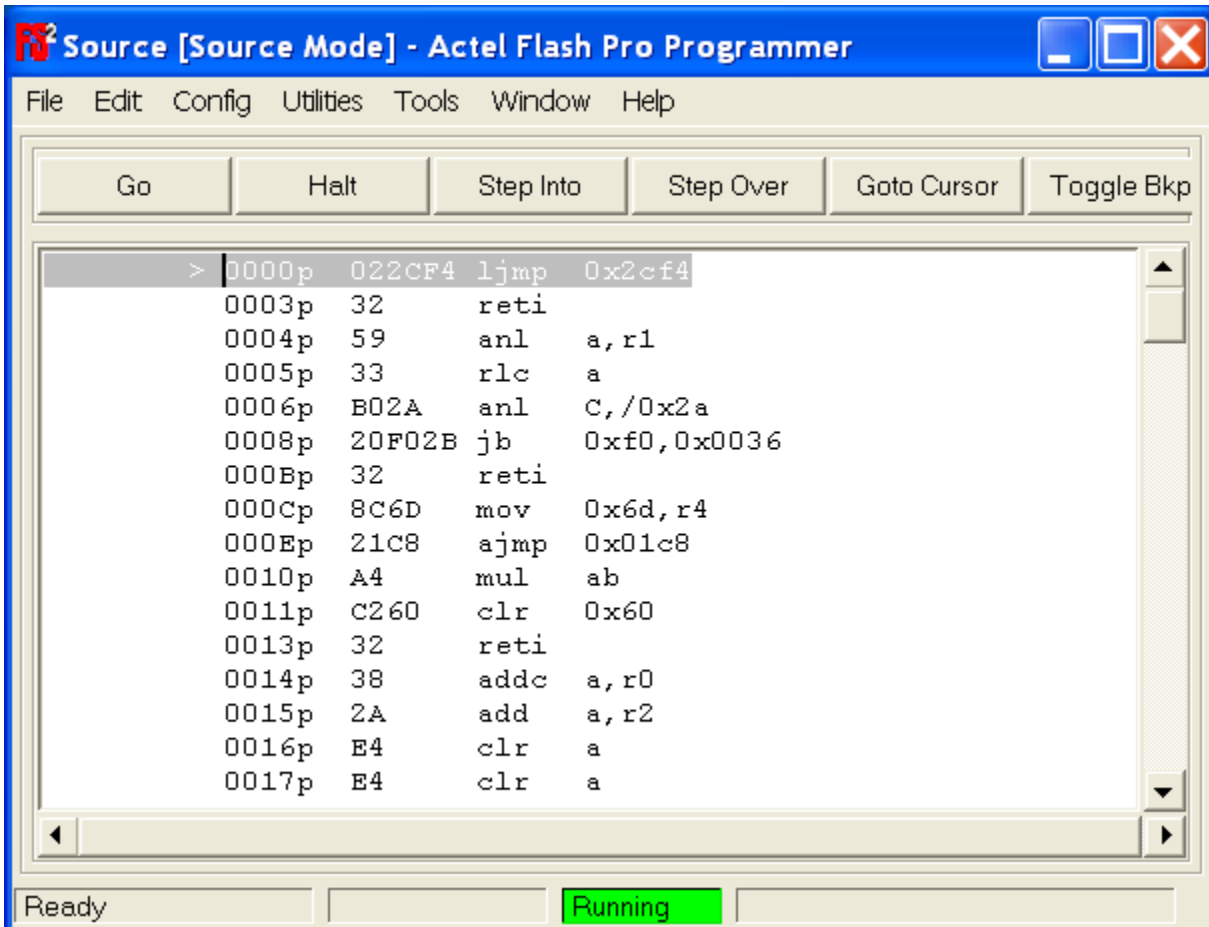
- 1 should be set to "open", push the small button to the side marked "open"
- 2-6 should be set to "closed", push the small button to the side opposite the one marked "open"
- 7-8 should be set to "open", push the small button to the side marked "open"



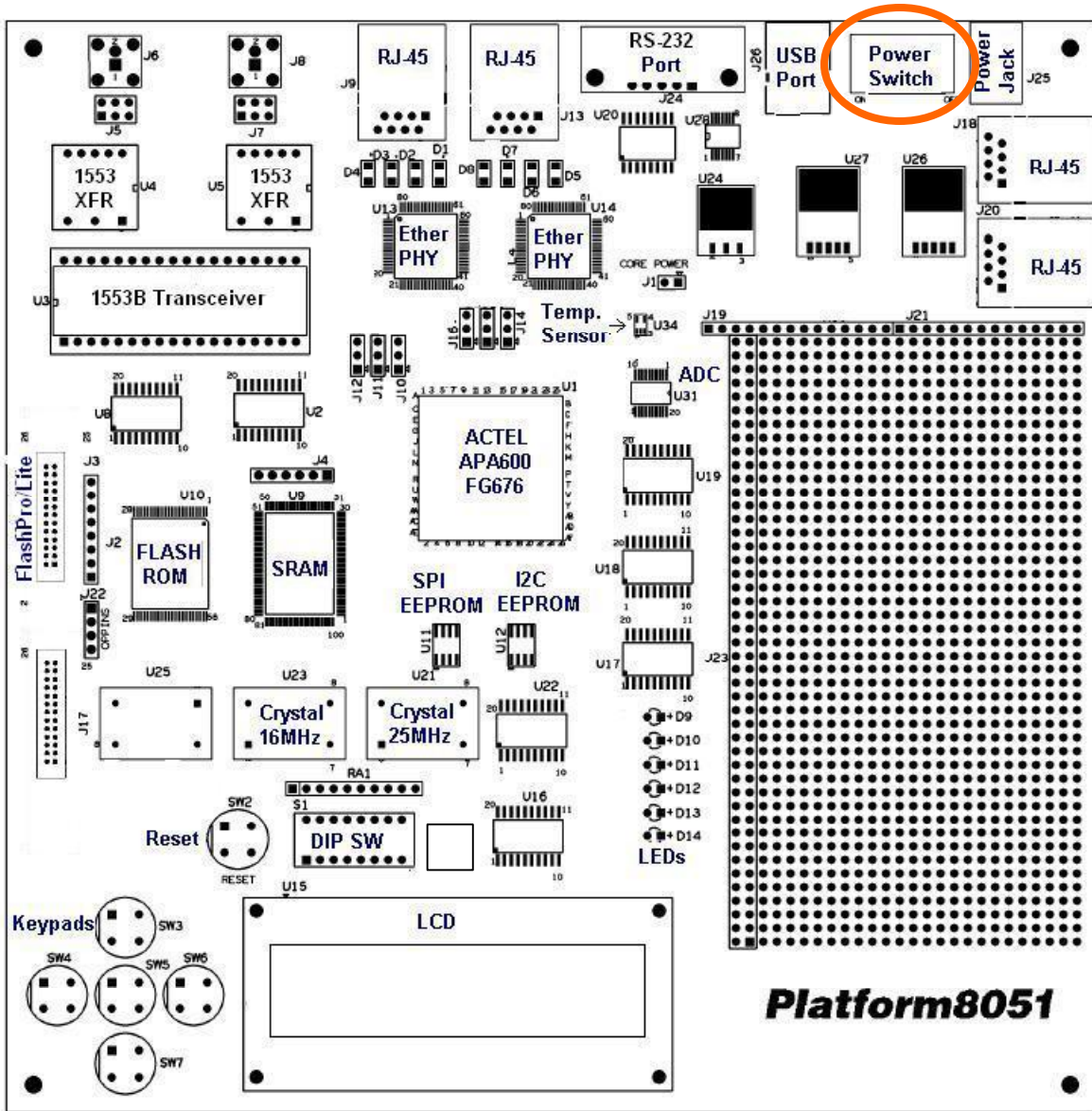
27. Press the Reset button once and wait for about 15 seconds.



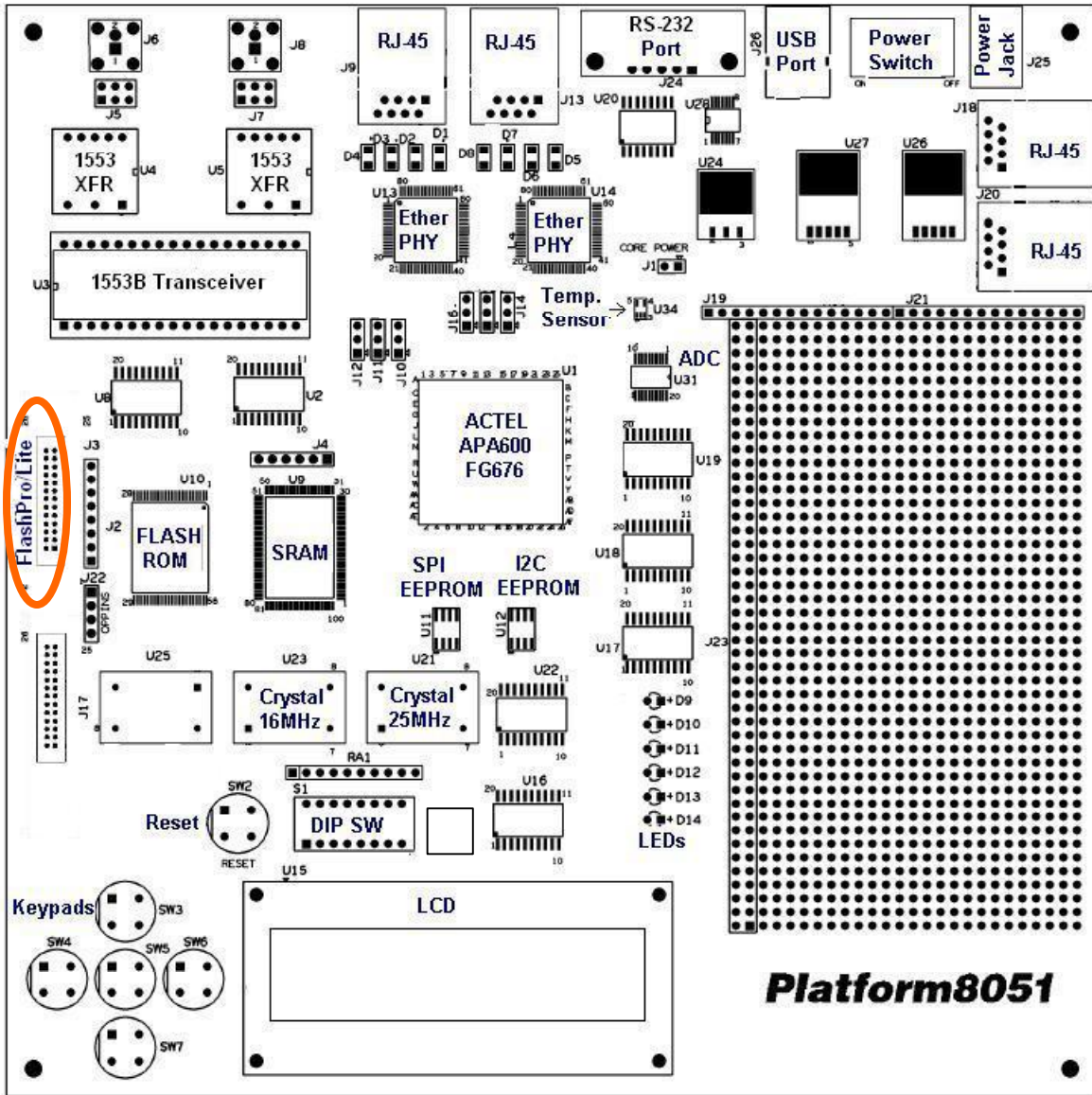
28. In FS2 Debugger, Select “File -> Exit”.



29. Turn off the PF8051 board by sliding the switch below to the right.



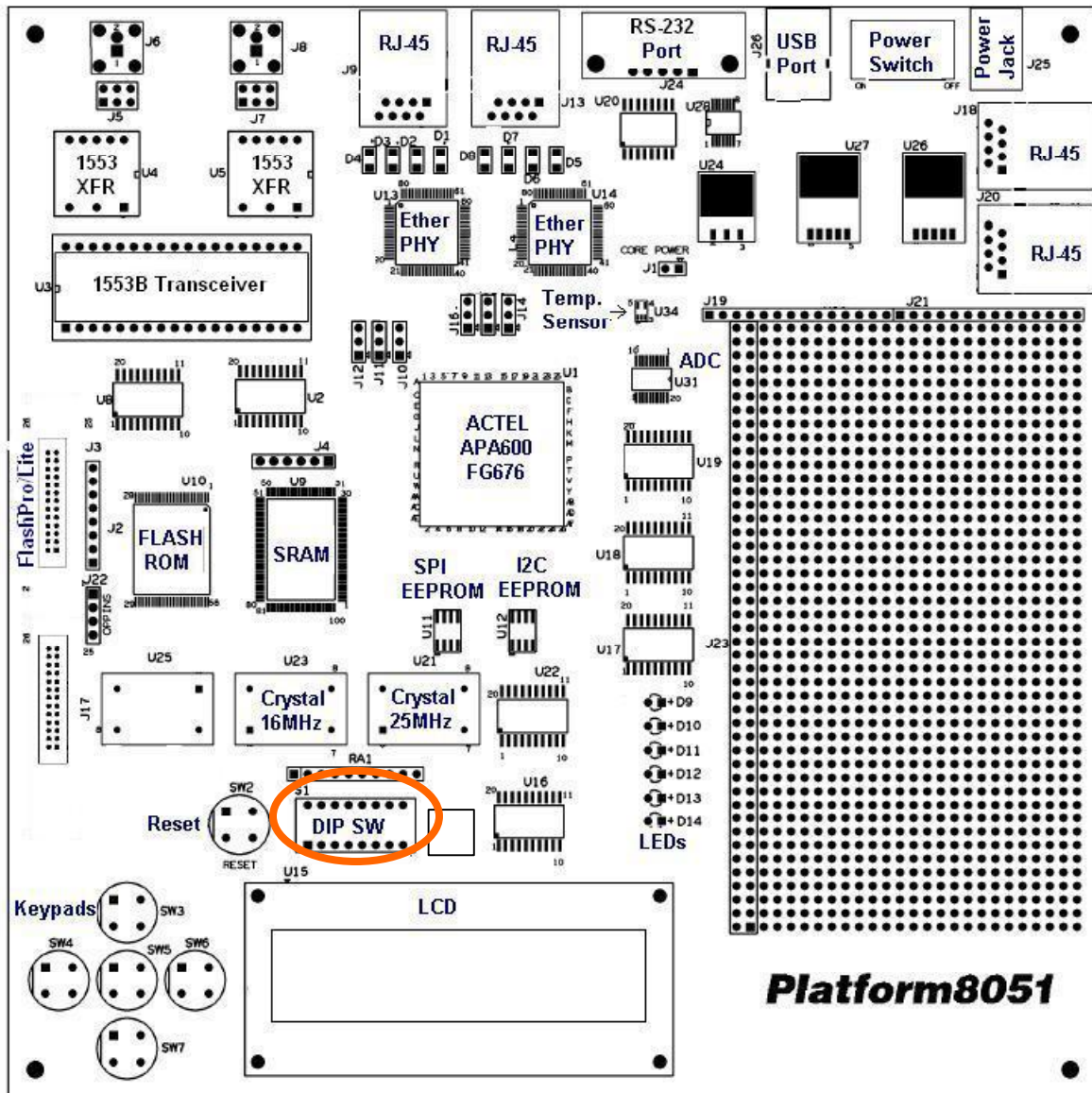
30. Disconnect the FlashPro Lite from the PF8051 Board.



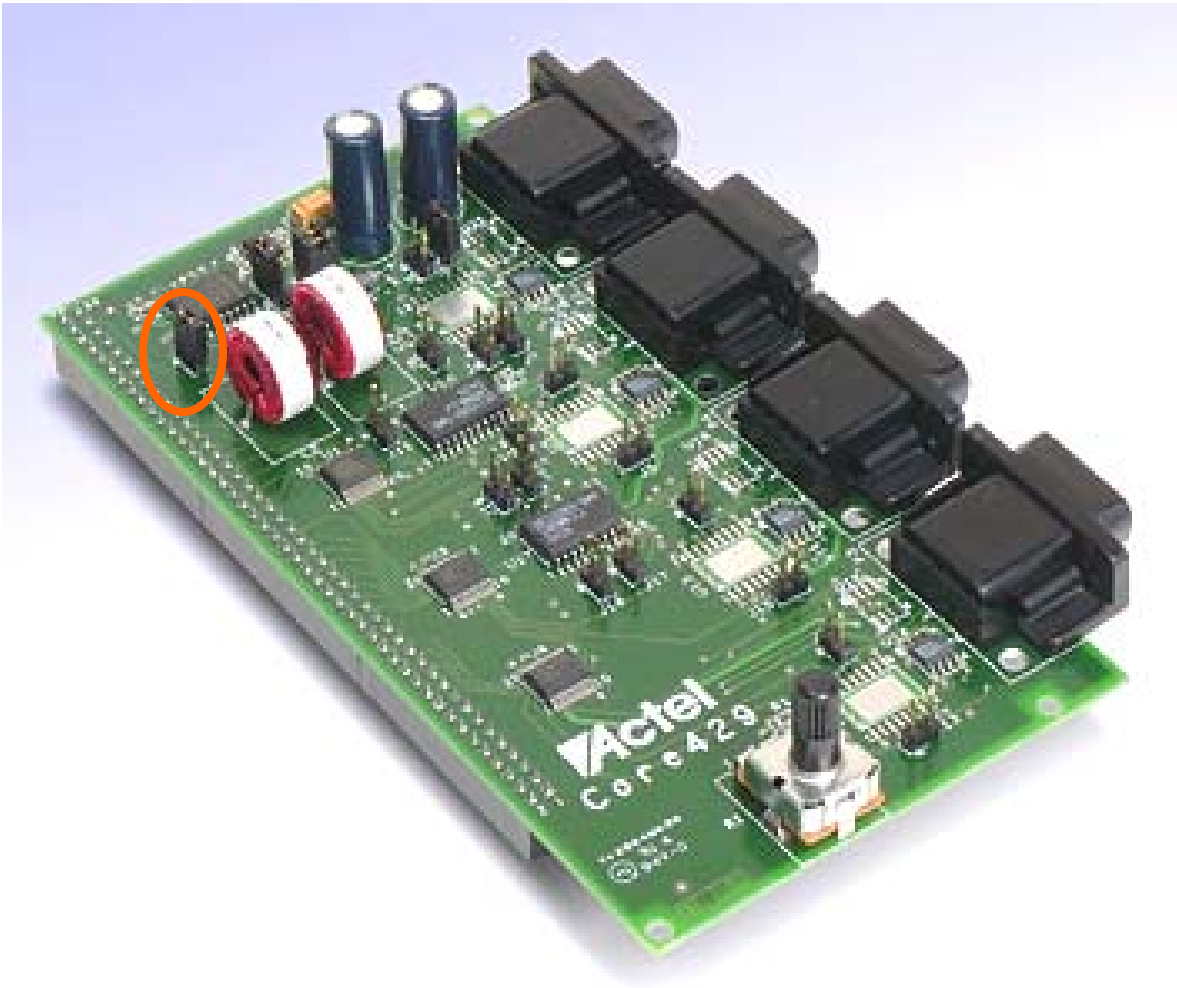
31. Set the DIPSWITCH

There are 8 switches on the DIPSWITCH:

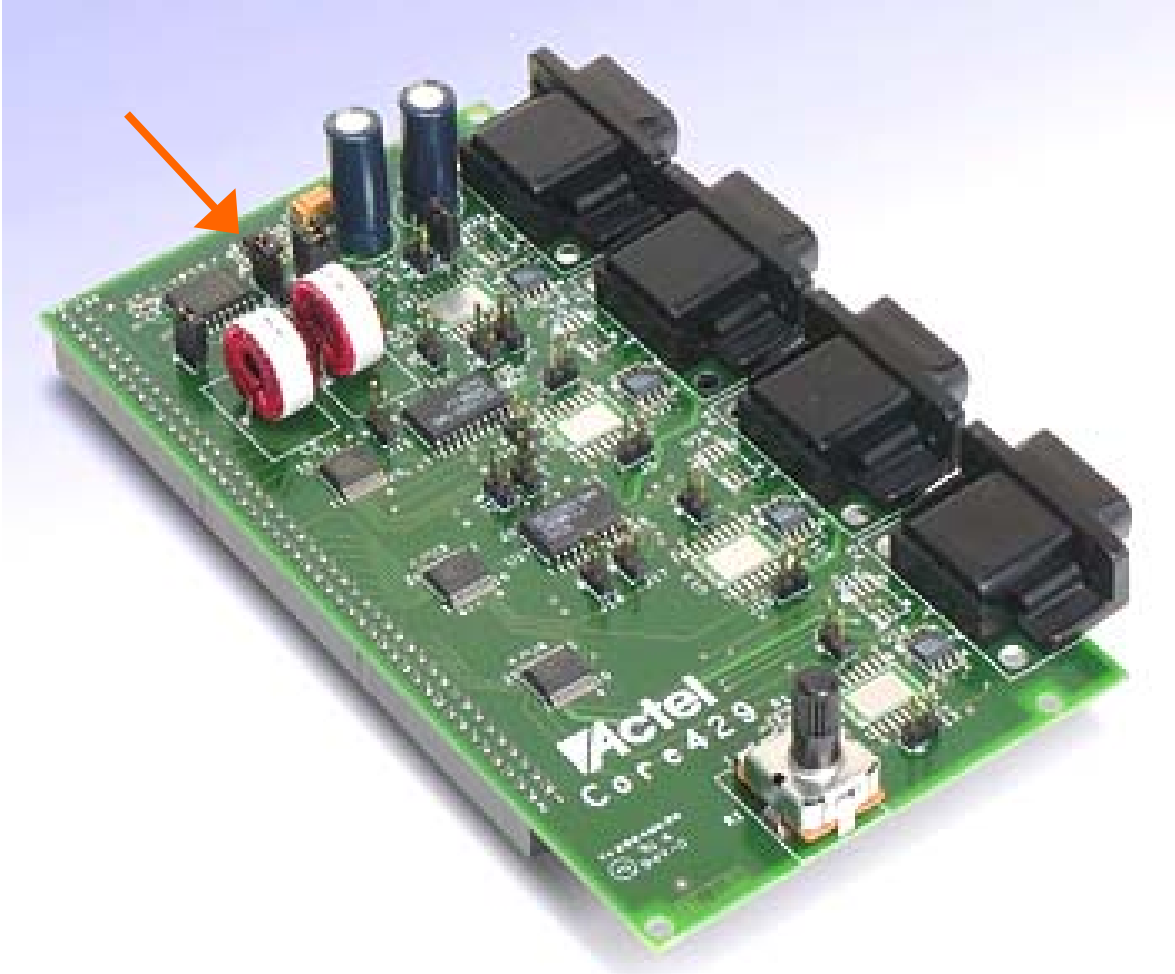
- a. 1-8 should be set to “closed”, push the small button to the side opposite the one marked “open”



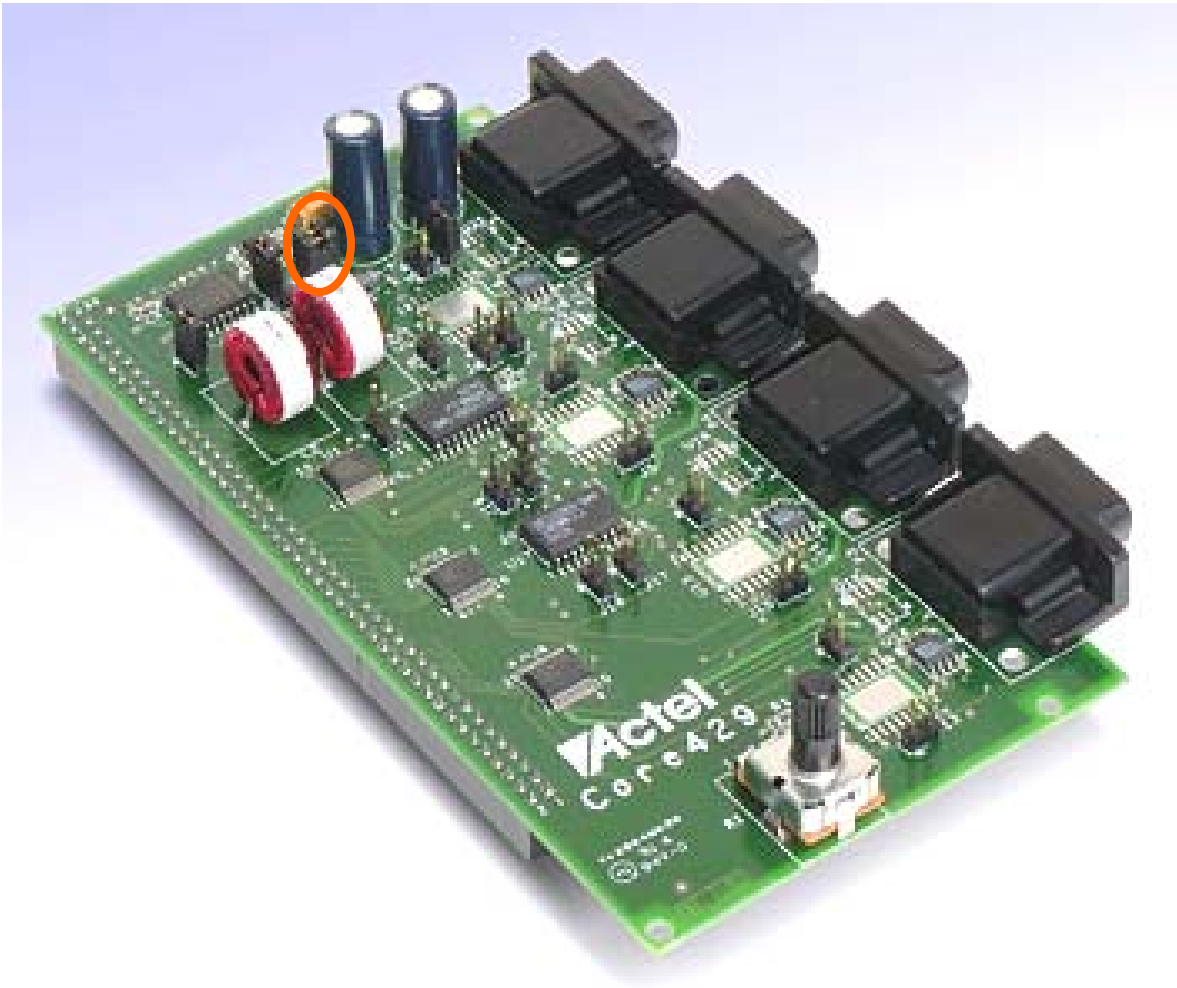
32. Install Jumper (J1) on the Core429 Daughter Board (circled below):



33. Install Jumper (J3) such that the top two pins (2 & 3) are connected leaving the bottom most pin (1) unconnected.



34. Install Jumpers J20 and J21 (circled below):

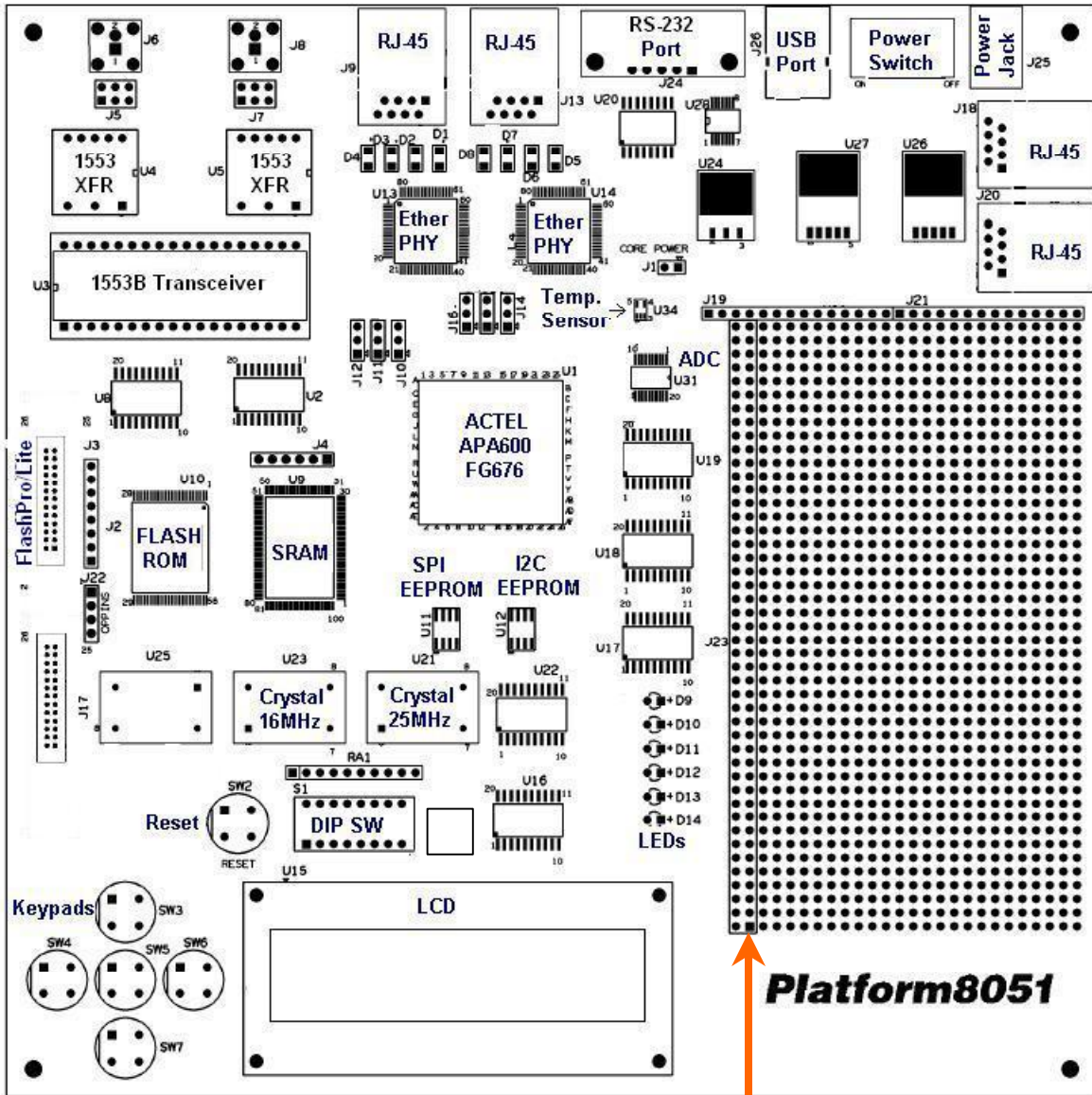


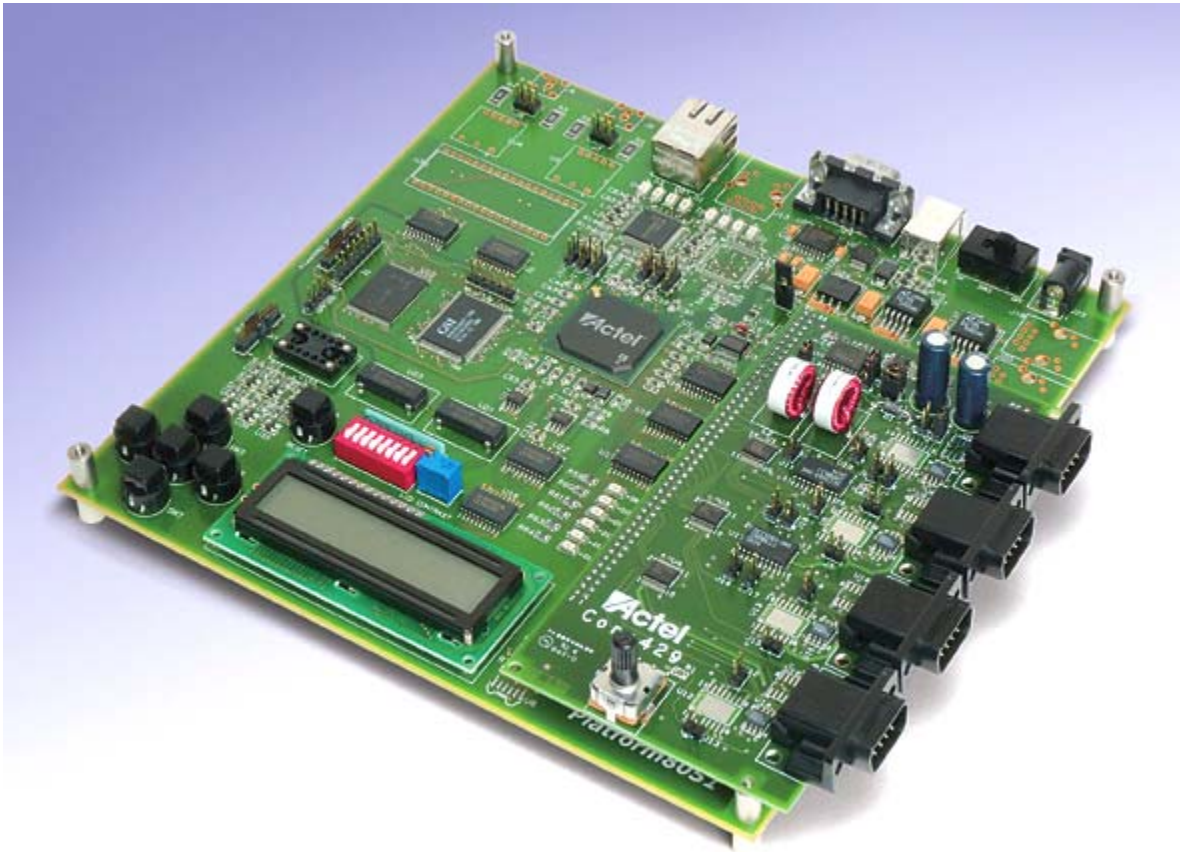
35. Install Jumper (J22) (circled below):



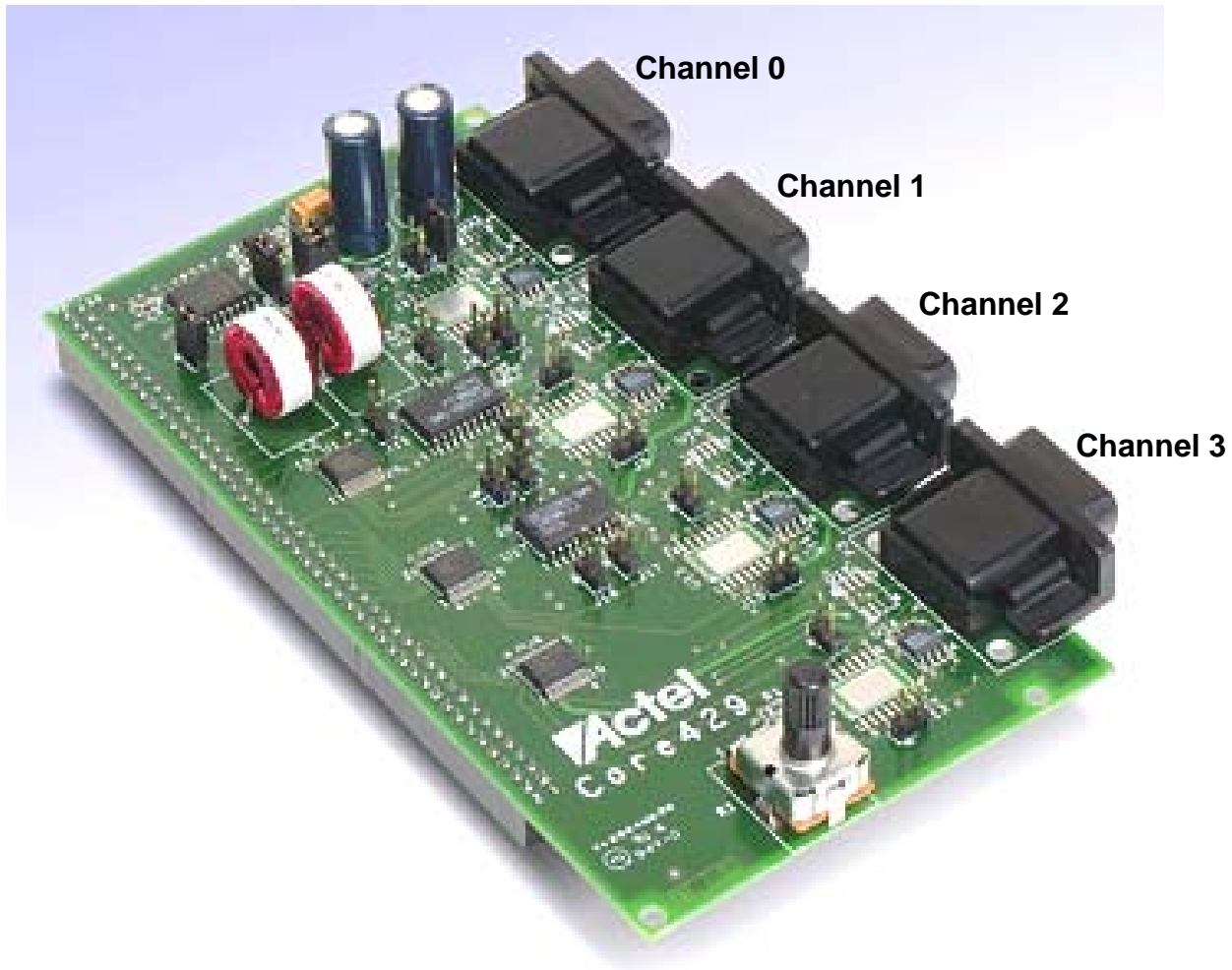
36. Attach the Core429 Daughter Board (J2) to the PF8051 Board (J23).

Note: Ensure that pin 1 of the Core429 Daughter Board connects to pin 1 on the PF8051 connector (J23) (See below and picture on following page)

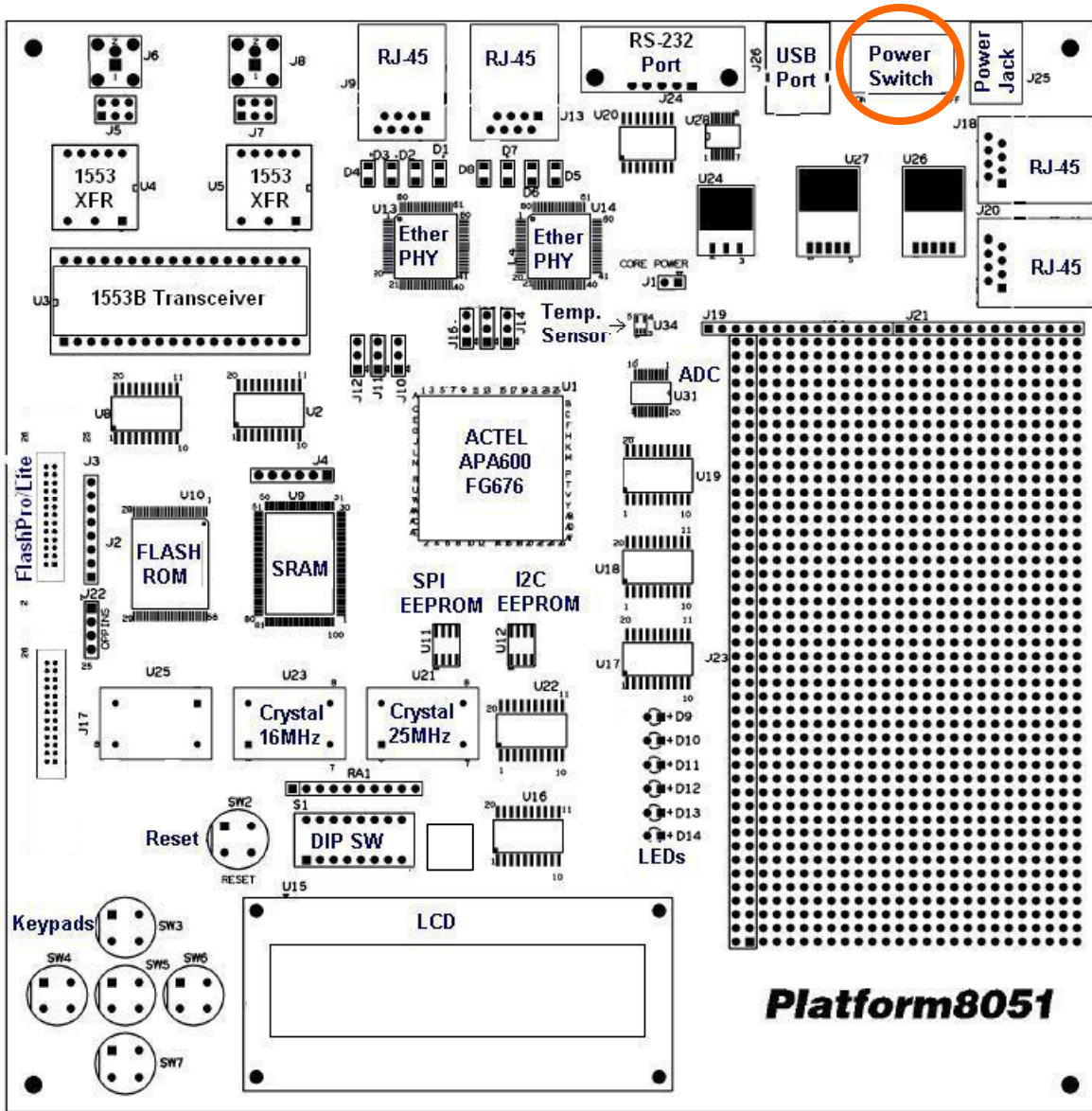




- 37. Attach the two DB9 cables.**
- a. **Channel 0 connects to Channel 1**
 - b. **Channel 2 connects to Channel 3**



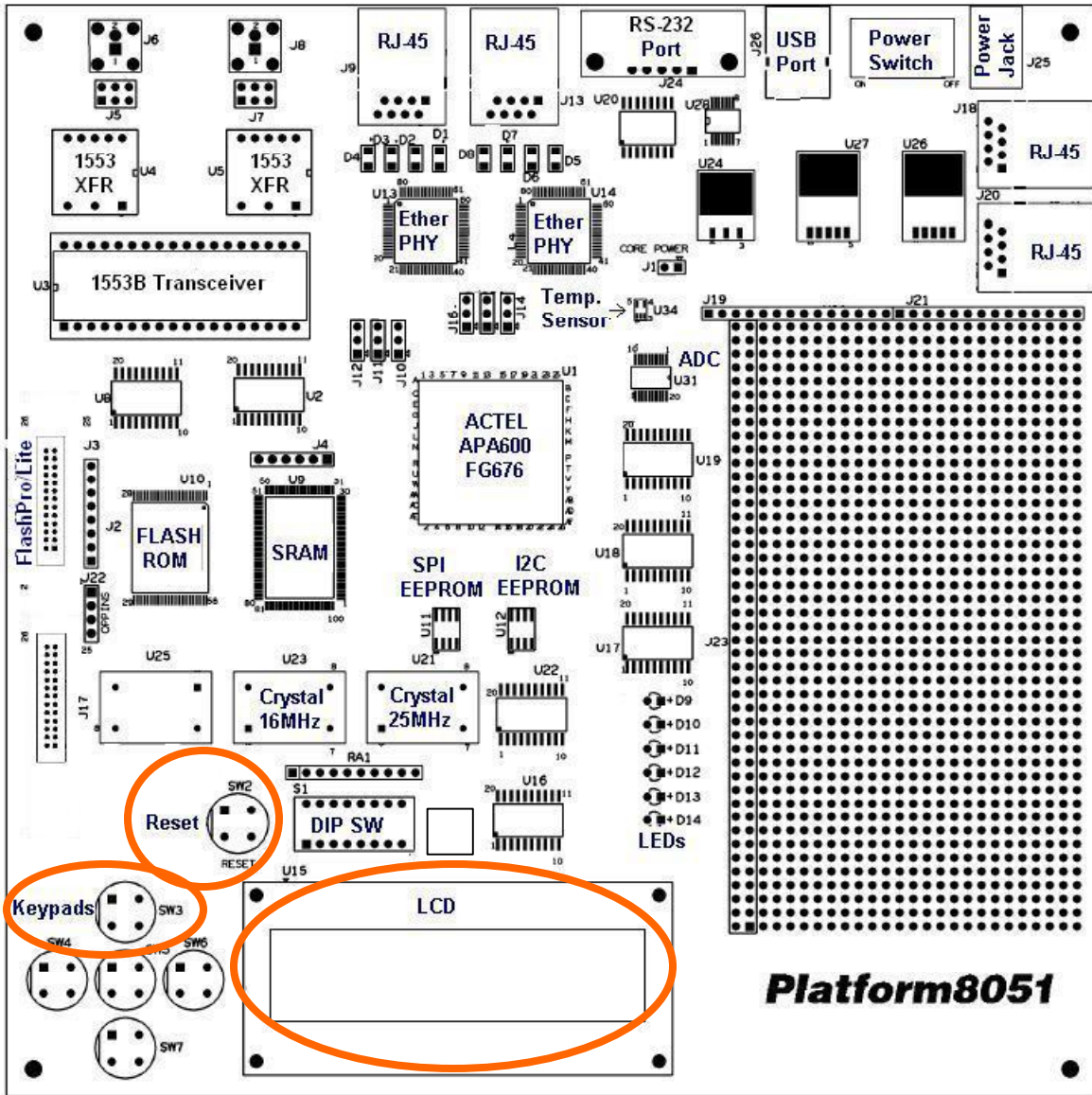
38. Turn on the power by sliding the power switch (SW1) to the left.



Note: If the LCD remains blank after the power has been turned on:

- Turn off the board power (SW1).
- Connect the FlashPro Lite Programmer to the PF8051 board.
- Set the dipswitch as in Step 8. (1-6 set to “closed” and 7-8 set to “open”)
- Turn on the board power (SW1).
- Proceed from Step 21 to reprogram the PF8051 Flash Memory.

- Hold down the Reset button (SW2) and the UP button (SW3) on the keypad. While holding down the UP button (SW3), Release the Reset button (SW2). Keep the UP button (SW3) depressed until “Test Mode” is displayed on the LCD.



40. The test will verify operation of each channel by performing four tests:

- a. Transmitting from Channel 0 and Receiving on Channel 1 (**0TX 1RX**)
- b. Transmitting from Channel 1 and Receiving on Channel 0 (**1TX 0RX**)
- c. Transmitting from Channel 2 and Receiving on Channel 3 (**2TX 3RX**)
- d. Transmitting from Channel 3 and Receiving on Channel 2 (**3TX 2RX**)

The test results will be displayed on the LCD screen. If all tests passed, the message “All PASSED” will be displayed. If a failure occurs, the LCD will cycle through the failures by displaying messages such as, “FAILED : 0TX 1RX”.

41. Record the test results and turn off the board power by sliding SW1 to the right.

42. Unplug the two DB9 cables from the Core429 Daughter Board and disconnect the Core429 Daughter Board from the Platform8051 Board.

43. Proceed to Step 32 to test another Core429 Daughter Board.