1.0 PURPOSE

1.1 The purpose of this document is to define the method for programming PSoC3, PSoC4, or PSoC5 microcontrollers using the standard Cypress PSoC Progammer Windows software application.

2.0 SCOPE

2.1 This procedure is to be utilized by all Newton Engineering and Design Group LLC (NED) production or engineering personnel to load software files into PSoCx microcontrollers.

3.0 DEFINITIONS

3.1 PSoC, PSoC3, PSoC4. PSoC5 – Cypress manufactured microcontrollers, PSoC being the first generation and PSoC3, PSoC4 and PSoC5 being subsequent generation with an 8051 or ARM microcontroller cores

3.2 PSoC Programmer – Windows software application that is provided by Cypress for programming PSoC microcontrollers.

3.3 MiniPROG3 – USB dongle with a cable that allows connection to the target hardware where a PSoC microcontroller is in use.

3.4 HEX File – software file that contains the software to be programmed into the PSoC microcontroller

3.5 Target Hardware – hardware that contains a PSoC microcontroller that is desired to be programmed

4.0 REFERENCES

4.1 PSoC Programmer download web site: https://www.cypress.com/file/500701/download

4.2 MiniPROG3 Kit web site data: http://www.cypress.com/?rID=38154

At this time, go to the Cypress PSoC Programmer download page noted in section 4.1, and install that software to your computer. If you do not have a MiniPROG3 programming dongle, call ILT or order one directly from Cypress, or www.mouser com.

5.0 PROCEDURES

5.1 Install PSoC Programmer Software
Download and install the latest software from the Cypress web site.

5.2 Plug-In MiniPROG3 Hardware Programmer
Locate the MiniPROG3 unit, and connect that to the Windows PC where the PSoC Programmer software was installed. If this is the first time use, a slight delay will occur while the PC loads the proper software drivers for the MiniPROG3.

5.3 Determine which method of programming, either the 10-pin or 5-pin modes. If your target board has a small 10-pin connector located close to the microprocessor, then 10-pin is what you will use.

5.3.1 10-Pin Mode Plug-In Ribbon Cable
Locate the gray colored mini ribbon cable female-to-female connector, and plug on end into the MiniPROG3 located at the top side of the MiniPROG3 unit. Plug the other side into the 10-pin connector on the target board to be programmed. Note that both sides are polarized with a polarization bump on the ribbon cable, allow for this bump to be properly aligned and do not force the connection!

5.3.2 5-Pin Mode Plug-In 5-Pin Header with Spring Tips
Locate the 5-pin male-to-male pin header with spring tips, and install that into the MiniPROG3 end opposite of the USB cable connection. This is a compression connection method, meaning that you will need to hold the spring contacts onto the target board during programming.
Note that the target board has a 5-pin metal pad surface only area that is free of components, or a through-hole 5-pin connection. Both utilize the same method, meaning you will need to press down on the MiniPROG3 during the programming

phase. Note that the VTARG pin (notated on the MiniPROG3 in silkscreen) will be Pin1, which is the square pad on the target board.

5.4 Set MiniPROG3 into Correct Mode
Review the PSoC Programmer screen, and make sure the following checkboxes are selected:

Programming Mode: Reset
Verification: On
AutoDetection: On
Protocol: SWD
Voltage: 5V
Connector: 10p or 5p
Clock Speed: 1.6MHz

5.5 Load the HEX file into the PSoC Programmer
Using the icon on the toolbar that depicts a file folder (or se File-Open), locate the HEX file to be programmed. If there is no issue, the name of the file will be shown in the "File Path" section of the main programmer window.

5.6 Power ON the Target Hardware
If the target hardware can be powered, do so now. If you are programming the target hardware outside of the final system, then you can use the MiniPROG3 to temporarily power the target hardware by pressing the third icon "Toggle Power". Status of power will be shown at the bottom right of the programmer screen.

5.7 Program Target
At this time simply press the second icon "Program" and the Results section of the programmer application will log the action and report any issues.

5.8 Power OFF the Target Hardware
Use the same "Toggle Power" button
to now turn off power, or power down the final system to remove target power.

5.9 Remove Target
You can safely remove the target hardware from the end of the ribbon cable.

5.10 Done!