

Documentation for SSD1306 OLED driver through Microblaze(Nexys 4) .
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Steps to reproduce the results :

1. Create a new project in Vivado and create block design.
2. Add the blocks as per block diagram(diagram.pdf)
3. Modify the settings of I2C AXI block as shown in (I2C_settings.png)
4. In the address editor, modify the address as per address.xlsx.
5. Add the constraints (design_1_wrapper.xdc).
6. Create HDL wrapper, generate bitstream, export hardware and launch sdk.
7. Create a blank C project, and import the following :
 - a. Helloworld.c.
 - b. Oled_fonts.h
 - c. Ssd1306_i2c.h
 - d. Ssd1306.c
8. Launch on hardware.

Description of files :

1. Helloworld.c : The top module. Call the functions to write to OLED from main() of this file.
2. Oled_fonts.h : Header file containing definitions of fonts for writing to OLED.
3. Ssd1306_i2c.h : Header file containing definitions of commands as per OLED datasheet.
4. Ssd1306.c : Contains all the function definitions for initialization, scrolling, character/shape display etc.