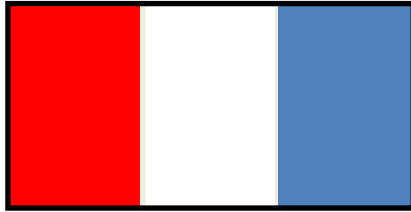


Lab 12- VGA Display

The purpose of this lab is to practice the VGA display.

Lab 12.1:

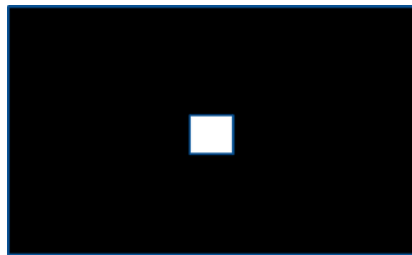
- SW0=1 時, VGA 螢幕上顯示紅白藍直條, 如下



- SW0=0 時, VGA 螢幕沒有任何顯示

Lab 12.2:

- 在 VGA 螢幕中間顯示一個 20x20 pixels 的白色方塊



- 按下鍵盤'→'鍵, 方塊往右移 20 pixels; 按下鍵盤'←'鍵, 方塊往左移 20 pixels; 按下鍵盤'↑'鍵, 方塊往上移 20 pixels; 按下鍵盤'↓'鍵, 方塊往下移 20 pixels.
- 當方塊右移碰到右邊界時, 即不再向右移動, 其他方向的移動亦同.
- Use KEY0 as an active-low asynchronous reset, such that the 20x20 pixels white block is shown in the central screen when KEY0 is pressed.

Lab-report:

Submit a lab report on **ilearn** by 11:00pm the day before of next lab. (The lab report must be a **PDF** file.)

Your Lab report should include the following items:

- 1) VHDL design for Lab12.1.
- 2) VHDL design for Lab12.2.
- 3) Observations and comments.