



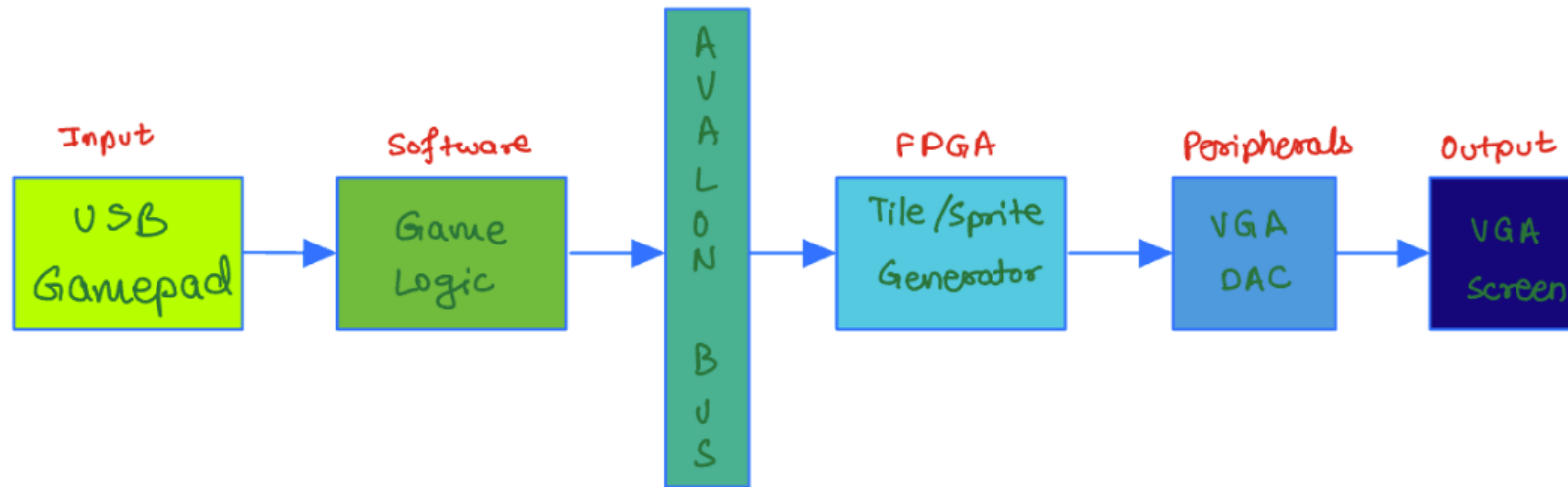
ScreamJump

By:

- Ananya Maan Singh
- Sharwari Bhosale
- Kamala Vennela Vasireddy

Introduction

A gravity-defying, tile-twisting, sprite-flipping chicken platformer powered by USB rage and VGA glory



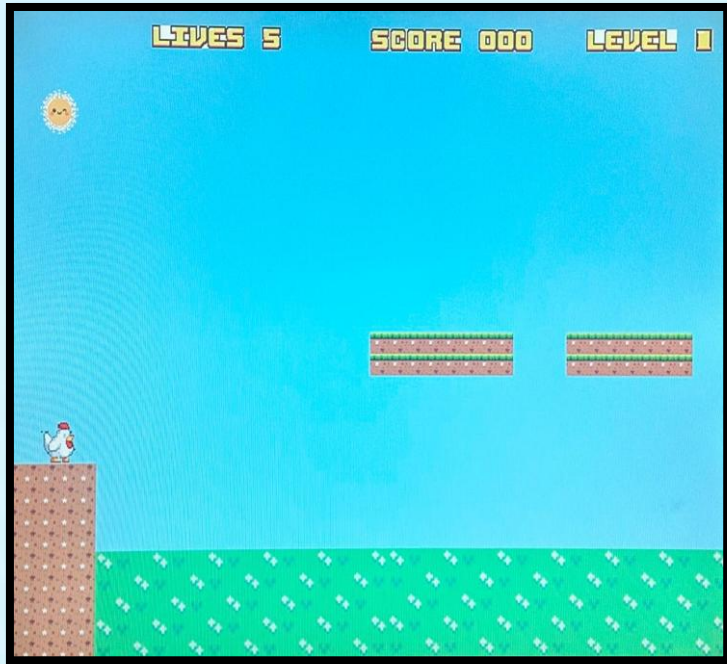
Features:

- USB gamepad
- Tiles rendering
- Sprite Animation
- Level Progression
- This guy



Relevant Configurations

40 tiles



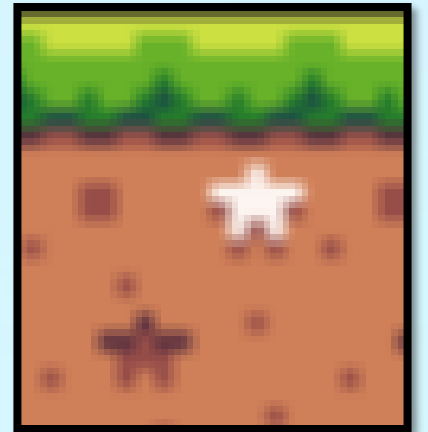
30 tiles

32



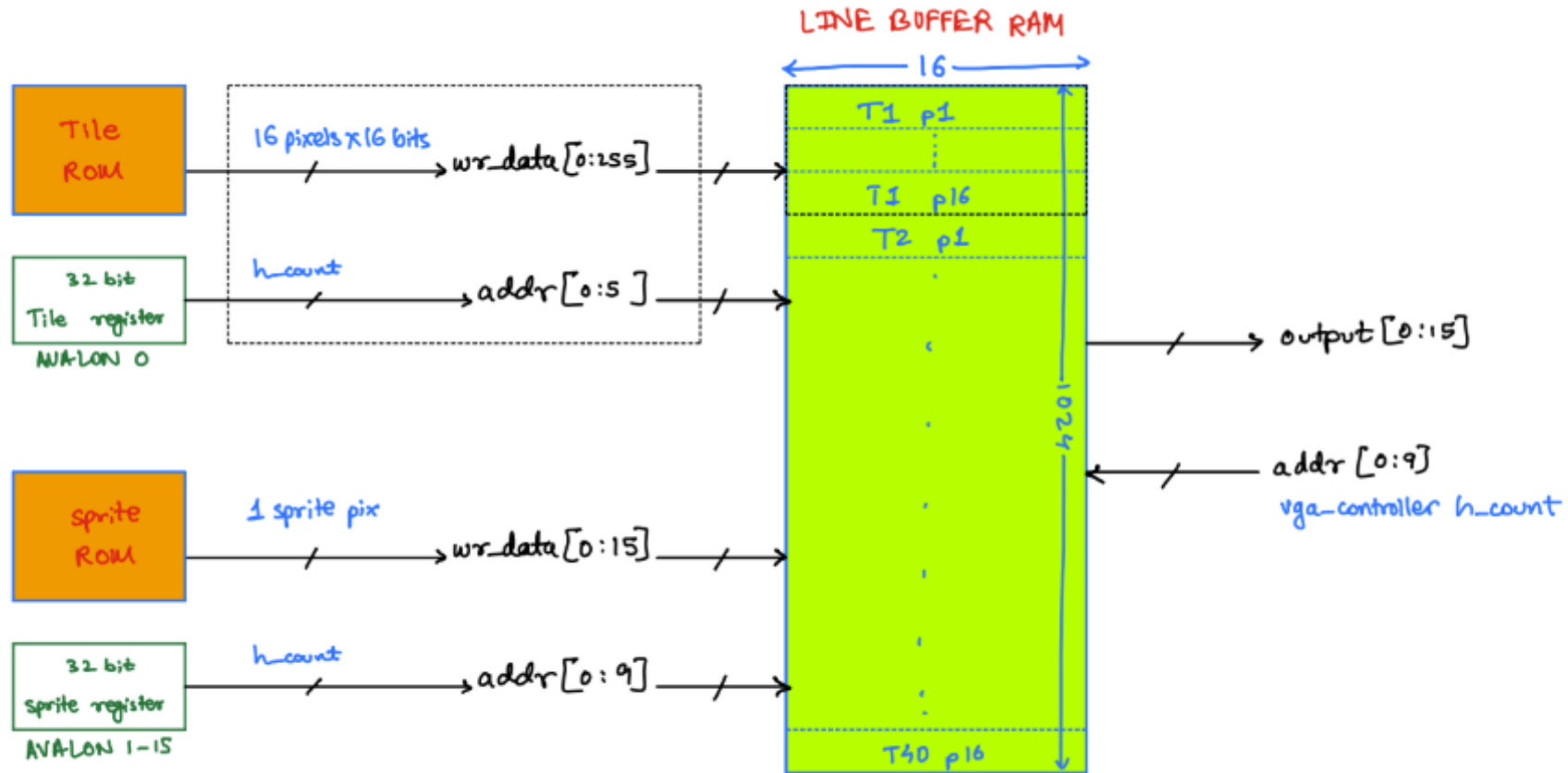
32

16



16

Line Buffer



Register Mapping

Register 0

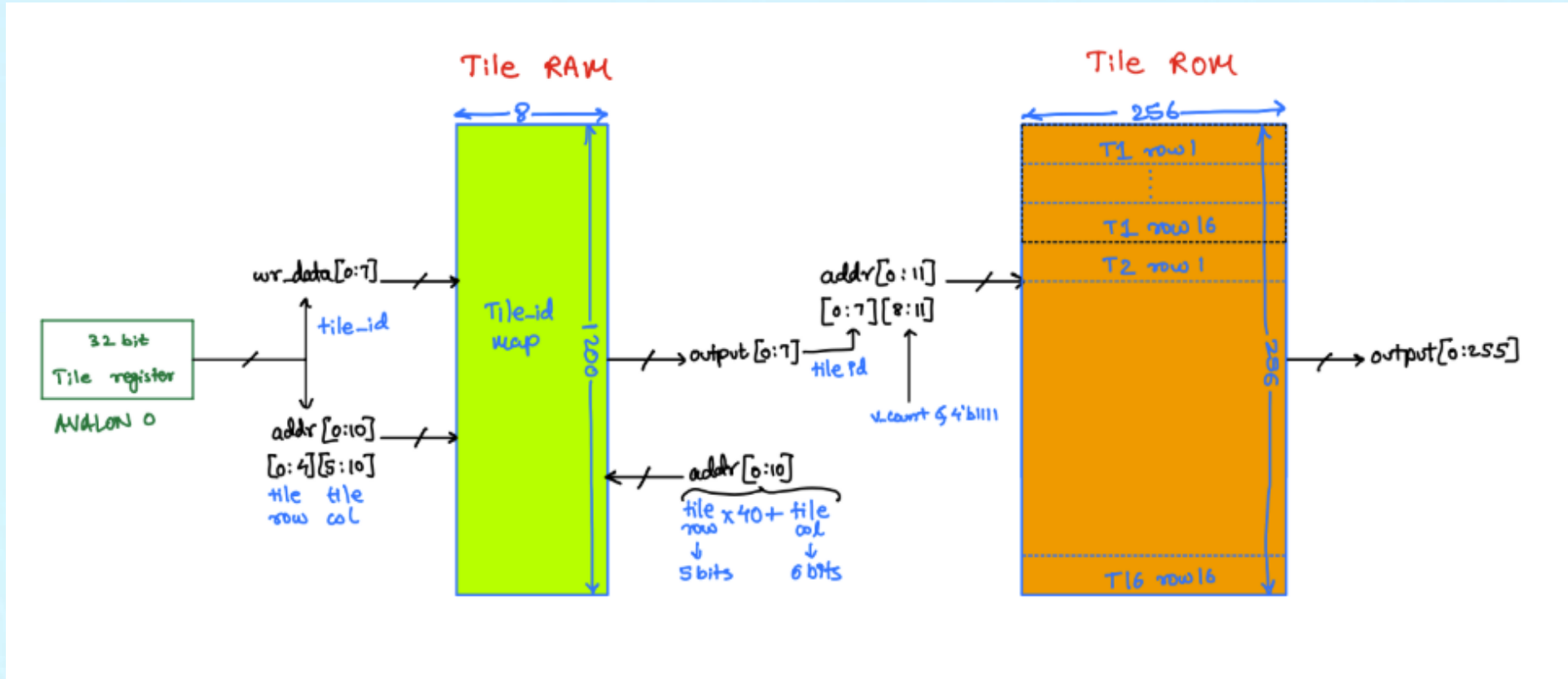
Bits		5 bits		6 bits		8 bits	
31	19	18	14	13	8	7	0
Unused		Tile Row		Tile Column		Tile ID	

Register 1 - 15

Bits		1 bit		9 bits		10 bits		5 bits	
31	25	24		23	15	14	5	4	0
Unused		Active		Sprite Row		Sprite Column		Sprite ID	



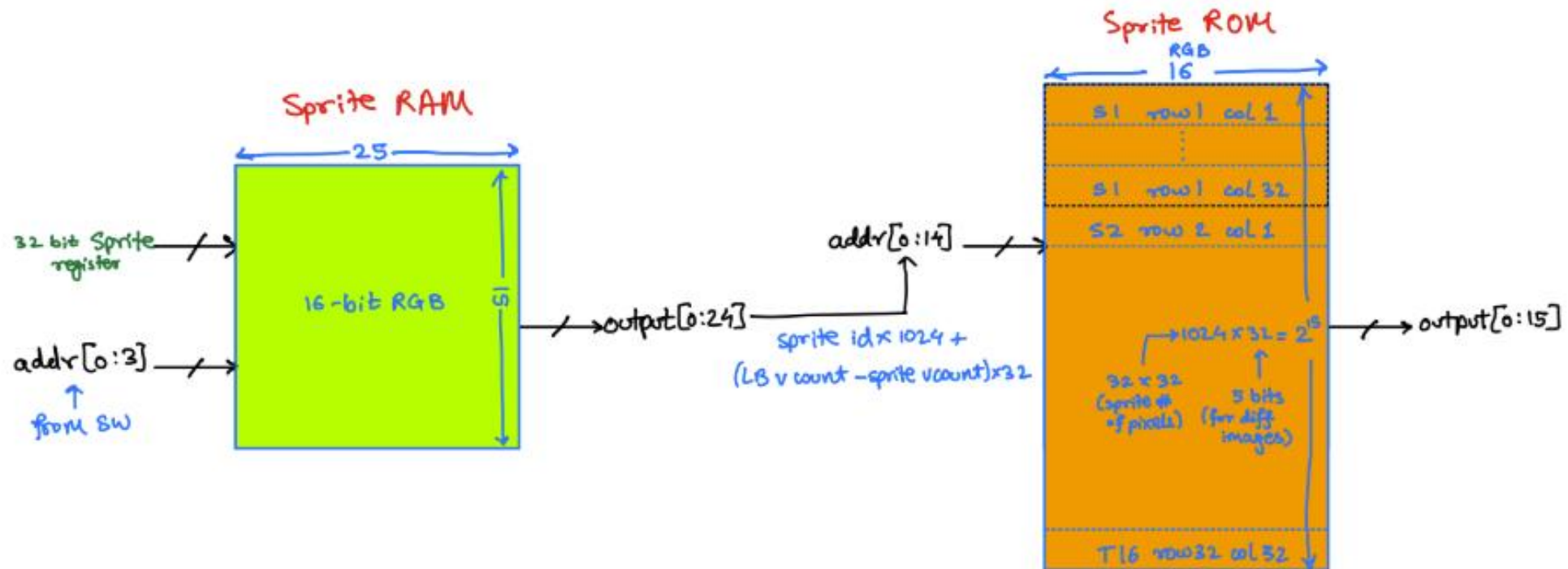
Tiles



Bits	15 - 11b	10 - 6b	5 - 0b
	Red	Green	Blue

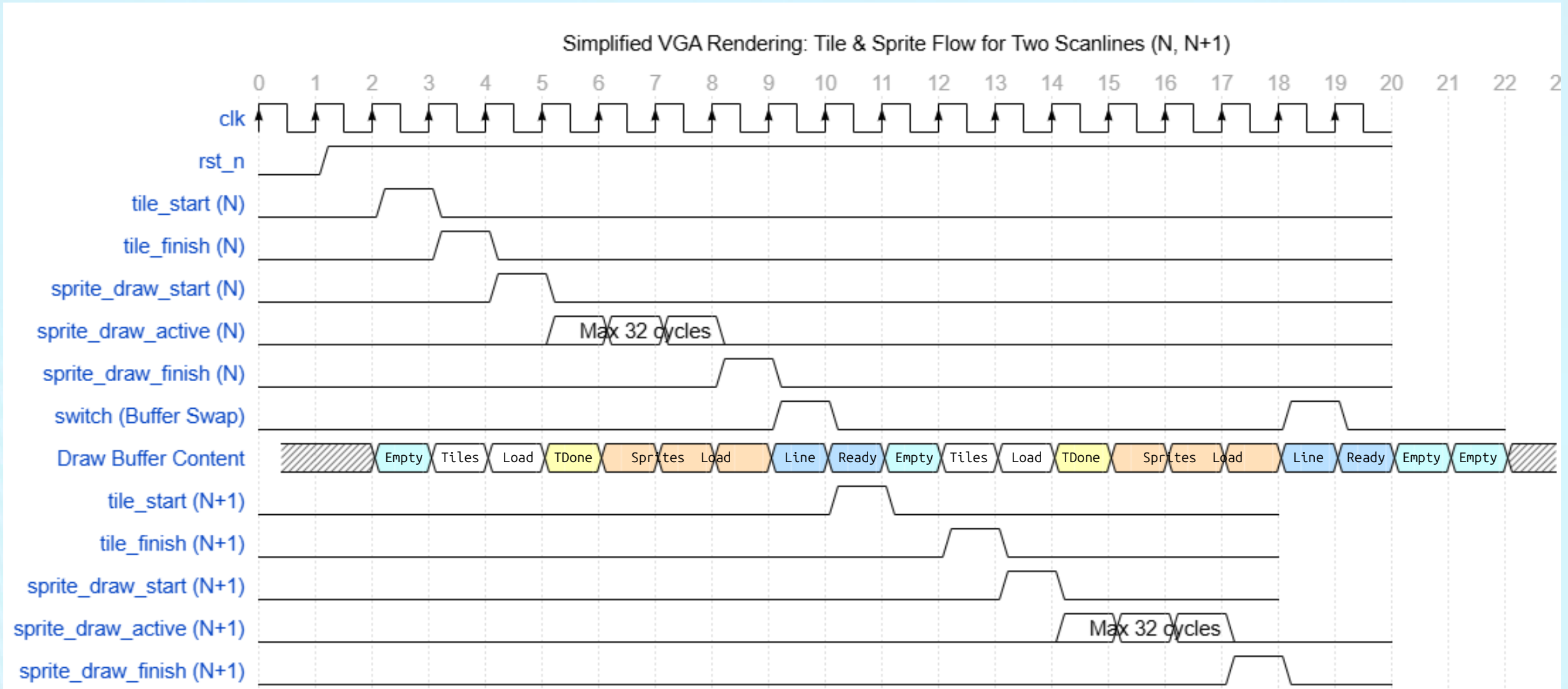


Sprites



Bits	15 - 11b	10 - 6b	5 - 1b	0b
	Red	Green	Blue	Transparency

Timing Diagram



Game logic

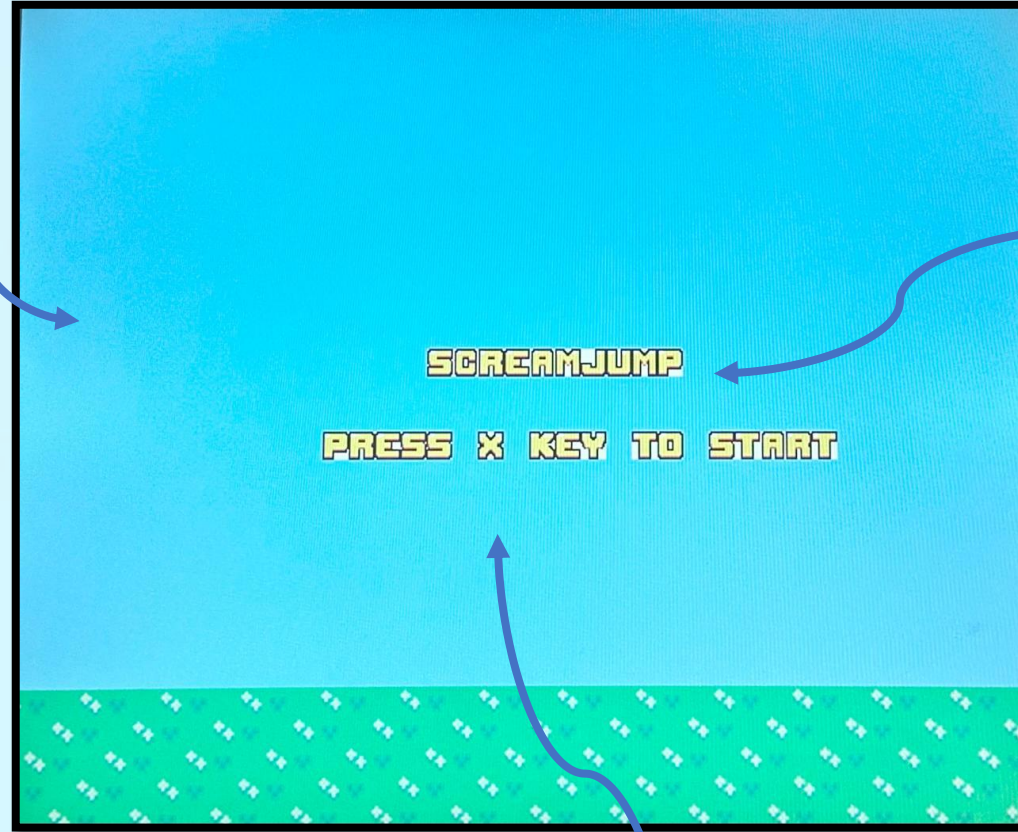
Start screen



`init_vga_interface()`
• initializes hardware
• tile/sprite buffers

`controller_input_thread()`
• reads USB gamepad
input
• using libusb

`fill_sky_and_grass()`



`write_text("scream");`

`write_text("jump");`

`write_text("press x key
to start");`

Loop until controller_state.x is pressed

```
while (!controller_state.x) {  
    usleep(10000);  
}
```

Game logic

vga_present_frame()
present_sprites()

Level = 1,2

initChicken()

moveChicken()

drawtower()

draw_all_active_bars()

move_all_active_bars()

handleBarCollision()

Update_grass_scroll()

resetBarArray()

Reset_for_level_attempt()

Update_sky_sprite()

Level = 3,4,5

initChicken()

moveChicken()

drawtower()

draw_all_active_bars()

move_all_active_bars()

handleBarCollision()

Update_grass_scroll()

Init_all_coins()

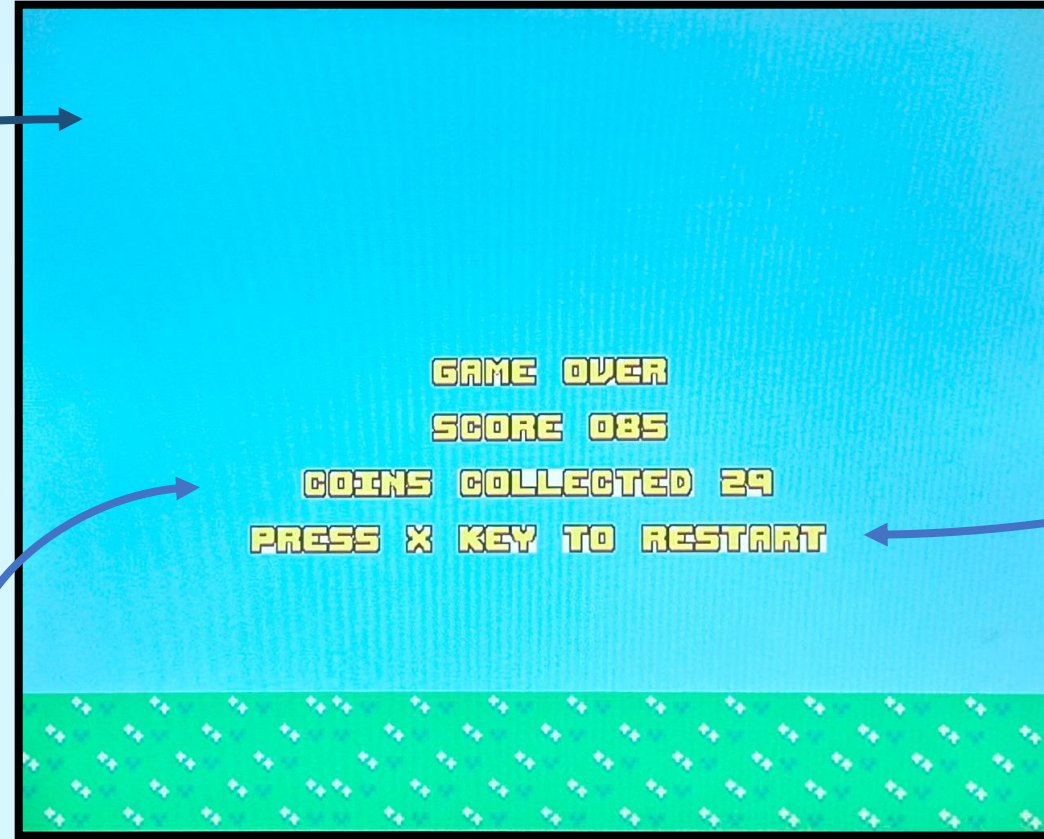
draw_active_coins()



Game logic

End screen

Trigger:
Occurs when `lives == 0`



Displayed Info:

"game over" text using `write_text(...)`

Final score and `coins_collected_this_game`

```
while(1) {  
    if  
    (controller_state.x) {  
        goto game_restart_point;  
    }  
    usleep(50000);  
}
```

Thank You
Let's play now!

