Digital Design and Computer Architecture LU

Lab Protocol

Exercise II

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Task 1: VGA Graphics Controller

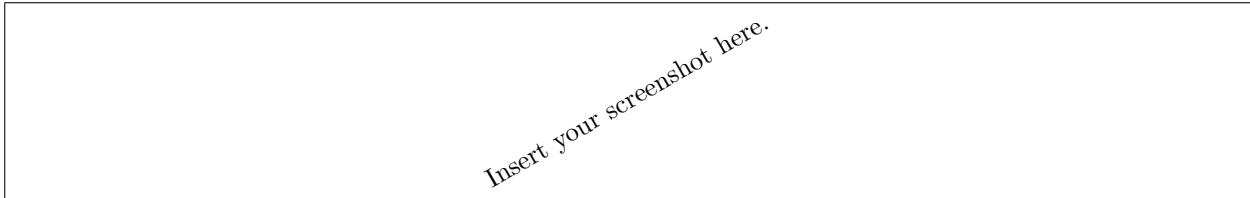VGA Oscilloscope Measurements

Figure 1: Line measurement with cursors marking the length (duration) of the whole line

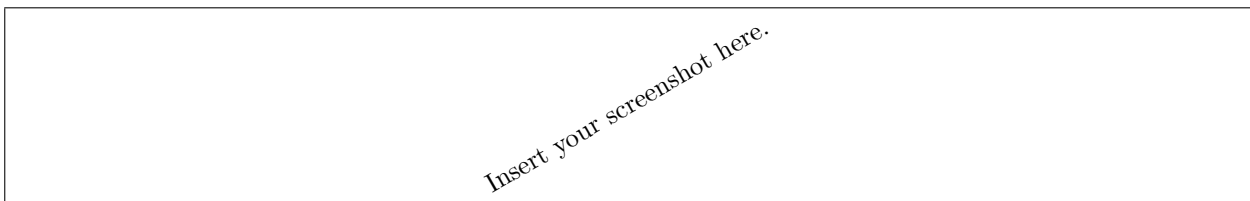Figure 2: Line measurement with cursors marking the length (duration) of the horizontal synchronization pulse

Task 2: Tetris Game

Briefly describe the architecture of your `tetris_game` module. Are there any submodules? What is their purpose? How many FSMs did you use?

add your explanation here (approximately 8-10 sentences, you can also include figures) ...
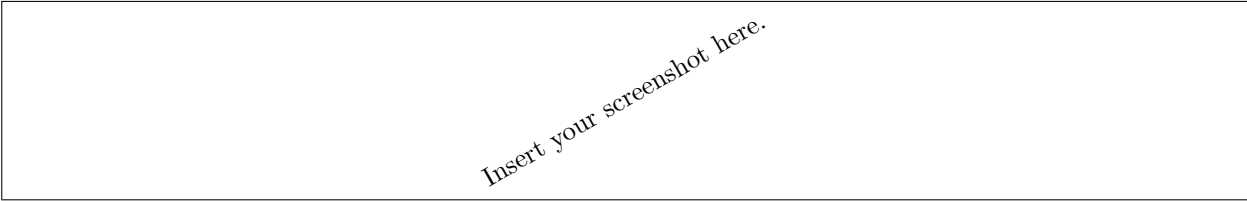
Task 3: Bonus: SignalTap Measurement

Trigger Condition

Figure 3: Screenshot showing the trigger condition

———— END Subtask 3 ————

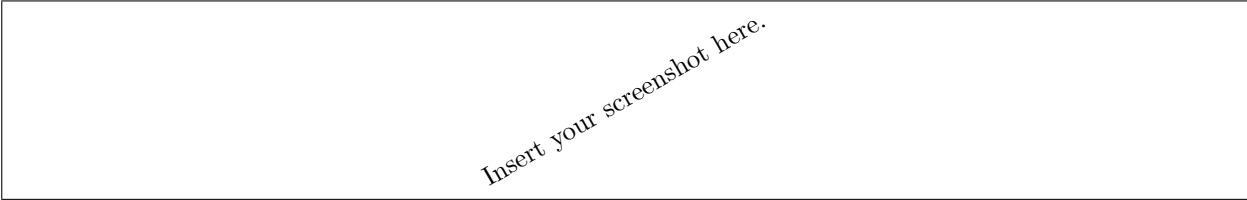———— **Subtask 4** ————

Measurement Screenshot

Figure 4: Screenshot showing at least the first 4 instructions (and their associated data items) issued to the graphics controller during one frame by the tetris_game module.

———— END Subtask 4 ————

———— **Subtask 5** ————

Instruction Decoding

Command	Operands	Instruction Name	Description
0x..	• 0x0001	??	...
0x..	• 0x0001 • 0x0002	??	...
0x..	• 0x0001 • 0x0002 • 0x0003	??	...
0x..	• 0x0001 • 0x0002 • 0x0003 • 0x0004	??	...

———— END Subtask 5 ————