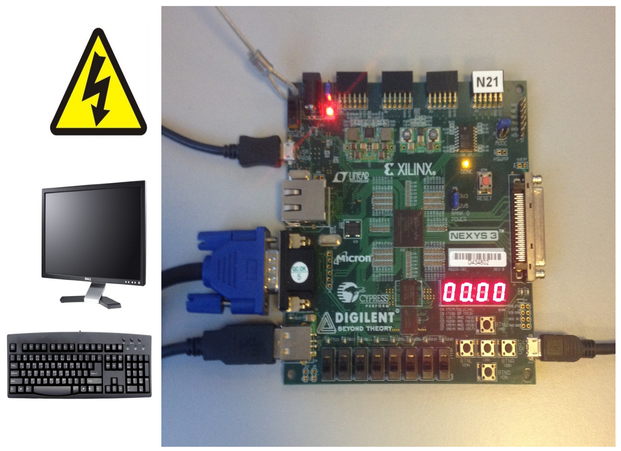
DTU Compute
Department of Applied Mathematics and Computer Science

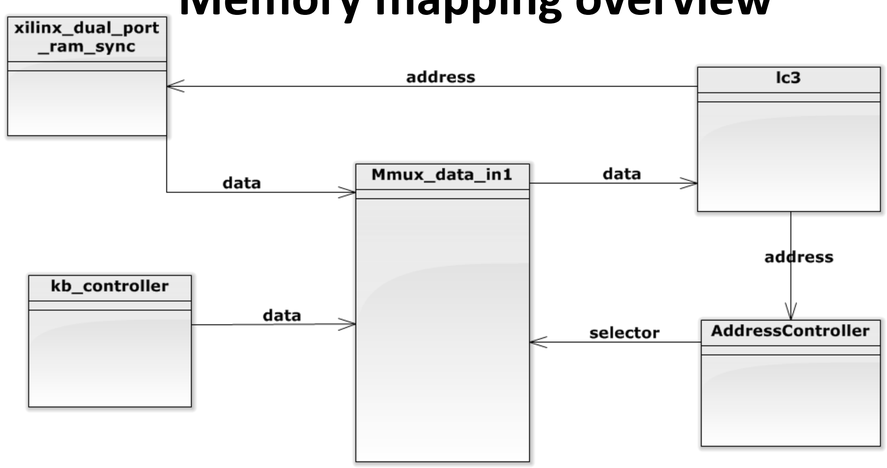
SpaceShoot

FPGA Board



UART

Memory mapping overview



January 2014

PROJECT DESCRIPTION

We have been tasked with building a computer using digital hardware in conjunction with a FPGA board and programming a game to run on this computer.

OUR SOLUTION

The computer would need a UART for communicating matters, RAM as working memory, a KB-controller for user input and a VGA for visual display. As for external devices we decided to use a keyboard for user input and a monitor for visual output. We used memory mapping in order to communicate between the entities.

Diplom-IT
02321 HW/SW programming

GAME DESCRIPTION

As an attempt at recreating a popular retro shooter we constructed this game.

The player controls a spaceship and must shoot the enemies in order to get points. Getting hit by the enemy results in losing 1 of 3 lives. If you run out of lives, it's game over.

The player can move up and down to position the ship as well as shoot missiles at the enemy ship. The enemy ship will reappear at a random y coordinate every time it dies and move in a curved motion.

The objective of the game is to score as many points as possible.

Alexander Sønderskov s123162
Julian Villadsen s123641
Rasmus Hansen s123027