**Creating a Duck Hunting Game Using the Spartan-3E**

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**ABSTRACT**

In this paper, we will describe the work done in an attempt to create a working duck hunting game using the Xilinx Spartan-3E FPGA board, I/O devices, and other Additional Circuitry.

**Categories and Subject Descriptors**

B.6.3 [**Verilog]**: Design and implementation through a Xilinx FPGA of a computer system to play a duck hunting game – Processor, GPU, digital sound reproduction

**General Terms**

Design, Languages

**Keywords**

Spartan-3E, Processor Design, 24-bit color, GPU, Nintendo, Assembly language, NES-Light gun

# INTRODUCTION

Introduce the project here

# PROCESSOR

Introduce the processor (can be omitted if sub points are sufficiently detailed)

## Instruction Set

Describe the Instruction Set

## Architecture

Describe the Architecture

## Arithmetic Logic Unit (ALU)

Describe the ALU

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# MEMORY MAP

Describe the how the memory map does what it does, and the purposes of it

# GRAPHICS PROCESSING UNIT

Describe the GPU

# USER INPUT

Introduce the Input devices (can be omitted if sub points are sufficiently detailed)

## Light Gun

Describe how it works and how to interface with the light-gun. Include a schematic of the circuitry to connect it with the system

## Super Nintendo Controller

Describe how the controller works and how to interface with it.

# PROGRAM

Describe the program.

# ACKNOWLEDGEMENTS

Provide any necessary acknowledgements.

# REFERENCES

Provide any references that we used to create the project.