VHDL

1- Introduction

VHSIC Hardware Description Language

VHDL Introduction

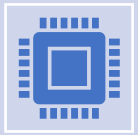
- Powerful language used in digital design
- It describes Hardware, growing complexity of the hardware
- Used in very high speed integrated circuits
- Used to design FPGAs.

VHDL Introduction

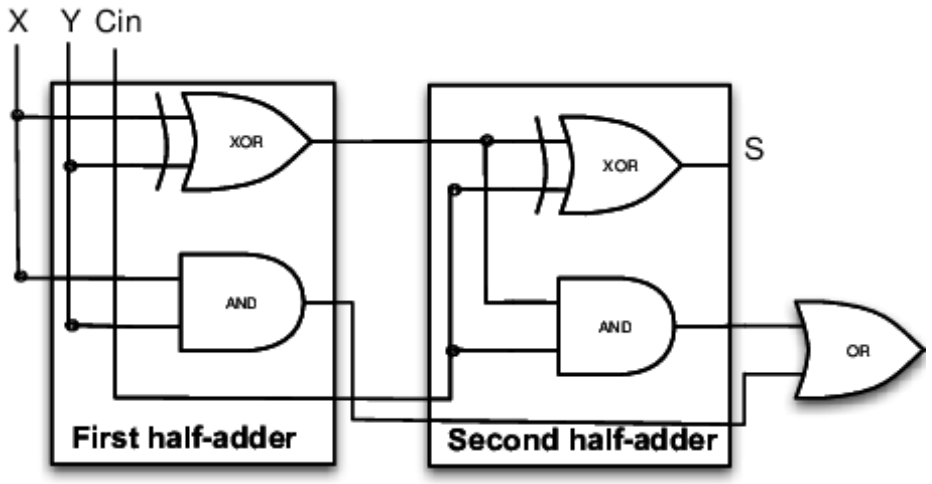
Advantages of VHDL

Design Reusability - Modular and reusable code - Faster development cycles - Lower overall design costs ()

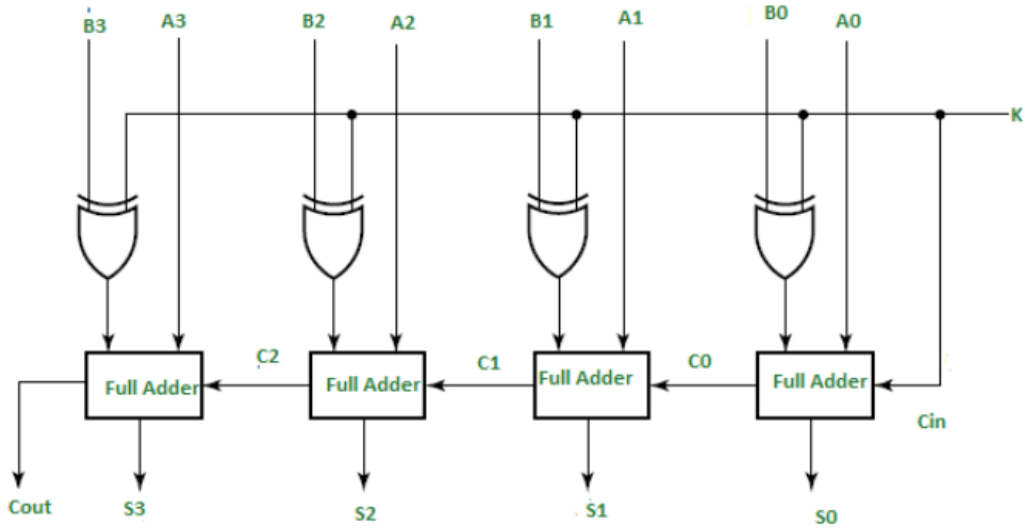
Design Abstraction - High-level description of complex systems - Easy modification and maintenance



Simulation and Verification - Efficient testing and debugging - Increased confidence in design correctness



Full adder from half adder



4 bit adder and subtractor from full adder

Requirements

- No Requirements

What will be covered in this course?

What is VHDL?

VHDL Modeling

VHDL Coding from scratch to professional level

Applications of VHDL

Training on VHDL (many digital circuits coding)

Simulation

Big Project (CPU 16 Bits)

Needed SoftWare

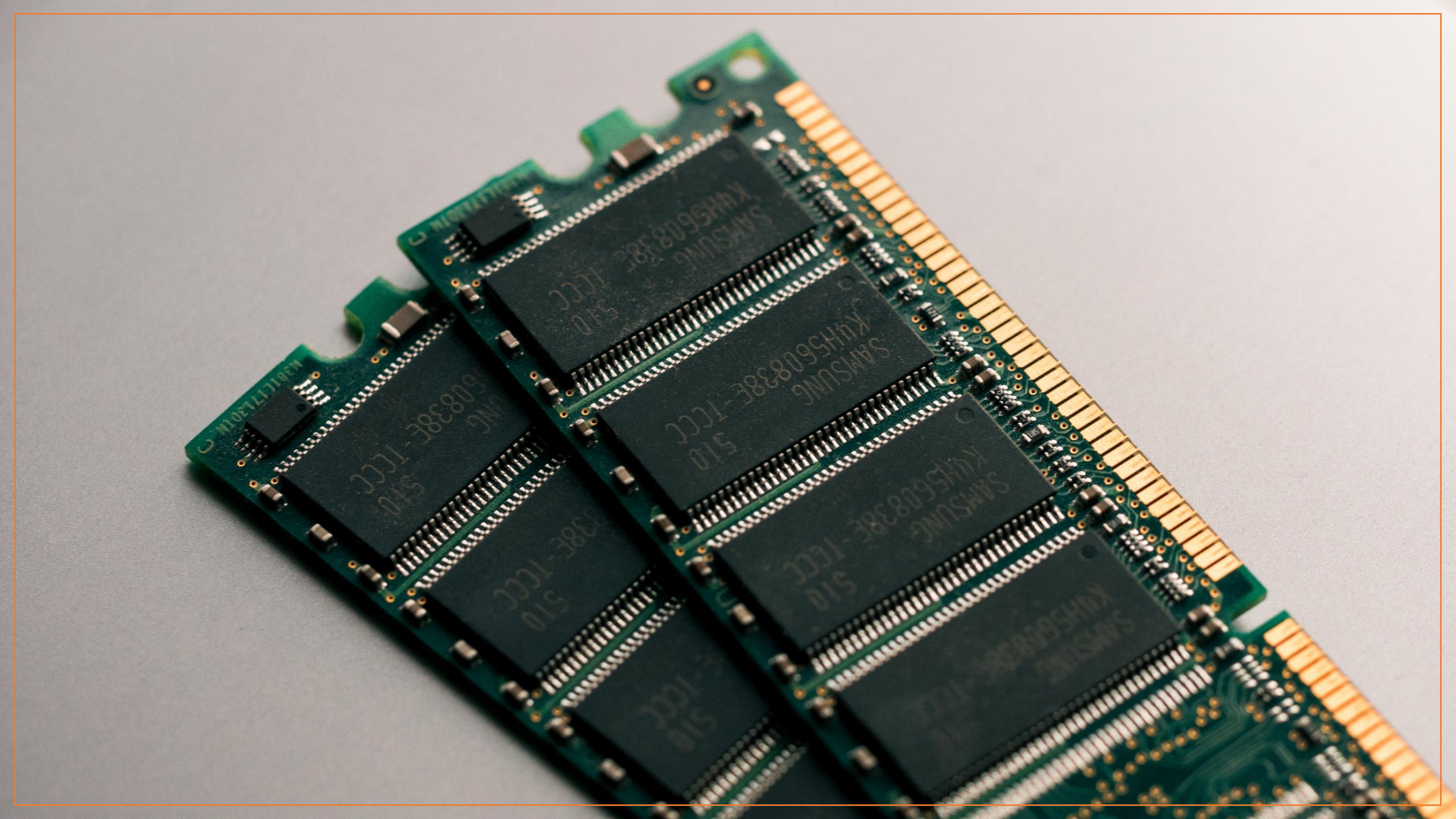
VsCode
-TerosHDL Extension
-GHDL Interface Extension

Gtk wave or Model sim

ghdl

Real World Projects

Using VHDL and FPGA

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Start where you are. Use what you have. Do what you can.

Arthur Ashe