



# Design of Control Interface Module for DDR SDRAM Controller using Verilog HDL

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**Abstract**—An embedded system needs memory for two purposes either to store the program or to store its data. Embedded systems are the electronic systems that contain a microprocessor or a microcontroller, but we do not think of them as computer – the computer is hidden or embedded in the system. As microprocessors have become cheaper and smaller, more and more products have microprocessor embedded in them to make the devices smart. Products such as VCRs, digital watches, elevators, automobile engine, laser printer, industrial control equipments, scientific and medical instruments etc. are driven by these microprocessors and their software. A microprocessor has two essential units to perform the overall system operation: one is control interface unit and other is execution unit. All the electronic devices consist of a control interface module embedded in them to control the operation of that device. The control interface module accepts the commands from processor, decode the commands and passing the request to the peripheral devices and the peripheral devices then perform the operation. In this work we have designed a control interface module for DDR SDRAM (dual data rate Synchronous DRAM) controller using Verilog HDL and simulation and synthesis is done by using Modelsim and Xilinx ISE accordingly.

**Keywords**—Embedded system, embedded, control interface module, DDR, SDRAM.