

Chapter 2

Introduction of the Altera DE2-115 Board

This chapter presents the features and design characteristics of the DE2-115 board.

2.1 Layout and Components

A photograph of the DE2-115 board is shown in **Figure 2-1** and **Figure 2-2**. It depicts the layout of the board and indicates the location of the connectors and key components.

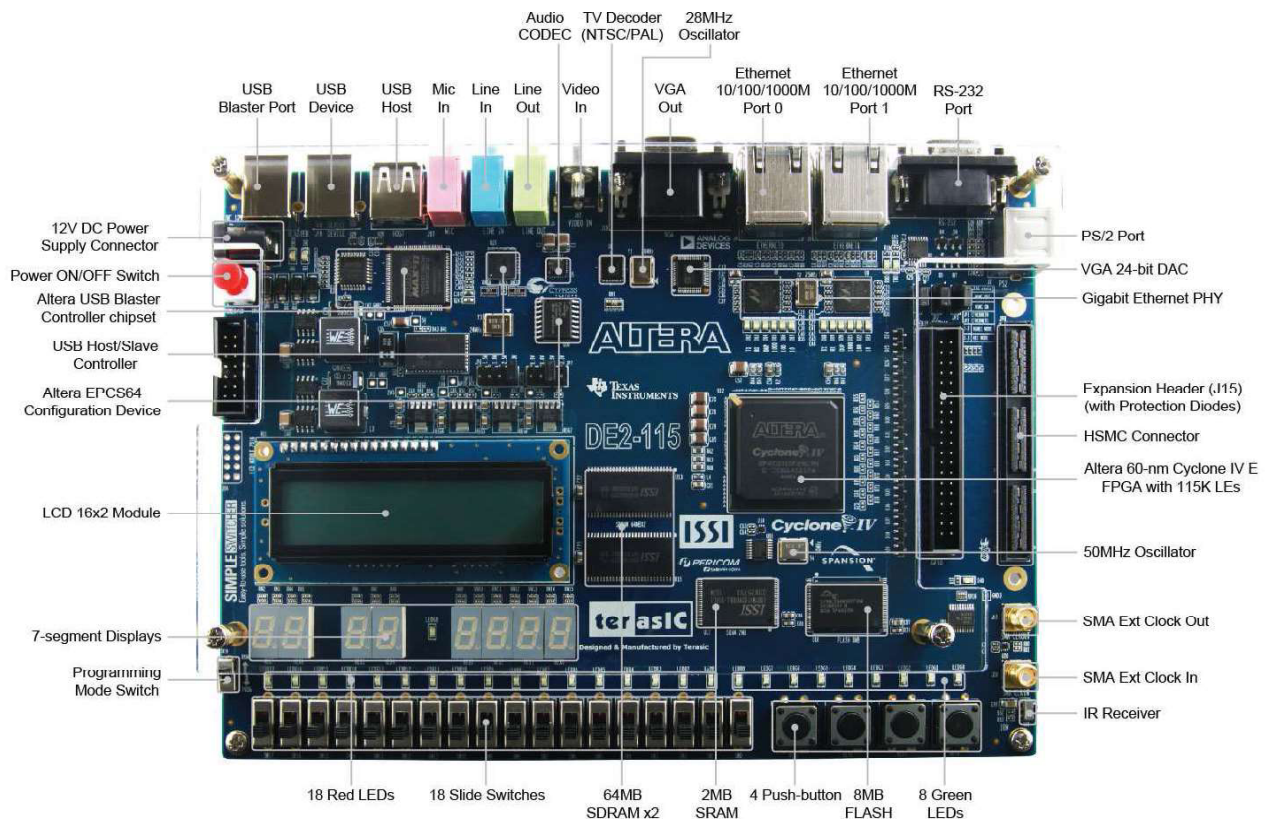


Figure 2-1 The DE2-115 board (top view)

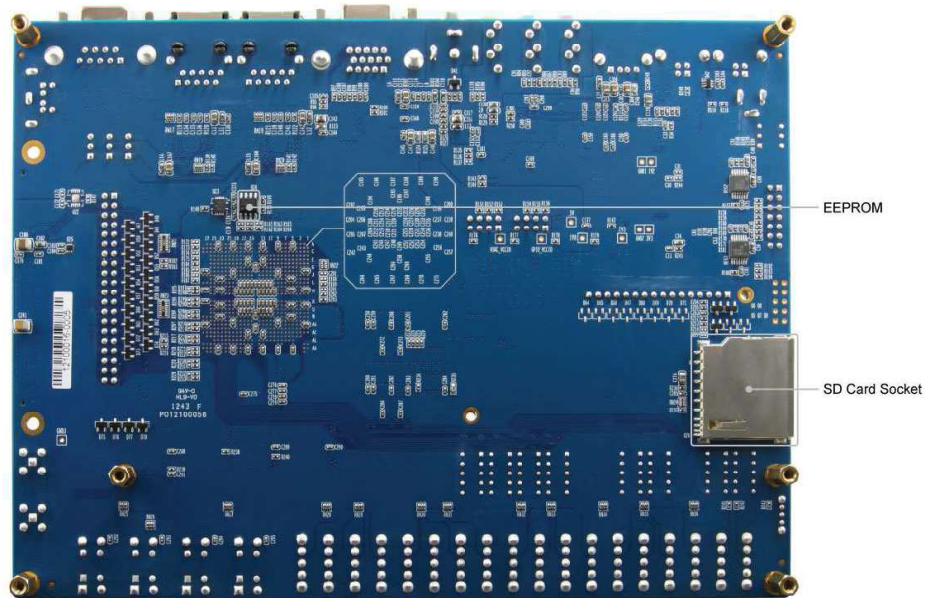


Figure 2-2 The DE2-115 board (bottom view)

The DE2-115 board has many features that allow users to implement a wide range of designed circuits, from simple circuits to various multimedia projects.

The following hardware is provided on the DE2-115 board:

- **Altera Cyclone® IV 4CE115 FPGA device**
- **Altera Serial Configuration device – EPCS64**
- **USB Blaster (on board) for programming; both JTAG and Active Serial (AS) programming modes are supported**
- **2MB SRAM**
- **Two 64MB SDRAM**
- **8MB Flash memory**
- **SD Card socket**
- **4 Push-buttons**
- **18 Slide switches**
- **18 Red user LEDs**
- **9 Green user LEDs**
- **50MHz oscillator for clock sources**
- **24-bit CD-quality audio CODEC with line-in, line-out, and microphone-in jacks**
- **VGA DAC (8-bit high-speed triple DACs) with VGA-out connector**
- **TV Decoder (NTSC/PAL/SECAM) and TV-in connector**
- **2 Gigabit Ethernet PHY with RJ45 connectors**
- **USB Host/Slave Controller with USB type A and type B connectors**
- **RS-232 transceiver and 9-pin connector**