



68,416 LEs **FPGA**

32M Byte **X2 SDRAM**

2M Byte **SSRAM**

8M Byte **FLASH**

X2 TV Decoder

terasIC
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ALTERA Learning through Innovation

DE2-70
Development and Education Board

Cyclone II

Nios II

USB B
UNIVERSAL SERIAL BUS

ISSI Memory Supplies By
INTEGRATED SILICON SOLUTION, INC.

Power Supplies By
LINEAR
TECHNOLOGY

Altera DE2-70 Board

- USB Blaster (on board) for programming and user API control; both JTAG and Active Serial (AS) programming modes are supported
- 2-Mbyte SSRAM
- Two 32-Mbyte SDRAM
- 8-Mbyte Flash memory
- SD Card socket
- 4 pushbutton switches
- 18 toggle switches
- 18 red user LEDs
- 9 green user LEDs
- 50-Mhz oscillator and 28.63-Mhz oscillator for clock sources

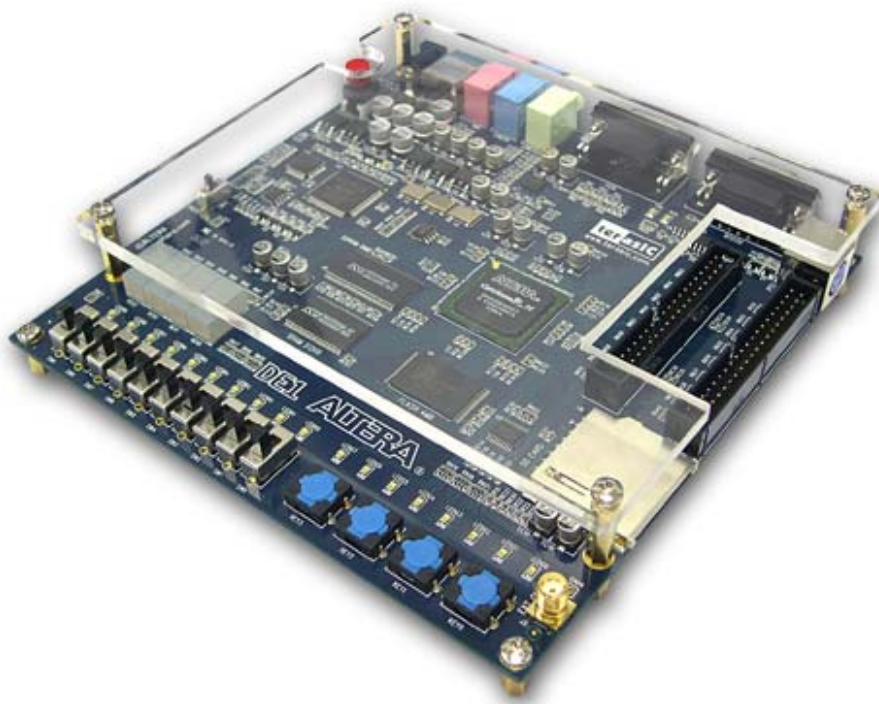
- 24-bit CD-quality audio CODEC with line-in, line-out, and microphone-in jacks
- VGA DAC (10-bit high-speed triple DACs) with VGA-out connector
- 2 TV Decoder (NTSC/PAL) and TV-in connector
- 10/100 Ethernet Controller with a connector
- USB Host/Slave Controller with USB type A and type B connectors
- RS-232 transceiver and 9-pin connector
- PS/2 mouse/keyboard connector
- IrDA transceiver
- 1 SMA connector
- Two 40-pin Expansion Headers with diode protection



Altera DE2 Board

- Altera Cyclone II 2C35 FPGA with 35000 LEs
- Altera Serial Configuration devices (EPCS16) for Cyclone II 2C35
- USB Blaster built in on board for programming and user API controlling
- JTAG Mode and AS Mode are supported
- 8Mbyte (1M x 4 x 16) SDRAM
- 512K byte(256K X16) SRAM
- 4Mbyte Flash Memory (upgradeable to 4Mbyte)
- SD Card Socket
- 4 Push-button switches
- 18 DPDT switches
- 9 Green User LEDs
- 18 Red User LEDs
- 16 x 2 LCD Module
- 50MHz Oscillator and 27MHz Oscillator for external clock sources
- 24-bit CD-Quality Audio CODEC with line-in, line-out, and microphone-in jacks
- VGA DAC (10-bit high-speed triple DACs) with VGA out connector
- TV Decoder (NTSC/PAL) and TV in connector
- 10/100 Ethernet Controller with socket.
- USB Host/Slave Controller with USB type A and type B connectors.
- RS-232 Transceiver and 9-pin connector
- PS/2 mouse/keyboard connector
- IrDA transceiver
- Two 40-pin Expansion Headers with diode protection
- DE2 Lab CD-ROM which contains many examples with source code to exercise the boards, including: SDRAM and Flash Controller, CD-Quality Music Player, VGA and TV Labs, SD Card reader, RS-232/PS-2 Communication Labs, NIOSII, and Control

Panel API



Altera DE1 Board

- Altera Cyclone II 2C20 FPGA with 20000 LEs
- Altera Serial Configuration devices (EPCS4) for Cyclone II 2C20
- USB Blaster built in on board for programming and user API controlling
- JTAG Mode and AS Mode are supported
- 8Mbyte (1M x 4 x 16) SDRAM
- 4Mbyte Flash Memory
- 512Kbyte(256Kx16) SRAM
- SD Card Socket
- 4 Push-button switches
- 10 DPDT switches
- 8 Green User LEDs
- 10 Red User LEDs
- 4 Seven-segment LED displays
- 50MHz oscillator ,24MHz oscillator ,27MHz oscillator and external clock sources
- 24-bit CD-Quality Audio CODEC with line-in, line-out, and microphone-in jacks
- VGA DAC (4-bit R-2R per channel) with VGA out connector
- RS-232 Transceiver and 9-pin connector
- PS/2 mouse/keyboard connector
- Two 40-pin Expansion Headers
- DE1 Lab CD-ROM which contains many examples with source code



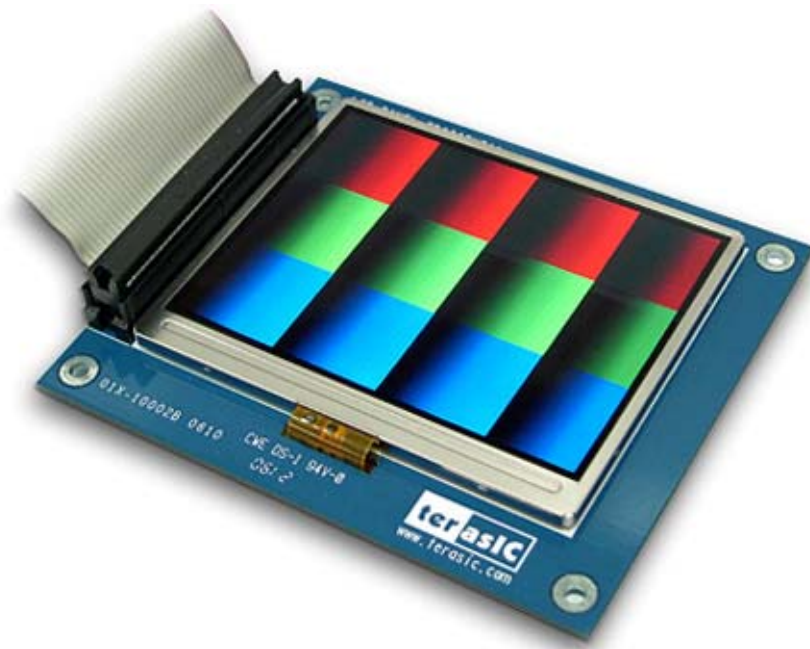
The 4.3" Ultra-high Resolution LCD Touch Panel Development Kit (LTM)

The LTM contains:

- Complete reference designs with source code in Verilog
- A User Manual with the detailed timing specification of the LCD touch panel
- Cable to connect to an Altera DE2-70/DE2/DE1/Cyclone II Starter board

Features:

- Equipped with Toppoly TD043MTEA1 active matrix color TFT LCD module
- Support 24-bit parallel RGB interface
- 3-wire register control for display and function selection
- Built-in contrast, brightness, and gamma modulation
- Converting the X/Y coordination of the touch point to its corresponding digital data via the Analog Devices AD7843 AD converter



3.6 Inch Digital Panel Development Kit (LCM)

The LCM contains:

- Complete reference design with source code in Verilog
- A User Manual with detailed timing specification of the digital panel
- Cable to connect to an Altera DE2-70/DE2/DE1/Cyclone II Starter board

Features:

- Equipped with Toppoly TD036THEA1 compact TFT LCD module
- Handle digital signals of serial 8-bit (RGB or YUV)
- Support NTSC and PAL timings
- 3-wire register control for display and function selection
- Built-in contrast, brightness and gamma modulation
- Support strip color filter 960x240(through mode, RGB dummy, YUV input)



1.3Mega Pixel Digital Camera Module (DC2)

The DC2 contains:

- Provide users entire reference design (Frame Grabber, high-performance
- multi-port SDRAM frame buffer, image processing IPs)
- A User Manual with Live Demo examples
- Support an Altera DE2-70/DE2/DE1/Cyclone II Starter board

Features:

- TRDB_DC2 1.3Mega Pixel Daughter card
- Support exposure time controlling – users can adjust the exposure
- according to the light of the surrounding area
- Support motion capture mode.
- Software allows users to upload the picture captured into a PC and save the
- picture into bitmap format for viewing
- Equipped with iMagic C1M1D compact camera module