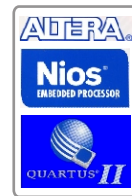
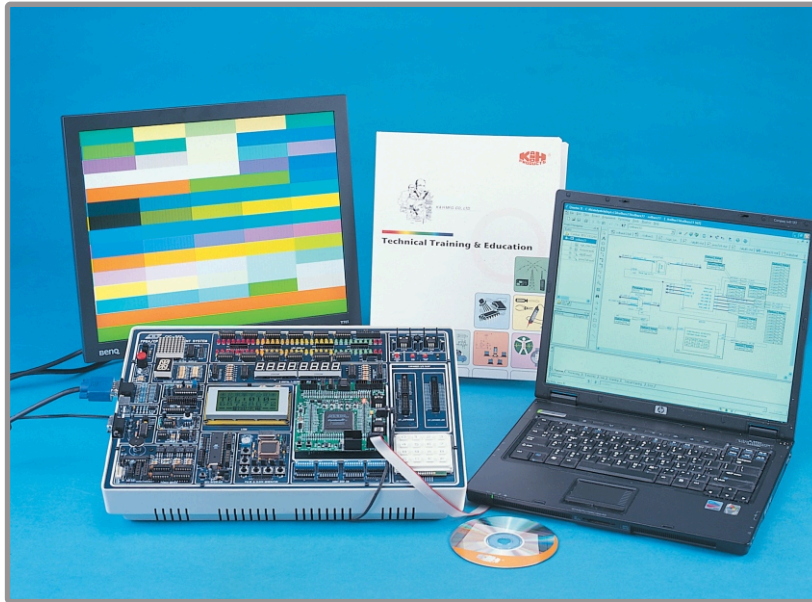




Advanced FPGA Development System *CIC-560*



FEATURES

- CIC-560 is well equipped for complex digital circuit design.
- It provides AD/DA converter, keypad, LCD display, PS/2, VGA, UART, SCI interface, LEDES, 8-digit 7-segment LED display, step motor, DC motor driver circuits.
- Suitable for the curriculum training in electronics, electrical engineering, information, communication and automation field.
- Ideal for professional IC designers, R&D engineers, undergraduate and graduate students to learn IC design and software development.
- Develop and verify basic and advanced digital circuit, digital signal processing and CPU/MCU with large-element and multi-pin FPGA chip.

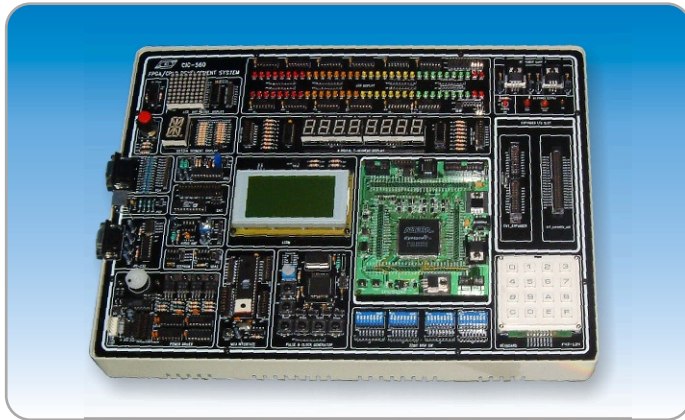
SPECIFICATIONS

1. Download board

- (1) Chip model: Altera Cyclone EP1C12Q240C8
- (2) Clock: 40MHz
- (3) Configuration interface: USB Blaster
- (4) Configuration memory: 2MB programming ROM

2. Peripheral I/Os

- (1) Power unit:
 - (a) 3.3V/3A
 - (b) 5V/3A
- (2) Input and clocking unit:
 - (a) 4 sets of 8-bit DIP switch
 - (b) 4x4 matrix keypad
 - (c) Rotary encoder switch (A/B phase)
 - (d) Infrared coupled receiver
 - (e) 10 sets of fixed selectable clock: 0.1Hz, 1Hz, 10Hz, 100Hz, 1KHz, 10KHz, 100KHz, 1MHz, 10MHz, 40MHz
 - (f) 1 toggle switch
 - (g) 4 configurable push-button: positive/negative pulse output and debounced/non-debounced pulse output
- (3) Output unit
 - (a) 8 sets of 8-bit buffered LED (red/orange/yellow/green)
 - (b) 4 independent LED (red)
 - (c) 2 groups of joinable 4-digit 7-segment scanning display
 - (d) 128x64 Graphic/Character LCD display
 - (e) 8x8 dot matrix LED display (dual color)
 - (f) 16-segment display
 - (g) Speaker (8Ω/0.5W)
 - (h) Infrared coupled transmitter
- (4) Interface unit:
 - (a) PS/2 interface
 - (b) VGA interface (8x8x8 bit color)
 - (c) RS-232 interface
- (5) Motor unit:
 - (a) Step motor: 12V/250mA, 7.5 degree/step
 - (b) 4 poles step motor driving circuit: each pole drives 60V/500mA
 - (c) 4 stage PWM-bridged control circuit: each stage drives 50V/3A with forward/reverse and dead band control.
- (6) Chip communication and expansion unit:
 - (a) 8-bit D/A converter (memory mapping interface)
 - (b) 8-bit A/D converter (memory mapping interface)
 - (c) 256K bits SEEPROM (IIC interface)
 - (d) 12-bit dual channel serial D/A converter (SPI interface)
 - (e) Micro-controller 89C51 (memory mapping interface)
 - (f) 40-pin external connector x 1
 - (g) 20-pin external connector x 2



LIST OF EXPERIMENTS

► Basic Logic Circuit Design and Application

1. QUARS II software installation and operation
2. Basic combinational logic circuit
3. Basic sequential logic circuit
4. Basic arithmetic logic circuit
5. Using megafunction
6. Numerical code conversion circuit

► Advanced Logic Circuit Design and Application

1. 48-bit Up/Down counter with Load, Clear and Enable
2. Infrared coupled transceiver controls 8-digit decimal scanning counter
3. Rotary encoder switch detector
4. 16-Segment LEDs digital display decoder
5. 8*8*2 Color dots matrix graphic display control
6. 4 x 4 scanning matrix keypad control
7. 128x64 LCD module display control
8. ADC conversion with hexadecimal and decimal display
9. DAC conversion for precise frequency generator
10. Precise function generator controlled by keypad
11. 8x8x8 color pixels of VGA display control
12. Interfacing with synchronous serial PS/2 keyboard
13. Step motor position controlled by keypad
14. DC motor speed controlled by keypad
15. Using QUARTUS built in real time logic analyzer
16. High speed frequency and period counter
17. Digital clock
18. Music box
19. Electronic piano
20. Digital cipher locker
21. Digital cipher locker with hopping code
22. Bingo machine
23. Electronic dices
24. Traffic light control

25. Serial DAC transmission
26. IIC transmission
27. UART transmission
28. Interfacing with MCU
29. Building NIOS CPU

► ACCESSORIES

1. Experiment manual x 1
2. Software / source code / documents CD x 1
3. USB Blaster x 1
4. RS-232 cable x 1
5. Lead wires x 1(set)
6. Extra Jumpers x 1(set)



CIC-560-BL USB-Blaster

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