



## OPEN MICROPROCESSOR TRAINER



### DL ARM32BIT

#### TRAINING OBJECTIVES

With this board it is possible to perform experiments on the following subjects:

ARM debug develop environment, ARM assembly instruction, Thumb B assembly instruction, ARM Processor working mode, C language programming, assembly and C language call each other, serial port communication, NAND flash, LED control, 7 segment display, PWM frequency, interruptions, RTC, DA, AD, SD Card Read-Write, 4x4 Key, CAN Bus, RS 485, network communication, VGA display, IIS audio frequency, TFT color LCD, touch screen, Ucos-li transplanted, Ucos-li application, establishment of Linux development environment, bootloader transplant, Linux core compile and customization, Linux drive, Yaffs file system, Linux application program transplant.

This 32-bit microprocessor trainer can make students understanding ARM and becoming familiar with the programming of the microprocessor and its components.

The kit consists of a module with power supply, with different interfaces and a set of software application.

The development software can run on: Windows XP, Windows 7 or Windows 10.

#### TECHNICAL FEATURES

- S3C2440A with 16/32 bits RISC microprocessor, with ARM920T core, main frequency 400MHz (Max. 533MHz)
  - About 1.2V internal, 1.8V/2.5V/3.3V memory
  - 3.3V external I/O
  - Microprocessor with 16K BI-Cache/16KB D-Cache/MMU
  - External memory controller (SDRAM Control and Chip Select logic)
  - LCD controller (up to 4K color STN and 256K color TFT) with LCD-dedicated DMA
  - 4-ch DMAs with external request pins
  - 3-ch UART (IrDA1.0, 64-Byte Tx FIFO, and 64-Byte Rx FIFO)/2-ch SPIs
  - 1-ch multi-master IIC-BUS /1-ch IIS-BUS interface
  - SD Host interface version 1.0 & MMC Protocol version 2.11 compatible
  - 2-ch USB Host/1-port USB Device (ver 1.1)
  - 4-ch PWM timers & 1-ch internal timer
  - Watch Dog Timer
  - 130 general purpose I/O ports/24-ch external interrupt source
  - Power control: Normal, Slow, Idle and Sleep mode
  - 8-ch 10-bit ADC and Touch screen interface
  - RTC with calendar function
  - On-chip clock generator with PLL



Complete with technical documentation, experiments manual and software.

Dimensions of the board: 250x250mm.

Weight: 1 kg.

- Onboard 256 MB Nand Flash
- Onboard 64MB SDRAM and 2MB Nor Flash
- General inputs and outputs with at least 64 ports
- At least 8 Interrupt inputs
- Keyboard with hexadecimal keys
- 7 segments display
- 1 RS 232 serial interface
- 10 bit A/D converter and 8 bit D/A converter
- Interfaces: CAN BUS, 485 BUS, TCP/IP, SD Card, VGA, JTAG, IIS, LCD and touch screen, USB
- Expansion bus for connecting external applications
- Development kit