BOARD DETAILS

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CORTEX-M3
BASED BOARDS
Microcontroller Features

- Best in the Class Cortex M3 Hardware.
  - 100MHz ARM core with 64KB of SRAM and 512KB of Flash
  - Ethernet, USB (HOST, END Device, OTG), SPI, CAN, I2C, ADC (12 BIT), DAC, UART, PWM, GPIO, Timers/Counters.
Board Features.

- USB Device and HOST connectivity options.
- Ethernet with DP83848 PHY MAC.
- SDCARD (Micro) Interface.
- Analog input via ADC0.5
- IO Pinout for different Interfaces thereby making it easy to connect to external breakout boards.
- On Board rest and ISP Switches. Programming via ISP possibility.
- On Board Power supply circuit for +5V and +3.3V (USB and external Power Source input options)
- On Board 12 MHz Clock.
- 32.768KHz Clock for RTC.
- Option for CMOS Battery.
- On Board 20 pin JTAG connector for debugging/programming various applications.
- On Board TFT Connector for 3.2 inch TFT (with touch and without touch)
This board is the extension of LPC1768 HPlus board. It has additional features that include RS232 serial output and graphical LCD connectivity option.

The Image given below shows option of how a graphical and TFT can be connected to the board.
LPC1768 Hplus EX AIO with TFT, Touchscreen and graphical LCD.
LPC1788 MIO with options for RAM, Ethernet, FLASH (optional), PS2, 2 x USB HOST, USB Device, SD Card, CAN, Serial, Connector for TFT, Option to connect Graphical LCD etc.
**LPC1788 Header Board**

- MCU: LPC1788
- Processor: Cortex M3 Core
- Standard JTAG connector (2x10 pin) for programming/debugging with ARM-JTAG.
- The board has access to allmost all pins for external connection.
  - This makes it easy for any external device interface.
  - The pins are named according to the interfaces where ever possible.
  - All pins are available via standard 2.54mm Berg Strip.
- On Board USB Device with USB Link LED. This is a perfect solution for developing USB Peripherals.
- On Board 3.3V and 5V Power Supply with Power Supply LED and filtering capacitor.
- On Board Reset and ISP Circuit.
- 12 MHz crystal oscillator.
- 32.768 kHz crystal for Real Time Clock.
LPC1768 Header Board is a prototyping board that uses Cortex M3 processor from ARM Family. The package has a option for wide range of communication interfaces. The I/O pins are given out via external Berg connectors. The device can be programmed via a external 20 pin JTAG. It also supports ISP Programming support via UART0.

The interfaces that the controller supports varies from USB (Device, Host, OTG), I2C, SPI, SSP, UART, ADC, DAC, PWM, CAN, Ethernet etc. All that is needed to be done is to hook up a few wires to the external peripherals and start working on it. Different Breakout Boards can be purchased for different interfaces.
CORTEX M0

BASED BOARDS
Cortex Flyer is a Base Board for Cortex M0 and Cortex M3 PH Boards. The PH Boards can be purchased as per requirement or as a complete package. The Cortex Flyer has RTC (DS1307), 2 x DAC, Capacitive Touch, PS2, Ethernet, SD Crad, USB Host, CAN, POT for ADC, Graphical Connection and 16x2 LCD Connection options and more
PH BOARDS

The PH Board is a Pluggable Board based on Cortex M0 and Cortex M3 Controllers. The PH Board can be plugged on to Cortex Flyer and used. The PH Board has option for SWD for Debug/Programming. The SWD Programmer needs to be purchased separately.

The controller Options available for PH Board are as Follows

CORTEX M0
- LPC11xx
- LPC11Cxx
- LPC11Uxx

CORTEX M3
- LPC13xx
ARM7

BASED BOARDS
ARM7 LPC2148 Dev Board.

Board Features

7Segment Display, 16 x 2 LCD Display, Connectivity option for Graphical Display, POT for ADC, Serial RS232– 2 Nos, Option for Programming via UART 0, JTAG for debugging, USB Device, EEPROM, RTC with battery, Connectivity option for 4 x 4 Matrix keypad, Audio Interface, SD Card Interface, Relay, Buzzer, PS2 Keyboard Interface, Temperature Sensor (LM35), ADC Vref of 3.3V (Internal), On Board Power Supply
The keypad and graphical boards are external and can be connected as follows.
Board Features

Microcontroller: ARM7 TDMI Based LPC2148 from NXP, 12Mhz Oscillator for controller, On Board Reset and ISP Switches, Manual/Auto programming option via UART0, JTAG Debugging, Inbuilt RTC with 32.768KHz Crystal Oscillator, External RTC (DS1307) with 32.768KHz Crystal Oscillator, CMOS Backup for RTC, PS2 Interface, USB Device, RS232: UART0 and UART1, Audio OUT via DAC, On Board EEPROM (24LC256), On Board Temperature Sensor, I2C Based 7 Segment Driver, POT for ADC, Connectivity for Buzzer and Relay, 8 Parallel Slide Switches connected to IO Pins, 8 LEDs connected via IO Pins, SD Card Interface, Stepper Motor Interface Option, 128 x 64 Graphical LCD (TM12864H6COWA) on board with driver NT75451, 16x2 alphanumeric LCD (4bit mode) with driver HD44780 with contrast control, Onboard 4x4 Matrix Keypad, Onboard Power Supply (5V and 3.3V)
LPC2103 Header Board Specifications

MCU: LPC2103 from NXP, Processor: ARM7, ARM JTAG 2x10 pin connector, On Board reset and ISP Circuit, Onboard 5V, 3.3V and 1.8V regulators. 5V and 3.3V are given out via Berg Connectors. Also had a onboard Power Supply LED and filtering capacitors, I/O Pins are given out in accordance to interfaces where ever possible, Test LED connected via jumper, On Board 12 MHz Crystal Oscillator for MCU, ON Board 32.768 KHz Crystal Oscillator for Real Time Clock, PCB: FR-4, 1.6 mm, Blue solder mask, white silkscreen component print.
LPC2148 Header Board Specifications

MCU: LPC2148 from NXP, Processor: ARM7 TDMI, Standard JTAG connector (2x10 pin) for programming/debugging with ARM-JTAG. The board has access to almost all pins for external connection. This makes it easy for any external device interface. The pins are named according to the interfaces wherever possible. All pins are available via Berg Strip, On Board USB Device with USB Link LED. This is a perfect solution for developing USB Peripherals, On Board 3.3V and 5V Power Supply with Power Supply LED and filtering capacitor, On Board Reset and ISP Circuit, On Board LED connected to a IO pin via jumper, 12 MHz crystal oscillator, 32.768 kHz crystal for Real Time Clock, PCB: FR-4, 1.6 mm, Green or Blue soldermask, white silkscreen component print.

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MCU: LPC2478

- Processor: ARM7TDMI S Core
- Standard JTAG connector (2x10 pin) for programming/debugging with ARM-JTAG.
  - This makes it easy for any external device interface.
  - The pins are named according to the interfaces where ever possible.
  - All pins are available via standard 2.54mm Berg Strip.
- On Board USB Device with USB Link LED. This is a perfect solution for developing USB Peripherals.
- On Board 3.3V and 5V Power Supply with Power Supply LED and filtering capacitor.
- On Board Reset and ISP Circuit.
- 12 MHz crystal oscillator.
- 32.768 kHz crystal for Real Time Clock.
1. PARALLEL JTAG

Features

- Uses ARM's standard 2x10 pin JTAG connector.
- Can be used as an option for target board programmer/debugger.
- No external power required as the power required for the board is taken from the target board.
- Compatible with Rowley's Crossworks, Kiel and GCC (OCD) software for programming, real time emulation, debugging, step by step program execution, breakpoints etc.
- The flat cable that connects to the target board also provided.
- PCB: FR-4, 1.6 mm, Green or Blue soldermask, white silkscreen component print.
2. CoiNel ARM-USB-JTAG

Features

- No power supply required, powered through USB.
- ARM’S standard 2x10 pin JTAG connector.
- 20-pin ribbon cable included.
- Fast speed USB 2.0 JTAG dongle interface, can be used with all ARM for devices programming and debugging.
- Led for Power supply and Target detect.
- Tested with Keil uvision 4.03 and Rowley CrossWorks 2.0 (Trial Version).
- Dimensions 45x34 mm.
- PCB: FR-4, 1.6 mm, Green or Blue solder mask, white silkscreen component print.
3. CoLink Ex

Features

- No power supply required, powered through USB.
- ARM’S standard 2x10 pin 2.54 mm JTAG connector.
- 2x10 1.27mm JTAG/SWD Connector.
- 20-pin 1.27mm and 2.54 mm ribbon cable included.
- USB Cable Included.
- Fast speed USB 2.0 JTAG dongle interface, can be used with majority of Cortex M3 devices for programming and debugging.
- Compatible with CooCox Plug-in. Plug-in Tested on Keil.
1. Thermal Printer Interface Card

Features:

- Interface: RS232
- Baud rate can be changed.
- Images print Support. Option for full UART for large size images
- 2 Font Support
- Bar Code Support
- On Board reset, test print and paper feed switched.
- Power: 7.5 to 8 volts, 3 amps
- Supported Printer:
  i. 2 inch
     1. FUJITSU: FTP-628MCL103
     2. SEIKO: LTPZ245
  ii. 3 inch
     1. FUJITSU: FTP-638MCL103
     2. SEIKO: LTPD245 (Yet to be tested)

Deliverables:

- Interface Card
- CD containing required software for control and configuration.

Note: The complete set is also available which contains Thermal printer interface card, RS232 Cable, Adaptor and required documentation
2. LCD Display (HD44780 Based)

Features

- Displays Black Text on Green Background.
- Each character can be 5 x 7 dots.
- Operating voltage of 5V.
- Has inbuilt controller (HD44780) from Hitachi.
- 4 BIT interface enabled.
- Jumper option backlight LED.
- POT for contrast adjustment.
3. TTL to RS232 Converter

Features

- Wide range of operating voltages (from 3.0V to 5.5V) which allow this board to be used with variety of MCU architectures
- Fast baud rates, up to 250kbps
- 4 pin Berg connector for easy interface.
- High quality SMD components and compact design
4. 128 x 64 Graphical LCD

Features

- MODEL: TM12864H6CCOWA from TIANMA Microelectronics
- LCD DRIVER: NT75451
- LCD Type: FSTN Positive
- Operating Voltage: +3V
- Operating Temperature: -20 to 70 deg
- Back Light Type: Transflective LED
- Back Light Color: White
- Back Light Drive Current: 15 mA
- Back Light Drive Voltage: 2.9 to 3.3 V
- Data Interface: PARALLEL
- Compatible with LPC1768 HPLUS Ex, LPC1788 MIO, LPC1788 Flyer.
5. SPI Based 3.2 inch TFT

Features

- Display Mode: Normally White Transimissive Type
- Driver IC: SPFD5408
- Interface : SPI.
- Viewing Direction : 9.0” clock.
- Number of Pixels: 240 x 320
6. SPI Based TFT Display with Touchscreen

Features

a. Display Mode: Normally White Transimissive Type
b. Driver IC: SPFD5408
c. Interface: SPI.
d. Viewing Direction: 9.0" clock.
e. Number of Pixels: 240 x 320
f. With Touch Panel whose interface is also via SPI through ADS7846
7. USB HOST Breakout Board

The USB Host Breakout Board is a perfect solution for those who wish to test USB host feature on USB Host Based Microcontroller Breakout Boards.

The USB Host Breakout Board contains all of the digital logic circuitry necessary to implement a full-speed USB host controller.

This board can be used to interface and control any USB slave devices like thumb drives, digital cameras, Bluetooth dongles, and much more!

The USB Host breakout board has power switch and over-current protection. The board uses circuitry which prevents erroneous over current reporting caused by in-rush currents during hotplug events. This is achieved by the use of LM3526. The LM3526 input voltage between 2.7V and 5.5V
8. SD Card Breakout Board

The MicroSD card breakout board makes logging data with your SPI Based Microcontroller really easy. MicroSD Breakout board is compatible with the SPI interface found on any SD card. Simply connect 4 wires (SPI) to the digital pins of your Microcontroller, along with +3.3V and GND.

This Breakout Board can be a perfect solution for large data storage. The board has been successfully tested with major Microcontroller Breakout Boards available from CoiNel Technology Solutions.

The socket output contacts are connected to a single row, 0.1" spaced, male header. Using wires, the board can be directly connected to microcontroller board.