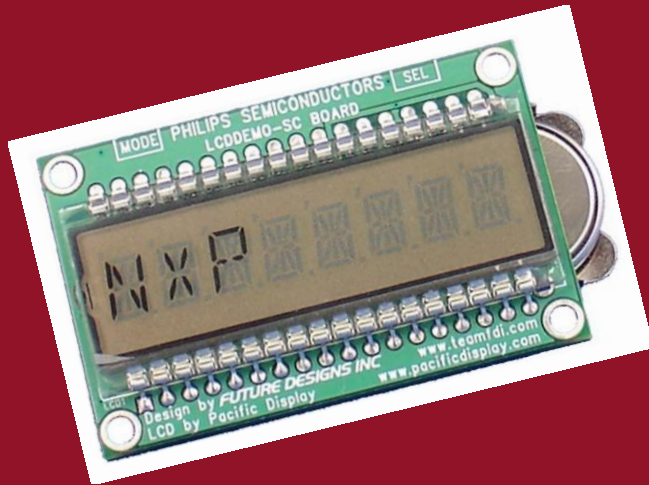


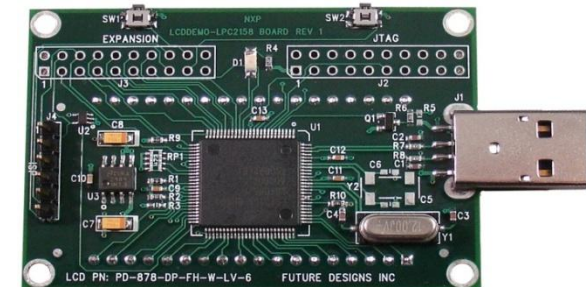
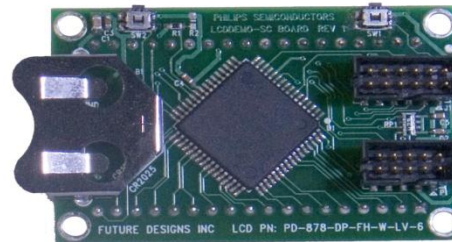
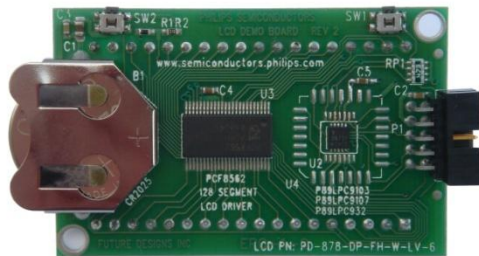
FUTURE DESIGNS, INC.

YOUR DEVELOPMENT PARTNER

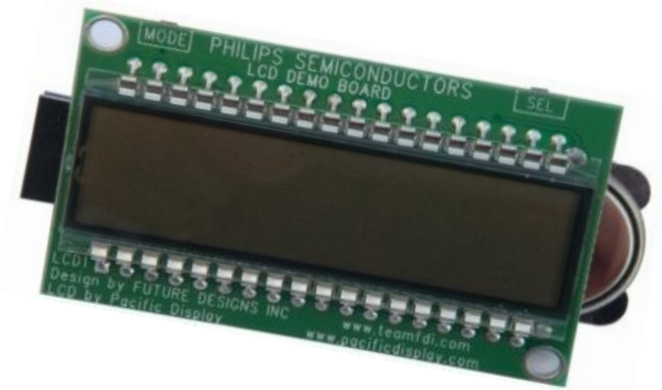
WWW.TEAMFDI.COM

LCD DEMO KITS





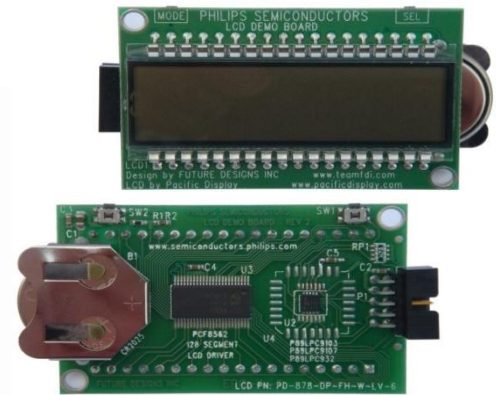
LCD-DEMO-Family



- Each kit uses a multiplexed 8 digit liquid crystal display from Pacific Display (PD-878-DP-FH-W-LV-6)
- Lifespan is rated at 100,000 hours at 25 degrees C when used indoors
- Outdoor usage is rated at 50,000 hours
- LCD contrast maintains 30% of initial value
- Do not apply pressure to the LCD viewing area, LCD is made of glass
- DO NOT wipe LCD with a dry cloth, the manufacturer recommends a soft cloth soaked with a petroleum benzene for cleaning.
- When storing the device avoid exposure to direct sunlight or to the light of fluorescent lamps.
- Size: 52 mm x 22 mm x 3 mm

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LCD-DEMO-KIT

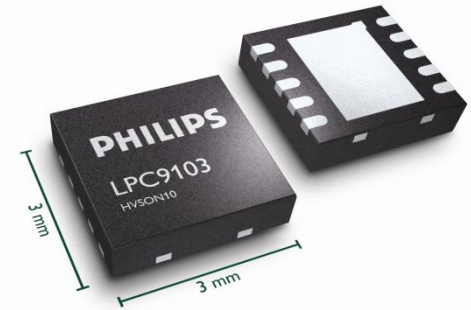


- Low cost two chip solution
- Supports three microcontroller options
 - 10 pin HVSON to 28 pin PLCC package
 - 1-8KB internal flash memory
- Includes the LPC9103 (LPC9107 or LPC93x can be installed by the user)
- PCF8562 8-character I2C based LCD driver with 128 segment support
- Powered by a single 3v coin cell battery
- Simple two push button control interface (MODE and SELECT)
- Reprogrammable via the 10 pin ICP connector
 - Using FDI's USB-ICP device (purchased separately)
- Demo application code and all documentation provided

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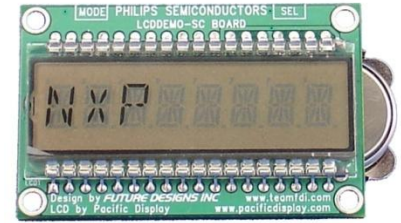
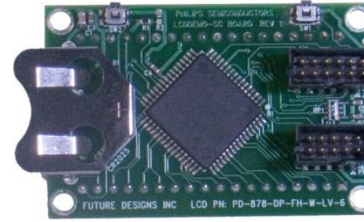
LCD-DEMO-KIT Contents



- P89LPC9103 1KB Flash microcontroller
- PCF8562TT 128 segment LCD driver
- 8 character alphanumeric LCD
- 3V coin cell battery
- I2C bit bang code for LCD driver
- Demo application code - FM radio channel scan, 15 minute count down timer, scrolling message window
- Schematic
- In Circuit Programming (ICP) documentation



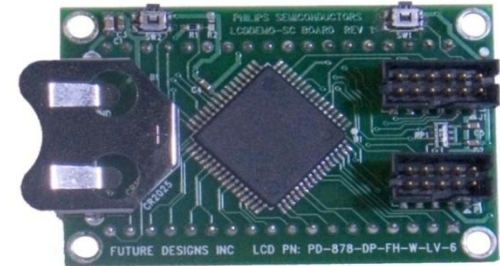
LCD-DEMO-SC



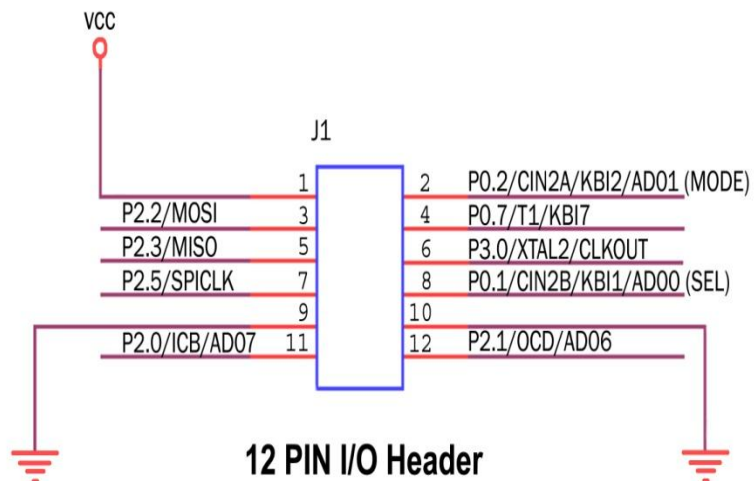
- Low cost single chip solution for LCD User Interface
- Single Board Computer with multiple I/O options
 - via 12 pin header and 10 pin header
- 8KB Internal Flash memory, 512 bytes RAM
- 8-character alphanumeric LCD
- Integrated I2C based LCD driver with 160 segment support
- Single 3V coin cell battery or external supply via header
- Two miniature push-buttons on-board for user control
- Reprogrammable by the user via 10-pin ICP header
 - uses FDI's USB-ICP device (purchased separately)
- Supports both the P89LPC9408 and P89LPC9401



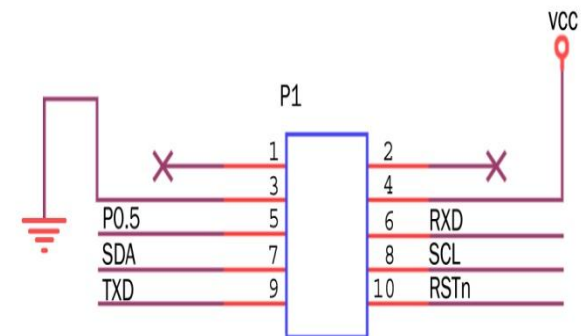
LCD-DEMO-SC



- The 12 pin header provides access to features like the UART, I2C, SPI, etc.
- The 10 pin header allows the user to program the microcontroller using the USB-ICP offered by FDI



12 PIN I/O Header



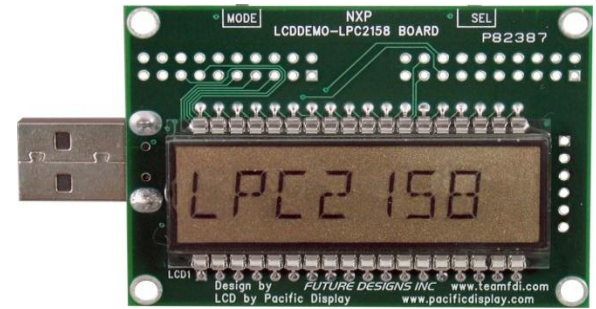
10 PIN I/O Header



LCD-DEMO-SC Kit Contents

- P89LPC9408 8KB Flash microcontroller
- 8 character alphanumeric LCD
- Integrated 128 segment LCD driver
- 3V coin cell battery
- I2C bit bang code for LCD driver
- Demo application code - FM radio channel scan, 15 minute count down timer, scrolling message window
- Schematic
- In circuit programming (ICP) documentation

LCD-DEMO-LPC2158

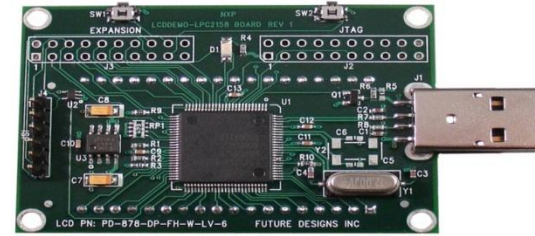


- Single Chip low cost solution
- 8-character alphanumeric LCD
- Uses NXP LPC2158 micro
 - ARM7TDMI-S 512 KB internal Flash memory, 40 KB RAM
- Integrated I2C based LCD driver supports 160 segments
- Powered by USB, supports USB 2.0
- Two miniature push-buttons on-board for user control (MODE & SELECT)
- Programmable through a USB virtual com port or optional 6 pin ISP header
- *Optional* 20 pin JTAG and 6 pin ISP header available
- Multiple I/O ports accessible via the *optional* 20 pin header

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LPC2158 Microcontroller



The LPC2158 is a TQFP100 pin multi-chip module (MCM) made up of the following two NXP devices



PCF8576 LCD Controller

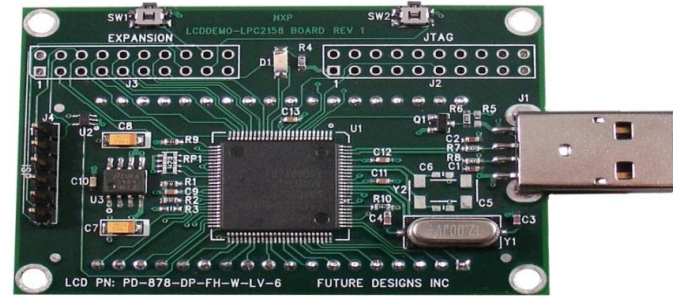
- 400 KHz I2C bus interface
- 40 segment drives
- Up to 160 elements with $\frac{1}{4}$ multiplexing
- No external components
- Wide supply range 1.8 to 5.5v

LPC2148 32 bit, 60Mhz, ARM7TDMIS-S

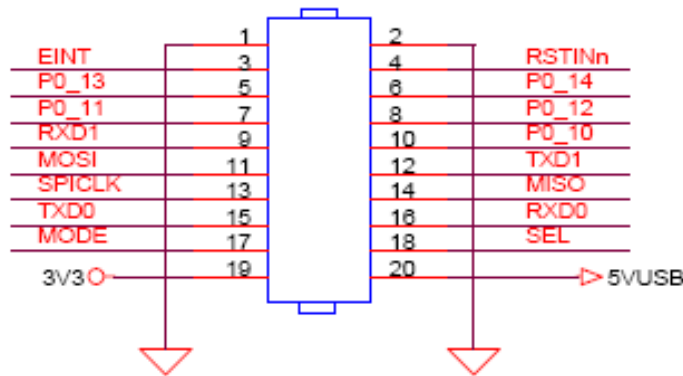
- 512 KB Flash, 40 KB RAM
- Full Speed USB 2.0 Device Controller
- 2 UARTs, 2 ADCs , DAC
- Two 32-bit Timers & RTC
- Idle, Power-down Power Saving Modes

<http://www.teamfdi.com/lcd-demo>

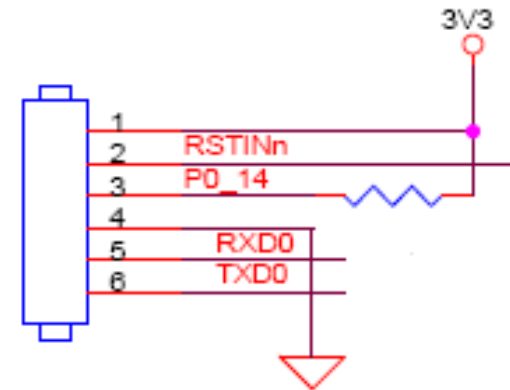
LCD-DEMO-LPC2158



- Optional header support for the LCD-DEMO-LPC2158 (User populated)

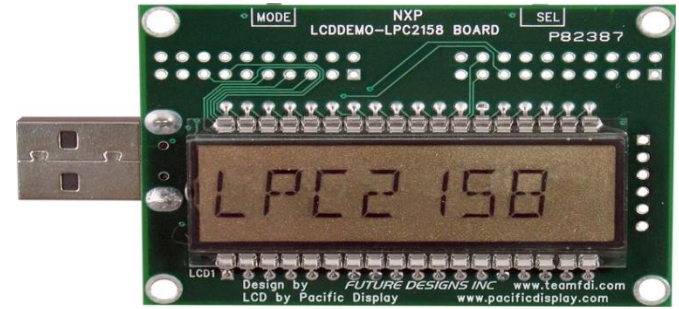


Optional 20 pin I/O
Expansion Header



Optional ISP Header

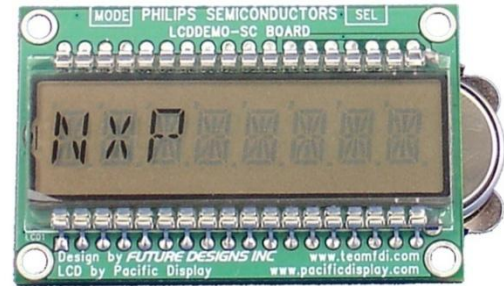
LCD-DEMO-LPC2158 Kit Contents



- LPC2158 512KB Flash microcontroller
- 8 character alphanumeric LCD
- Integrated 160 segment LCD driver
- Quick Start Guide for device installation
- Quick Start Guide for custom software
- LCD Demo application code - FM radio channel scan, 15 minute count down timer, scrolling message window
- Schematic
- In circuit programming (ICP) documentation

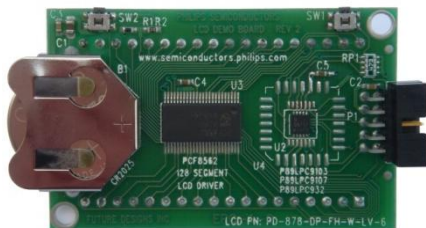
LCD-DEMO Comparison

<http://www.teamfdi.com/lcd-demo>

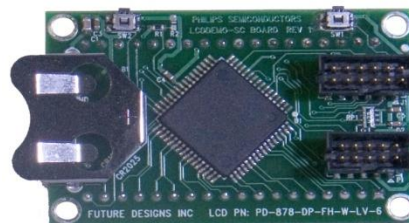


- LCD-DEMO-KIT with LPC9103 and PCF8562, **\$49.00**
- LCD-DEMO-SC with LPC9408 for more memory and I/O, **\$49.00**
- LCD-DEMO-LPC2158 for ARM7 and USB support, **\$69.00**
 - First 2 versions are powered by a 3V Coin Cell Battery
 - LPC2158 is “port powered” from USB
 - Kits include example software, schematics and documentation
 - All 3 versions available for next day delivery

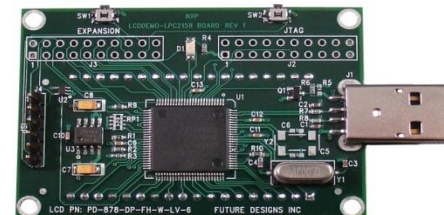
LCD-DEMO-KIT



LCD-DEMO-SC



LCD-DEMO-LPC2158



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LCD-DEMO-Distribution

- LCD-DEMO-KIT with LPC9103 and PCF8562, **\$49.00**
- LCD-DEMO-SC with LPC9408 for more memory and I/O, **\$49.00**
- LCD-DEMO-LPC2158 for ARM7 and USB support, **\$69.00**



<http://www.teamfdi.com/lcd-demo>