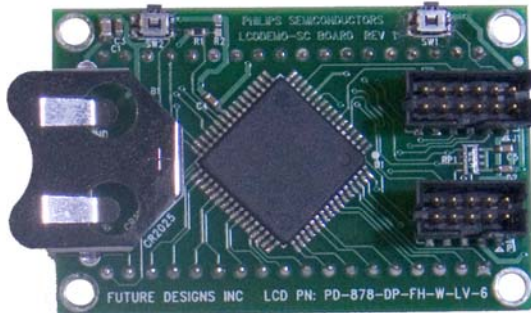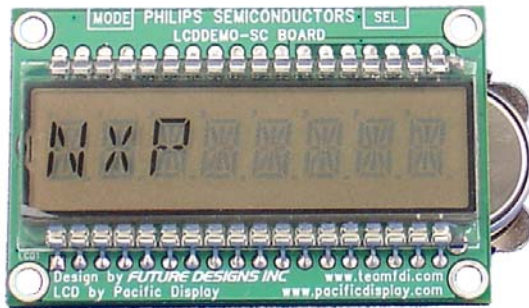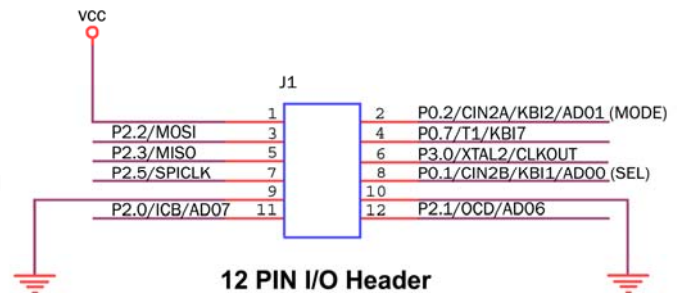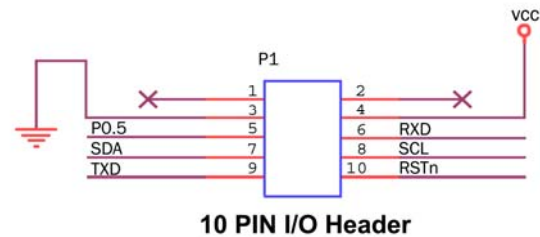# LCD Demo-SC

Highlights

- Single chip solution for LCD User Interface
- Single Board Computer with multiple I/O options available via 12-pin header
- 8KB Internal Flash memory, 512 bytes RAM
- 8-character alphanumeric LCD
- Integrated I2C based LCD driver with 160 segment support
- Powered by a single 3V coin cell battery or external supply via header
- Two miniature push-buttons on-board for user control; additional User Interface via header
- Reprogrammable by the user via 10-pin ICP header

The LCD Demo-SC is a reference design for a low cost microcontroller and LCD solution using the NXP P89LPC9408 along with a couple of discrete external components. The Board is controlled by a simple two-button user interface (MODE and SELECT). The included CD contains example source code for several sample applications: an FM Radio display during a simulated channel scan, a 15 minute count down timer, and a repeating pattern of 4 text lines. The user can edit this code and download to the reprogrammable Flash microcontroller via a 10-pin ICP header on the board using any external ICP programmer. A small USB based ICP programmer that allows programming of the LPC9408 and many other NXP microcontrollers from any PC is available from Future Designs, Inc. Details can be found at www.teamfdi.com/USB-ICP. The LCD Demo-SC can function as a Single Board Computer since the powerful LPC9408 contains a full 8KB of Flash memory allowing ample room for development of User Applications and the 12-pin header can support multiple I/O options.

P89LPC9408 is a LQFP64 pin multi-chip module (MCM) made up of the following 2 NXP devices:

1. P89LPC938 8-bit, 2-clock, 80C51 MCU
   - 8 KB Flash, 256 bytes RAM
   - Internal RC Oscillator
   - UART, ADC, DAC
   - Two 16-bit timers & RTC
   - Keypad Interrupt
   - WDT with on chip 400kHz oscillator

2. PCF8576D LCD Controller
   - 400 kHz I2C-bus interface
   - 40 segment drives
   - Up to 160 elements with ¼ multiplexing
   - No external components
   - Wide supply range 1.8 to 5.5V

LCD Demo-SC supports both the P89LPC9408 & P89LPC9401.

When used as a Single Board Computer the I/O headers provide access to:
- UART, I2C, SPI
- 4 A/D inputs
- Timer1 I/O and the Clock Output

Typical SBC Application for Keypad Tester

Ordering Information

Part Number: LCD-DEMO-SC
Suggested Resale Price: $49.00 (USD)
Order online now at:
www.digikey.com
www.mouser.com

Warranty: 30-day money back guarantee
Availability: Stock

Support Information:
(256) 883-1240 Phone
(256) 883-1241 FAX
E-mail: support@teamfdi.com
www.teamfdi.com

Contents
LCD Demo-SC Board:
- P89LPC9408 8KB Flash microcontroller
- Integrated 128-segment LCD Driver
- 8-character alphanumeric LCD
- 3V Coin Cell Battery

LCD Demo-SC CD:
- I2C bit-bang code for LCD Driver
- Demo application code
- Schematic
- In Circuit Programming (ICP) Documentation

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