

LCD8000-97C

A 9.7" LCD Module for SABRE Lite & MarS Board

By

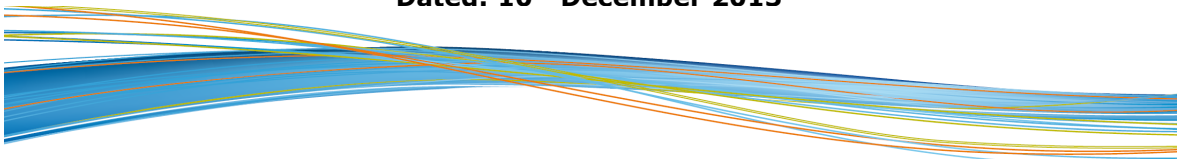
element14



User Manual

Version 1.0

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Revision History:

Version	Date	Description
1.0	10/12/2013	Original Version

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1: Product Overview

The LCD8000-97C is a 9.7" capacitive touchscreen developed by element14 for use with the MarS Board - a super ARM DIY platform, and SABRE Lite. The LCD8000-97C has an LVDS interface and supports a resolution of up to 1024x768 and 260,000 colours. Its multi-touch screen brings an enhanced experience to the users of the MarS Board and the SABRE Lite.

1.1: Packing List

- ✓ LCD8000-97C
 - ✓ Mini HDMI C-to-C Cable (for Mars Board)
 - ✓ LVDS Cable (for SABRE Lite)
-

2: Hardware Features

- 9.7" TFT Screen
- Resolution of 1024x768, 260,000 colours
- Supports LVDS Signals
- Multi-Touch Capacitive Touch-Screen

2.1: Operational Parameters

- Operating Ambient Temperature: 0°C ~ +50°C
 - Storage Temperature: -25°C ~ +65°C
 - Operating Humidity: 20% - 90%
 - Dimension: 239mm x 185mm
 - Power Supply: +5V (provided by MarS Board or SABRE Lite)
-

3: Using LCD8000-97C With the MarS Board

3.1: Hardware Connections

- 1) Use the Mini HDMI cable provided with the product to connect the LVDS interface on the MarS Board to the Mini HDMI interface on the LCD8000-97C as shown below;



Figure 1 Connection between MarS Board and LCD8000-97C

- 2) Use a (Type Mini B Male to Type A Male) USB cable to connect the USB debugging interface on the MarS Board to a USB interface on your PC, and then connect a 5V power supply to the board to finish the hardware connections as shown below;
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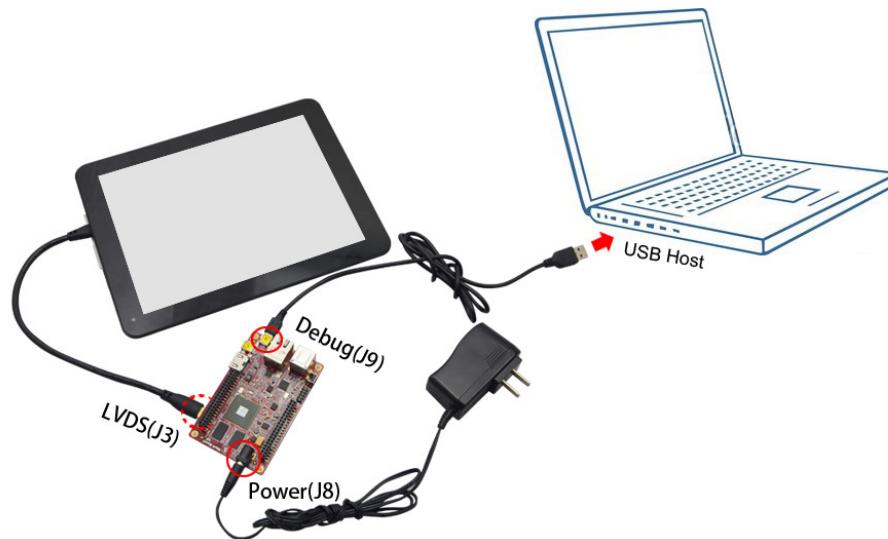


Figure 2 Complete hardware connection

3.2: Software Configurations

- 1) The latest images and source code for Linux and Android on the MarS Board have been updated to support the LCD8000-97C.

For download please visit: www.element14.com/iMX6

- 2) Please refer to the MarS Board User Manual for detailed instructions on how to update the Linux/Android images on the board;
- 3) After updating is done, please reboot the MarS Board and press any key on your PC's keyboard to enter u-boot when you see "Hit any key to stop autoboot" in your terminal window.

```
U-Boot 2009.08-svn1 (Mar 14 2013 - 14:07:49)

CPU: Freescale i.MX6 family T00.0 at 792 MHz
Temperature: 51 C, calibration data 0x58150469
mx6q p111: 792MHz
mx6q p112: 528MHz
mx6q p113: 480MHz
mx6q p118: 50MHz
```

```

ipg clock      : 66000000Hz
ipg per clock  : 66000000Hz
uart clock     : 80000000Hz
cspi clock     : 60000000Hz
ahb clock      : 132000000Hz
axi clock      : 264000000Hz
emi_slow clock: 29333333Hz
ddr clock      : 528000000Hz
usdhc1 clock   : 198000000Hz
usdhc2 clock   : 198000000Hz
usdhc3 clock   : 198000000Hz
usdhc4 clock   : 198000000Hz
nfc clock      : 24000000Hz
Board: MX6Q-MARSBOARD: [ POR]
Boot Device: I2C
I2C:  ready
DRAM:  1 GB
MMC:  FSL_USDHC: 0,FSL_USDHC: 1
JEDEC ID: 0xbf:0x25:0x41
Reading SPI NOR flash 0xc0000 [0x2000 bytes] -> ram 0x276009b8
SUCCESS

*** Warning - bad CRC, using default environment

In:  serial
Out: serial
Err: serial
Net:  got MAC address from IIM: 00:00:00:00:00:00
----enet_board_init: phy reset
FEC0 [PRIME]
Hit any key to stop autoboot:  0 (press any key to enter uboot)
MX6Q MARSBOARD U-Boot >

```


4) Execute the following instructions to set the display mode for the 9.7-inch LVDS LCD;

```

setenv bootargs console=ttyMXC1,115200 init=/init rw video=mxcfb0:dev=ldb,
LDB-XGA,if=RGB666 fbmem=10M vmalloc=400M androidboot.console=ttyMXC1
saveenv

```

Note:

 At present, the touch screen of LCD8000-97C only supports single point touch

on a Linux based system

- 5) Reboot the MarS Board again and the process will be complete. You can now use the LCD8000-97C.



4: Using LCD8000-97C on SABRE Lite

4.1: Hardware Connections

- 1) Use the LVDS cable provided with the product to connect the Mini HDMI interface on the LCD8000-97C to the LVDS and IIC interfaces on the SABRE Lite as shown below:



Figure 3 Connections between SABRE Lite and LCD8000-97C

- 2) Use the serial cable provided with the SABRE Lite to connect the serial interface on the device to your PC. Following this, insert a TF card into the SABRE Lite and connect a 5V/4A power supply to finish the hardware connection as shown below:
-

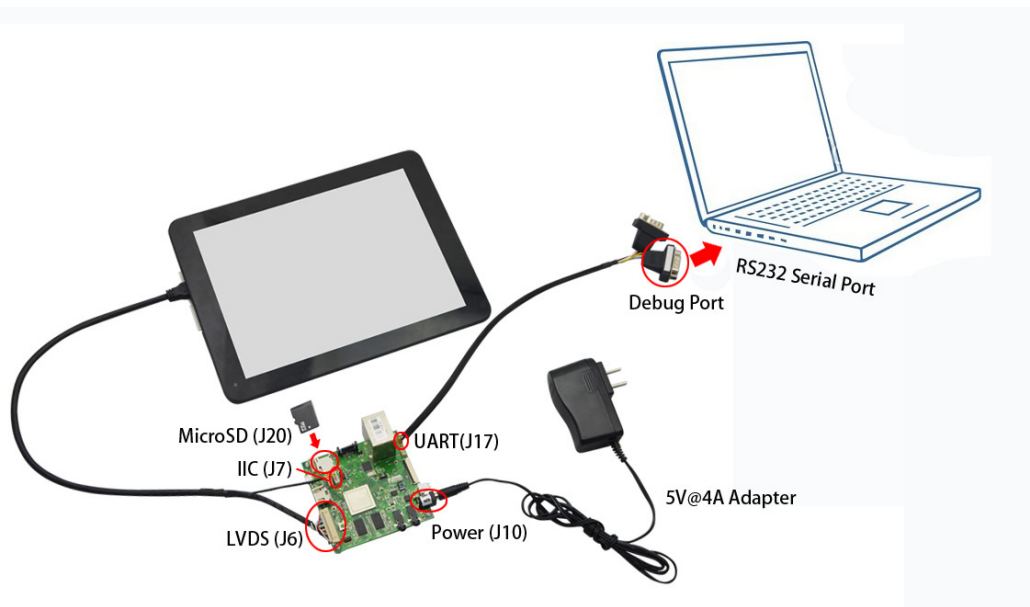


Figure 4 Complete hardware connection

4.2: Software Configurations

- 1) The latest images and source code for Linux and Android on the SABRE Lite have been updated to support the LCD8000-97C; Please visit www.element14.com/iMX6
- 2) Please refer to the Sabre Lite User Manual and Quick Start Guide for detailed instructions on how to update the Android/Linux images on the board.
- 3) After updating is done, please reboot the SABRE Lite and press any key on PC's keyboard to enter u-boot when you see "Hit any key to stop autoboot" in your terminal window.

```

U-Boot 2009.08 (Nov 13 2013 - 11:06:28)

CPU: Freescale i.MX6 family T01.2 at 792 MHz
Temperature: 42 C, calibration data 0x5764fd69
mx6q pll1: 792MHz
mx6q pll2: 528MHz
mx6q pll3: 480MHz
    
```

```

mx6q pll8: 50MHz
ipg clock      : 66000000Hz
ipg per clock  : 66000000Hz
uart clock     : 80000000Hz
cspi clock     : 60000000Hz
ahb clock      : 132000000Hz
axi clock      : 264000000Hz
emi_slow clock: 132000000Hz
ddr clock      : 528000000Hz
usdhc1 clock   : 198000000Hz
usdhc2 clock   : 198000000Hz
usdhc3 clock   : 198000000Hz
usdhc4 clock   : 198000000Hz
nfc clock      : 24000000Hz
Board: MX6Q-SABRELITE:[ POR]
Boot Device: I2C
I2C:  ready
DRAM:  1 GB
MMC:  FSL_USDHC: 0,FSL_USDHC: 1
JEDEC ID: 0xbf:0x25:0x41
Reading SPI NOR flash 0xc0000 [0x2000 bytes] -> ram 0x276009b8
SUCCESS

*** Warning - bad CRC, using default environment

In:  serial
Out: serial
Err: serial
Net:  got MAC address from IIM: 00:00:00:00:00:00
FEC0 [PRIME]
Hit any key to stop autoboot:  0  (press any key to enter uboot)
MX6Q SABRELITE U-Boot >

```

- 4) Execute the following instructions to set the display mode for the 9.7-in LVDS LCD;

```
setenv bootargs console=ttyMXC1,115200 init=/init rw video=mxcfb0:dev=ldb,
```

```
LDB-XGA,if=RGB666 fbmem=10M vmalloc=400M androidboot.console=ttyMXC1
```

```
saveenv
```

Note:

At present, the touch screen of LCD8000-97C only supports single point touch

on Linux based systems

- 5) Reboot the SABRE Lite again and the process will be complete. You can now use the LCD8000-97C.