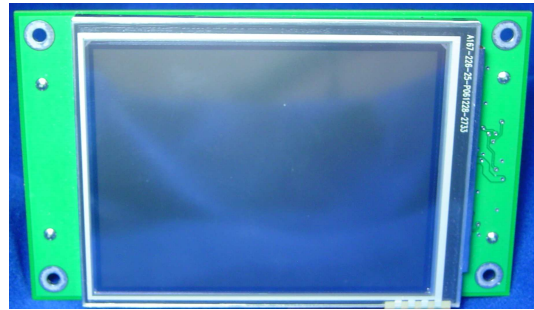**FEATURES**

- 3.5" Sharp Color QVGA LCD
  - LED Backlight
  - Onboard LED Drivers
  - Supports PWM dimming
  - 240x320 pixels
- Integrated touch screen
  - Onboard ADC ADS7843 Controller
  - 12 Bit X/Y Converters
- Operates on Single 3.3 volt supply
- Single 2 mm ribbon interface
- Direct Connect with MityDSP Development Kits

APPLICATIONS

- Scientific Instruments
- Industrial Status Panels
- Medical Instruments
- Media Players
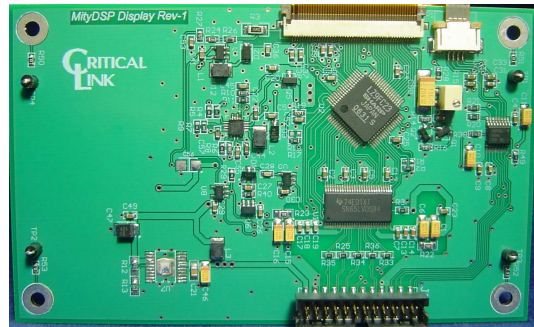
DESCRIPTION

The MDK-DisplayAssy3.5 provides a 3.5" inch LCD display capability with touchscreen controller. The assembly utilizes an LVDS interface for video clock and data and an SPI based interface for touchscreen control/feedback. The assembly is powered from a 3.3 voltage interface. The LCD, touchscreen, and power interface are combined on a standard ribbon cable connector. The MDK-DisplayAssy3.5 was designed to be plug-and-play compatible with the MityDSP hardware development kit platforms.

A block diagram of the MDK-DisplayAssy3.5 is illustrated in Figure 1.
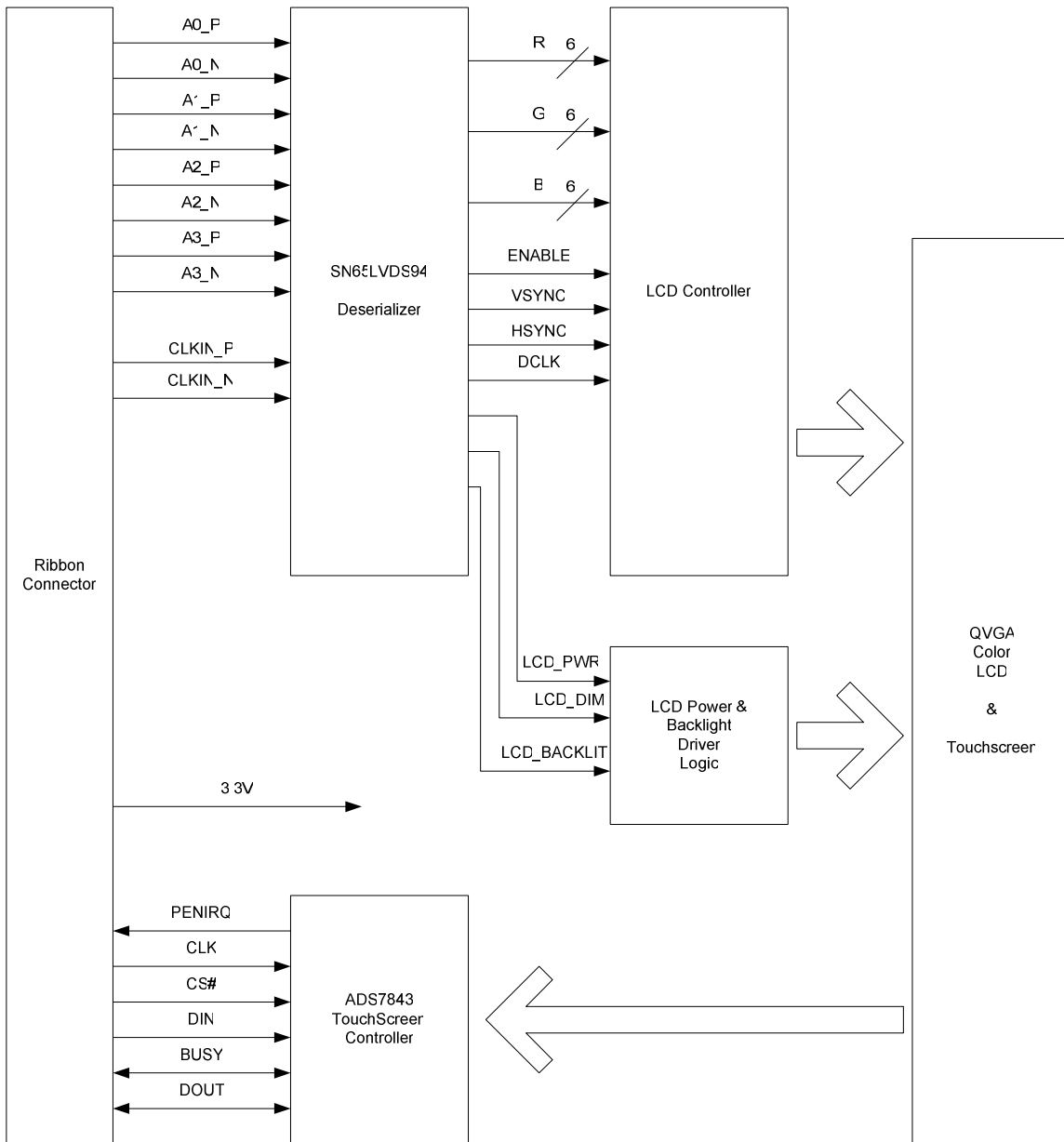
Figure 1 MDK-DisplayAssy3.5 Functional Block Diagram

The LVDS link interface uses 4 7 bit serial data channels to pack 6 bits of red, green, and blue display pixel data as well as a set of control signals used by the display adaptor. The Table below lists signal mappings to serial bit lane positions for the deserializer. For details regarding the serial data streams, please refer to the specifications for the Texas Instruments SN65LVDS95 deserializer interface chip.

Table 1 LVDS Serial Bit Lane Description

Serial Pair	Bit Position	Data Item	Serial Pair	Bit Position	Data Item
A0	0	Not Used	A3	0	BLUE_0
	1	RED_0		1	BLUE_1
	2	RED_1		2	BLUE_2
	3	RED_2		3	BLUE_6
	4	RED_3		4	BLUE_5
	5	RED_4		5	BLUE_4
	6	RED_5		6	RESERVED
A1	0	GREEN_0	A4	0	DIM_PWM
	1	GREEN_1		1	LCD_SDAT
	2	GREEN_2		2	VSYNC
	3	GREEN_3		3	HSYNC
	4	GREEN_4		4	LCD_CLK
	5	GREEN_5		5	LCD_PWR
	6	Not Used		6	LCD_BACKLITE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Notes:						

ABSOLUTE MAXIMUM RATINGS

If Military/Aerospace specified cards are required, please contact the Critical Link Sales Office or unit Distributors for availability and specifications.

Storage Temperature Range   -65 to 80C
Shock, Z-Axis   ±10 g
Shock, X/Y-Axis   ±10 g

OPERATING CONDITIONS

Ambient Temperature Range   5 to 40 C
Humidity   0 to 95%
                                  Non-condensing
Vibration, Z-Axis   TBS
Vibration, X/Y-Axis   TBS

MDK-DisplayAssy3.5 Cable Interface Description
The cable interface for the assembly is a 24 pin 2 mm header. The pin-out for the interface is described in the table below.

Table 2 MDK-4 Connector (Left Side viewed from Top) Pin Assignments

Pin	Signal	I/O	Pin	Signal	I/O
1	3.3V	-	2	3.3V	-
3	GND	-	4	GND	-
5	DISP_A0_P	I	6	DISP_A0_N	I
7	DISP_A1_P	I	8	DISP_A1_N	I
9	DISP_A2_P	I	10	DISP_A2_N	I
11	DISP_A3_P	I	12	DISP_A3_N	I
13	GND	-	14	GND	-
15	DISP_CLKIN_P	I	16	DISP_CLKIN_N	I
17	GND	-	18	GND	-
19	TS_CS	I	20	TS_DOUT	O
21	TS_BUSY	O	22	TS_DIN	I
23	TS_PCLK	I	24	TS_IRQ	O

Software API and Supported Modes
The MityDSP software and firmware development kit includes a core interface and C++ API for interfacing to the ADS7843 touch screen controller and LCD display driver, using a shared memory framebuffer interface. Refer to the MDK Software User's Guide for more information.