# SBC6000_LVDS User Manual

Rev. 1.0

Release: 2011-10-24

# Revision record

| Rev | Date | Description |
|---|---|---|
| 1.0 | 2011-10-24 | Initial version |
| | | |
| | | |



Attention:

As the product version upgrades or other reasons, the contents of this document will be updated from time to time. Unless otherwise agreed, the use of this document only as a guide, all statements in this document, information and suggestions do not constitute any express or implied.

# Table Of Contents

# 1. SBC6000_LVDS Overview

The function of SBC6000_LVDS Converter Board is transforming the TTL signals into LVDS signals. It can be used in SBC6000 and SBC6845, and is compatible with two specifications of LVDS LCD, respectively TM104SDH01 and TM104SDH03. Both the LCD screens are 10.4 inch and resolution of 800X600, the difference is the backlight power.

The detail of the SBC6000_LVDS interfaces is shown in Table 1-1.

Table 1-1 Interface Details

| Code | Interface | Remarks |
|---|---|---|
| J2 | LVDS Signal | |
| J5 | Backlight1, the backlight power, the output voltage is 12V. | For TM104SDH03 |
| J7 | Backlight2, the backlight power, the output voltage is 19V. | For TM104SDH01 |
| J20 | Touch Signal | |
| J10 | TTL Signal | |

The interfaces layout of the SBC6000_LVDS is shown in Figure 1.1 and Figure 1.2.

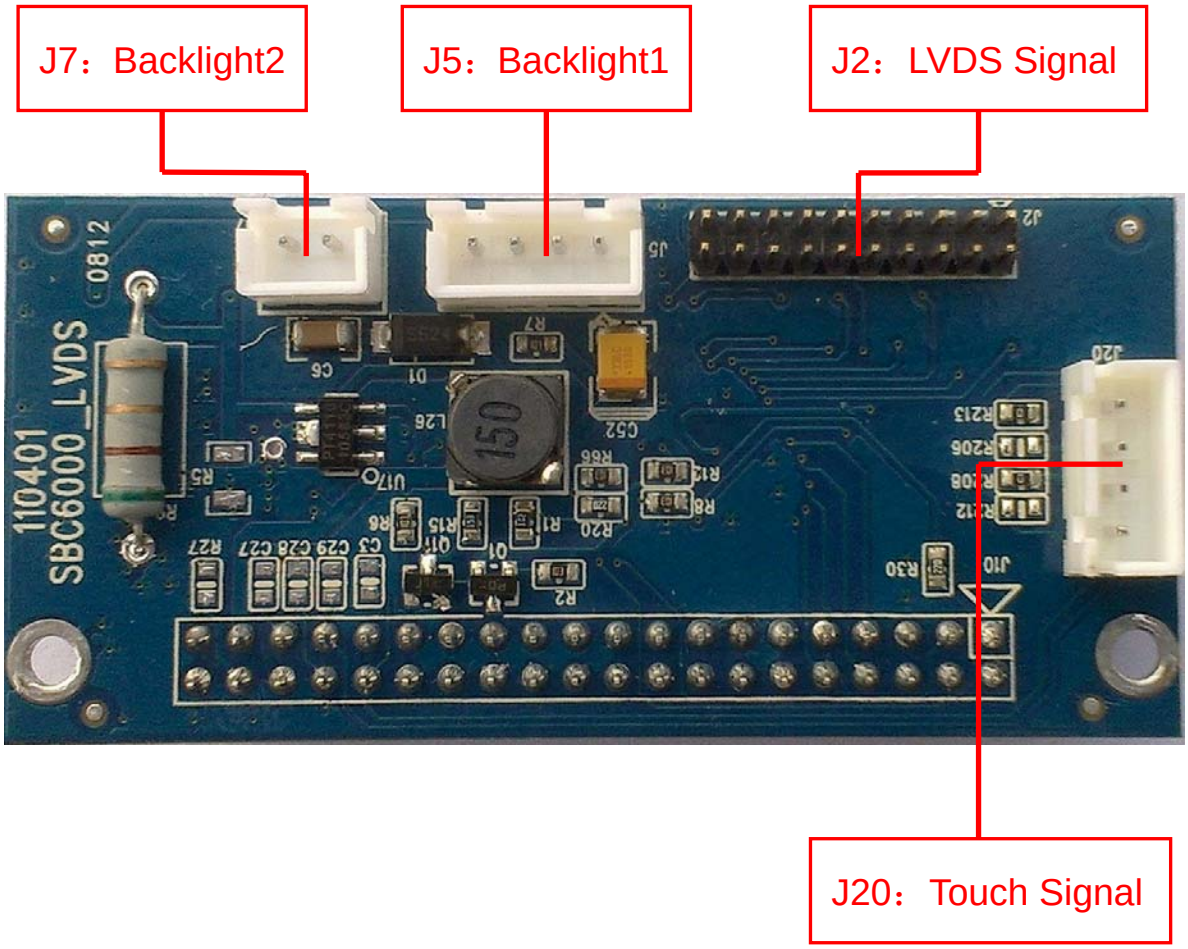

Figure 1.1 SBC6000_LVDS Top Interface

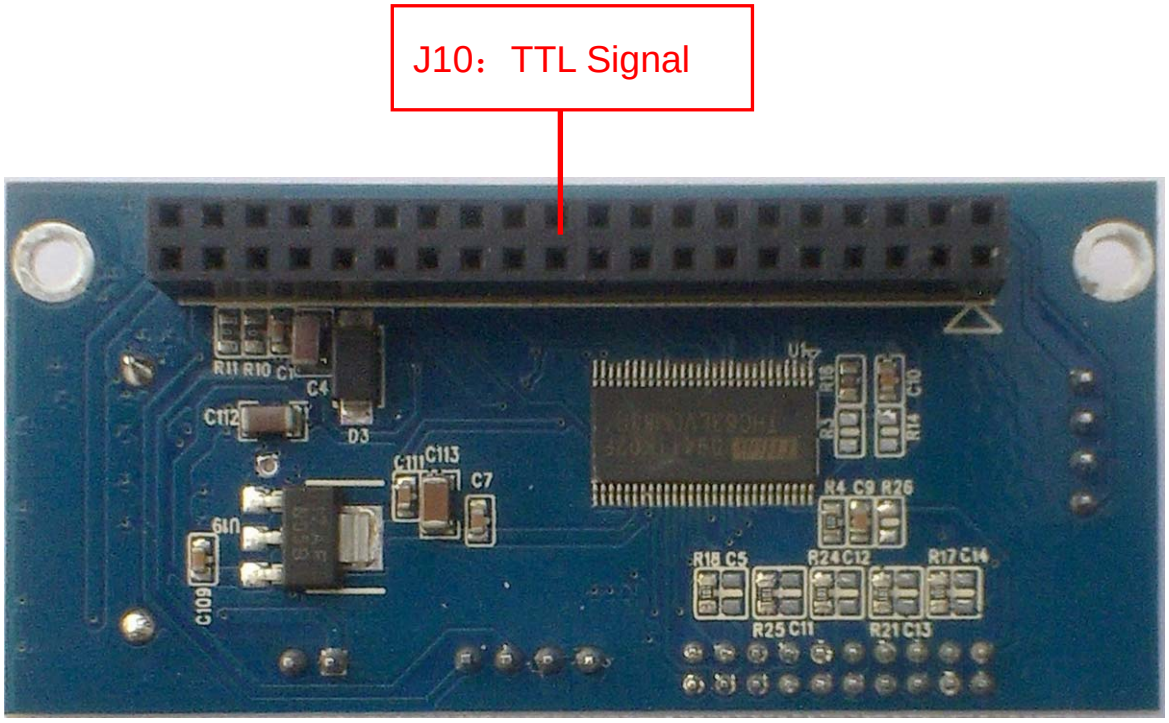


Figure 1.2 SBC6000_LVDS Bottom Interface

# 2. SBC6000_LVDS Interface Specifications

The detailed descriptions of the interface signal in SBC6000_LVDS are shown as follows:

## 2.1 J2（LVDS Signal）

J2 is the LVDS signal interface, which comes from the LVDS converter chip. Table 2-1 shows signal assignment of J2 interface.

Table 2-1 J2 Signal Assignment

| Signal Name | Pin Number | | Signal Name |
|---|---|---|---|
| VDD33V | 1 | 2 | VDD33V |
| GND | 3 | 4 | GND |
| TA- | 5 | 6 | TA+ |
| GND | 7 | 8 | TB- |
| TB+ | 9 | 10 | GND |
| TC- | 11 | 12 | TC+ |
| GND | 13 | 14 | TCLK- |
| TCLK+ | 15 | 16 | GND |

| | | | |
|---|---|---|---|
| TD- | 17 | 18 | TD+ |
| NC | 19 | 20 | GND(1K) |

## 2.2 J5（Backlight1）

J5 is the backlight control signal of LCD, the output voltage is 12V, so J5 is used for TM104SDH03. Table 2-2 shows signal assignment of J5 interface.

Table 2-2 J5 Signal Assignment

| Pin Number | Signal Name |
|---|---|
| 1 | 12V |
| 2 | GND |
| 3 | ON_OFF |
| 4 | DIMMING |

## 2.3 J7（Backlight2）

J7 is the other backlight signal of LCD, the output voltage is 19V, so J7 is used for TM104SDH01. Table 2-3 shows signal assignment of J7 interface.

Table 2-3 J7 Signal Assignment

| Pin Number | Signal Name |
|---|---|
| 1 | LEDK |
| 2 | LEDA |

## 2.4 J20（Touch Signal）

J20 is the touch signal of SBC6000_LVDS, you can change the signal sequence by changing the location of resistance, shown in Figure 2.1, the default line sequence as shown in Table 2-4.

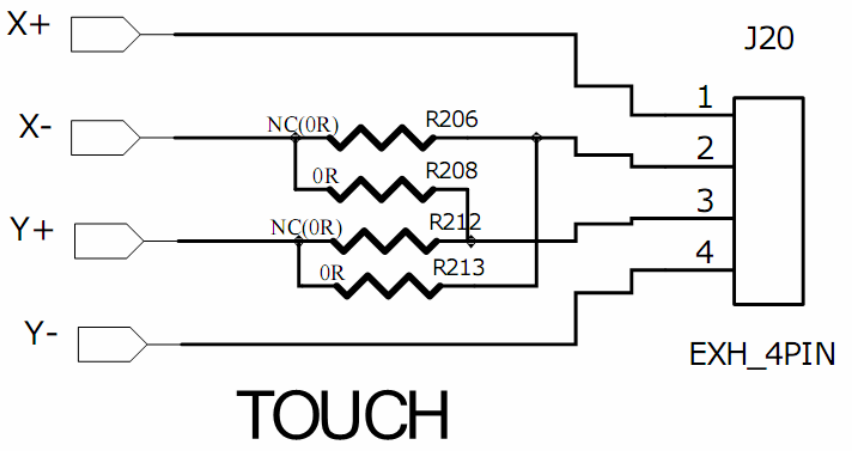


Figure 2.1 Touch Signal

Table 2-4 The Default Signal of Touch

| Pin Number | Signal Name |
|---|---|
| 1 | X+ |
| 2 | Y+ |
| 3 | X- |
| 4 | Y- |

## 2.5 J10（TTL Signal）

The TTL Signal is the input signal, which is converted into LVDS signal, and corresponds to the LCD signal U24 of SBC6845 board. Table 2-5 shows signal assignment of J10 interface.

Table 2-5 J10 Signal Assignment

| Signal Name | Pin Number | | Signal Name |
|---|---|---|---|
| GND | 1 | 2 | DCLK |
| HSYNC | 3 | 4 | VSYNC |
| GND | 5 | 6 | NC |
| R3 | 7 | 8 | R4 |
| R5 | 9 | 10 | R6 |
| R7 | 11 | 12 | GND |
| G2 | 13 | 14 | G3 |
| G4 | 15 | 16 | G5 |
| G6 | 17 | 18 | G7 |
| GND | 19 | 20 | NC |
| B3 | 21 | 22 | B4 |
| B5 | 23 | 24 | B6 |
| B7 | 25 | 26 | GND |
| LCDDEN | 27 | 28 | NC |
| NC | 29 | 30 | NC |
| NC | 31 | 32 | Y+ |
| X- | 33 | 34 | Y- |
| X+ | 35 | 36 | PWREN |
| +5V | 37 | 38 | DIMMING |
| +5V | 39 | 40 | +12V |

# 3. The Way Of Using SBC6000_LVDS

Using the custom data line that SBC6000_LVDS supports, connect the LCD and SBC6000_LVDS, and then connect the J10 of SBC6000_LVDS and U24 of SBC6845, It is important that make sure the interface is pin to pin.

The way of connecting SBC6000_LVDS and SBC6845 as shown in Figure 3.1.

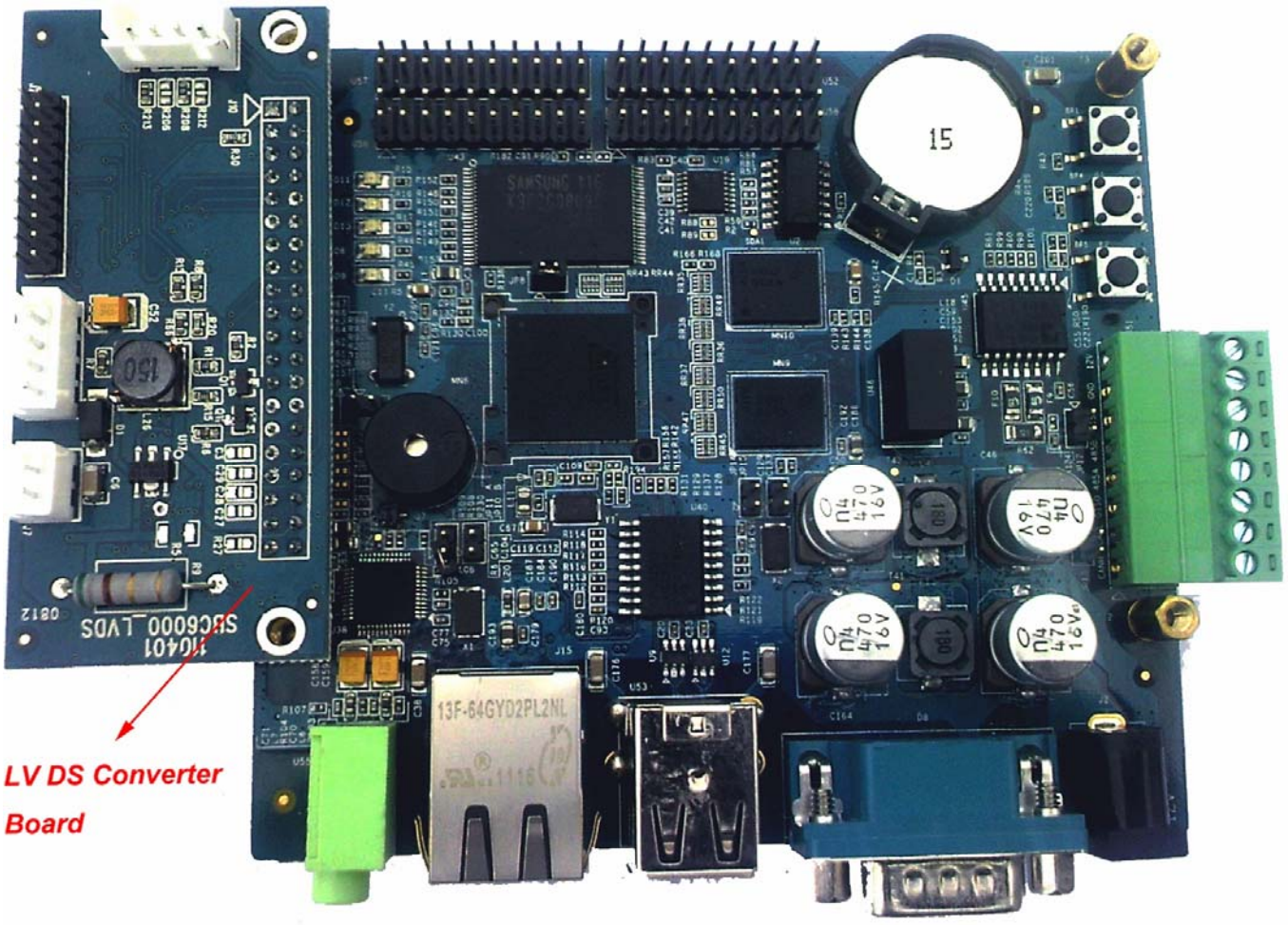


Figure 3.1 The way of connecting SBC6000_LVDS and SBC6845

Connect the SBC6000_LVDS and LCD using data line, and make sure the red line is connected to the first pin of J2, the way as shown in Figure 3.2.

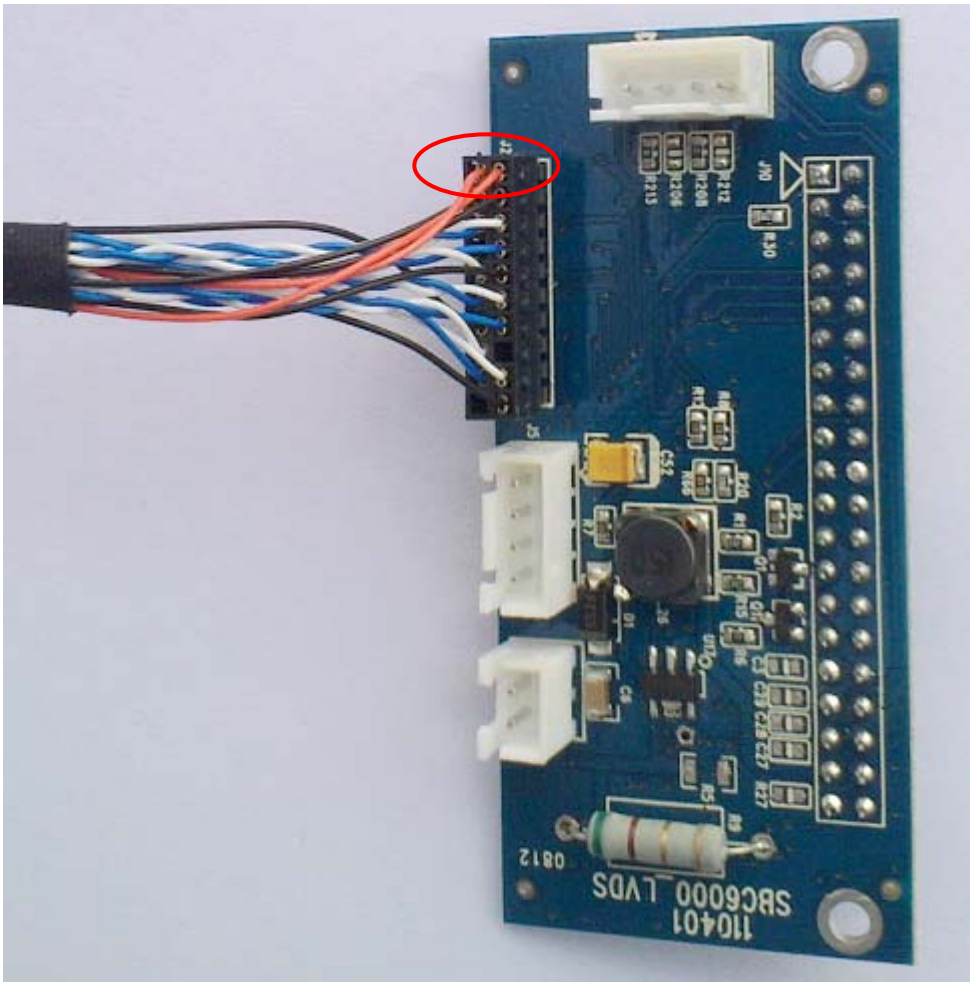


Figure 3.2 The Way of connecting SBC6000_LVDS and LCD

When connect the hardware please note:

1. If the touch screen signal switched while connect. It is ok after recalibrate it.
2. The backlight of LCD is high voltage, and different types of LCD have different voltage supply, please take care and avoid damaging the LCD.
3. The LCD has Anti-error design, when connect please make attention, do not insert it by force.

# Technical support and Warranty Service

## Technical support service

Embest provide one year free technical support service for all products Embest is selling. Technical support service covers:

- Embest embedded platform products software/hardware materials
- Assist customers compile and run the source code we offered
- Solve the problems accurate on embed software/hardware platform if user was following the instruction in the documentary we offered
- Judge if the product failure is existing

Special explanation, the situations listed below have NOT been included in the range of our free technical support service, Embest will handle the situation with discretion:

- Software/Hardware issues user met during the self-develop process
- Issues happened when users compile/run the embedded OS which was tailored by users themselves
- User's own application
- Problems happened during the modification of our software source code

## Maintenance service clause

The product, which was used properly, will take the warranty since the day of the sale:

PCB: Provide 12 months free maintenance service

1. The situations listed below have NOT been included in the range of our free maintenance service, Embest will charge the service fee with discretion:

   A. Can't provide valid Proof-of-Purchase, the identification label was tour up or illegible, the identification label was altered or not accord with the actual products;
   B. Didn't follow the instruction of the manual in order to damage the product
   C. Due to the natural disasters (unexpected matters ), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;
   D. Due to the power supply, bump, leaking of the roof, pets, moist, impurities into the boards, all those reasons which lead the defects of appearance/function;

E. User unauthorized weld or dismantle parts leads the product's bad condition, or let other people or institution which was not authorized by Embest to dismantle, repair, change the product leads the product bad connection or defects of appearance/function;
F. User unauthorized install the software, system or incorrect configuration or computer virus leads the defects;
G. Purchase the products through unauthorized channel;
H. Those commitment which was committed by other institutions should be responsible by the institutions, Embest has nothing to do with that;

2. During the warranty period, the deliver fee which delivery to Embest should be covered by user, Embest will pay for the return delivery fee to user when the product was repaired. If the warranty period is expired, all the deliver fees will be charged by users.

3. When the boards needs repair, please contact technical support department.

Note: If the product is returned without the permission of our technician, we will not take any responsibility for them.

# Base notice to protect and maintenance LCD

1. Do not use finger nails or hard sharp object to touch the surface of the LCD, otherwise user can't enjoy the above service

2. Embest recommend user to purchase a piece of special wiper to wipe the LCD after long time use , please avoid clean the surface with fingers or hands to leave fingerprint

3. Do not clean the surface of the screen with chemicals, otherwise user can not enjoy above service.

# Value Added Services

We will provide following value added services:

- Provided services of driver develop base on Embest embedded platform, like serial port, USB interface devices, LCD screen.
- Provided the services of control system transplant, BSP drivers develop, API software developing.
- Other value added services like power adapter, LCD parts.
- Other OEM/ODM services.
- Technically training.

Please connect Embest and get technical support:

- Support Tel: +86-755-25503401
- Fax: +86-755-25616057
- Pre-Sale consultation: market@embedinfo.com
- After-Sale consultation: support@embedinfo.com