

Flat Panel Transfer Board (FPTB)

User's Manual

Manual Revision: 2.00
Revision Date: August 9, 2012
Part Number: 50-1J040-1000

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Document History

Revision	Date	Changes
2.00	2012/08/09	Initial Release

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Preface

Copyright 2012 ADLINK Technology, Inc.

Disclaimer

The information in this document is subject to change without prior notice in order to improve reliability, design, and function and does not represent a commitment on the part of the manufacturer. In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages. This document contains proprietary information protected by copyright.

All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of ADLINK Technology Inc.

Trademark Information

COM Express® is a registered trademark of the PCI Industrial Computer Manufacturers Group (PICMG). Product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Table of Contents

Preface **3**

1 Introduction **5**
1.1 Overview 5
1.2 Functional Block Diagram 5
1.3 Mechanical Drawing 6
1.4 Applications 7

2 Connectors and Jumpers **9**
2.1 Board Layout 9
2.2 Connector Pin Definitions 10
2.3 Jumper Settings 13

3 Getting Started **14**
3.1 Jumper Settings 14
3.2 LVDS Input to FPTB 15
3.3 TTL Output to Display Panel 16
3.4 FPTB Power Connector 16
3.5 Power Up the System 16

Technical Support **17**

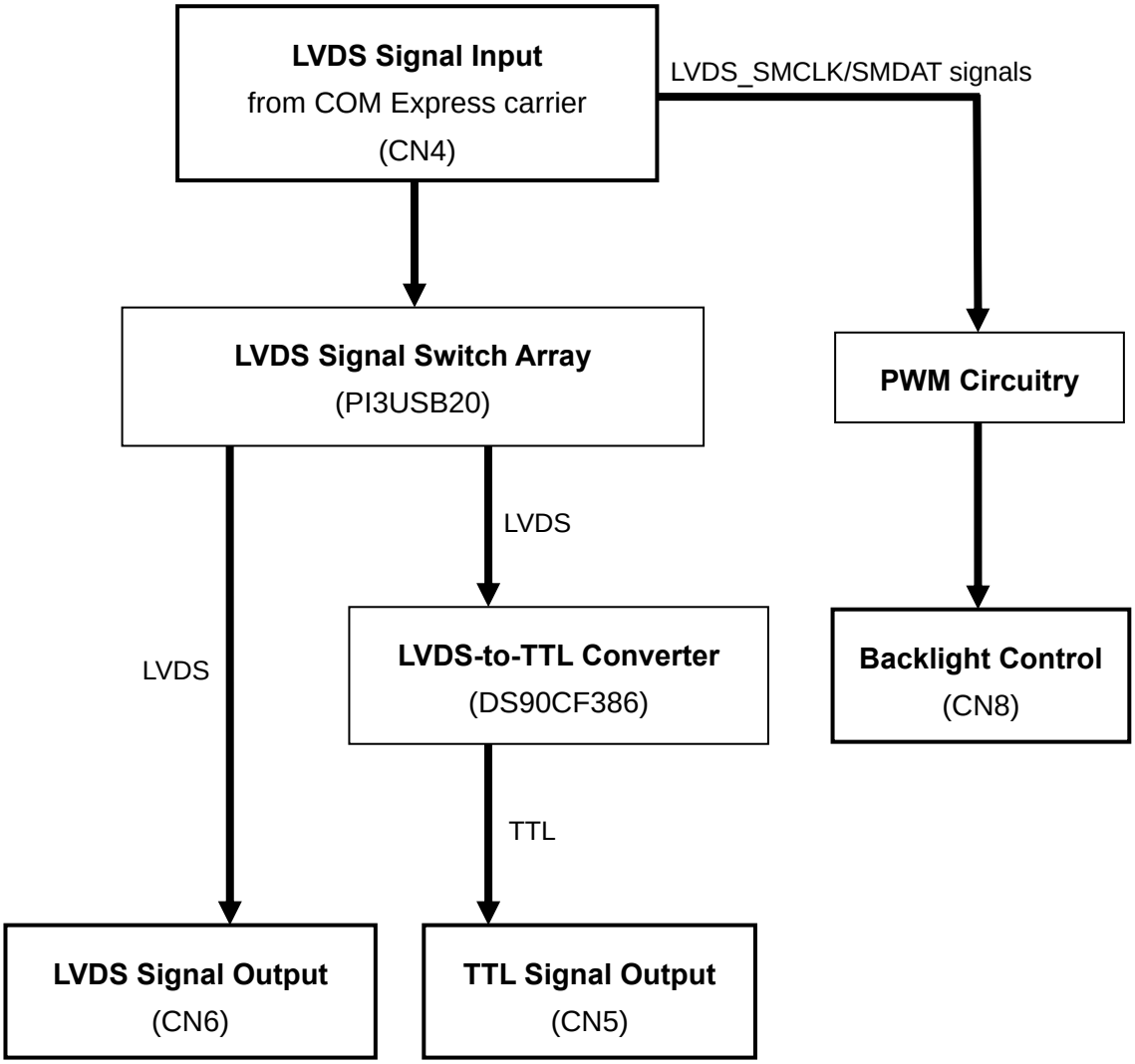
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1 Introduction

1.1 Overview

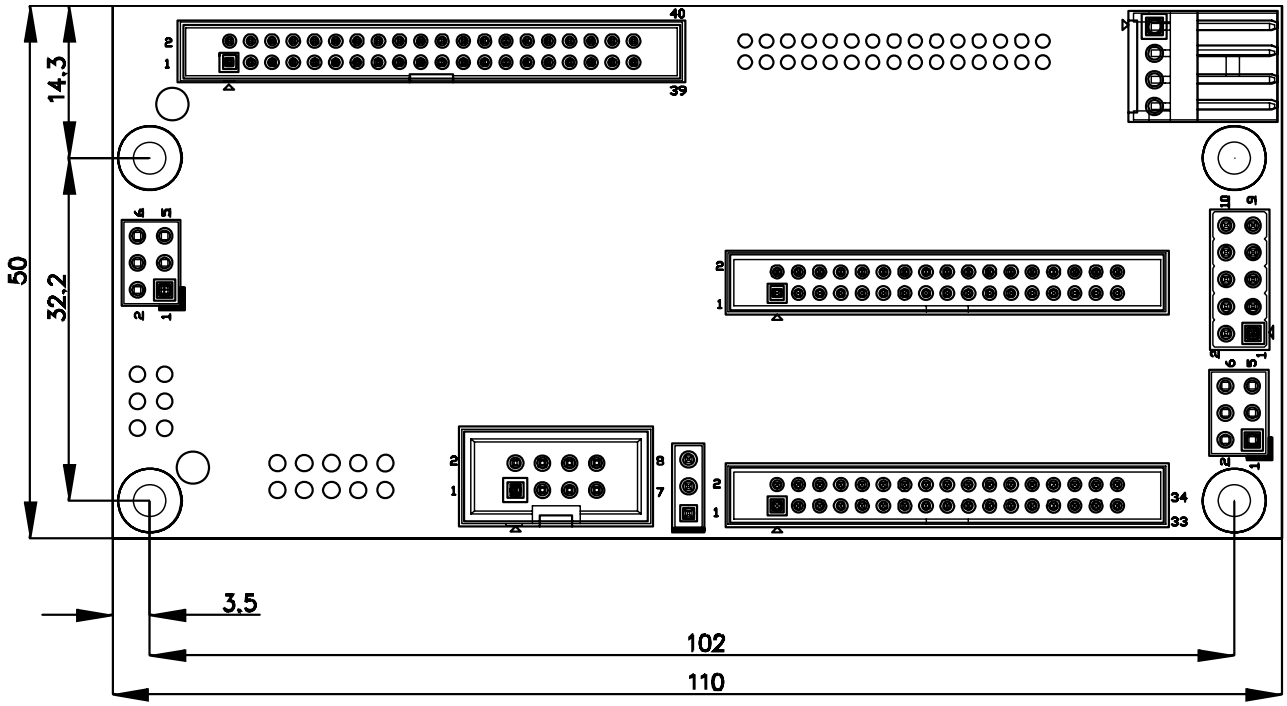
The Flat Panel Transfer Board (FPTB) is intended for prototyping and verification of LVDS and TTL flat panel displays with COM Express systems. The FPTB is equipped with an LVDS-to-TTL converter to allow users to implement TTL displays with COM Express systems that support LVDS only. Onboard PWM circuitry supports backlight control for LVDS and TTL displays.

1.2 Functional Block Diagram



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.3 Mechanical Drawing



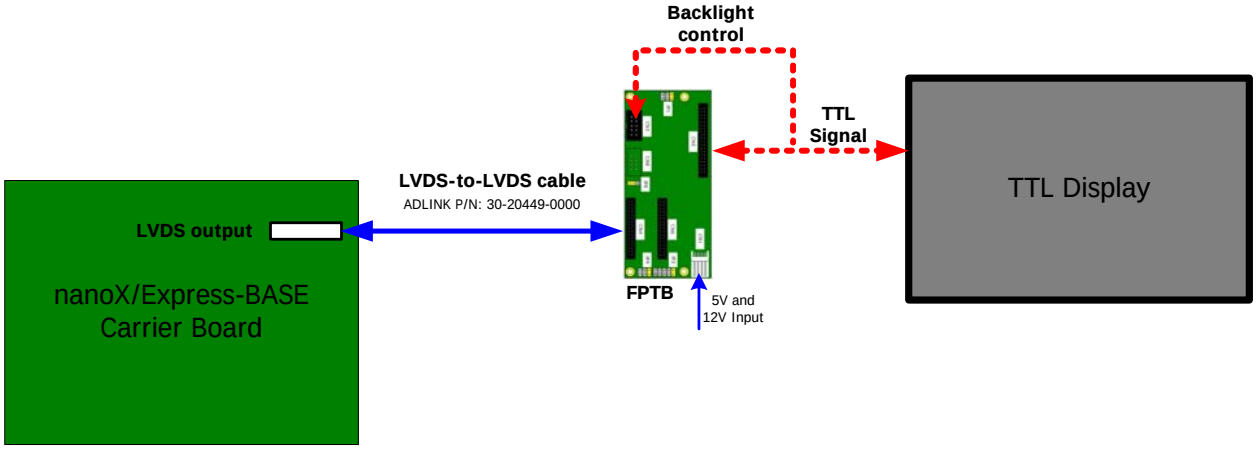
Dimensions in mm.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

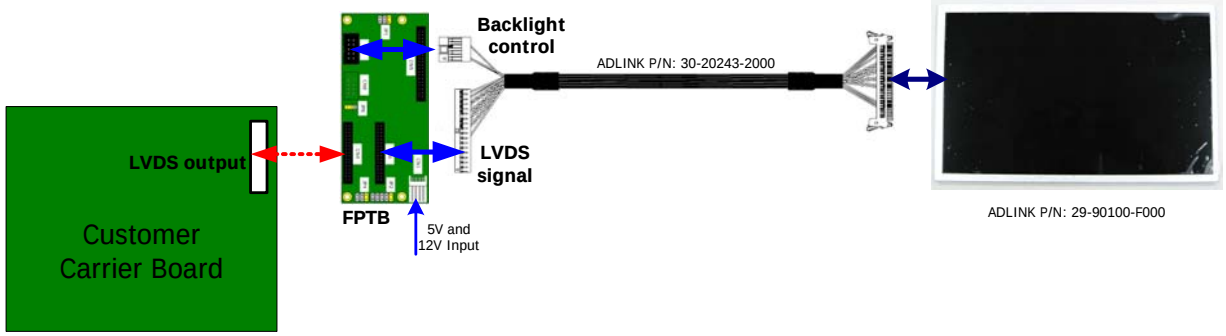
1.4 Applications

The FPTB is intended for use in the following situations:

- **nanoX/Express-BASE → FPTB → Customer's cable to TTL display**: This configuration provides LVDS-to-TTL conversion and backlight control when using an ADLINK reference carrier board with a TTL display. User must provide the cable connection from the FPTB's TTL output and backlight control connectors to the TTL panel inputs.

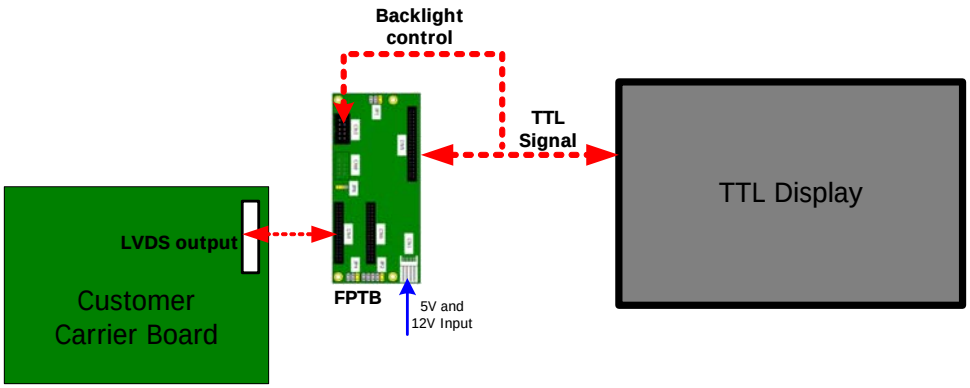


- **Customer carrier (with LVDS output) → Customer's cable to FPTB → HannStar LVDS panel:** This configuration provides backlight control and convenient verification of LVDS function when using a customer carrier board with the HannStar 10.1" LVDS flat panel display. User must provide the cable connection from the customer carrier board LVDS output to the FPTB's LVDS input connector.

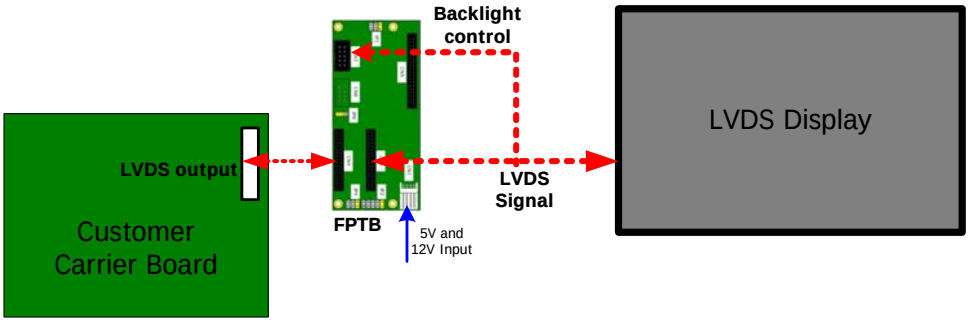


Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- **Customer carrier (with LVDS output) → Customer's cable to FPTB → FPTB → Customer's cable to TTL panel:** This configuration provides LVDS-to-TTL conversion and backlight control when using a customer carrier board with a TTL display. User must provide the cable connections from the customer carrier board LVDS output to the FPTB's LVDS input connector and from the FPTB's TTL output and backlight control connectors to the TTL panel inputs.



- **Customer carrier (with LVDS output) → Customer's cable to FPTB → FPTB → Customer's cable to other LVDS panel:** This configuration provides backlight control when using a customer carrier board with a customer LVDS flat panel display. User must provide the cable connection from the customer carrier board LVDS output to the FPTB's LVDS input connector and from the FPTB's LVDS output and backlight control connectors to the LVDS panel inputs.

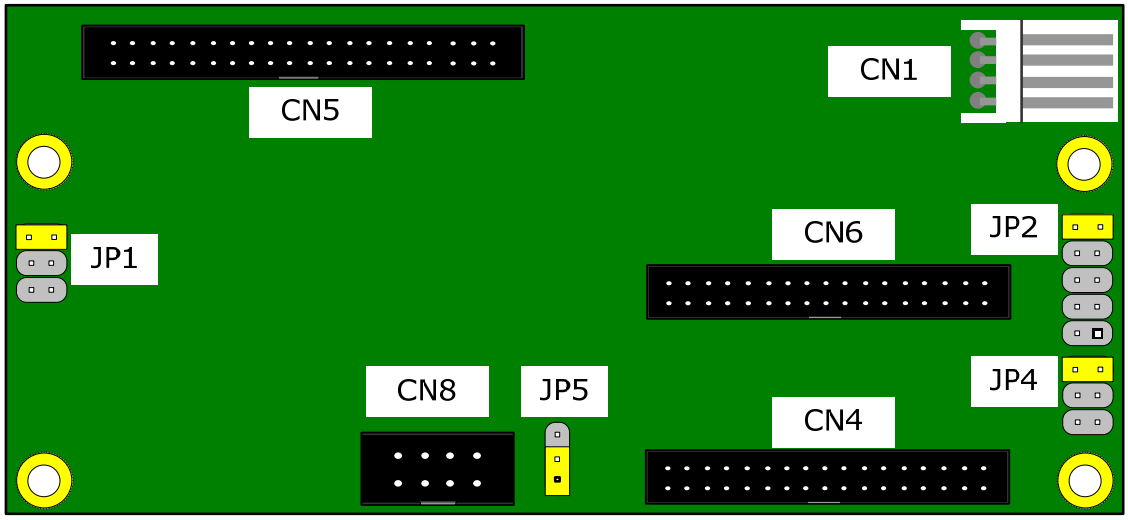


Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2 Connectors and Jumpers

2.1 Board Layout

FPTB (Flat Panel Transfer Board) Connector and Jumper Locations

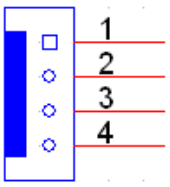


Connector	Description
CN1	Power Connector
CN4	LVDS Input Connector
CN5	TTL Output Connector
CN6	LVDS Output Connector
CN8	Backlight Control Connector
JP1	Backlight Voltage Jumper
JP2	Panel Voltage Jumper
JP4	LVDS/TTL Mode Selector Jumper
JP5	Backlight Control Mode Jumper

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

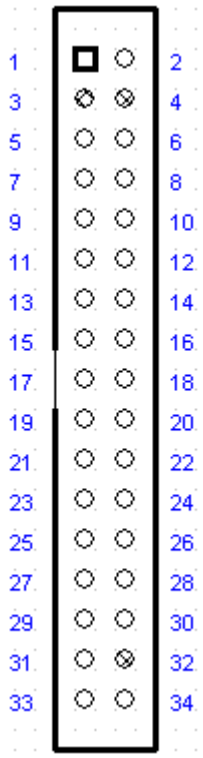
2.2 Connector Pin Definitions

CN1: Power Connector *(Floppy power connector)*



Pin	Signal
1	+5V
2	GND
3	GND
4	+12V

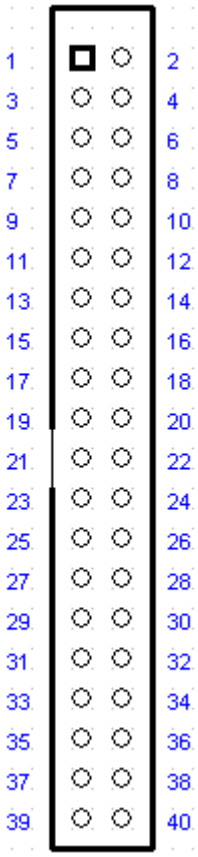
CN4: LVDS Input Connector *(2x17 box header, 2.00 mm pitch)*



Pin	Signal	Pin	Signal
1	LVDS_CLK_A	2	LVDS_DTA_A
3	PNL_PWR	4	PNL_PWR
5	GND	6	LVDS_A-N0
7	LVDS_A-P0	8	VDD_EN
9	LVDS_A-N1	10	LVDS_A-P1
11	BL_EN_2	12	LVDS_A-P2
13	LVDS_A-N2	14	N.C
15	LVDS_ACLK _ N	16	LVDS_ACLK _ P
17	PNL_PWR	18	LVDS_A-P3
19	LVDS_A-N3	20	GND
21	LVDS_B-N0	22	LVDS_B-P0
23	GND	24	LVDS_B-N1
25	LVDS_B-P1	26	GND
27	LVDS_B-N2	28	LVDS_B-P2
29	GND	30	LVDS_BCLK _ P
31	LVDS_BCLK _ N	32	N.C
33	LVDS_B-P3	34	LVDS_B-N3

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

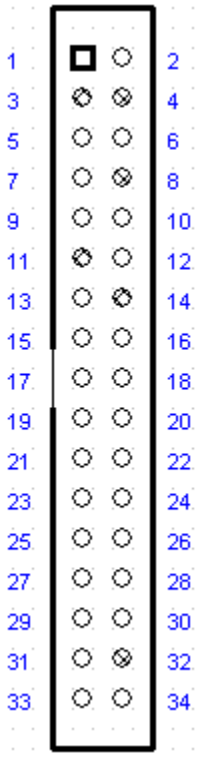
CN5: TTL Output Connector *(2x20 box header, 2.00 mm pitch)*



Pin	Signal	Pin	Signal
1	GND	2	FCLK
3	GND	4	FR0
5	FR1	6	FR2
7	GND	8	FR3
9	FR4	10	FR5
11	GND	12	FR6
13	FR7	14	FG0
15	GND	16	FG1
17	FG2	18	FG3
19	GND	20	FG4
21	FG5	22	GND
23	FG6	24	FG7
25	FB0	26	GND
27	FB1	28	FB2
29	FB3	30	GND
31	FB4	32	FB5
33	FB6	34	GND
35	FB7	36	HS (HSYNC)
37	VS (VSYNC)	38	GND
39	DE (DATA ENBLE)	40	GND

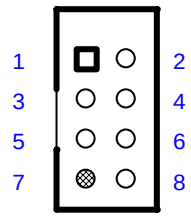
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

CN6: LVDS Output Connector (2x17 box header, 2.00 mm pitch)



Pin	Signal	Pin	Signal
1	LVDS_CLK_A	2	LVDS_DTA_A
3	PNL_PWR	4	PNL_PWR
5	GND	6	LVDS_A-N0
7	LVDS_A-P0	8	VDD_EN
9	LVDS_A-N1	10	LVDS_A-P1
11	BL_EN_2	12	LVDS_A-P2
13	LVDS_A-N2	14	N.C
15	LVDS_ACLK _ N	16	LVDS_ACLK _ P
17	PNL_PWR	18	LVDS_A-P3
19	LVDS_A-N3	20	GND
21	LVDS_B-N0	22	LVDS_B-P0
23	GND	24	LVDS_B-N1
25	LVDS_B-P1	26	GND
27	LVDS_B-N2	28	LVDS_B-P2
29	GND	30	LVDS_BCLK _ P
31	LVDS_BCLK _ N	32	N.C
33	LVDS_B-P3	34	LVDS_B-N3

CN8: Backlight Control Connector (2x4 box header, 2.54 mm pitch)

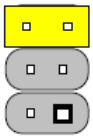


Pin	Signal	Pin	Signal
1	GND	2	PNL_PWR
3	BL_CTRL	4	GND
5	LVDS_BL_EN	6	GND
7	N.C.	8	BLK_PWR

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

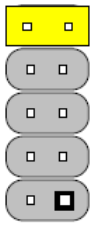
2.3 Jumper Settings

JP1: Backlight Voltage



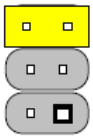
Jumper	Configuration
1 - 2	+12V
3 – 4	Reserved
5 – 6	+5V*

JP2: Panel Voltage



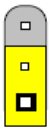
Jumper	Configuration
1 - 2	+12V
3 – 4	Reserved
5 – 6	+5V
7 - 8	Reserved
9 - 10	+3.3V*

JP4: LVDS/TTL Mode



Jumper	Configuration
1 - 2	TTL Output Active
3 - 4	Reserved
5 - 6	LVDS Output Active*

JP5: Backlight Control Mode



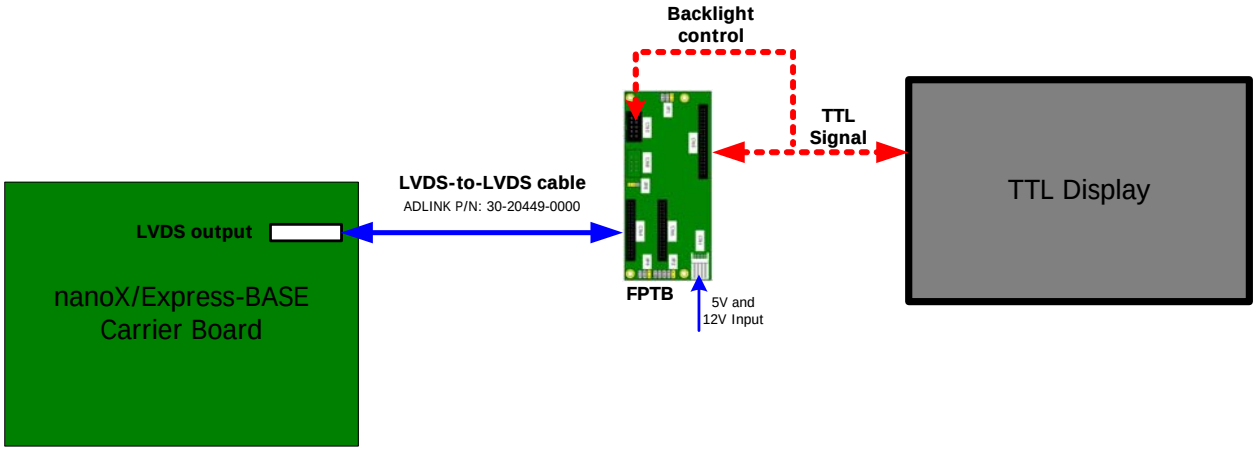
Jumper	Configuration
1 - 2	BLCTRL_PWM *
2 - 3	BLCTRL_VTL

Note: * indicates default setting

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

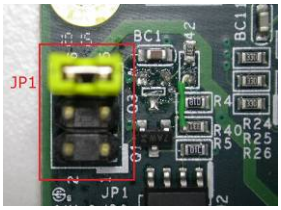
3 Getting Started

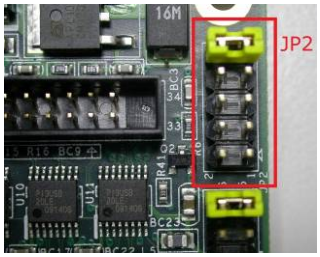
The example instructions below describe how to use the **FPTB** to connect an **ADLINK reference carrier board** to a **TTL display**: In this configuration, the FPTB provides LVDS-to-TTL conversion and backlight control. The user must provide the cable connection from the FPTB's TTL output and backlight control connectors to the TTL panel inputs.



3.1 Jumper Settings

Make sure the **Backlight Voltage jumper** (JP1) and **Panel Voltage jumper** (JP2) are correct for the display panel you are using.





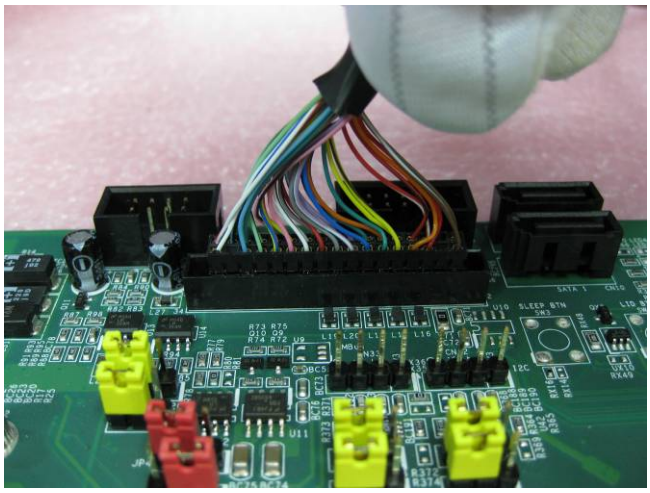
Set the **LVDS/TTL Mode jumper** (JP4) to *TTL Output Active* (short pins 1-2).Set the **Backlight Control Mode jumper** (JP5) to *PWM* or *Voltage Level* as appropriate for your display.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

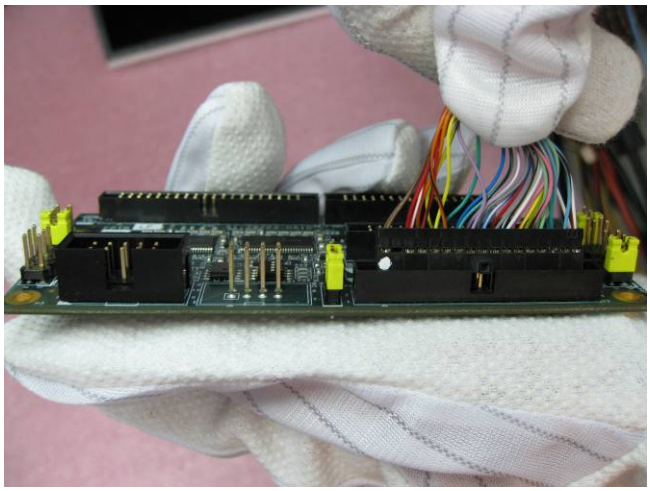
3.2 LVDS Input to FPTB

Use the LVDS-to-LVDS cable that came with the FPTB to connect the LVDS output connector on the ADLINK carrier board (CN6 on nanoX-BASE) to the LVDS input connector on the FPTB (CN4).

Plug the LVDS-to-LVDS cable into nanoX-BASE CN6



Plug the LVDS-to-LVDS cable connector into FPTB CN4





LVDS-to-LVDS cable

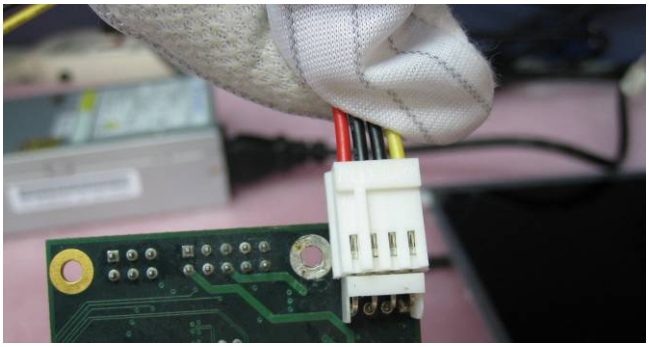
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.3 TTL Output to Display Panel

Make the appropriate cable to connect the TTL Output Connector (CN5) and Backlight Control Connector (CN8) on the FPTB to the target TTL display panel.

3.4 FPTB Power Connector

Connect the Floppy Drive power connector of your power supply to the FPTB Power Connector (CN1).



3.5 Power Up the System

Assemble the rest of your system as required and power it on. An example nanoX-BASE system with FPTB connected to a TTL display panel is shown below.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Technical Support

Contact us should you require any service or assistance.

ADLINK Technology, Inc.

Address: 9F, No.166 Jian Yi Road, Zhonghe District
New Taipei City 235, Taiwan
新北市中和區建一路 166 號 9 樓
Tel: +886-2-8226-5877
Fax: +886-2-8226-5717
Email: service@adlinktech.com

Ampro ADLINK Technology, Inc.

Address: 5215 Hellyer Avenue, #110, San Jose, CA 95138, USA
Tel: +1-408-360-0200
Toll Free: +1-800-966-5200 (USA only)
Fax: +1-408-360-0222
Email: info@adlinktech.com

ADLINK Technology (China) Co., Ltd.

Address: 上海市浦东新区张江高科技园区芳春路 300 号 (201203)
300 Fang Chun Rd., Zhangjiang Hi-Tech Park,
Pudong New Area, Shanghai, 201203 China
Tel: +86-21-5132-8988
Fax: +86-21-5132-3588
Email: market@adlinktech.com

ADLINK Technology Beijing

Address: 北京市海淀区上地东路 1 号盈创动力大厦 E 座 801 室(100085)
Rm. 801, Power Creative E, No. 1, B/D
Shang Di East Rd., Beijing, 100085 China
Tel: +86-10-5885-8666
Fax: +86-10-5885-8625
Email: market@adlinktech.com

ADLINK Technology Shenzhen

Address: 深圳市南山区科技园南区高新南七道 数字技术园
A1 栋 2 楼 C 区 (518057)
2F, C Block, Bldg. A1, Cyber-Tech Zone, Gao Xin Ave. Sec. 7,
High-Tech Industrial Park S., Shenzhen, 518054 China
Tel: +86-755-2643-4858
Fax: +86-755-2664-6353
Email: market@adlinktech.com

LiPPERT ADLINK Technology GmbH

Address: Hans-Thoma-Strasse 11, D-68163, Mannheim, Germany
Tel: +49-621-43214-0
Fax: +49-621 43214-30
Email: emea@adlinktech.com

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

ADLINK Technology, Inc. (French Liaison Office)
Address: 15 rue Emile Baudot, 91300 Massy CEDEX, France
Tel: +33 (0) 1 60 12 35 66
Fax: +33 (0) 1 60 12 35 66
Email: france@adlinktech.com

ADLINK Technology Japan Corporation
Address: 〒101-0045 東京都千代田区神田鍛冶町 3-7-4
神田 374ビル 4F
KANDA374 Bldg. 4F, 3-7-4 Kanda Kajicho,
Chiyoda-ku, Tokyo 101-0045, Japan
Tel: +81-3-4455-3722
Fax: +81-3-5209-6013
Email: japan@adlinktech.com

ADLINK Technology, Inc. (Korean Liaison Office)
Address: 서울시 서초구 서초동 1675-12 모인터빌딩 8층
8F Mointer B/D,1675-12, Seocho-Dong, Seocho-Gu,
Seoul 137-070, Korea
Tel: +82-2-2057-0565
Fax: +82-2-2057-0563
Email: korea@adlinktech.com

ADLINK Technology Singapore Pte. Ltd.
Address: 84 Genting Lane #07-02A, Cityneon Design Centre,
Singapore 349584
Tel: +65-6844-2261
Fax: +65-6844-2263
Email: singapore@adlinktech.com

ADLINK Technology Singapore Pte. Ltd. (Indian Liaison Office)
Address: 1st Floor, #50-56 (Between 16th/17th Cross) Margosa Plaza,
Margosa Main Road, Malleswaram, Bangalore-560055, India
Tel: +91-80-65605817, +91-80-42246107
Fax: +91-80- 23464606
Email: india@adlinktech.com

ADLINK Technology, Inc. (Israeli Liaison Office)
Address: 6 Hasadna St., Kfar Saba 44424, Israel
Tel: +972-9-7446541
Fax: +972-9-7446542
Email: israel@adlinktech.com

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000