
MULTI INTERFACE CONTROLLER FOR TFT LCD SPECIFICATION

Model: BTP-LC-OPDF75M

Functions: DVI,HDMI, &DP in

Ver: 1.0

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INSTRUCTIONS

目录

CONTENTS

- Page: 2. 版本变更记录 Revision History.
3. 产品概述Introduction,General Specifications.
3. 产品PCB尺寸及结构图说明Controller dimensions .
4. 产品接口定义Connectors, Pinouts & Jumpers Information.
- 11.产品的遥控以及按键定义Schematics of IR Board&Key Board
- 11.运输、存储及使用要求Configuration&General Precautions

It is essential that these instructions are read and understood before connecting or powering up this controller.

■版本变更记录Revision History

修改日期 Date	版本号 Rev No.	变动页码 Page	版本变更描述 Summary
2022-07-28	PCB 版本 V1.1	全部 All	第一次发行 First issued

■概述 Introduction

BTP-LC-OPDF75M 是一款用于驱动 LVDS 接口输出的液晶显示控制板，可以支持到输出的分辨率最高为 1920*1200.

OPDF75M is a monitor control board, which is suitable for LVDS output. It can support LED/LCD panels which resolution is up to 1920*1200.

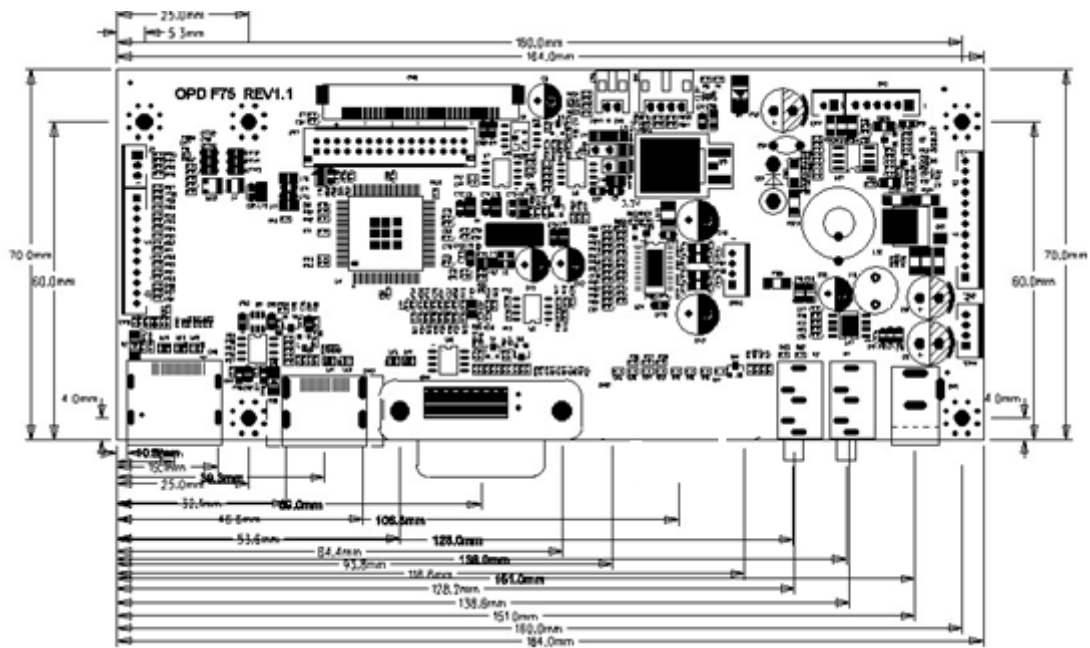
■General SPECIFICATIONS

配屏能 Panel compatibility	最大分辨率 Max Resolution : 1920*1200.
配色数 No. of colors	Up to 10 bit providing 1.06 billion colors.
供电电压 Panel power	DC 12V/5V/3.3V
供屏信号 Panel signal	Max 2ch LVDS
按键菜单功能键 OSD menu controls functions	POWER, LEFT,RIGHT,UP,DOWN,AUTO(默认)
产品结构尺寸 Controller dimensions	164mm x 70mm
产品功耗 Power consumption	10w approx. (not including panel power consumption)
输入电压 Input voltage	12VDC +/- 5%
产品电源保护 Power protection	Fuse fitted (Resettable)

LED 背光参数:

PARAMETER 参数	SYMBOL 符号	MIN 最小值	TYPICAL 典型值	MAX 最大值	UNIT 单位	REMARK 备注
LED CURRENT LED 电流(亮)	IL	225	250	275	mA	Vin=12V,Von/off=5V ADJ=0V,RL= PANEL (LED 总电流)
LED CURRENT LED 电流(暗)	IL	80	100	--	mA	Vin=12V,Von/off=5V ADJ=3.0V ,RL= PANEL (LED 总电流)
LED Array VOLTAGE LED 工作电压	Vp	20	50	55	Vrms	Vin=12V,Von/off=5V DIM=0V,RL= PANEL
OPEN VOLTAGE 开路电压	Vs	--	--	70	Vrms	Vin=12V,Von/off=5V RL=∞KΩ

■ 产品PCB 尺寸及结构图说明 Controller dimensions



CN7 LVDS OUTPUT	L9 焊上 OR(SV 屏)	CN20 Audio output	CN9 Temperature Sensor	CN1 Light sensor	CN17 CN3 backlight	CN2 Standby +Backlight control
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CN6 DP input	CN15 HDMI input	CN4 DVI input	CN12 VGA input reserved	P2 Audio Input	P7 Audio Output	CN5 DC Power
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■ 产品接口定义 CONNECTORS, PINOUTS & JUMPERS

The various connectors are:

Summary: Connectors

Ref	Purpose	Description
CN6	Displayport	Display port connector
CN4	DVI	DVI connector
CN12	VGA Reserved	DB-15 way high density 3 row
CN15	HDMI	HDMI connector
P2	Reserved for Speaker in	LINE IN BLACK
P7	Reserved for Earphone out	LINE OUT BLACK
CN5	ADAPTER DC Power input	ADAPTER DC Power input
CN14	DC Power input	PH2.0 4PIN 180°
C18	Key Board	PH2.0 11PIN 180°
CN2	STBY Backlight inverter	PH2.0 12PIN 180°
CN7	LVDS panel signal output	CON15*2-2.0 LVDS
CN20	Reserved for Speaker out	PH2.0 4PIN 180°
CN17	LightBar connector	PH2.0 2PIN 180°
CN3	LightBar connector	PH2.0 6PIN 180°
J3	IR connector	PH2.0 3PIN 180°
CN20	Audio Output	PH2.0 4PIN 180°
J5	PANNEL select	PANNEL select
CN9	WARMSENSE	PH2.0 2PIN 90°
CN1	LIGHTSENSE	PH2.0 4PIN 90°

CN5 DC POWER Connector: DC JACK Ø5.5/2.0mm

PIN	SYMBOL	DESCRIPTION
1	12V	ADAPER DC POWER 12V
2	GND	Groud
3	GND	Groud

CN14 DC POWER Connector: PH2.0 6pin

PIN	SYMBOL	DESCRIPTION
1	12V	ADAPER DC POWER 12V
2	12V	ADAPER DC POWER 12V
3	GND	Groud
4	GND	Groud

CN6 Display Port input

PIN	SYMBOL	DESCRIPTION
1	ML_Lane 0 (p)	Lane 0 (positive)
2	GND	Groud
3	ML_Lane 0 (n)	Lane 0 (negative)

4	ML_Lane 1 (p)	Lane 1 (positive)
5	GND	Ground
6	ML_Lane 1 (n)	Lane 1 (negative)
7	ML_Lane 2 (p)	Lane 2 (positive)
8	GND	Ground
9	ML_Lane 2 (n)	Lane 2 (negative)
10	ML_Lane 3 (p)	Lane 3 (positive)
11	GND	Ground
12	ML_Lane 3 (n)	Lane 3 (negative)
13	CONFIG1	connected to Ground
14	CONFIG2	connected to Ground
15	AUX CH (p)	Auxiliary Channel (positive)
16	GND	Ground
17	AUX CH (n)	Auxiliary Channel (negative)
18	Hot Plug	Hot Plug Detect
19	GND	Ground
20	DP_PWR	Power for connector (3.3 V 500 mA)

CN15 HDMI connector

PIN	SYMBOL	DESCRIPTION
1	DATA2+	TMDS Data2+
2	DATA2S	TMDS Data2 Shield
3	DATA2-	TMDS Data2-
4	DATA1+	TMDS Data1+
5	DATA1S	TMDS Data1 Shield
6	DATA1-	TMDS Data1-0
7	DATA0+	TMDS Data0+
8	DATA0S	TMDS Data0 Shield
9	DATA0-	TMDS Data0-
10	CLK+	TMDS Clock+
11	CLK@	TMDS Clock Shield
12	CLK-	TMDS Clock-
13	CEC	CEC
14	NC	No connection
15	SCL	SCL (I ² C Serial Clock for DDC)
16	SDA	SDA (I ² C Serial Data Line for DDC)
17	CEC/GND	Ground
18	+5V	+5 V Power (max 50 mA)
19	HPDET	Hot Plug Detect

CN4 DVI IN 24+5(铆柱长 5.8MM)

PIN	SYMBOL	DESCRIPTION
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1	RX2-	TMDS Data 2-
2	RX2+	TMDS Data 2+
3	GND	Digital Groud
4	NC	No connection
5	NC	No connection
6	DDC_CLK	DDC Clock
7	DDC_DAT	DDC Data
8	NC	No connection
9	RX1-	TMDS Data 1-
10	RX1+	TMDS Data 1+
11	GND	Digital Groud
12	NC	No connection
13	NC	No connection
14	DDC_5V	+5V power supply for DDC(optional)
15	GND	Ground(+5,Analog H/V Sync)
16	NC	No connection
17	RX0-	TMDS Data 0-
18	RX0+	TMDS Data 0+
19	GND	Digital Groud
20	NC	No connection
21	NC	No connection
22	GND	Digital Groud
23	RXC+	TMDS Clock+
24	RXC-	TMDS Clock-
C1	NC	No connection
C2	NC	No connection
C3	NC	No connection
C4	HS_IN	Analog horizontal sync
C5	GND	Groud
C6	NC	No connection

CN12 Reserved Analog VGA in - 15 way connector(铆柱长 5.8MM)



CN18 -Key Board connector:PH2.0 10PIN

PIN	SYMBOL	DESCRIPTION
1	3.3V	NC
2	DOWN	For OSD Down Switch
3	UP	For OSD Up Switch
4	MENU	For OSD Menu Switch
5	AUTO	For Source Switch
6	+ /RIGHT	For OSD Right Switch
7	- /LEFT	For OSD Left Switch
8	GND	Ground
9	LED_O	Orange Color
10	LED_R	Red Color
11	POWER	For Power Switch

CN7-LVDS output connector:CON15*2-2.0 LVDS

PIN	SYMBOL	DESCRIPTION
1	PANEL_VCC	Panel power supply (+12V/5V/3.3V)
2	PANEL_VCC	Panel power supply (+12V/5V/3.3V)
3	PANEL_VCC	Panel power supply (+12V/5V/3.3V)
4	GND	GND
5	GND	GND
6	GND	GND
7	RX00-	Negative differential LVDS data bit A0
8	RX00+	Positive differential LVDS data bit A0
9	RX01-	Negative differential LVDS data bit A1
10	RX01+	Positive differential LVDS data bit A1
11	RX02-	Negative differential LVDS data bit A2
12	RX02+	Positive differential LVDS data bit A2
13	GND	GND
14	GND	GND
15	RXOC-	Negative LVDS clock for A channel
16	RXOC+	Positive LVDS clock for A channel
17	RX03-	Negative differential LVDS data bit A3
18	RX03+	Positive differential LVDS data bit A3



19	RXE0-	Negative differential LVDS data bi B0
20	RXE0+	Positive differential LVDS data bit B0
21	RXE1-	Negative differential LVDS data bit B1
22	RXE1+	Positive differential LVDS data bit B1
23	RXE2-	Negative differential LVDS data bit B2
24	RXE2+	Positive differential LVDS data bit B2
25	GND	GND
26	GND	GND
27	RXEC-	Negative LVDS clock for B channel
28	RXEC+	Positive LVDS clock for B channel
29	RXE3-	Negative differential LVDS data bi B3
30	RXE3+	Positive differential LVDS data bit B3

CN20 Speaker Connector: PH2.0 4PIN 180°

PIN	SYMBOL	DESCRIPTION
1	R+	Speaker Right+
2	R-	Speaker Right-
3	L-	Speaker Left-
4	L+	Speaker Left+

CN2-Backlight inverter connector: PH2.0 11PIN(6P/2.0+5P/2.0)

PIN	SYMBOL	DESCRIPTION
1	GND	Ground
2	GND	Ground
3	ADJ	Backlight adjust
4	BL ON	Backlight On/Off control (enable)
5	12V	+12V DC, backlight power supply
6	12V	+12V DC, backlight power supply
7	NC	NC
8	GND	Ground
9	5V	DC Power Supply
10	5V	DC Power Supply
11	SB-5V	SB-5V
12	STB	StandBy

N3 LightBar connector: PH2.0 6pin

PIN	SYMBOL	DESCRIPTION
1	LED-	LED-
2	LED-	LED-
3	LED+	LED+
4	LED+	LED+
5	LED-	LED-



6	LED-	LED-
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CN17 LightBar connector: PH2.0 2pin

PIN	SYMBOL	DESCRIPTION
1	LED+	LED+
2	LED-	LED-

J3 Remote connector: PH2.0 3pin

PIN	SYMBOL	DESCRIPTION
1	5V+	5V+
2	GND	GND
2	IR	IR

CN20 Audio Output connector: PH2.0 4pin

PIN	SYMBOL	DESCRIPTION
1	R output+	R output+
2	R output-	R output-
3	L output+	L output+
4	L output-	L output-

P2 Reserved for Speak1er in: CK*3.5-37-B

PIN	SYMBOL	DESCRIPTION
1.2	LINE_IN_L	左输入
3..4	LINE_IN_R	右输入
5	GND	地

CN7 Reserved for Earphone out: CK*3.5-37-B

PIN	SYMBOL	DESCRIPTION
1.2	LINE_OUT_L	左输出
3..4	LINE_OUT_R	右输出
5	GND	地

CN9 WARMSENSE Connector: PH2.0 2PIN 90°

PIN	SYMBOL	DESCRIPTION
1	WARMSENSE IN	WARMSENSE IN
2	GND	GND

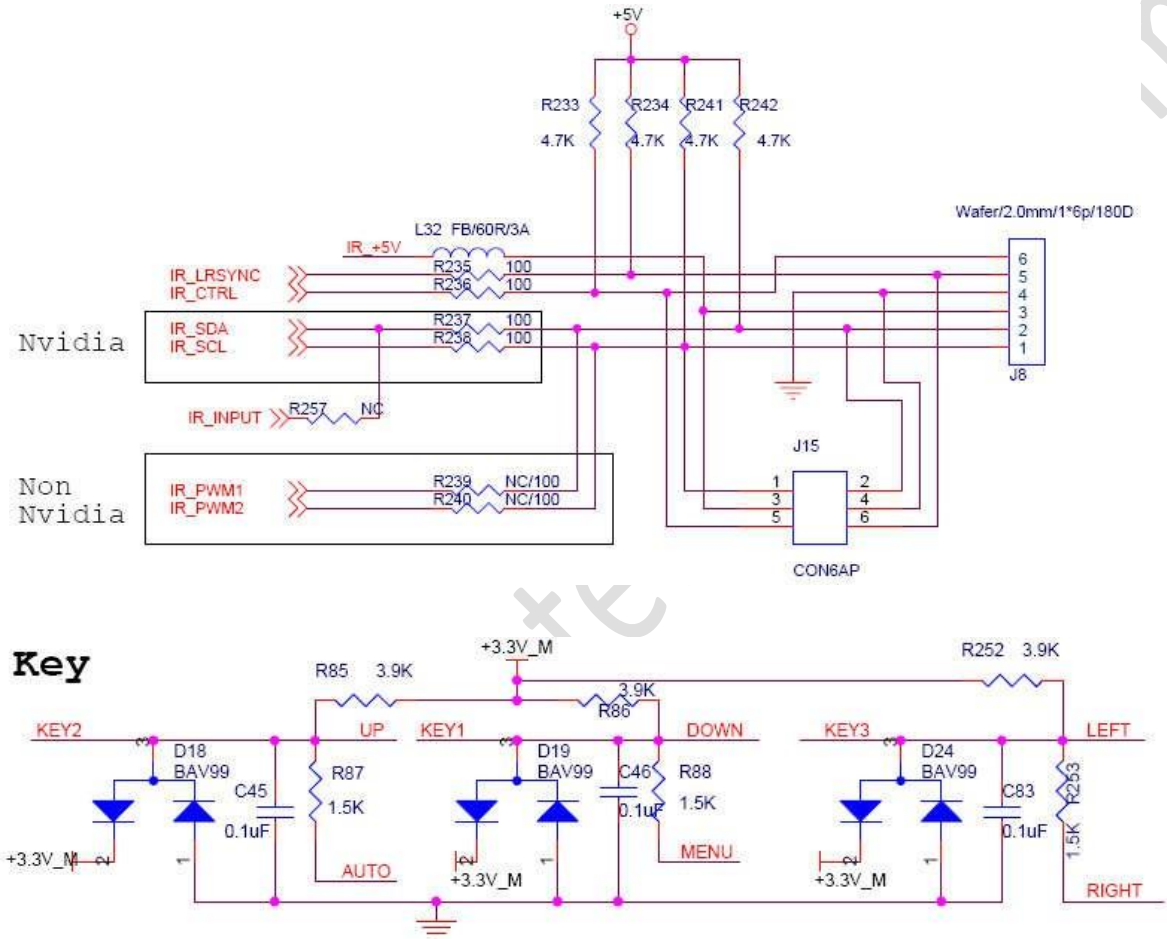
CN1 LIGHTSENSE Connector: PH2.0 4PIN 90°

PIN	SYMBOL	DESCRIPTION
1	+3.3V	+3.3V



2	SDA	SDA
3	SCL	SCL
4	GND	GND

■ 产品的遥控以及按键定义 SCHEMATICS OF IR BOARD & KEY BOARD



■ 运输、存储及使用要求 CONFIGURATION & GENERAL PRECAUTIONS

- Relative humidity: ≤ 80%.
- Storage temperature: -40~150°C.
- Operation temperature: 0~70°C.
- Protect the board from static electricity in case of damage to the IC.
- Keep the board away from conductor when it is working.
- Don't push or pull the connectors when the board is working.
- Don't press , distort or disassemble the board.
- Clean the board with soft dry cloth when it's dirty.
- Don't wire in the board to power supply before panel is correctly connected.