



MULTI-INNO TECHNOLOGY CO., LTD.

www.multi-inno.com

DRIVING BOARD SPECIFICATION

Model : MI-CON-N2

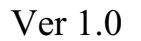
This module uses ROHS material

For Customer's Acceptance:

Customer	
Approved	
Comment	

The standard product specification may change without prior notice in order to improve performance or quality. Please contact Multi-Inno for updated specification and product status before design for the standard product or release of the order.

Revision	1.1
Engineering	
Date	2014-12-10
Our Reference	



P.2



CATALOGUE

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■ APPLICATION

This standard is applicable for the TTL/LVDS signal of industrial mainboard and ARM board to drive LCD directly. The advantage is to reduce the R&D period of driving different sizes of LCD, and easy assembly.

■ FUNCTION DESCRIPTION

1. LVDS to TTL

1.1 Transferring 6bit LVDS signal into TTL signal to drive TFT LCD directly.

1.2 Built-in LCD B/L driving circuit

2. TTL to TTL

1.1 Use the TTL signal of LCD with 40pin to drive the LCD with double 30pin without TCON.

1.2 Built-in LCD B/L driving circuit without external LED drive.

■ OPERATION ENVIRONMENT

1. Temperature: -20°C ~ +70°C

2. Humidity: 90%RH (without water condensation)

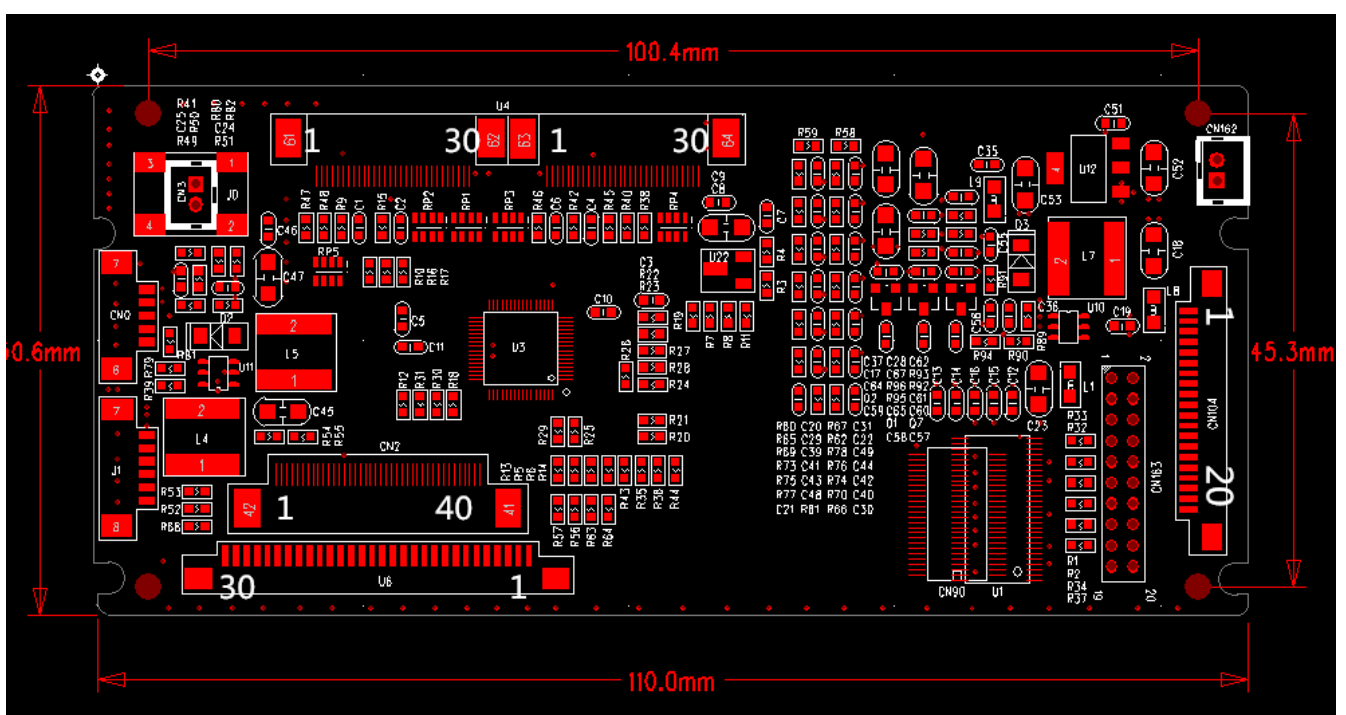
■ STORAGE ENVIRONMENT

1. Temperature: -20°C ~ +80°C

2. Humidity: 90%RH (without water condensation)

■ PRODUCT SPECIFICATION

1. Structure (Unit:mm)--PCB(thickness 4.5mm incl. component)





2. Interface definition

CN2(TTL input) 40PIN/0.5mm

Pin	Define	Description
1	VCC	Lcd Power 5.0V
2	VCC	Lcd Power 5.0V
3	ON/OFF	Backlight control signal
4	GND	Ground
5	GND	Ground
6	VCC	Lcd Power 3.3V
7	VCC	Lcd Power 3.3V
8	NC	No
9	DE	Enable signal
10	VS	Horizontal sync input
11	HS	Vertical sync input
12	GND	Ground
13	B5	Blue signal
14	B4	Blue signal
15	B3	Blue signal
16	GND	Ground
17	B2	Blue signal
18	B1	Blue signal
19	B0	Blue signal
20	GND	Ground
21	G5	Green signal
22	G4	Green signal
23	G3	Green signal
24	GND	Ground
25	G2	Green signal
26	G1	Green signal
27	G0	Green signal
28	GND	Ground
29	R5	Red signal
30	R4	Red signal
31	R3	Red signal
32	GND	Ground
33	R2	Red signal
34	R1	Red signal
35	R0	Red signal
36	GND	Ground
37	DCLK	Clock
38	GND	Ground
39	L/R	Left/Right selection
40	U/D	Up/Down selection



U6 (TTL input) 30PIN/1.0mm

Pin	Define	Description
1	VCC	3.3V
2	VCC	3.3V
3	GND	Ground
4	GND	Ground
5	DE	Enable signal
6	GND	Ground
7	R5	Red signal
8	R4	Red signal
9	R3	Red signal
10	R2	Red signal
11	R1	Red signal
12	R0	Red signal
13	GND	Ground
14	G5	Green signal
15	G4	Green signal
16	G3	Green signal
17	G2	Green signal
18	G1	Green signal
19	G0	Green signal
20	GND	Ground
21	B5	Blue signal
22	B4	Blue signal
23	B3	Blue signal
24	B2	Blue signal
25	B1	Blue signal
26	B0	Blue signal
27	GND	Ground
28	DCLK	Clock signal
29	GND	Ground
30	GND	Ground

CN104 (LVDS input) 20PIN/1.0mm

Pin	Define	Description
1	NC	No
2	NC	No
3	NC	No
4	NC	No
5	VCC	3.3V
6	VCC	3.3V
7	VCC	3.3V
8	GND	Ground
9	RXCLK+	Clock output signal +
10	RXCLK-	Clock output signal -
11	RXIN2+	Channel 2 input signal +
12	RXIN2-	Channel 2 input signal -
13	RXIN1+	Channel 1 input signal +
14	RXIN1-	Channel 1 input signal -
15	RXIN0+	Channel 0 input signal +
16	RXIN0-	Channel 0 input signal -
17	NC	No
18	NC	No
19	GND	Ground
20	GND	Ground

J0 (LED backlight power) 2PIN

Pin	Define	Description
1	LED+	Backlight voltage +
2	LED-	Backlight voltage -

U4 (FPC power) 30PIN*2/0.5mm

Pin	Define	Description
1	POL	Polarity selection
2	STVD	Vertical start pulse input when U/D= H
3	OEV	Output enable
4	CKV	Vertical clock
5	STVU	Vertical start pulse input when U/D= L
6	GND	Power ground
7	EDGSL	Select rising edge or rising/falling edge
8	VCC	Power supply for digital circuit
9	V9	Gamma voltage level 9
10	VGL	Gate OFF voltage
11	V2	Gamma voltage level 2
12	VGH	Gate ON voltage
13	V6	Gamma voltage level 6



Pin	Define	Description
14	U/D	Up/down selection
15	VCOM	Common voltage
16	GND	Power ground
17	AVDD	Power supply
18	V14	Gamma voltage level 14
19	V11	Gamma voltage level 11
20	V8	Gamma voltage level 8
21	V5	Gamma voltage level 5
22	V3	Gamma voltage level 3
23	GND	Power ground
24	R5	Red data(MSB)
25	R4	Red data
26	R3	Red data
27	R2	Red data
28	R1	Red data
29	R0	Red data(LSB)
30	GND	Power ground
31	GND	Power ground
32	G5	Green data(MSB)
33	G4	Green data
34	G3	Green data
35	G2	Green data
36	G1	Green data
37	G0	Green data(LSB)
38	STHL	Horizontal start pulse input when R/L = L
39	REV	Control signal are inverted or not
40	GND	Power ground
41	DCLK	Sample clock
42	VCC	Voltage for digital circuit
43	STHR	Horizontal start pulse input when R/L = L
44	LD	Latches the polarity of outputs and switches the new data to outputs
45	B5	Blue data (MSB)
46	B4	Blue data
47	B3	Blue data
48	B2	Blue data
49	B1	Blue data
50	B0	Blue data(LSB)
51	R/L	Right/ left selection
52	V1	Gamma voltage level 1
53	V4	Gamma voltage level 4
54	V7	Gamma voltage level 7
55	V10	Gamma voltage level 10
56	V12	Gamma voltage level 12
57	V13	Gamma voltage level 13
58	AVDD	Voltage for analog circuit
59	GND	Power ground
60	VCOM	Common voltage

■ ELECTRIC PARAMETERS

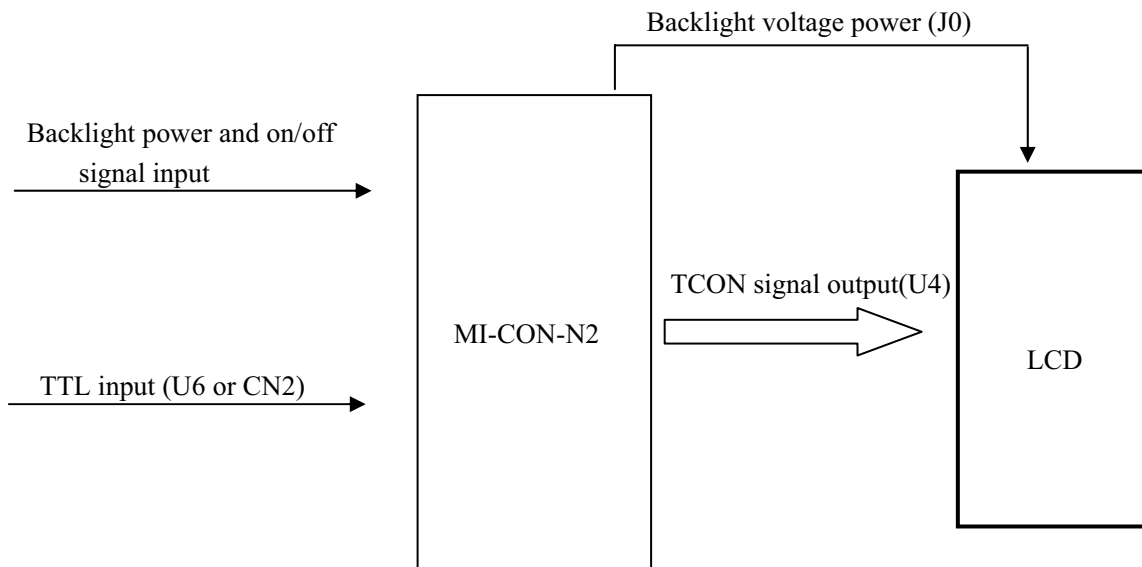
1. Power consumption

(Ta=25℃)

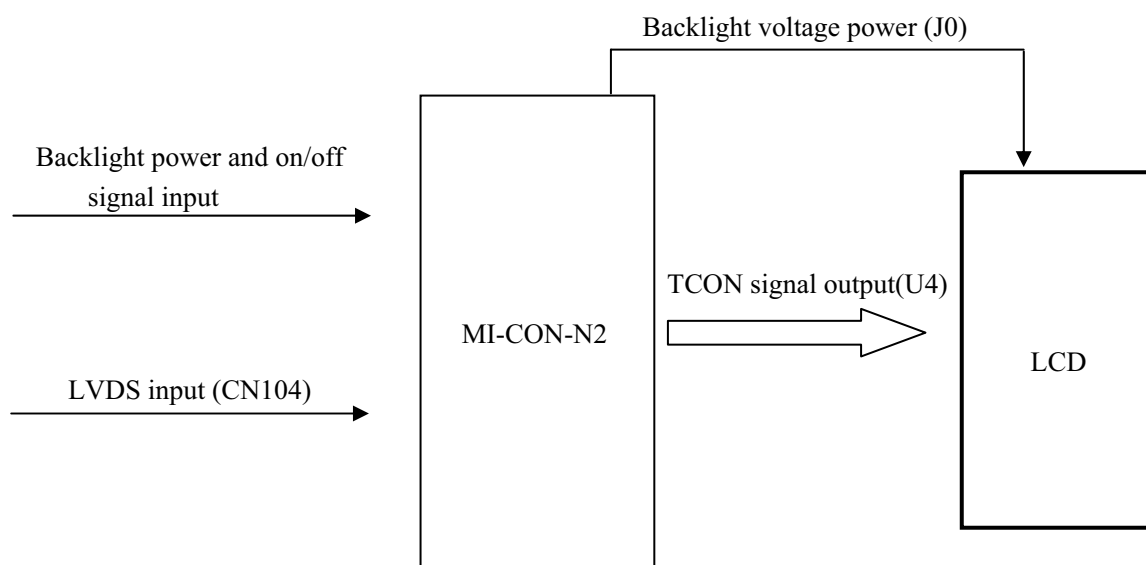
Input voltage (Vin)	Input current (Iin)				Remark
	Min.	Typ.	Max.	Unit	
+3.3V	/	100	/	mA	
5V	/	360	/	mA	

■ ELECTRIC CIRCUIT

1. TTL input signal



2. LVDS input signal



■ RELIABILITY TEST CONDITIONS

Item		Test condition	Quantity	Criteria
Storage environment Test	High Temperature	+70℃ 96Hr	2	Operating ok at room temperature
	Low Temperature	-20℃ 96Hr	2	
Operating environment Test	High Temperature	+60℃ 96Hr	2	OK
	Low Temperature	-10℃ 96Hr	2	
Turn On at low temperature		Storage at -20℃ 40min → turn on 2Hour → turn on 4times (1times/5min) 4Hour → turn on 4times (1times/5min) 8Hour → turn on	2	
Thermal Shock		-20℃ 30min → 25℃ 30min → 70℃ operating 30 cycles.	2	
Operate at High temperature and Humidity		+60℃ 90%RH operating 240 hours.	2	

Notes:

1. Test at the environment no water condensation
2. After test,store the product in oven 24hours(min.),at room temperature and humidity condition.

■ DELIVERY INSPECTION CRITERION

No.	Item	Method	Sampling Criteria	Criteria
1	Electrical characteristic	GB2828-2003	II	Serious Defects: CR=0
2	Dimension			Major Defects: AQL=0.65
3	Appearance / Package			Minor Defects: AQL=1.0