

PRODUCT SPECIFICATION

PART NUMBER #REV: FL-AD24

DESCRIPTION: AD Board VGA / DVI-D / Display Port with OSD and OSD cable
Power in 14 to 32V

- () Preliminary Specification
- (V) Approved Specification

Customer Name:	
Signature:	Date:

PREPARED BY	REVIEWED BY	SIGNATURE DATE
<i>Jerry</i>	<i>David</i>	<i>2020/10/23</i>

Revision History

Spec Version	Date	Page	Description	Note
V1.0	2020/10/23		1 st initial	

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TEXIM-EUROPE

1. SCOPE

The FT_AD24 is LCD Controller board with compact size and high performance which can support Display port 1.2 and VGA as well as DVI-D Source input source

1.1 PRODUCT FEATURES VIDEO

- Horizontal Synchronization 30 KHz to 83 KHz.
- Vertical Synchronization 55 Hz to 75 Hz.
- Support Display Port 1.2
- Support DVI-D
- Support VGA Dsub
- Output data type : LVDS 18bit,24bit,36Bit,48bit.

POWER IN

- Input : +24V (range 14V to 32V DC) Power Input
- Output for LCD panel : 3.3V / 5V
- VESA DPMS compliant.

2. ELICTRICAL PERFORMANCE

All tests must be performed under "standard testing conditions"
(item 2.1) unless otherwise specified.

2.1 OPERTION TEMPERATURE

- Warm up time : ≥ 30 min.
- Operation Temperature : $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Storage Temperature : $-30^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- Operation Humidity : 10% \sim 80%
- Storage T Humidity : 5% \sim 90%

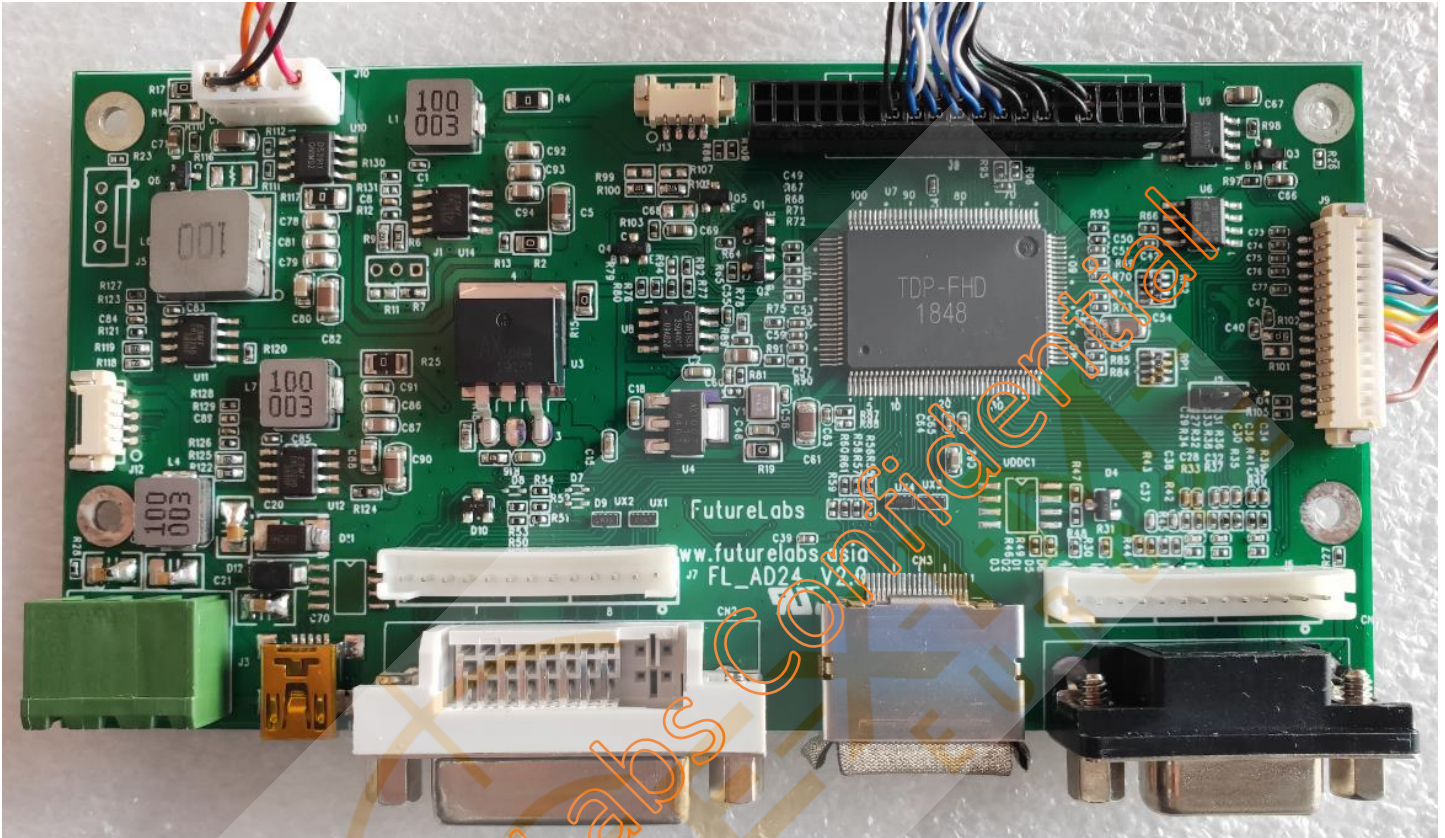
2.2 PRESET TIMING CHART

2.2.2 FACTORY PRESETTED AND PREDEFINED TIMINGS

VESA MODES			
Mode	Resolution	Horizontal Frequency	Vertical Frequency
1	640 × 480@60Hz	31.469 KHz	59.940 Hz
2	640 × 480@72Hz	37.861 KHz	72.809 Hz
3	640 × 480@75Hz	37.500 KHz	75.00 Hz
4	800 × 600@56Hz	35.156 KHz	56.250 Hz
5	800 × 600@60Hz	37.879 KHz	60.317 Hz
6	800 × 600@72Hz	48.077 KHz	72.188 Hz
7	800 × 600@75Hz	46.875 KHz	75.000 Hz
8	1024 × 768@60Hz	48.363 KHz	60.004 Hz
9	1024 × 768@70Hz	56.476 KHz	70.609 Hz
10	1024 × 768@75Hz	60.023 KHz	75.029 Hz
11	1280 × 1024@60Hz	63.981 KHz	60.020 Hz
12	1280 × 1024@75Hz	79.976 KHz	75.025 Hz
13	1360 × 768@60Hz	47.712 KHz	60.015 Hz
14	1440 × 900@60Hz	55.935 KHz	59.887 Hz
15	1440 × 900@75Hz	70.635 KHz	74.984 Hz
16	1680 × 1050@60Hz	65.290 KHz	59.954 Hz
17	1680 × 1050@75Hz	82.306 KHz	74.892 Hz
18	1920 × 1080@60Hz	67.158 KHz	59.963 Hz

3. DIMENSIONS

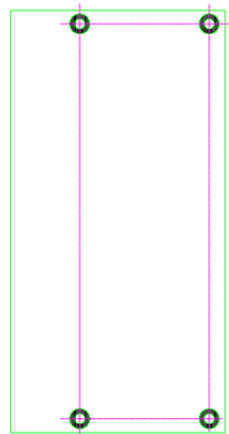
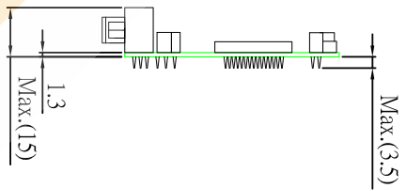
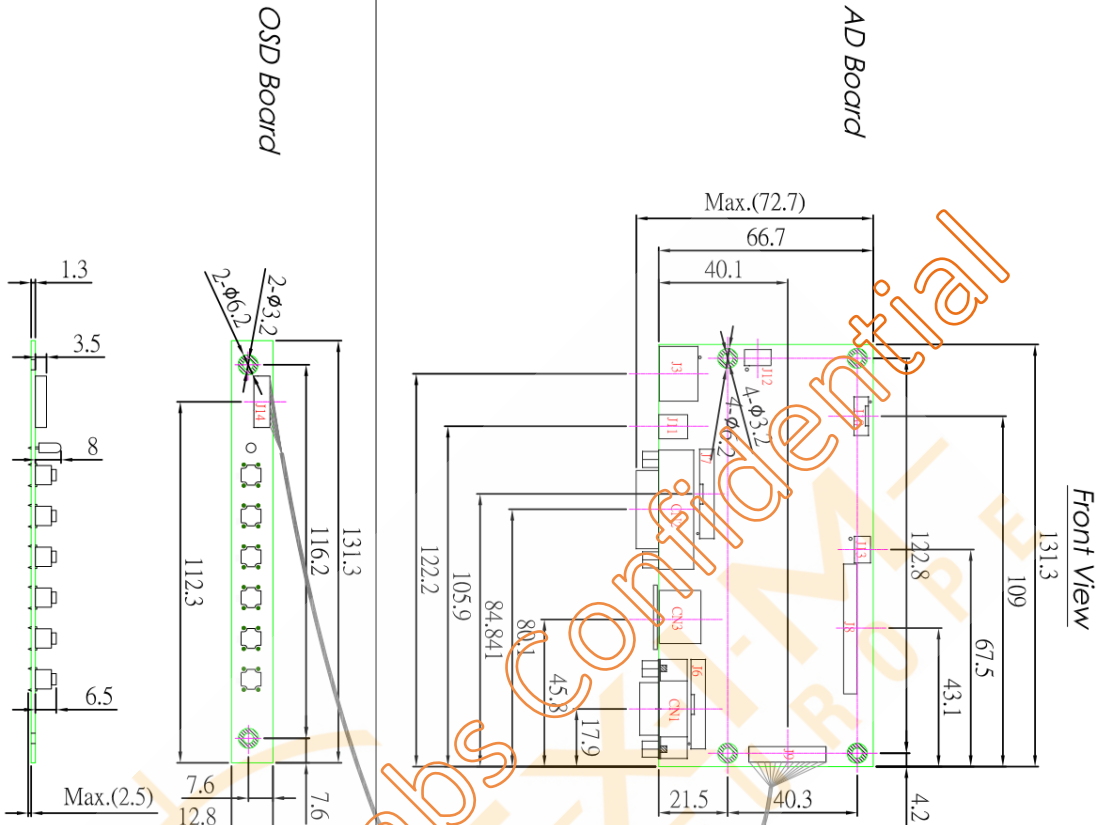
3.1 COMPONENT



OSD



Note:
General Tolerance: ± 0.5



Connector No.	Pin No.	Function
J13	3 Pins	Power connector, AMER30-50003
J16	13 Pins	VGA Pin-Header 13 pin, IST 2.0
J15	13 Pins	DVI Pin-Header 13 pin, IST 2.0
J14	13 Pins	LVIDS output connector, 13 pin, IST 2.0
CN3	24 Pins	OSD, Molex 51021, 15pin, 1.25mm
CN1	24 Pins	Backlight connector 5 Pin 2.0mm
CN2	24 Pins	Mini USB connector
CN3	20 Pins	USB Pass Through, Molex 51021, 4pin, 1.25mm
J12	4 Pins	I2C Molex 51021, 4pin, 1.25mm
J13	4 Pins	OSD, Molex 51021, 10pin, 1.25mm
J14	13 Pins	OSD, Molex 51021, 10pin, 1.25mm
CN1	24 Pins	VGA input connector D-Sub
CN2	24 Pins	DVI input connector
CN3	20 Pins	Display Port connector

Customer Approval

Date	Drawn	Ver.	Date	Person	Description	Part Number # REV	FL-AD24
Company Name							
Signature							

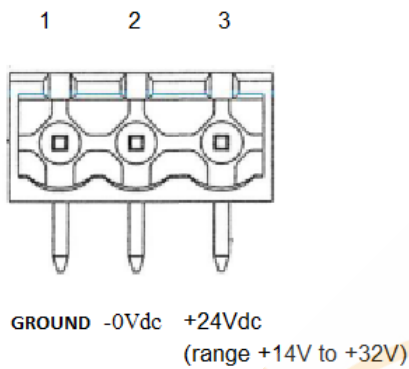
First Drawing: 20201009



4. CONNECTOR

4.1 POWER CONNECTOR -- J3 (3pin) - ME030-50003

PIN	Symbol	Description
1	GROUND	GROUND
2	GND	-0Vdc
3	Power In	+24Vdc (range +14V to +32V)



4.2 (Optional customization under Request) POWER CONNECTOR (J4) Wafer 4 Pin 2.0mm

PIN	Symbol	Description
1	Power In	+24Vdc (range +14V to +32V)
2	GND	-0Vdc
3	GND	-0Vdc
4	Power In	+24Vdc (range +14V to +32V)

4.3 VGA INPUT CONNECTOR (CN1 —D-Sub 15 Pin)

PIN	Symbol	Description	PIN	Symbol	Description
1	VGA IN R	Red analog signal	9	DDC_VDD	DDC power supply
2	VGA IN G	Green analog signal	10	GND	GND
3	VGA IN B	Blue analog signal	11	N.C	N.C
4	N.C	N.C	12	DDC SDA	DDC Serial Data
5	GND	GND	13	Hor. SYNC	Horizontal synchronous
6	GND-R	Analog ground of Red	14	Ver. SYNC	Vertical synchronous
7	GND-G	Analog ground of Green	15	DDC SCL	DDC Serial Clock
8	GND-B	Analog ground of Blue			

4.4 VGA Pin-Header (J6 Wafer connector 13 Pin 90/JST 2.0mm)

PIN	Symbol	Description	PIN	Symbol	Description
1	GND	GND	7	GREEN	Analog Green Color
2	DDC_SCL	DDC_SCL	8	GND	GND
3	DDC_SDA	DDC_SDA	9	BLUE	Analog Blue Color
4	GND	GND	10	GND	GND
5	RED	Analog Red color	11	VSYNC	Vertical Sync
6	GND	GND	12	HSYNC	Horizontal Sync
			13	GND	GND

4.5 DVI-D INPUT CONNECTOR (CN2 – 24 pin)



Pin No	Symbol	Pin No	Symbol	Pin No	Symbol
1	TMDS 2-	9	TMDS 1-	17	TMDS 0-
2	TMDS 2+	10	TMDS 1+	18	TMDS 0+
3	2/4 shield	11	1/3 shield	19	0/5 shield
4	TMDS 4-	12	TMDS 3-	20	TMDS 5-
5	TMDS 4+	13	TMDS 3+	21	TMDS 5+
6	DDC_SCL	14	DVI 5V	22	CLK shield
7	DDC_SDA	15	Sync Gnd	23	TMDS CLK+
8	Vertical sync	16	Hot Plug	24	TMDS CLK-

4.6 DVI Pin-Header (J7 Wafer connector 13 Pin 90/JST 2.0mm)

PIN	Symbol	Description	PIN	Symbol	Description
1	DVI CLK-	TMDS CLOCK-	7	GND	GND
2	DVI CLK+	TMDS CLOCK+	8	DVI 2+	TMDS 2+
3	DVI_HOTPLUG	HOT PLUG	9	DVI 2-	TMDS 2-
4	DVI_SDA	EDID_SDA	10	DVI 1+	TMDS 1+
5	DVI_SCL	EDID_SCL	11	DVI 1-	TMDS 1-
6	DVI POWER	5V	12	DVI 0+	TMDS 0+
			13	DVI 0-	TMDS 0-

4.7 Display Port CONNECTOR (CN3)—D-20P

PIN	Symbol	PIN	Symbol
1	Lane3N	11	GND
2	GND	12	Lane0P
3	Lane3P	13	GND
4	Lane2N	14	GND
5	GND	15	AUX_Channel_P
6	Lane2P	16	GND
7	Lane1N	17	AUX_Channel_N
8	GND	18	Hot Plug
9	Lane1P	19	Return
10	Lane0N	20	DP_Power 5V

4.8 USB CONNECTOR (J12) -- Wafer Molex 51021 4 pins 1.25mm

PIN	Symbol	Description
1	VCC	VCC-USB
2	D-	D-
3	D+	D+
4	GND	GND

4.9 I2C CONNECTOR (J13) -- Wafer Molex 51021 4 pins 1.25mm

PIN	Symbol	Description
1	VCC	VCC_I2C 3,3V
2	TP_SCL	Touch_SCL
3	TP_SDA	Touch_SDA
4	GND	GND

4.10 LVDS OUTPUT CONNECTOR (J8) -- Header 2×20 Pin 2.0mm

PIN	Symbol	Description	PIN	Symbol	Description
1	GPIO1	GPIO1	21	RxO2-	RxO2-
2	GPIO2	GPIO2	22	RxO2+	RxO2+
3	GPIO3	GPIO3	23	RxO1-	RxO1-
4	GPIO4	GPIO4	24	RxO1+	RxO1+
5	GPIO5	GPIO5	25	RxO0-	RxO0-
6	GPIO6	GPIO6	26	RxO0+	RxO0+
7	BK_PWR	BK_PWR *	27	GND	GND
8	GPIO8	GPIO8	28	GND	GND
9	VDD	VDD *	29	RxE3-	RxE3-
10	VDD	VDD *	30	RxE3+	RxE3+
11	BK_EN	BK_EN	31	RxEC-	RxEC-
12	LED_PWM	LED_PWM	32	RxEC+	RxEC+
13	GND	GND	33	RxE2-	RxE2-
14	GND	GND	34	RxE2+	RxE2+
15	GND	GND	35	RxE1-	RxE1-
16	GND	GND	36	RxE1+	RxE1+
17	RxO3-	RxO3-	37	RxE0-	RxE0-
18	RxO3+	RxO3+	38	RxE0+	RxE0+
19	RxOC-	RxOC-	39	GND	GND
20	RxOC+	RxOC+	40	GND	GND

4.11 Backlight CONNECTOR (J10)--Wafer 5 Pin 2.0mm

PIN	Symbol	Description
1	+12V	Power Supply +12V
2	GND	GND
3	BK_PWM	Dimming Control by digital PWM mode
4	BK_ADJ	Dimming Control by Analog mode
5	BL_EN	Penal Backlight On/Off control

4.12 Keypad SELECTION (J9)--Wafer Molex 51021-15pin 1.25mm

Pin	Function	Note
1	SW1	POWER
2	SW2	MENU/ENTER
3	SW3	DOWN/ AUTO ADJUST
4	SW4	UP / AUTO COLOR
5	SW5	DOWN/AUTO ADJUST(Reserve)
6	LED-G	LED GREEN
7	LED-R	LED RED
8	GND	GND
9	SW6	UP / AUTO COLOR
10	LED_POWER	3.3V
11	Reserved	
12	Reserved	
13	GND	GND
14	Reserved	UART/DDC_SCL
15	Reserved	UART/DDC_SDA

4.13 Output LCD Power Setting table (J1, 3 Pin , pitch=2.0mm)

LCD VDD Power	Description
3.3V	Pin 1 / Pin2 are shorted
5V	Open for Pin1/ Pin2/ Pin3
12V	NA

The Netherlands



Elektrostraat 17
NL-7483 PG Haaksbergen

T: +31 (0)53 573 33 33
F: +31 (0)53 573 33 30
E: nl@texim-europe.com

Belgium



Zuiderlaan 14 bus 10
B-1731 Zellik

T: +32 (0)2 462 01 00
F: +32 (0)2 462 01 25
E: belgium@texim-europe.com

UK & Ireland



St. Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
F: +44 (0)845 299 22 26
E: uk@texim-europe.com

Germany North



Bahnhofstrasse 92
D-25451 Quickborn

T: +49 (0)4106 627 07-0
F: +49 (0)4106 627 07-20
E: germany@texim-europe.com

Germany South



Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
F: +49 (0)89 436 086-19
E: germany@texim-europe.com

Austria



Warwitzstrasse 9
A-5020 Salzburg

T: +43 (0)662 216 026
F: +43 (0)662 216 026-66
E: austria@texim-europe.com

Nordic region



Sdr. Jagtvej 12
DK-2970 Hørsholm

T: +45 88 20 26 30
F: +45 88 20 26 39
E: nordic@texim-europe.com

Italy



Via Matteotti 43
IT-20864 Agrate Brianza (MB)

T: +39 (0)39 971 3293
F: +39 (0)39 971 3293
E: italy@texim-europe.com

General information



info@texim-europe.com
www.texim-europe.com