LCD-OLinuXino

Selection Guide

Rev.1.2 July 2025

olimex.com

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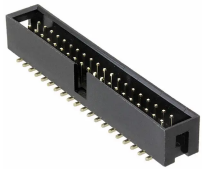
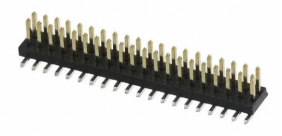
LCD-OLinuXino boards LCD connector

The LCD-OLinuXino connector can be any of these three types:

- 40 pin 0.1” step 2x20 connector as in A20-OLinuXino-MICRO board (Digikey 1175-1626-ND)



- 40 pin 0.05” step 2x20 connector as in A20-OLinuXino-LIME and LIME2 (Digikey 952-3095-2-ND)



- 40 pin FPC Flat cable connector as in A33 and A64-OLinuXino (Digikey 609-1200-2-ND)

This 40 pin connector allows RGB or LVDS LCDs to be connected sharing same layout.

The connector supports analog touch screens and digital touch screens (capacitive or resistive) sharing same layout.

Note that LIME and LIME2 share same connector type but the signals are with mirror. It’s odd legacy problem which is hard to unify with thousands of boards in operation at customers.

LCD RGB connector pinouts:

LIME 0.05” RGB

Top view:

Ground	GND	2	o o	1	+5V in	Default power pin; 5V power supply required
Ground	GND	4	o o	3	+3.3V in	Optional power pin 3.3V (requires jumper change)
Data bit 1 red	LCD_R1	6	o o	5	LCD_R0	Data bit 0 red
Data bit 3 red	LCD_R3	8	o o	7	LCD_R2	Data bit 2 red
Data bit 5 red	LCD_R5	10	o o	9	LCD_R4	Data bit 4 red
Data bit 7 red	LCD_R7	12	o o	11	LCD_R6	Data bit 6 red
Data bit 1 green	LCD_G1	14	o o	13	LCD_G0	Data bit 0 green
Data bit 3 green	LCD_G3	16	o o	15	LCD_G2	Data bit 2 green
Data bit 5 green	LCD_G5	18	o o	17	LCD_G4	Data bit 4 green
Data bit 7 green	LCD_G7	20	o o	19	LCD_G6	Data bit 6 green
Data bit 1 blue	LCD_B1	22	o o	21	LCD_B0	Data bit 0 blue
Data bit 3 blue	LCD_B3	24	o o	23	LCD_B2	Data bit 2 blue
Data bit 5 blue	LCD_B5	26	o o	25	LCD_B4	Data bit 4 blue
Data bit 7 blue	LCD_B7	28	o o	27	LCD_B6	Data bit 6 blue
Vertical sync	LCD_VSYNC*	30	o o	29	LCD_HSYNC*	Horizontal sync
Data enable	LCD_DE	32	o o	31	LCD_CLK	Data clock
NA or scan mode up-down	LCD_U/D**	34	o o	33	LCD_L/R**	NA or scan mode left-right
LCD backlight PWM=0V/0%= max PWM=3.3V/100% = min	LCD_BKL	36	o o	35	LCD_PWRE	LCD power on-off; 3.3V =ON; 0V =OFF
NA or resistive touch X2 or capacitive touch RESET	NA/RTP-X2/CTP-RST***	38	o o	37	NA/RTP-X1/CTP-INT***	NA or resistive touch X1 or capacitive touch INT
NA or resistive touch Y2 or I2C SDA	NA/RTP-Y2/CTP-SDA***	40	o o	39	NA/RTP-Y1/CTP-SCL***	NA or resistive touch Y1 or I2C SCL

* LCD_HSYNC and LCD_VSYNC are not used in LCD-OLinuXino-4.3 or its variants

** By default there is nothing connected but some displays might have the option to enable scanning mode direction on those pins by modifying SMT jumpers; the displays are set by default in “Up to Down, Left to Right” mode

*** If the display has no touch screen connected, then there is nothing on pins 37-40; if it named LCD-OLinuXino-xTS then there are X1, X2, Y1, Y2 analog signals present; if it is named LCD-OLinuXino-xRTS or LCD-OLinuXino-xCTS then there are interrupt, reset and I2C (“x” is the size of the display, 4.3, 5, 7, 10)

MICRO 0.1”, LIME2 0.05”, FPC40 RGB

Top view:

Default power pin; 5V power supply required	+5V in	1	o o	2	GND	Ground
Optional power pin 3.3V (requires jumper change)	+3.3V in	3	o o	4	GND	Ground
Data bit 0 red	LCD_R0	5	o o	6	LCD_R1	Data bit 1 red
Data bit 2 red	LCD_R2	7	o o	8	LCD_R3	Data bit 3 red
Data bit 4 red	LCD_R4	9	o o	10	LCD_R5	Data bit 5 red
Data bit 6 red	LCD_R6	11	o o	12	LCD_R7	Data bit 7 red
Data bit 0 green	LCD_G0	13	o o	14	LCD_G1	Data bit 1 green
Data bit 2 green	LCD_G2	15	o o	16	LCD_G3	Data bit 3 green
Data bit 4 green	LCD_G4	17	o o	18	LCD_G5	Data bit 5 green
Data bit 6 green	LCD_G6	19	o o	20	LCD_G7	Data bit 7 green
Data bit 0 blue	LCD_B0	21	o o	22	LCD_B1	Data bit 1 blue
Data bit 2 blue	LCD_B2	23	o o	24	LCD_B3	Data bit 3 blue
Data bit 4 blue	LCD_B4	25	o o	26	LCD_B5	Data bit 5 blue
Data bit 6 blue	LCD_B6	27	o o	28	LCD_B7	Data bit 7 blue
Horizontal sync	LCD_HSYNC*	29	o o	30	LCD_VSYNC*	Vertical sync
Data clock	LCD_CLK	31	o o	32	LCD_DE	Data enable
NA or scan mode left-right	LCD_L/R**	33	o o	34	LCD_U/D**	NA or scan mode up-down
LCD power on-off; 3.3V =ON; 0V =OFF	LCD_PWRE	35	o o	36	LCD_BKL	LCD backlight PWM=0V/0%= max PWM=3.3V/100% = min
NA or resistive touch X1 or capacitive touch INT	NA/RTP-X1/CTP-INT***	37	o o	38	NA/RTP-X2/CTP-RST***	NA or resistive touch X2 or capacitive touch RESET
NA or resistive touch Y1 or I2C SCL	NA/RTP-Y1/CTP-SCL***	39	o o	40	NA/RTP-Y2/CTP-SDA***	NA or resistive touch Y2 or I2C SDA

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MICRO 0.1”, LIME2 0.05”, FPC40 LVDS

Top view:

Default power pin; 5V power supply required	+5V in	1	o o	2	GND	Ground
Optional power pin 3.3V (requires jumper change)	+3.3V in	3	o o	4	GND	Ground
LVDS Clock Data Input (Even); FHD only	RXEC+	5	o o	6	RXEC-	LVDS Clock Data Input (Even) ; FHD only
	NC	7	o o	8	NC	
	NC	9	o o	10	NC	
Enable Control Signal of LED Converter	VLED_EN	11	o o	12	VPWM_EN*	LCD backlight PWM=0V/0%= max PWM=3.3V/100% = min
	NC	13	o o	14	NC	
LVDS Differential Data Input (Even); FHD only	RXE0+	15	o o	16	RXE0-	LVDS Differential Data Input (Even); FHD only
LVDS Differential Data Input (Even); FHD only	RXE1+	17	o o	18	RXE1-	LVDS Differential Data Input (Even); FHD only
LVDS Differential Data Input (Even); FHD only	RXE2+	19	o o	20	RXE2-	LVDS Differential Data Input (Even); FHD only
LVDS Differential Data Input (Odd)	LVDS0_VP0	21	o o	22	LVDS0_VN0	LVDS Differential Data Input (Odd)
LVDS Differential Data Input (Odd)	LVDS0_VP1	23	o o	24	LVDS0_VN1	LVDS Differential Data Input (Odd)
LVDS Differential Data Input (Odd)	LVDS0_VP2	25	o o	26	LVDS0_VN2	LVDS Differential Data Input (Odd)
LVDS Clock Data Input (Odd)	LVDS0_VPC	27	o o	28	LVDS0_VNC	LVDS Clock Data Input (Odd)
DDC clock	CLK_EDID	29	o o	30	DAT_EDID	DDC data
Unused; Reserved for future use	DCR_EN	31	o o	32	IMG_EN	Unused; Reserved for future use
	NC	33	o o	34	NC	
LCD power on-off; 3.3V =ON; 0V =OFF	LCD_PWRE	35	o o	36	LCD_BKL	LCD backlight enable in 3.3V; disable when 0
	NC	37	o o	38	NC	
	NC	39	o o	40	NC	

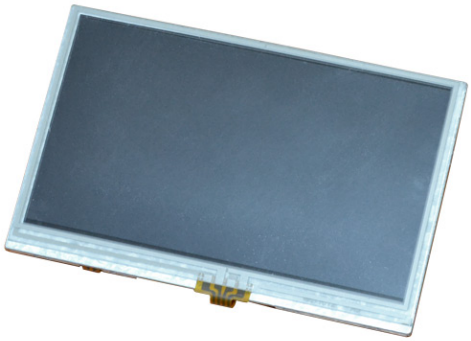
* Even differential data signals present only in the FHD version of the display; these signals are not present when using HD-ready version 1366x768 resolution.

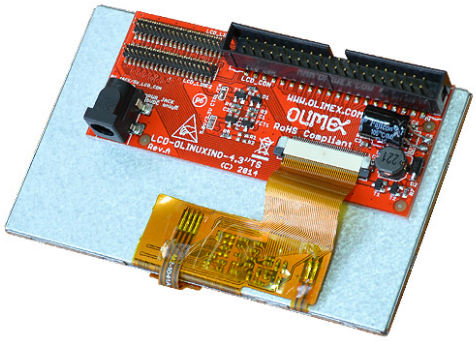
* In LCD-OLinuXino-15.6FHD revision E or older #12 VPWM_EN is used for the backlight PWM; in LCD-OLinuXino-15.6FHD revision G or newer #36 LCD_BKL is used for backlight PWM

* By default 37-40 are not connected and unusable. Only in LCD-OLinuXino-15.6FHD revision G or newer you can a resistor matrix to use them for a possible touchscreen.

LCD-OLinuXino variants

LCD-OLinuXino-4.3, -4.3TS





- Diagonal length 4.3”
- Resolution 480x272 pixels
- TFT color LCD technology
- interface RGB parallel
- White backlight
- Touch screen: Resistive
- Connectors: 0.1”, 0.05”-LIME, 0.05”-LIME2
- LCD panel datasheet link

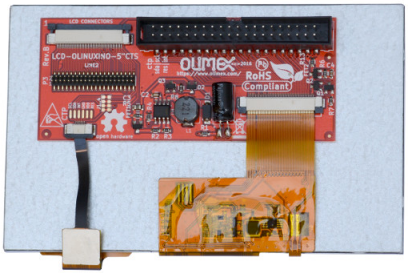
Variants:

- LCD-OLinuXino-4.3 no touch panel

- LCD-OLinuXino-4.3TS with analogue Touch panel controller (works with A13, A10, A20 OLinuXino boards)
- LCD-OLinuXino-4.3RTS with I2C touch panel controller (works with A33, A64 and **A13, A10, A20 if digital interface is enabled**).

LCD-OLinuXino-4.3										
Product name	Native resolution	Current required @ 5V, mA	Touch screen	Touch screen technology	Touch screen interface	Plug and Play	Interface type	External powering supply option	Power select method	LCD connectors (MICRO, LIME, LIME2, FPC)
LCD-OLinuXino-4.3	480x272	250	NO	-	-	NO	RGB	YES	JUMPER	NO FPC
LCD-OLinuXino-4.3TS	480x272	250	YES	RES	ANALOG	NO	RGB	YES	JUMPER	NO FPC
LCD-OLinuXino-4.3RTS	480x272	250	YES	RES	DIGITAL	YES	RGB	YES	AUTO	YES

LCD-OLinuXino-5CTS

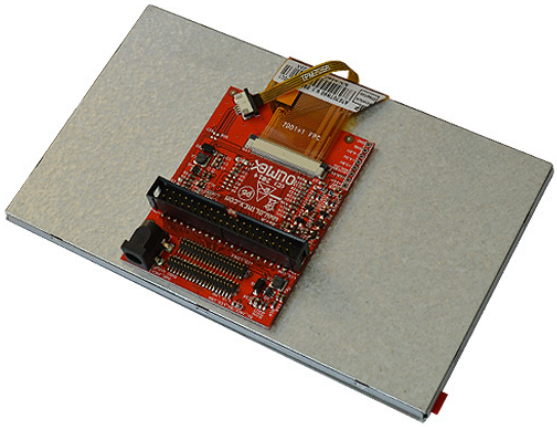


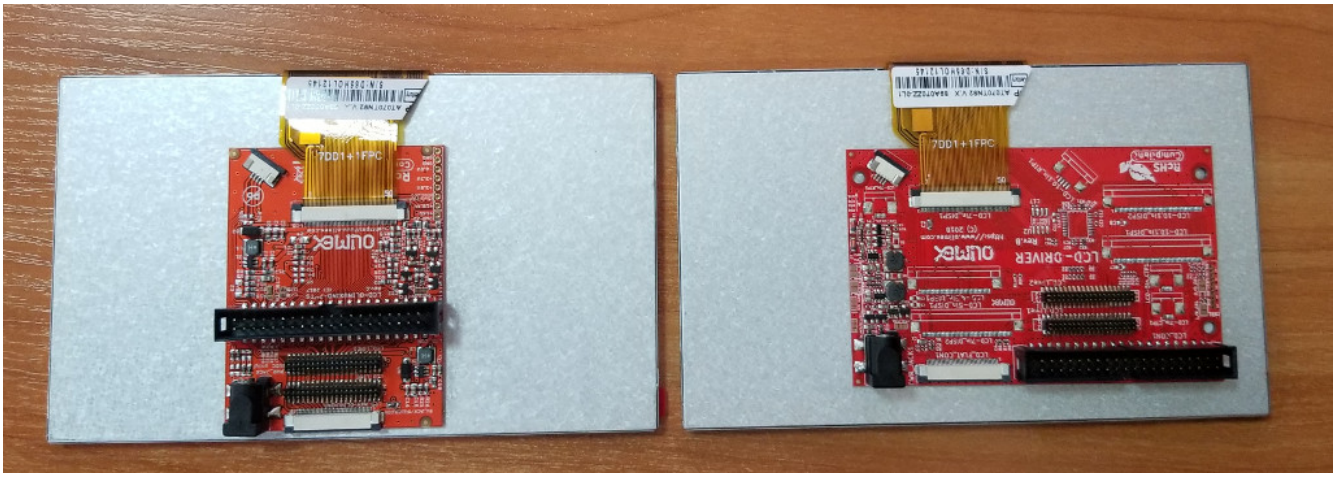
- Diagonal length 5”
- Resolution 800x480 pixels
- TFT color LCD technology
- interface RGB parallel
- White backlight
- Touch screen: Capacitive
- Connectors: 0.1” - MICRO, 0.05”-LIME2, FPC-A33/A64
- LCD panel datasheet link

Variants: LCD-OLinuXino-5CTS with capacitive sense touch panel and digital interface.

LCD-OLinuXino-5CTS										
Product name	Native resolution	Current required @ 5V, mA	Touch screen	Touch screen technology	Touch screen interface	Plug and Play	Interface type	External powering supply option	Power select method	LCD connectors (MICRO, LIME, LIME2, FPC)
LCD-OLinuXino-5CTS	800x480	300	YES	CAP	DIGITAL	NO	RGB	NO	-	NO LIME

LCD-OLinuXino-7, -7TS, -7RTS, -7CTS





Left side: LCD-OLinuXino-7 and LCD-OLinuXino-7TS driver board capable to fit inside LCD7-METAL-FRAME

Right side: LCD-OLinuXino-7RTS and LCD-OLinuXino-7CTS driver board NOT capable to be used with LCD7-METAL-FRAME.

- Diagonal length 7”
- Resolution 800x480 pixels for LCD-OLinuXino-7,LCD-OLinuXino-7TS, LCD-OLinuXino-7RTS

- Resolution 1024x600 pixels for LCD-OLinuXino-7CTS
- TFT color LCD technology for LCD-OLinuXino-7, LCD-OLinuXino-7TS, LCD-OLinuXino-7RTS
- IPS color LCD technology for LCD-OLinuXino-7CTS
- Interface: RGB parallel
- White backlight
- Touch screen: Resistive (TS, RTS) or Capacitive (CTS)
- Touch panel interface: analog (TS) or digital (CTS, RTS)
- Connectors: 0.1”, 0.05”-LIME, 0.05”-LIME2 for -7, -7TS
- Connectors: 0.1”, 0.05”-LIME, 0.05”-LIME2, FPC40 for -7RTS, -7CTS
- LCD-OLinuXino-7CTS panel datasheet link
- LCD-OLinuXino-7, LCD-OLinuXino-7TS, LCD-OLinuXino-7RTS panel datasheet link

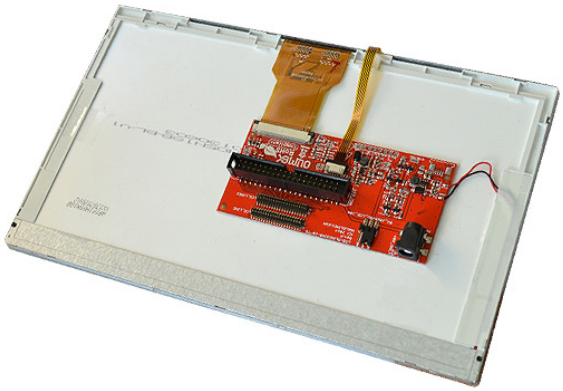
Variants:

- LCD-OLinuXino-7 800x480 pixels no touch panel
- LCD-OLinuXino-7TS 800x480 pixels with analogue resistive touch panel controller (works with A13, A10, A20 OLinuXino boards)
- LCD-OLinuXino-7RTS 800x480 pixels with I2C resistive touch panel controller (works with A33, A64 and **A13, A10, A20 if digital interface is enabled**).

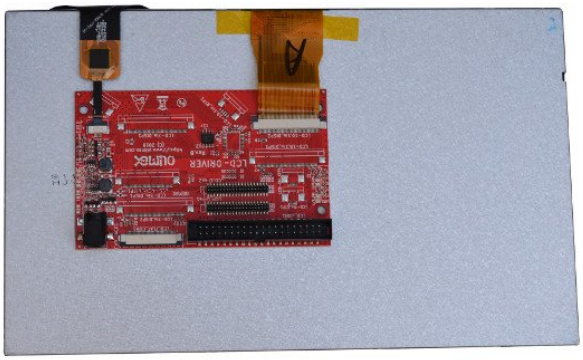
- LCD-OLinuXino-7CTS 1024x600 pixels with I2C capacitive touch panel controller (works with A33, A64 and **A13, A10, A20 if digital interface is enabled**).

LCD-OLinuXino-7										
Product name	**Native resolution**	**Current required @ 5V, mA**	**Touch screen**	**Touch screen technology**	**Touch screen interface**	**Plug and Play**	**Interface type**	**External powering supply option**	**Power select method**	**LCD connectors (MICRO, LIME, LIME2, FPC)**
LCD-OLinuXino-7	800x480	400	NO	-	-	NO	RGB	YES	JUMPER	YES
LCD-OLinuXino-7TS	800x480	400	YES	RES	ANALOG	NO	RGB	YES	JUMPER	YES
LCD-OLinuXino-7RTS	800x480	400	YES	RES	DIGITAL	YES	RGB	YES	AUTO	YES
LCD-OLinuXino-7CTS	1024x600	600	YES	CAP	DIGITAL	YES	RGB	YES	AUTO	YES

LCD-OLinuXino-10, -10TS, -10RTS, -10CTS



The Above picture show the old LCD driver board



This is the new universal LCD driver board which supports all LCD variants

Both old and new driver boards are compatible with LCD10-METAL-FRAME

- Diagonal length 10.1”
- Resolution 1024x600
- TFT color LCD technology for LCD-OlinuXino-10, LCD-OLinuXino-10TS, LCD-OLinuXino-10RTS

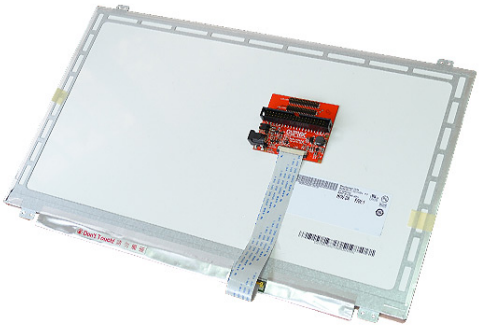
- IPS color LCD technology for LCD-OLinuXino-10CTS
- Interface: RGB parallel
- White backlight
- Touch screen: Resistive (TS, RTS) or Capacitive (CTS)
- Touch panel interface: analog (TS) or digital (CTS, RTS)
- Connectors: 0.1”-MICRO, 0.05”-LIME, 0.05”-LIME2, FPC40
- LCD-OLinuXino-10CTS panel datasheet link
- LCD-OLinuXino-10, LCD-OLinuXino-10TS, LCD-OLinuXino-10RTS panel datasheet link

Variants:

- LCD-OLinuXino-10 no touch panel
- LCD-OLinuXino-10TS with analogue resistive touch panel controller (works with A13, A10, A20 OLinuXino boards)
- LCD-OLinuXino-10RTS 800x480 pixels with I2C resistive touch panel controller (works with A33, A64 and **A13, A10, A20 if digital interface is enabled**).
- LCD-OLinuXino-10CTS with I2C capacitive touch panel controller (works with A33, A64 and **A13, A10, A20 if digital interface is enabled**).

LCD-OLinuXino-10										
Product name	Native resolution	Current required @ 5V, mA	Touch screen	Touch screen technology	Touch screen interface	Plug and Play	Interface type	External powering supply option	Power select method	LCD connectors (MICRO, LIME, LIME2, FPC)
LCD-OLinuXino-10	1024x600	650	NO	-	-	NO	RGB	YES	JUMPER	YES
LCD-OLinuXino-10TS	1024x600	650	YES	RES	ANALOG	NO	RGB	YES	JUMPER	YES
LCD-OLinuXino-10RTS	1024x600	650	YES	RES	DIGITAL	YES	RGB	YES	AUTO	YES
LCD-OLinuXino-10CTS	1024x600	700	YES	CAP	DIGITAL	YES	RGB	YES	AUTO	YES

LCD-OLinuXino-15.6 – 15.6FHD



The LCDs are with these features:

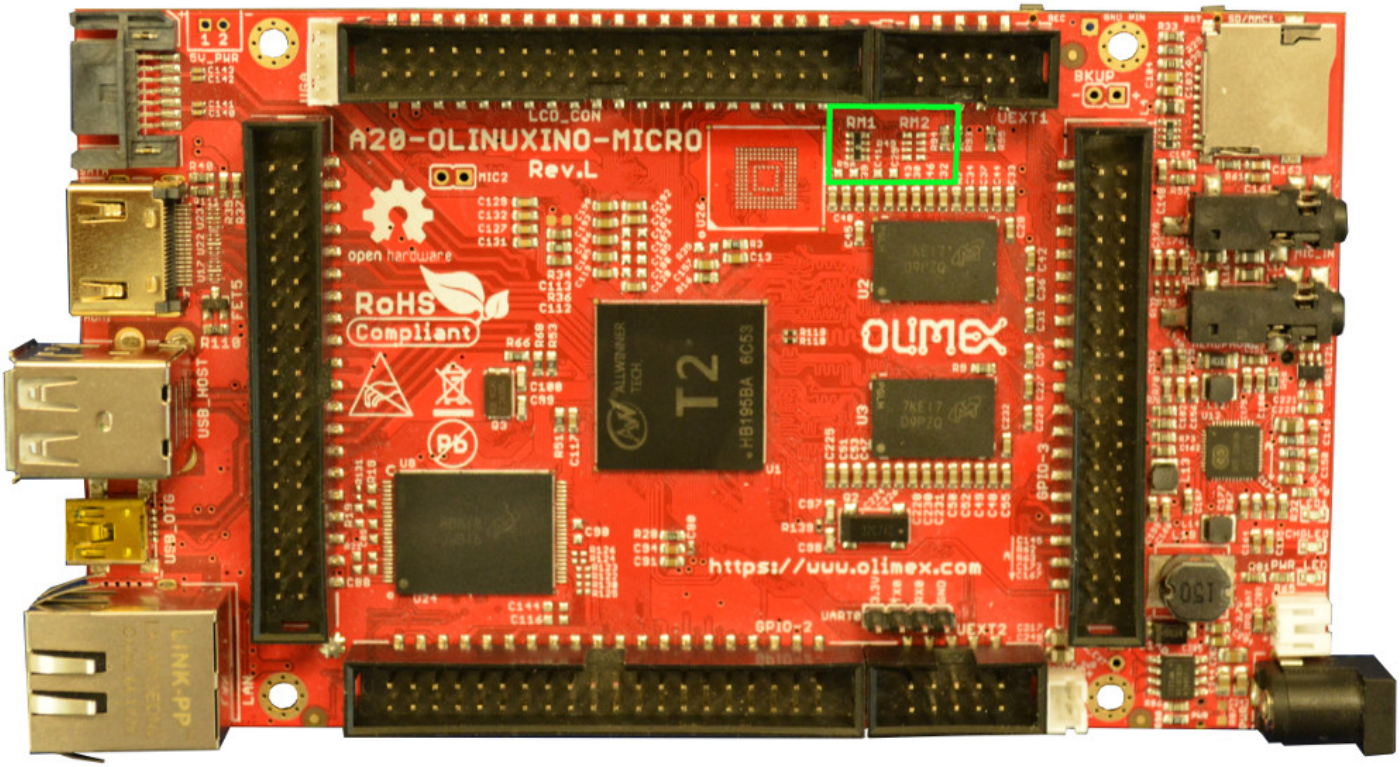
- Length of the diagonal 15.6”
- Resolution: 1366x768 or 1980x1080 for FHD version
- 16:9 color TFT-LCD with LED backlight
- Requires external 5V power supply as consumes up to 3.5W
- Interface LVDS
- Touchscreen: no
- Connectors: 0.1” MICRO, 0.05” LIME and LIME2, FPC40

LCD-OLinuXino-15.6										
Product name	Native resolution	Current required @ 5V, mA	Touch screen	Touch screen technology	Touch screen inter-face	Plug and Play	Interface type	supply optionExternal powering	Power select method	LCD connectors (MICRO, LIME, LIME2, FPC)
LCD-OLinuXino-15.6	1366x768	700	NO	-	-	NO	LVDS	YES	JUMPER	YES
LCD-OLinuXino-15.6FHD Rev. E or older	1980x1080	1100	NO	-	-	NO	LVDS	YES	JUMPER	YES
LCD-OLinuXino-15.6FHD Rev.G or newer	1980x1080	850	NO	-	-	NO	LVDS	YES	JUMPER	YES

Digital interface enable on A10, A13, A20 OLinuXino boards

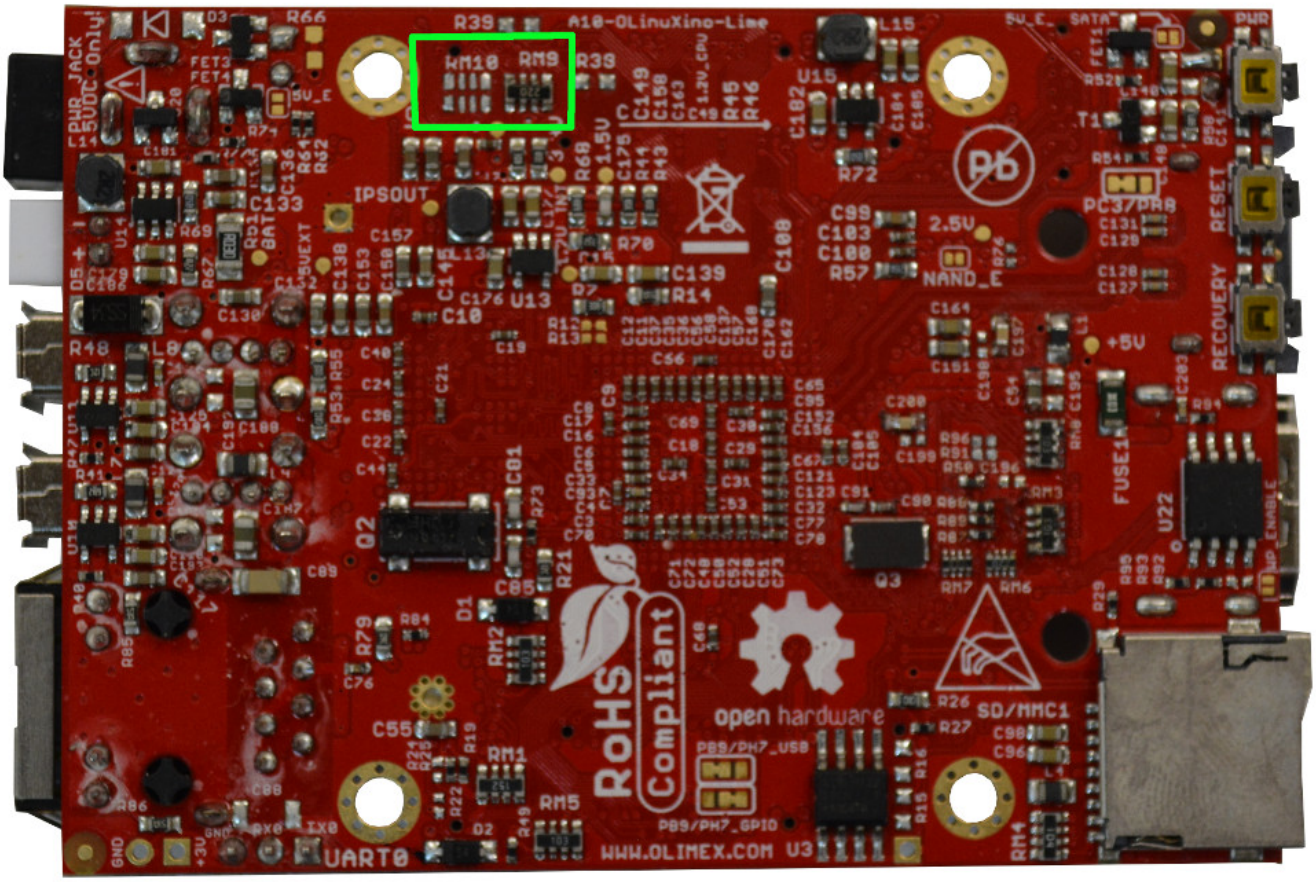
A10, A13 and A20 SOC has analog touch panel ADC interface. By default the LCD connectors are wired with analog interface on these boards. A33 and A64 has no analog interface and only digital I2C interface for touch panel and by default these boards the LCD connectors are wired with digital interface.

A10, A13 and A20 has possibility to be wired with Digital interface too, for this reason we provide resistor matrix which can be assembled in position for Digital and in position for Analog interface. Depend on where this resistor matrix is assembled A10, A13 and A20 boards can be used with both analog or digital interface.



In **A20-OLinuXino-MICRO** if RM1 is assembled the interface is ANALOG, if RM2 is assembled the interface for touch panel is DIGITAL:By default we assemble RM1 if you want to use A20-OLinuXino-MICRO with LCDs with dgital interface like -CTS and -RTS you can ask us to assembly RM2 when you order your boards.

In A20-OLinuXino-LIME and A10-OLinuXino-LIME boards if RM9 is assembled the touch panel interface is ANALOG if RM10 is assembled the interface is DIGITAL.



By default we assemble RM9 if you want to use A10/A20-OLinuXino-LIME with LCDs with dgital interface like -CTS and -RTS you can ask us to assembly RM10 when you order your boards.

Capacitive sense vs Resistive sense technology

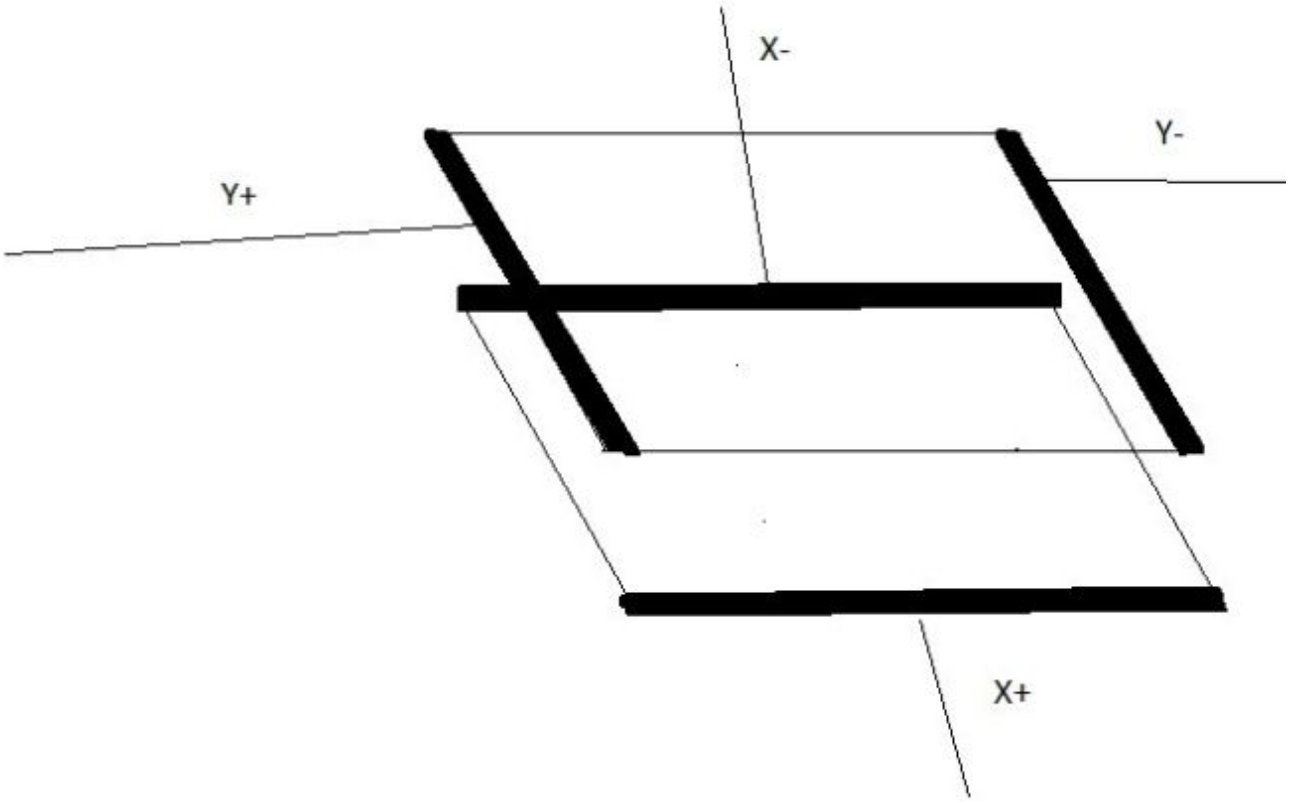
Resistive touch is made by two conductive transparent layers with small gap between them, when point is touched the conductive layers make contact and point is detected. It’s primary choice for industrial environments as they are not disturbed by dust, water, moisture and can be touch with gloves or any other object which press on the screen.

Resistive technology pros:

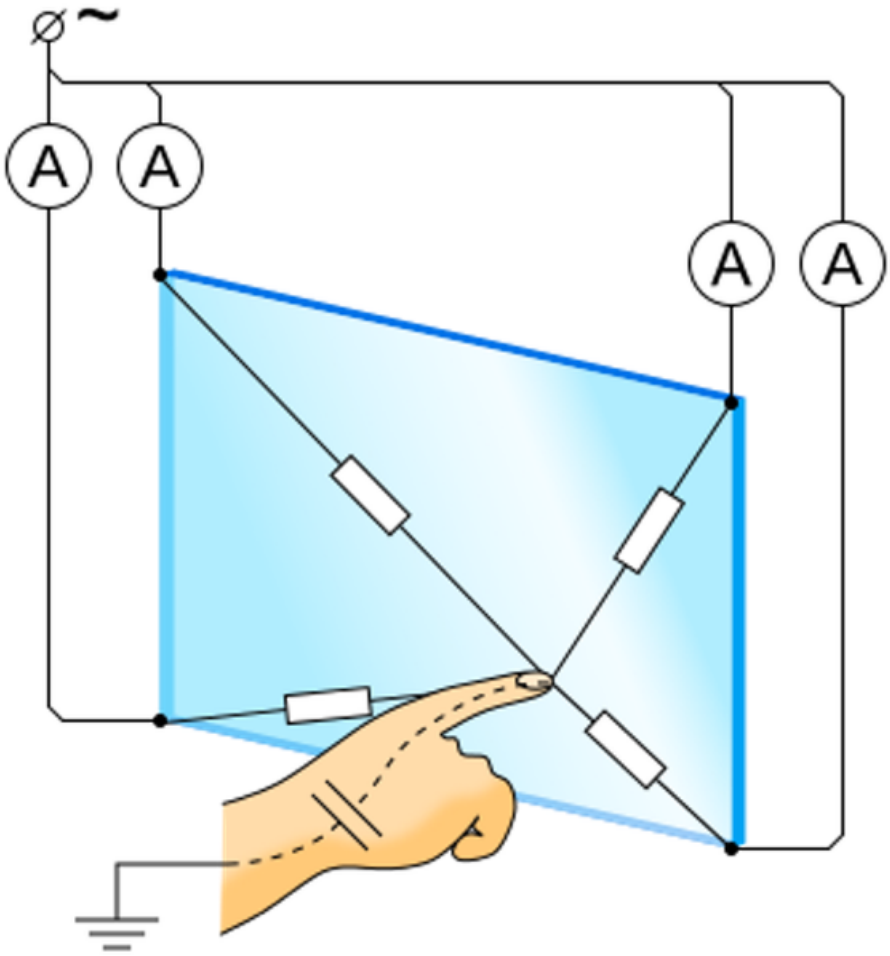
- not sensitive to dirt and moisture
- can be touch with any object, with gloves
- very precise detection of touch point

Resistive technology cons:

- not sensitive to light touch
- thick upper screen decrease brightness
- no multi touch



Capacitive touch is made with one conductive layer with sensors at the four edges, when human finger touches the screen. It allows multi touch and can sense if you touch at several points at same time:



Capacitive technology pros:

- detect slight touch
- allow multi touch

Capacitive technology cons:

- sensitivity depends on noise, moisture, dirty, dust
- can’t be used with any object and gloves
- worse resolution than resistive

LCD Plug and Play EEPROM memory

LCD-OLinuXino-xRTS -xCTS has on board EEPROM with LCD configuration and are plug and play which means when the LCD is connected OlinuXino board will read the LCD configuration at boot time and will configure the proper LCD drivers.

Software configuration

The software configuration with Olimex boards heavily depends on the image used. This guide assumes that you are using the latest ***official Olimage Linux image*** for your board.

Allwinner/STM32MP boards

If you want GUI make sure to use the “base” variant of the Olimage official image (e.g. not the “minimal” image). The HDMI video output always has the highest priority. This means that if you plug an HDMI cable, the output always will be on the HDMI monitor, regardless of other settings. In order to change the video output it is easier to run a script after the board boots and after login. Type:

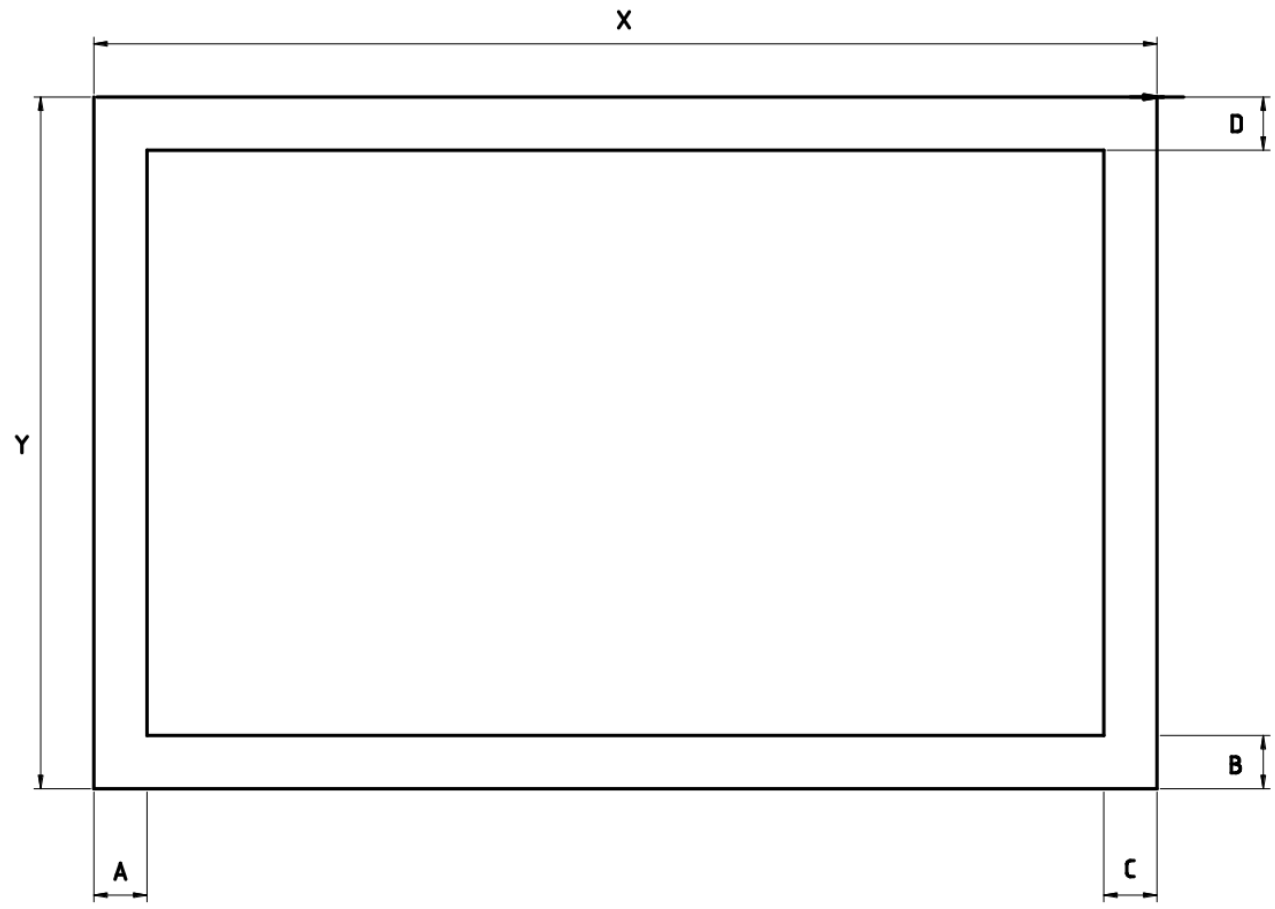
olinuxino-display

Press enter and navigate to the entry for your specific display and configuration. Once settings are applied you will be prompted to reboot, and after that reboot your display should work.

What should I check when ordering LCD-OLinuXino-XX

1. Make sure that your board supports the touch screen interface; currently all Olimex boards come with analog interface on the connector; most of the newly manufactured boards can be configured to I2C interface via a resistor matrix change. You can order your A10/A13/A20 board with Digital interface enabled when ordering write this in the NOTE field. If there is no request for Digital touch interface boards will be shipped with the default Analog teouch interface enabled. A33/A64 has no Analog touch interface so they are shipped only with Digital Touchscreen interface.
2. Some LCD displays can be automatically recognized by the Olimex-made Allwinner boards when using the latest official images. These are with +, -RTS and -CTS suffixes.
3. Depends on the LCD-DRIVER board revision, in LCD-DRIVER board hardware revision B the power input connector has to be specified via an SMT jumper modification, in LCD-DRIVER hardware revision C or newer the selection is automatic without hardware modification (power jack has priority though)

LCD dimensions



LCD 4.3”TS

X = 105.5 mm Y = 67.5 mm Thickness = 4.0 mm

A = 3.8 mm B = 3.5 mm C = 4.6 mm D = 8.0 mm

LCD 5.0”CTS (capacitive touch panel)

X = 121 mm Y = 76 mm Thickness = 4.5 mm

A = 7.0 mm B = 3.0 mm C = 3.0 mm D = 8.0 mm

LCD 7.0” (no touch panel)

X = 165 mm Y = 100 mm Thickness = 5.75 mm

A = 5.0 mm B = 3.0 mm C = 2.0 mm D = 7.5 mm

LCD 7.0”TS, RTS (resistive touch panel)

X = 165 mm Y = 100 mm Thickness = 7.25 mm

A = 5.0 mm B = 3.0 mm C = 2.0 mm D = 7.5 mm

LCD 7.0”CTS (capacitive touch panel)

X = 165 mm Y = 100 mm Thickness = 7.0 mm

A = 5.5 mm B = 3.0 mm C = 3.0 mm D = 8.0 mm

LCD 10” (no touch panel)

X = 235 mm Y = 143 mm Thickness = 4.8 mm

A = 5.0 mm B = 7.0 mm C = 3.0 mm D = 7.0 mm

LCD 10”TS, RTS (resistive touch panel)

X = 235 mm Y = 143 mm Thickness = 6.3 mm

A = 5.0 mm B = 7.0 mm C = 3.0 mm D = 7.0 mm

LCD 10”CTS (capacitive touch panel)

X = 235 mm Y = 143 mm Thickness = 5.5 mm

A = 6.0 mm B = 4.0 mm C = 4.0 mm D = 11.0 mm

Document revision history

Revision 1.0 July 2019

Revision 1.1 March 2020 add LCD dimensions

Revision 1.2 July 2025 removed “+” board variants, changed info about official image