

# LCD-DRIVER

Olimex Ltd.

June 14, 2018

## Contents

<b>1</b>	<b>Description</b>	<b>2</b>
<b>2</b>	<b>EEPROM content</b>	<b>2</b>
2.1	Header . . . . .	3
2.2	ID . . . . .	3
2.3	Revision . . . . .	3
2.4	Serial . . . . .	3
2.5	Configuration . . . . .	4
	2.5.1 Info . . . . .	4
	2.5.2 Timing . . . . .	5
2.6	Checksum . . . . .	5

## List of Figures

1	EEPROM layout . . . . .	3
2	Timings section . . . . .	4
3	Info section . . . . .	4
4	Timing section . . . . .	5

# 1 Description

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse

platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetur.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

## 2 EEPROM content

Memory layout can be seen on [1](#). It's separated into several sections. Most of them are fixed length, except configuration.

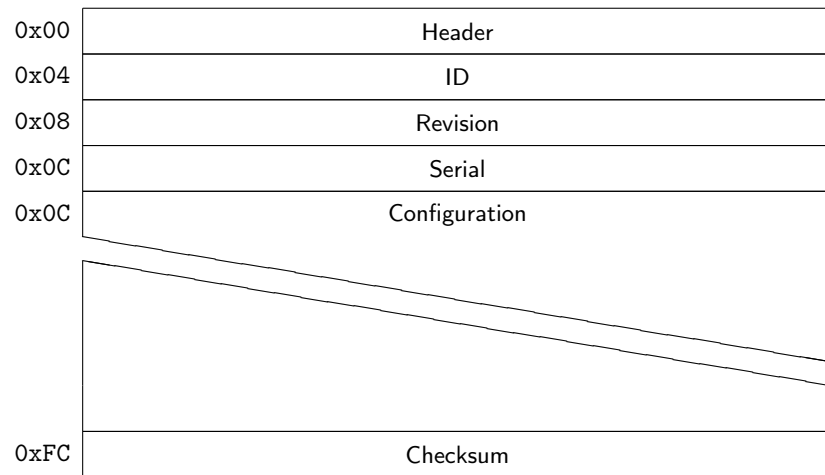


Figure 1: EEPROM layout

## 2.1 Header

Offset: 0x00  
Length: 0x04

The header is used to identify beginning of LCD-OLinuXino configuration. The value must be 0x4F4CB727.

## 2.2 ID

Offset: 0x04  
Length: 0x04

This is unique value for each LCD used. Possibilities are:

- 7839 - LCD-OLinuXino-10  
<https://www.olimex.com/Products/OLinuXino/LCD/LCD-OLinuXino-10/open-source-hardware>
- 7864 - LCD-OLinuXino-7  
<https://www.olimex.com/Products/OLinuXino/LCD/LCD-OLinuXino-7/open-source-hardware>
- 8630 - LCD-OLinuXino-5  
<https://www.olimex.com/Products/OLinuXino/LCD/LCD-OLinuXino-5/open-source-hardware>
- 7859 - LCD-OLinuXino-4.3  
<https://www.olimex.com/Products/OLinuXino/LCD/LCD-OLinuXino-4.3TS/open-source-hardware>

## 2.3 Revision

Offset: 0x08  
Length: 0x04

This field represent board hardware revision.

## 2.4 Serial

Offset: 0x0C  
Length: 0x04

Unique serial number for each board.

## 2.5 Configuration

Offset: 0x10  
Length: ----

Configuration section holds information about the timings and the LCD itself. The layout is shown at Figure 2.

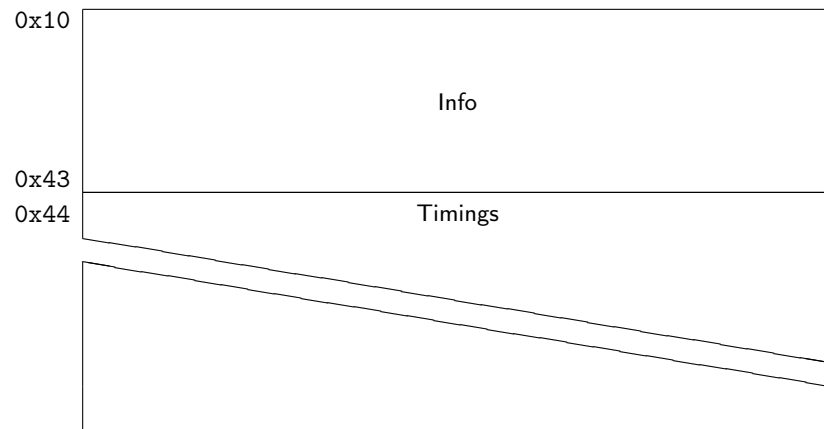


Figure 2: Timings section

The section can be divided to two smaller subsections:

- Info
- Timing

### 2.5.1 Info

The layout of this section is shown at Figure 3.

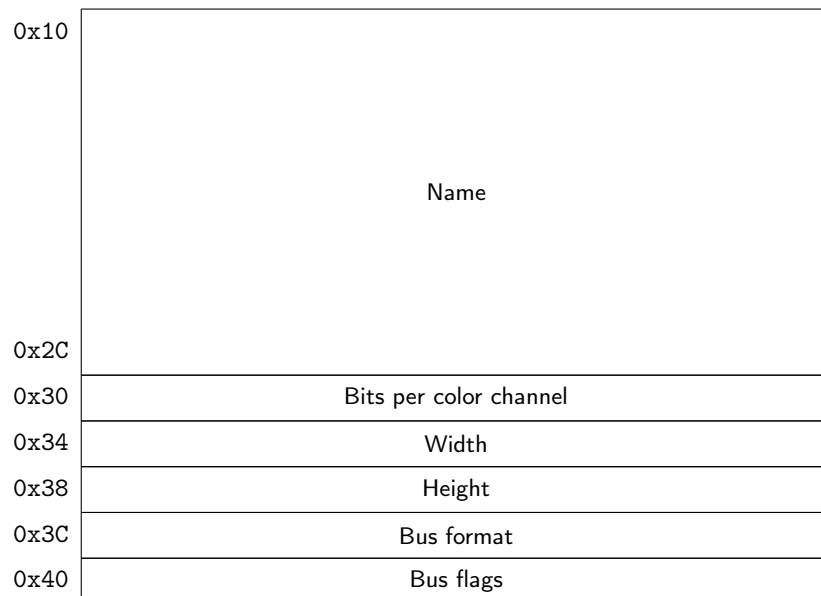


Figure 3: Info section

This field contains the following fields.

- Name – The name of the board, e.g. "LCD-OLinuXino-7"
- Bits per color channel – Number of bits describing one color, typically 8

- Width – Physical width of the panel in millimeters
- Height – Physical height of the panel in millimeters
- Bus format – The value must be get from **include/uapi/linux/media-bus-format.h**
- Bus flags – The value must be get from **include/uapi/drm/drm\_mode.h**

### 2.5.2 Timing

The fields in this subsection describes timing requirements of the LCD. The layout of this section is shown at Figure 4.

0x44	Timings count
0x48	Pixelclock
0x4C	H. Active
0x50	H. Front porch
0x54	H. Back porch
0x58	H. Pulse width
0x5C	V. Active
0x60	V. Front porch
0x64	V. Back porch
0x68	V. Pulse width
0x6C	Timing flags

Figure 4: Timing section

The fields are:

- Timings count – Number of timing configurations, stored in the EEPROM. Maximum is 4.
- Pixelclock
- Horizontal active area
- Horizontal front porch
- Horizontal back porch
- Horizontal pulse width
- Vertical active area
- Vertical front porch
- Vertical back porch
- Vertical pulse width
- Timing flags

## 2.6 Checksum

Offset: 0xFC

Length: 0x04

The checksum is used to verify data integrity. It's calculated as CRC32.