LCD-DRIVER

Olimex Ltd.

June 18, 2018

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1 Description

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2 EEPROM content

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

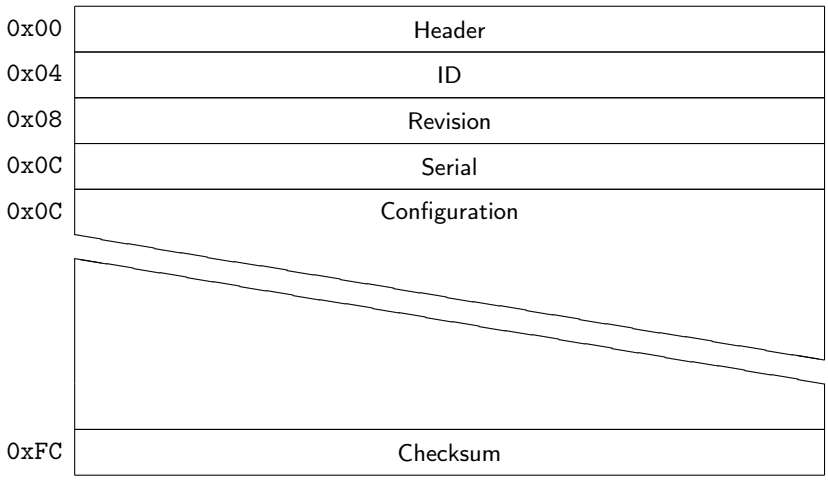

Figure 1: EEPROM layout

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.

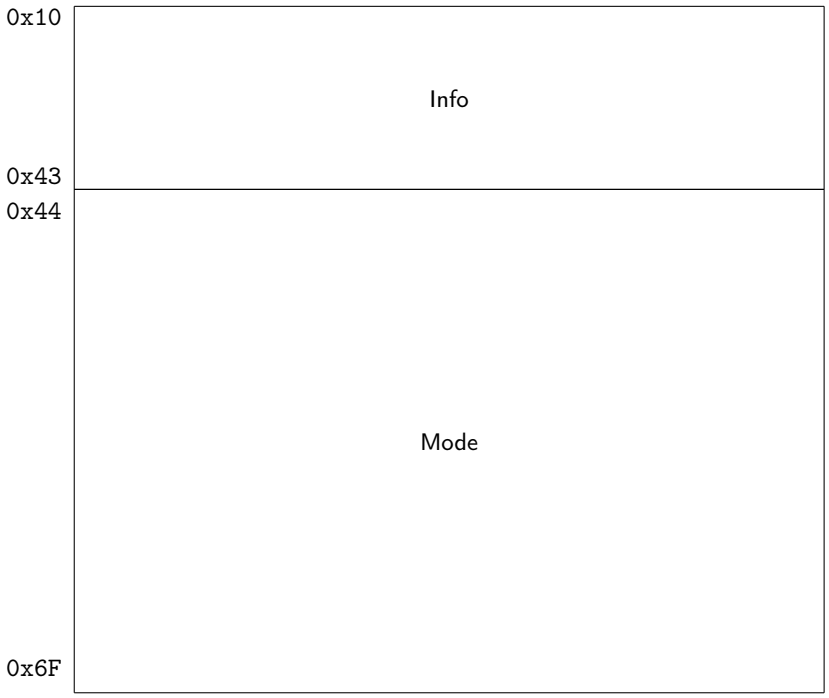

Figure 2: Timings section

The section can be divided to two smaller subsections:

- Info
- Mode

2.5.1 Info

The layout of this section is shown at Figure 3.

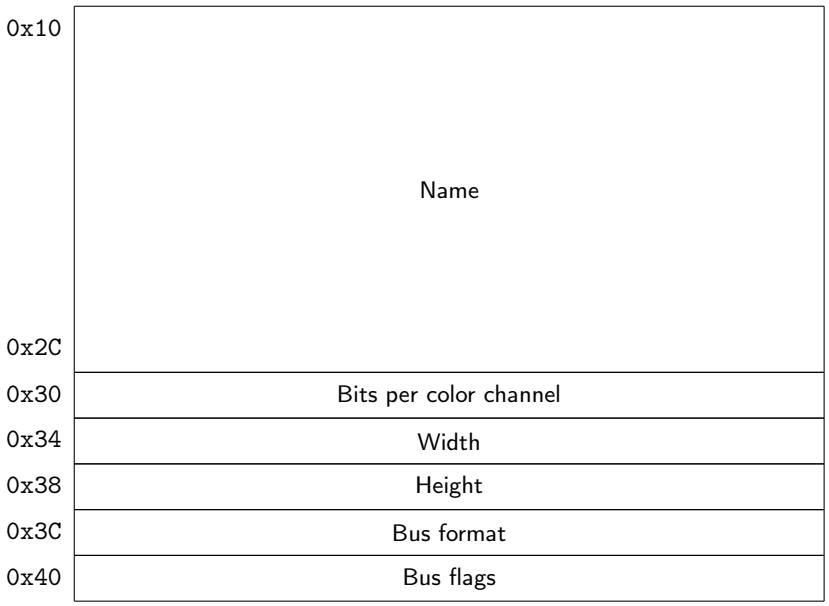

Figure 3: Info section

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 Mode

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

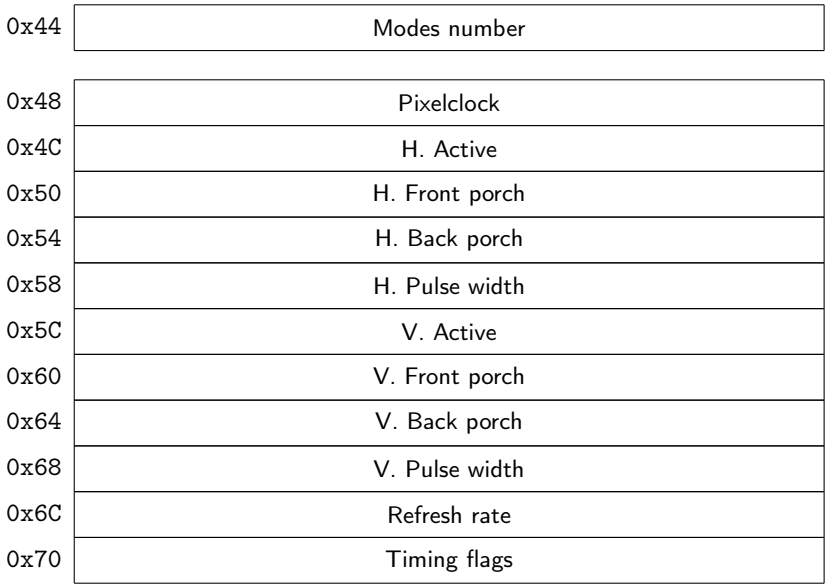

Figure 4: Modes section

The fields are:

- Modes number – The total number of modes stored
- Pixelclock – Frequency of the pixel-clock in **kHz**
- Horizontal active area
- Horizontal front porch
- Horizontal back porch
- Horizontal pulse width
- Vertical active area
- Vertical front porch
- Vertical back porch
- Vertical pulse width
- Refresh rate
- Timing flags

2.6 Checksum

Offset: `0xFC`
Length: `0x04`

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