Firmware Configuration & Programming Toolbox
d.scale-HDIII Family

Firmware Configuration & Programming Toolbox

LCD TFT controller boards usually have to be adapted to the display parameters by the manufacturer. This requires not only access to the source code of the firmware but also detailed knowledge of its structure. The Firmware Configuration & Programming Toolbox for the d.scale-HDIII Family provides a remedy here. This GUI tool for customizing the firmware is a Windows-based tool that allows the user to adapt the controller-board firmware to the LCD-TFT of his choice. No programming knowledge is required for this and there is also no need of a compilation system.

Features

- Converts the display timing and power-on sequencing from the respective specification into the required firmware customization

- Enables display-dependent setting of the supply voltage via firmware

- Supports common configuration options for a wide range of LED backlights

- Supports sensors (pivot, temperature, brightness) via DDC/CI (MCCS), eliminating the need for an additional USB or serial connection

- The built-in programmer enables standard-compliant firmware programming including all required EDIDs in less than 5 seconds

Benefits

- Supports all current and future members of the d.scale-HDIII display controller family

- Requires no software or programming knowledge

- Windows-based, supports Win 8.1, Win10 and Win11

- One tool for development and production alike

- Customer-specific adaptations and extensions are possible at any time, as the entire know-how is in-house

- In addition to various controller boards, an evaluation board is also available with which all features can be tested in detail

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Components

The firmware of the d.scale-HDIII family consists of a basic firmware and the display-specific panel data block. Together with the required EDID files, these two blocks form the overall firmware. The following modules are available for generation, merging and programming

Generator
The generator creates the panel data block from the display-specific parameters. The following areas can be customized:

- Display resolution/timing
- Display data interface
  - Single-/dual-channel LVDS
  - Color depth
  - Data-mapping
    - Conventional (Open-LDI)
    - Non-conventional (VEAS-/ TI-Mode)
  - Spread-spectrum
  - Drive-Strength
- Display control
  - Power-on/off sequencing
  - Supply-voltage control
  - Color Brightness
  - Backlight/LED-driver control
    - PWM-Frequency
    - PWM-Range
    - PWM standard/inverted
- Sensor Support/Control via DDC/CI – MCCS
  - Screen orientation (Pivot)
  - Luminance
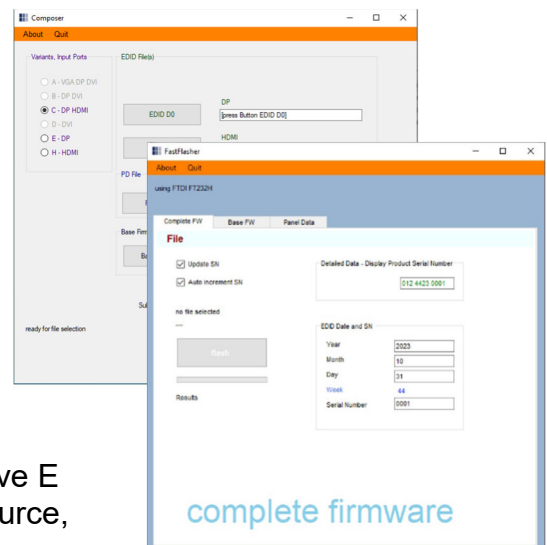 - Temperature
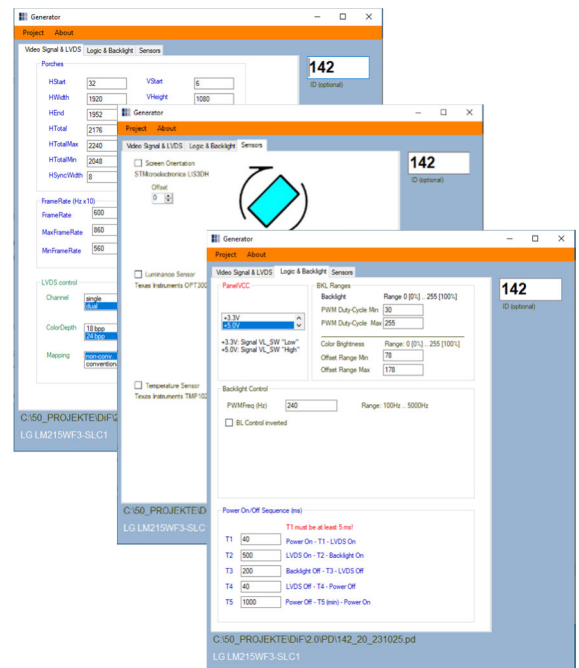
Composer
The Composer generates a new, complete firmware using the panel data created with the generator and the EDID files defined/specified by the user.

Programmer
The programmer enables the following programming options depending on requirements.

- Complete firmware
- Basic firmware only
- Panel data block only

In addition, the programmer takes over the standard compliant programming of the S/N number in the respective E DID files. The required programming hardware is open source, readily available and very inexpensive