

Xylon d.o.o.

Fallerovo setaliste 22
10000 Zagreb, Croatia
Phone: +385 1 368 00 26
Fax: +385 1 365 51 67
E-mail: support@logicbricks.com
URL: www.logicbricks.com

Features

- FPGA Mezzanine Card (FMC) compatible with several Xilinx® Targeted Design Platforms
- Enables connections of up to 4 LVDS cameras
- Enables connections of LVDS and parallel digital RGB LCD displays
- Includes support for LED and CCFL backlights

Applications

- Automotive applications (development systems):
 - Rear View and Side View Camera
 - Lane Departure Warning
 - Parking Assistance
 - Blind Spot Detection, etc.
- Surveillance systems
- Multiple-camera applications
- LCD display driving

General Description

The logiFMC-DispCam Display & Camera Adapter FMC daughter card is Xylon's add-on board (card) compatible with different Xilinx Targeted Design Platforms, such as the Xilinx Spartan®-6 SP605 Evaluation Kit and the Spartan-3 DSP FPGA Video Starter Kit.

This FMC (FPGA Mezzanine Card) provides additional connectivity to Xilinx development platforms, and enables connections of up to 4 LVDS cameras directly to the FPGA. The cameras' physical interface is realized by the provided RJ-45 connectors.

In addition to camera connections, the logiFMC-DispCam FMC daughter card supports connection of LCD displays featuring either LVDS or the analog RGB interface. The LCD display can be connected to the provided DF11GZ-32DP-2V / DF11GZ-26DP-2V connectors.

The logiFMC-DispCam FMC daughter card provides a simple means of expanding the Xilinx development kits without complex wiring and shortens the development time. The card does not provide any video processing capabilities. Such tasks must be performed on the main (host) FPGA board. On-board provided circuitry supports generation of required display clock frequencies (PLL) and LED and CCFL backlights control.

The card utilizes the 160-pin FMC connector (ASP-127797-01).

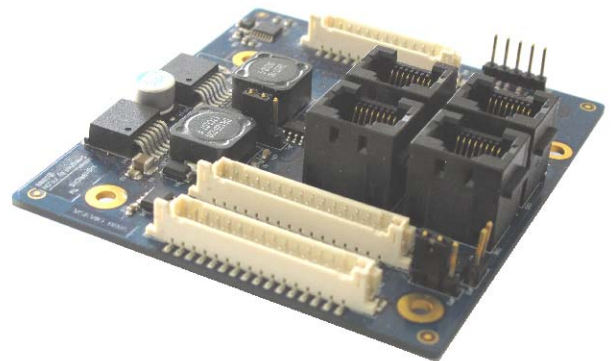


Figure 1: The logiFMC-DispCam Daughter Card

Functional Description

The Figure 2 presents card's internal structure. The main functional blocks are:

- Power supply
- Info EEPROM
- PLL
- Backlight support
- Camera and Display connectors

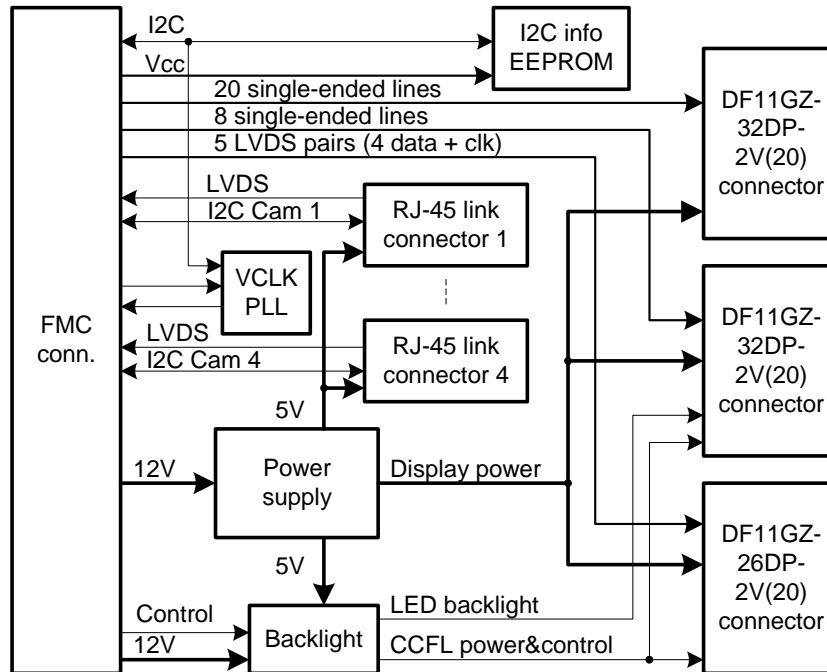


Figure 2: The logiFMC-DispCam Daughter Card's Block Diagram

Power supply

Power supply module provides 3V3 and 5V voltages for powering backlight circuits, displays and cameras. Display power is routed through the MIC2505 high-side switch that can be controlled from the main FPGA board. This switch supports power supply sequencing of the attached displays.

Info EEPROM

The EEPROM stores card's information which may be used by main FPGA boards (i.e. Xilinx VSK, Xilinx SP605). Xylon delivers daughter cards with the blank EEPROM (not used).

PLL

The programmable CY22150FZXI PLL circuit optionally generates display clock for attached displays, if the main FPGA board cannot generate an exact display clock frequency. The generated display clock is routed towards the FPGA board for use in an FPGA implemented display controller.

Backlight support

The logiFMC-DispCam provides support for LED and CCFL display backlights. The TPS61165 LED driver controls LED backlights. The CCFL backlights can be controlled by the provided backlight power supply switch,

power supply selector, and the PWM filtering circuit. The provided CCFL control circuitry enables choice between 12V and 5V for CCFL backlight inverter powering. The inverter is not a part of the daughter card.

An optional FPGA board's PWM signal for the DC voltage backlight intensity control can be filtered by the provided active filter.

Camera and Display connectors

Four RJ-45 connectors carry video signals from LVDS cameras, as well as the I2C bus control signals. The Table 2 shows the RJ45 pinout:

Pin	Function
1	LVDS_P
2	LVDS_N
3	I2C SCL
4	I2C SDA
5	Not used
6	Not used
7	5V for powering camera
8	GND

Table 1: The logiFMC-DispCam Daughter Card's Block Diagram

The DF11GZ-26DP-2V connector can be used for connection of LVDS LCD displays. The connector's pinout supports 5 differential pairs, power and backlight signals. Parallel digital RGB LCD displays can be connected to two DF11GZ-32DP-2V connectors, which support up to 28 single-ended signal lines for display control and the backlight signals.

Available Support Products

To learn more about the Xylon boards and development platforms, contact Xylon or visit the web:

Email: support@logicbricks.com

URL: <http://www.logicbricks.com/Products/Hardware-Platforms.aspx>

Ordering Information

This product is available directly from Xylon. Please visit our web shop or contact Xylon for pricing and additional information:

Email: sales@logicbricks.com

URL: <http://www.logicbricks.com/Products/logiFMC-DispCam.aspx>

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Related Information

Xilinx Evaluation Boards Logic

For information on Xilinx evaluation boards contact your local Xilinx sales office, or:

Xilinx, Inc.
2100 Logic Drive
San Jose, CA 95124
Phone: +1 408-559-7778
Fax: +1 408-559-7114
URL: www.xilinx.com

Revision History

Version	Date	Note
1.00.	18.10.2010.	Initial Xylon release