



# Dual Raspberry Pi Camera Connector Daughter Card User Guide

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**DUAL-RPICAM-DC-UG-v1.2**  
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**[www.efinixinc.com](http://www.efinixinc.com)**

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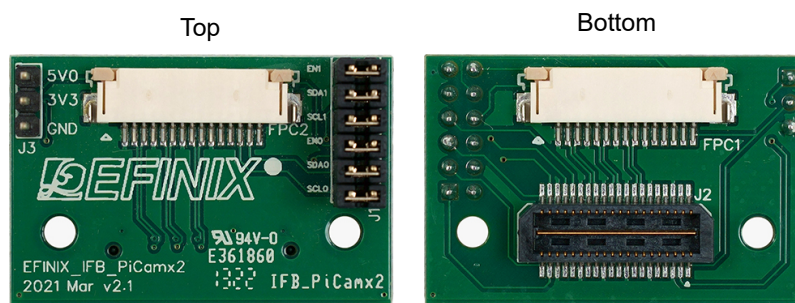
# Introduction

The Dual Raspberry Pi Camera Connector Daughter Card (part number: EFINIX\_IFB\_PiCamx2) bridges between the development board and two Raspberry Pi v2 camera modules. You can connect two Raspberry Pi cameras using the 15-pin flat cable to headers FPC1 (bottom) and FPC2 (top). Additionally, the board has a 12-pin header for optional camera control pins.



**Learn more:** Refer to the [Dual Raspberry Pi Camera Connector Daughter Card Schematics and BOM](#) for the part details and schematics.

Figure 1: Dual Raspberry Pi Camera Connector Daughter Card



**Warning:** The board can be damaged without proper anti-static handling.

## Supported Development Boards

You can use the Dual Raspberry Pi Camera Connector Daughter Card with:

- Titanium Ti60 F225 Development Board
- Titanium Ti180 M484 Development Board

## What's in the Box?

The Dual Raspberry Pi Camera Connector Daughter Card includes:

- Dual Raspberry Pi Camera Connector Daughter Card
- 2 standoffs
- 2 screws
- 2 nuts

## Features

- Bridges 40-pin MIPI CSI-2 interface on the development board to two 15-pin interfaces
- Pin to pin compatible with Raspberry Pi v2 camera modules
- User selectable pins for optional camera functions
- Power supplied from the development board; no external power required



**Note:** For technical support using Raspberry Pi v2 camera modules, please refer to their web site at [www.raspberrypi.org](http://www.raspberrypi.org).

## Headers

*Table 1: Dual Raspberry Pi Camera Connector Daughter Card Headers*

Reference Designator	Description
FPC1	15-pin flexible printed cable (FPC) receptacle for Raspberry Pi camera v2 camera modules
FPC2	15-pin flexible printed cable (FPC) receptacle for Raspberry Pi camera v2 camera modules
J1	12-pin header for optional camera signals
J2	40-pin QTE connector bringing MIPI signals, and power from the development board.
J3	3-pin header for supply test points

## Headers FPC1 and FPC2 (Raspberry Pi v2 Camera Module Connector)

FPC1 and FPC2 are 15-pin flexible flat cable headers for connecting to Raspberry Pi v2 camera modules.

*Table 2: FPC1 and FPC2 Pin Assignments*

Pin Number	Pin Name		Description
	FPC1	FPC2	
1	GND	GND	Ground
2	DN0_1	DN0_0	Differential MIPI lane 0
3	DP0_1	DP0_0	
4	GND	GND	Ground
5	DN1_1	DN1_0	Differential MIPI lane 1
6	DP1_1	DP1_0	
7	GND	GND	Ground
8	CN0_1	CN0_0	MIPI clock lane
9	CP0_1	CP0_0	
10	GND	GND	Ground
11	CAM_EN_1	CAM_EN_0	Camera enable/reset
12	N.C.	N.C.	No connect
13	CAM_SCL_1	CAM_SCL_0	I <sup>2</sup> C control
14	CAM_SDA_1	CAM_SDA_0	I <sup>2</sup> C control
15	3V3	3V3	3.3 V power supply

## Header J1 (Optional Camera Signals)

J1 is a 12-pin header that has optional pins (SCL and SDA) used for MIPI Camera Command Set (CSS) transactions. These signals are routed to the FPGA on the board. You can control these pins with an external device by removing the jumpers and connecting wires from the header to an external device. The header controls the settings for both cameras, but each camera has the dedicated pins shown in the following table.

**Table 3: J1 Pin Assignments**

Pin Number	Pin Name	Description	Pin Number	Pin Name	Description
1	SCL_0	I <sup>2</sup> C signal for FPC2	2	CAM_SCL_0	I <sup>2</sup> C signal for FPC2
3	SDA_0	I <sup>2</sup> C signal for FPC2	4	CAM_SDA_0	I <sup>2</sup> C signal for FPC2
5	EN_0	Camera GPIO for FPC2	6	CAM_EN_0	Camera GPIO for FPC2
7	SCL_1	I <sup>2</sup> C signal for FPC1	8	CAM_SCL_1	I <sup>2</sup> C signal for FPC1
9	SDA_1	I <sup>2</sup> C signal for FPC1	10	CAM_SDA_1	I <sup>2</sup> C signal for FPC1
11	EN_1	Camera GPIO for FPC1	12	CAM_EN_1	Camera GPIO for FPC1

## Header J2 (QTE Connector)

J2 is a 40-pin QTE connector to connect the daughter card to the QSE connector on the development board.

*Table 4: J2 Pin Assignments*

Pin Number	Pin Name	Description	Pin Number	Pin Name	Description
1	3V3	3.3 V supply	2	N.C.	No connect
3	5V0	5.0 V supply	4	N.C.	No connect
5	GND	Ground	6	GND	Ground
7	DP0_0	Differential MIPI lane 0 for FPC2	8	N.C.	No connect
9	DN0_0	Differential MIPI lane 0 for FPC2	10	N.C.	No connect
11	GND	Ground	12	GND	Ground
13	DP1_0	Differential MIPI lane 1 for FPC2	14	CP0_1	MIPI clock lane for FPC1
15	DN1_0	Differential MIPI lane 1 for FPC2	16	CN0_1	MIPI clock lane for FPC1
17	GND	Ground	18	GND	Ground
19	CP0_0	MIPI clock lane for FPC2	20	DP1_1	Differential MIPI lane 1 for FPC1
21	CN0_0	MIPI clock lane for FPC2	22	DN1_1	Differential MIPI lane 1 for FPC1
23	GND	Ground	24	GND	Ground
25	N.C.	No connect	26	DP0_1	Differential MIPI lane 0 for FPC1
27	N.C.	No connect	28	DN0_1	Differential MIPI lane 0 for FPC1
29	GND	Ground	30	GND	Ground
31	N.C.	No connect	32	SCL_1	I <sup>2</sup> C control pin for FPC1
33	N.C.	No connect	34	SDA_1	I <sup>2</sup> C control pin for FPC1
35	GND	Ground	36	GND	Ground
37	SCL_0	I <sup>2</sup> C control pin for FPC2	38	EN_1	Camera enable/reset for FPC1
39	SDA_0	I <sup>2</sup> C control pin for FPC2	40	EN_0	Camera enable/reset for FPC2

## Header J3 (Supply Test Points)

J3 is a 3-pin header connected to the available Dual Raspberry Pi Camera Connector Daughter Card power supplies. Connect to the following pins to evaluate the corresponding power supply.

*Table 5: J3 Pin Assignments*

Pin Number	Voltage
1	5 V
2	3.3 V
3	GND

# Installing Standoffs

Before using the board, attach the standoffs with the screws provided in the kit.



**Warning:** You can damage the board if you over tighten the screws. Tighten all screws to a torque between  $4 \pm 0.5$  kgf/cm and  $5 \pm 0.5$  kgf/cm.

## Revision History

*Table 6: Revision History*

Date	Version	Description
November 2022	1.2	Corrected Pin 6 name in FPC1 and FPC2. (DOC-959)
October 2022	1.1	Added part number. (DOC-917)
April 2022	1.0	Initial release.