

ADCAM3175-2M-EBZ User Guide

FEATURES

- ▶ 3D depth camera evaluation kit
- ▶ **ADTF3175** megapixel fully-calibrated ToF module with $75^\circ \times 75^\circ$ field of view
- ▶ Operating range up to 4m at 19% target reflectance and 3klux equivalent sunlight
- ▶ **ADSD3500** depth ISP for full resolution depth compute at 30 FPS
- ▶ 22-pin MIPI CSI-2 camera connector

ONLINE DOCUMENTATION

- ▶ ADCAM camera kit user guide
online (<https://github.com/analogdevicesinc/ADCAM/blob/master-1.0.0/doc/user-guide/ADCAM-CameraKit-100.md>)

GENERAL DESCRIPTION

The ADCAM3175-2M-EBZ is a 3D depth sensing camera evaluation kit. It features the ADTF3175, a complete megapixel Time-of-Flight (ToF) module for high resolution, high accuracy 3D depth sensing and vision systems. It also includes Analog Devices, Inc. depth image signal processor (ISP), the ADSD3500, in a dual processor configuration to support full resolution depth frame processing at 30 frames per second (FPS). The kit is powered using a single USB-C connector with local power management included for the ADTF3175 and ADSD3500 components. Processed depth and active brightness frames are output through a standard 22-pin mobile industry processor interface (MIPI) Camera Serial Interface 2 (CSI-2) camera connector for seamless interface with the NVIDIA Jetson Orin Nano™ developer kit or Raspberry Pi 5 kit.

essing at 30 frames per second (FPS). The kit is powered using a single USB-C connector with local power management included for the ADTF3175 and ADSD3500 components. Processed depth and active brightness frames are output through a standard 22-pin mobile industry processor interface (MIPI) Camera Serial Interface 2 (CSI-2) camera connector for seamless interface with the NVIDIA Jetson Orin Nano™ developer kit or Raspberry Pi 5 kit.



Figure 1. ADCAM3175 Photo

BLOCK DIAGRAM

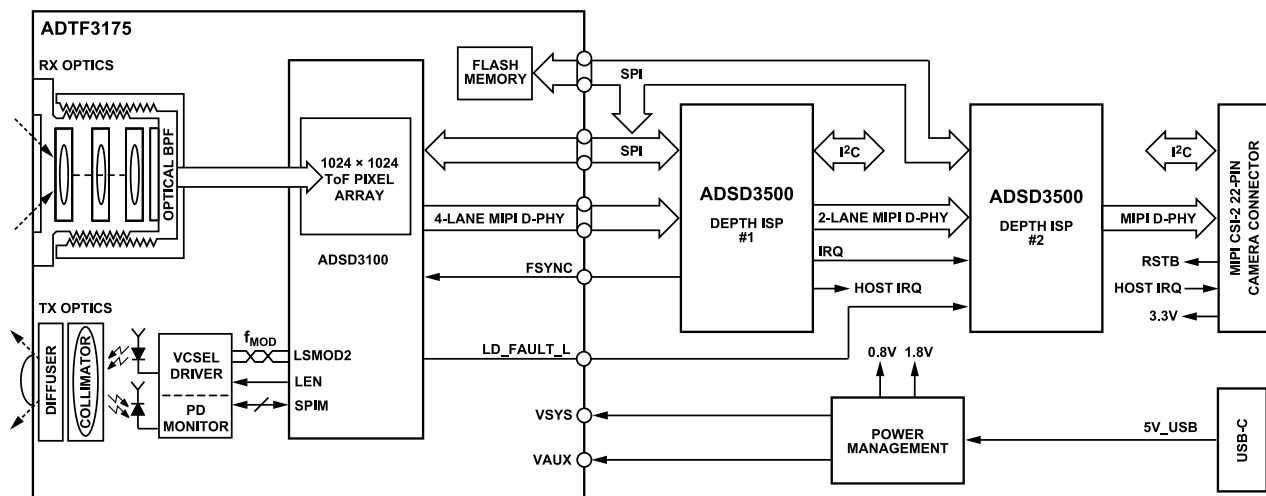


Figure 2. Functional Block Diagram

TABLE OF CONTENTS

Features.....	1	ADCAM with the Raspberry Pi 5.....	4
Online Documentation	1	Required Hardware.....	4
General Description.....	1	ADCAM Hardware Setup.....	4
Block Diagram.....	1	Getting a Frame.....	5
ADCAM with the NVIDIA Jetson Orin Nano		Capturing the First Frame.....	5
Developer Kit.....	3	Mechanical Drawings.....	6
Required Hardware.....	3	Ordering Information.....	7
ADCAM Hardware Setup.....	3	Ordering Guide.....	7

REVISION HISTORY

9/2026—Revision 0: Initial Version

ADCAM WITH THE NVIDIA JETSON ORIN NANO DEVELOPER KIT

REQUIRED HARDWARE

Required

- ▶ ADCAM camera kit package, which also includes:
 - ▶ Flex cable, 22-pin with 0.5mm pitch. Type A recommended.
 - ▶ USB-C cable for powering the ADCAM.
- ▶ NVIDIA Jetson Orin Nano developer kit with:
 - ▶ Power supply.
 - ▶ Internet connection.
- ▶ 128GB or larger microSD card, U3 speed or above:
 - ▶ Used to install JetPack 6.2.2 for the Jetson Orin Nano developer kit.
 - ▶ Important: Use a new installation of JetPack 6.2.2.

- ▶ Monitor with digital visual interface (DVI) cable. Needed for visualization tools, including the graphical user interface (GUI), ADIToFGUI.

Optional

- ▶ USB-C wall charger. Needed when powering the ADCAM without using a PC or the Jetson Orin Nano developer kit.
- ▶ Keyboard with a USB-A connector.
- ▶ Mouse with a USB-A connector.

Note: If a keyboard and mouse are not connected to the Jetson Orin Nano developer kit, the user must connect through Secure Shell (SSH) and export DISPLAY.

Strongly Recommended

- ▶ Solid-state drive (SSD) for saving stream recordings.

ADCAM HARDWARE SETUP

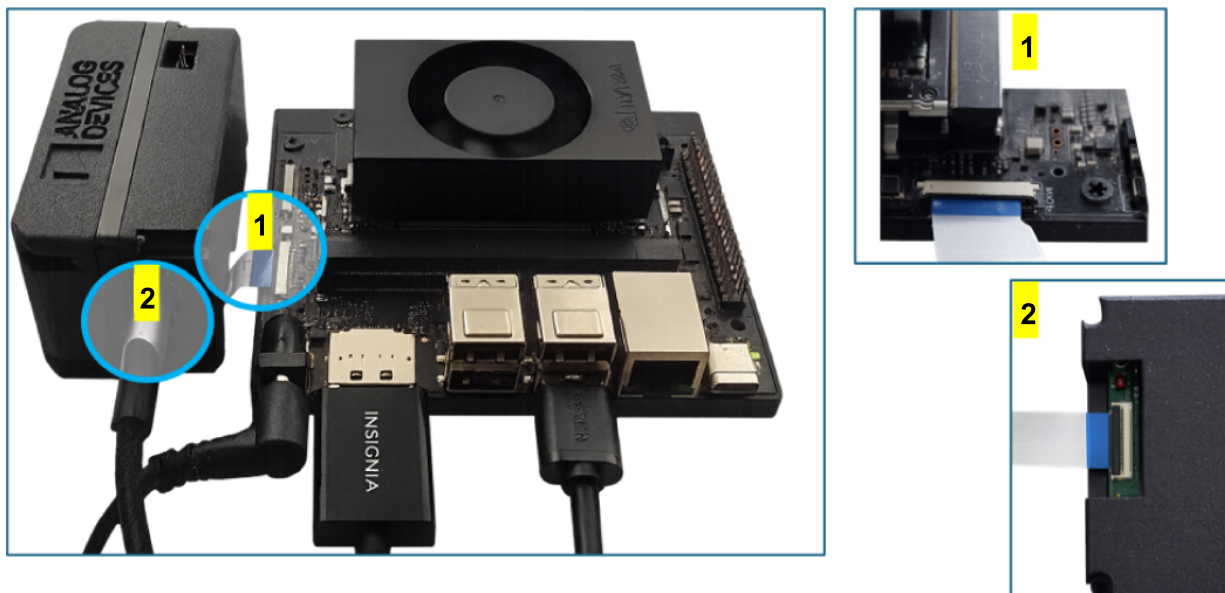


Figure 3. Jetson Orin Nano Hardware Setup

Figure 3 identifies Connection 1 as the CAM1 flex cable connection and Connection 2 as the ADCAM USB-C power connection. Please refer to the ADCAM camera kit user guide online (<https://github.com/analogdevicesinc/ADCAM/blob/rel-1.0.0/doc/user-guide/ADCAM-CameraKit-100.md>) for detailed SW and operating instructions.

1. Power off the Jetson Orin Nano developer kit.
2. Connect the included flex cable to CAM1, identified as Connection 1, and connect the USB-C power cable at Connection 2.
3. Plug in the USB-C cable to power the ADCAM, then provide power to the Jetson Orin Nano developer kit. A PC USB-C port can typically be used as the ADCAM power source, provided it supplies sufficient power.
4. Update the ADCAM firmware from a console on the Jetson Orin Nano developer kit.
5. Important: For consistency, always power-cycle the ADCAM when the Jetson Orin Nano developer kit is rebooted or powered on.

ADCAM WITH THE RASPBERRY PI 5

REQUIRED HARDWARE

Required

- ▶ ADCAM camera kit package, which also includes:
 - ▶ Flex cable, 22-pin with 0.5mm pitch. Type A recommended.
 - ▶ USB-C cable for powering the ADCAM.
- ▶ Raspberry Pi 5 with:
 - ▶ Power supply.
 - ▶ Internet connection.
- ▶ 32GB or larger microSD card, U3 speed or above:
 - ▶ Used to install the validated Raspberry Pi OS 64-bit release, 2025-12-04.

Strongly Recommended

- ▶ SSD for saving stream recordings.

ADCAM HARDWARE SETUP

- ▶ Monitor with DVI cable. Needed for visualization tools, including the GUI, ADIToFGUI.

Optional

- ▶ USB-C wall charger. Needed when powering the ADCAM without using a PC or the Raspberry Pi 5.
- ▶ Keyboard with a USB-A connector.
- ▶ Mouse with a USB-A connector.

Note: If a keyboard and mouse are not connected to the Raspberry Pi 5, the user must connect through SSH and export DISPLAY.

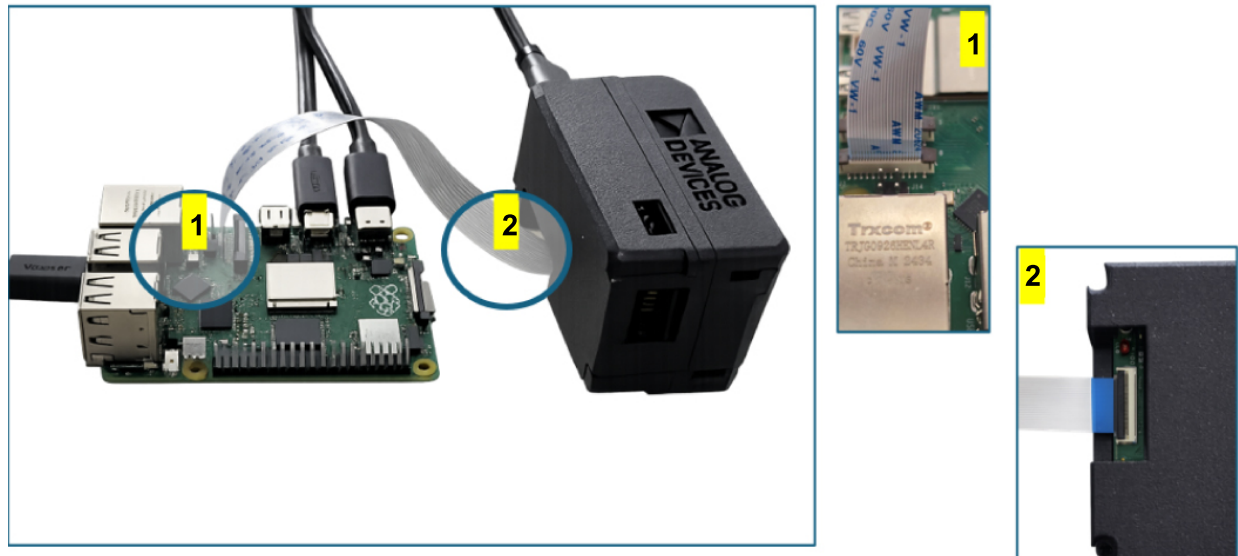


Figure 4. Raspberry Pi 5 Hardware Setup

Figure 4 identifies Connection 1 as the CAM/DISP 0 flex cable connection and Connection 2 as the ADCAM USB-C power connection. Please refer to the ADCAM camera kit user guide online (<https://github.com/analogdevicesinc/ADCAM/blob/rel-1.0.0/doc/user-guide/ADCAM-CameraKit-100.md>) for detailed SW and operating instructions.

1. Power off the device and attach the hardware.
2. Connect the included flex cable to CAM/DISP 0, identified as Connection 1, and connect the USB-C power cable at Connection 2.
3. Plug in the USB-C cable to power the ADCAM, then provide power to the Raspberry Pi 5. A PC USB-C port can typically be used as the ADCAM power source, provided it supplies sufficient power.
4. Update the ADCAM firmware from a console on the Raspberry Pi 5:
5. Important: For consistency, always power-cycle the ADCAM when the Raspberry Pi 5 is rebooted or powered on.

GETTING A FRAME

CAPTURING THE FIRST FRAME

1. Set up the Python environment.
2. Use the `first_frame.py` example to display depth, AB, and confidence frames, along with selected metadata.

Note: This procedure assumes that a keyboard, mouse, and display are connected to the target platform. If they are not connected, use SSH and export DISPLAY before running visualization tools.

3. Review the installed documentation for additional examples and configuration options:

Refer to the documentation installed in:

`~/ADI/Robotics/Camera/ADCAM/1.0.0/docs`

Or view the ADCAM camera kit user guide online (<https://github.com/analogdevicesinc/ADCAM/blob/rel-1.0.0/doc/user-guide/ADCAM-CameraKit-100.md>).

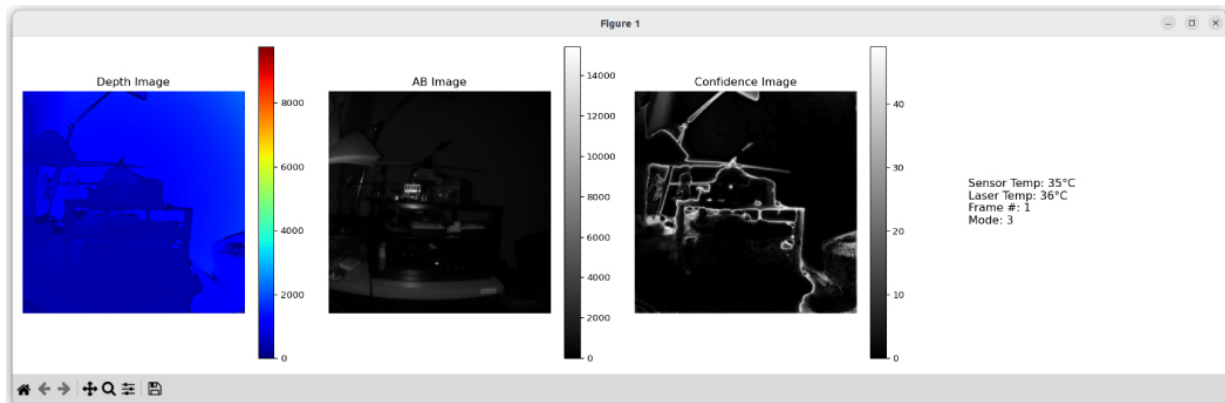
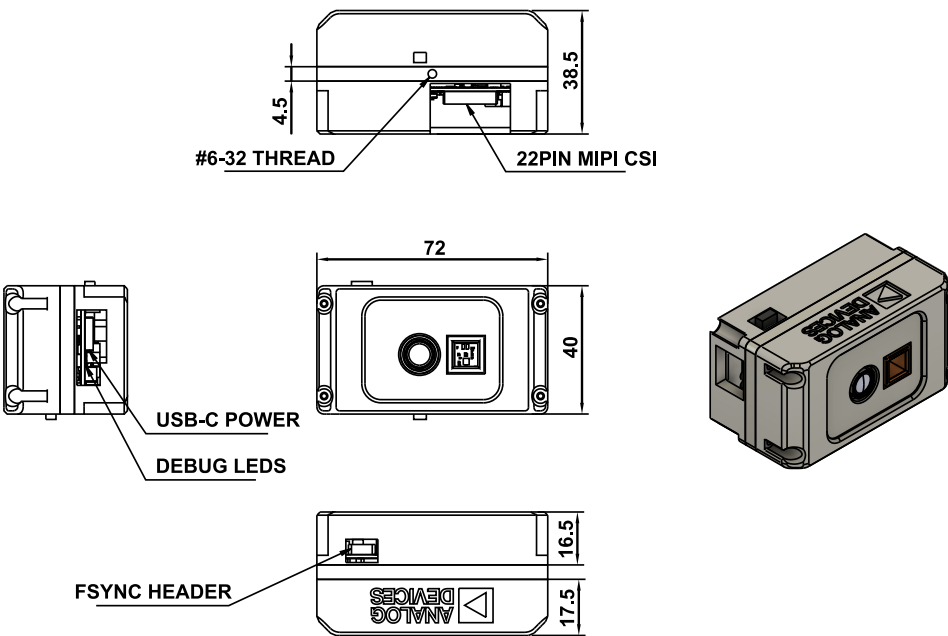


Figure 5. First Frame Output Showing Depth, AB, Confidence, and Metadata

005

MECHANICAL DRAWINGS



DIMENSIONS ARE IN MILLIMETERS

Figure 6. Outline Dimensions

900

ORDERING INFORMATION

ORDERING GUIDE

Model	Description
ADCAM3175-2M-EBZ	1 Megapixel 3D ToF Evaluation Kit

**ESD Caution**

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

Legal Terms and Conditions

By using the evaluation board discussed herein (together with any tools, components documentation or support materials, the "Evaluation Board"), you are agreeing to be bound by the terms and conditions set forth below ("Agreement") unless you have purchased the Evaluation Board, in which case the Analog Devices Standard Terms and Conditions of Sale shall govern. Do not use the Evaluation Board until you have read and agreed to the Agreement. Your use of the Evaluation Board shall signify your acceptance of the Agreement. This Agreement is made by and between you ("Customer") and Analog Devices, Inc. ("ADI"), with its principal place of business at One Analog Way, Wilmington, MA 01887-2356, U.S.A. Subject to the terms and conditions of the Agreement, ADI hereby grants to Customer a free, limited, personal, temporary, non-exclusive, non-sublicensable, non-transferable license to use the Evaluation Board FOR EVALUATION PURPOSES ONLY. Customer understands and agrees that the Evaluation Board is provided for the sole and exclusive purpose referenced above, and agrees not to use the Evaluation Board for any other purpose. Furthermore, the license granted is expressly made subject to the following additional limitations: Customer shall not (i) rent, lease, display, sell, transfer, assign, sublicense, or distribute the Evaluation Board; and (ii) permit any Third Party to access the Evaluation Board. As used herein, the term "Third Party" includes any entity other than ADI, Customer, their employees, affiliates and in-house consultants. The Evaluation Board is NOT sold to Customer; all rights not expressly granted herein, including ownership of the Evaluation Board, are reserved by ADI. CONFIDENTIALITY. This Agreement and the Evaluation Board shall all be considered the confidential and proprietary information of ADI. Customer may not disclose or transfer any portion of the Evaluation Board to any other party for any reason. Upon discontinuation of use of the Evaluation Board or termination of this Agreement, Customer agrees to promptly return the Evaluation Board to ADI. ADDITIONAL RESTRICTIONS. Customer may not disassemble, decompile or reverse engineer chips on the Evaluation Board. Customer shall inform ADI of any occurred damages or any modifications or alterations it makes to the Evaluation Board, including but not limited to soldering or any other activity that affects the material content of the Evaluation Board. Modifications to the Evaluation Board must comply with applicable law, including but not limited to the RoHS Directive. TERMINATION. ADI may terminate this Agreement at any time upon giving written notice to Customer. Customer agrees to return to ADI the Evaluation Board at that time. LIMITATION OF LIABILITY. THE EVALUATION BOARD PROVIDED HEREUNDER IS PROVIDED "AS IS" AND ADI MAKES NO WARRANTIES OR REPRESENTATIONS OF ANY KIND WITH RESPECT TO IT. ADI SPECIFICALLY DISCLAIMS ANY REPRESENTATIONS, ENDORSEMENTS, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, RELATED TO THE EVALUATION BOARD INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. IN NO EVENT WILL ADI AND ITS LICENSORS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM CUSTOMER'S POSSESSION OR USE OF THE EVALUATION BOARD, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DELAY COSTS, LABOR COSTS OR LOSS OF GOODWILL. ADI'S TOTAL LIABILITY FROM ANY AND ALL CAUSES SHALL BE LIMITED TO THE AMOUNT OF ONE HUNDRED US DOLLARS (\$100.00). EXPORT. Customer agrees that it will not directly or indirectly export the Evaluation Board to another country, and that it will comply with all applicable United States federal laws and regulations relating to exports. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the substantive laws of the Commonwealth of Massachusetts (excluding conflict of law rules). Any legal action regarding this Agreement will be heard in the state or federal courts having jurisdiction in Suffolk County, Massachusetts, and Customer hereby submits to the personal jurisdiction and venue of such courts. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement and is expressly disclaimed. All Analog Devices products contained herein are subject to release and availability.

