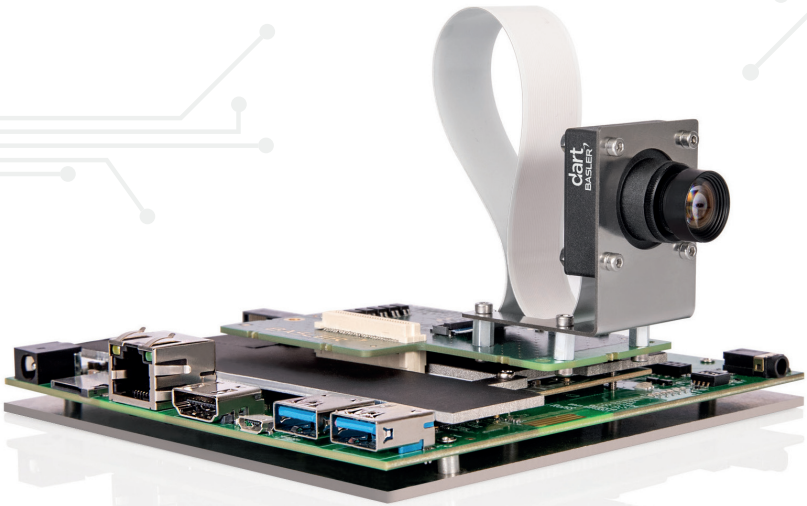
QUICK INSTALL GUIDE
BASLER EMBEDDED VISION KIT
daA2500-60mc-SD820-DB8



BASLER
the power of sight

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INTRODUCTION

About this Document

This document provides information about how to install the daA2500-60mc-SD820-DB8 Embedded Vision Kit. It also provides step-by-step instructions that help you acquire your first images with the included Basler dart BCON for MIPI camera.

Target Audience

The daA2500-60mc-SD820-DB8 Embedded Vision Kit is aimed at experienced hardware and software engineers proficient in electronics, software development, and embedded system design.

This document is written for a target audience that has intermediate to advanced technical skills in the areas mentioned above.

The document assumes that users have experience in the following areas:

- System on Chip (SoC) or System on Module (SoM) architectures
- Embedded Linux operating systems

SAFETY INSTRUCTIONS

General Safety Notices

DANGER

Electric Shock Hazard: Unapproved power supplies may cause electric shock. Serious injury or death may occur.

Only use the power supply delivered with the Embedded Vision Kit. Do not use other power supplies.

WARNING

Fire Hazard: Unapproved power supplies may cause fire and burns.

Only use the power supply delivered with the Embedded Vision Kit. Do not use other power supplies.

NOTICE

Damage Hazard: Electrostatic discharge (ESD) can damage the components of the Embedded Vision Kit.

- Use anti-static clothes and materials, e.g., conductive shoes, anti-static gloves, and ESD protection wrist straps to decrease the risk of electrostatic discharge.
- Control the humidity in your environment. Low humidity can cause ESD problems.

NOTICE

Radio Interference Hazard: This is a Class A product. In residential environments, this product may cause radio interference, in which case the user may be required to take adequate measures.

Observe the following items:

- Do not modify the hardware components in any way. Do not remove parts from the board or solder in new parts.
- Do not allow, e.g., liquid, flammable, or metallic material to get in contact with the boards.
- Read the documentation carefully before using the Embedded Vision Kit.
- For safety instructions related to the operation of the Basler dart BCON for MIPI camera, refer to the *Basler Product Documentation* available at docs.baslerweb.com.

Environmental Requirements

This Embedded Vision Kit is intended for indoor use at normal room temperature only.

If you operate the Embedded Vision Kit at elevated temperatures or at high load, Basler recommends providing additional cooling, e.g., by installing a fan.

For specific environmental requirements of the components, refer to the *Basler Product Documentation* available at docs.baslerweb.com.

DELIVERED PARTS

The daA2500-60mc-SD820-DB8 Embedded Vision Kit contains the following components:

- Basler dart daA2500-60mc camera module, S-mount
- Evetar lens N118B05518W *f*/1.8, f5.5 mm, 1/1.8″
- Developer Board 8 processing board
- Basler dart BCON for MIPI mezzanine board, pre-mounted on the processing board
- Flexible flat cable, 0.2 m
- USB 2.0 cable (A / Micro B), 1.8 m
- HDMI 2.0 cable (A / A), 1.5 m
- GigE cable Cat 5e, 2.0 m
- Power supply, 18 W, 12 V @ 1.5 A
- International power cable plugs (see page 17 for details)
- Mounting kit (including camera mounting plate, spacer bolts, screws, and nuts)
- Basler dart Getting Started Guide
- This Quick Install Guide

Installing the Embedded Vision Kit

NOTICE

Damage Hazard: Supplying power before the hardware installation is completed can damage camera and board components.

Only connect the power supply to the mains socket after the hardware installation is completed.

To install the Embedded Vision Kit (refer to Figure 1):

1. Attach four spacer bolts to the bottom of the mounting plate using four screws (M2x4) included in the mounting kit.
2. Remove the protective caps from the lens and mount the lens on the camera.
3. Attach the camera to the mounting plate using four screws (M2x12) so that the lens is led through the hole of the plate. Fix the screws with the nuts.
4. Lead the flexible flat cable through the rectangular cutout of the mounting plate.
5. Connect the flexible flat cable to the camera.

To insert the cable:

a. Push the end of the cable firmly into the FFC connector with the ground tab facing down until the retaining tabs slide into the recesses on both sides.

b. Flip the locking bar down to lock the FFC connector.

6. Mount the mounting plate on the mezzanine board using four screws (M2x4).

7. Connect the flexible flat cable to the FFC connector on the mezzanine board. Flex the cable and pass it through the second cutout of the mounting plate.

8. Connect the HDMI cable to the HDMI connector and to the monitor. Make sure that your monitor supports a minimum resolution of 1080P/30Hz.

9. Connect the mouse and keyboard to any of the USB Type A connectors.

10. Connect the power supply to the processing board and to the mains socket.

    The board boots up.

11. Check that the following LEDs are lit.

    - On the mezzanine board: 1 Power Up LED (CAM PWR, green)
    - On the processing board: 1 Power UP LED (LED1, green)

ACQUIRING YOUR FIRST IMAGES

To acquire your first images using the pylon Viewer:

1. Make sure that you have completed the hardware installation procedure and that the processing board is booted up.
   If required, use the following credentials to log in:
   - Username: `linaro`
   - Password: `linaro`
2. Double-click the **pylon Viewer** icon on the desktop.

   The pylon Viewer opens.
3. Double-click your camera's name in the **Devices** pane to open the camera connection.
4. In the menu bar, click **Camera** > **Continuous Shot**.

   The images captured by the camera are displayed in the image display area.
5. In the menu bar, click **View** > **Zoom to Fit** to make the image fit into the image display area.
6. Focus the lens until the image is properly focused.

NEXT STEPS

Developer Resources

For information about updating the software on the board and developing your own embedded vision solutions, refer to the **readme.txt** file on the desktop of the processing board's operating system. On the desktop, you can also find code samples and sample applications.

For online community support, further hardware-specific documentation, and projects based on this Embedded Vision Kit, visit www.imaginghub.com.

Technical Support

If you experience technical problems, please feel free to contact Basler's customer service team.

Basler provides direct support for the unmodified hardware and software reference design as well as problems arising from the use of this design and original Basler components only. To qualify for support, issues resulting from the use of Basler's reference design must be reproducible on the same unmodified setup. Off-the-shelf hardware, proprietary as well as open-source software from third-party suppliers that are contained in this Embedded Vision Kit are excluded from Basler's support services.

If you need help with porting to other hardware platforms or modifying the software stack provided, please contact Basler sales.

SPECIFICATIONS

Camera Specifications

	Basler dart daA2500-60mc (S-Mount)
Resolution (H×V pixels)	2560 x 1920
Sensor Type	AR0521, CMOS, Rolling Shutter
Optical Size	1/2.5″
Effective Sensor Diagonal	7.04 mm
Pixel Size (H x V)	2.2 µm x 2.2 µm
Max. Frame Rate	60 fps
Mono/Color	Color
Power Consumption	ca. 0.7 W (typical) @ 5 VDC
I/O Lines	2 input lines and 2 output lines
Lens Mount	S-mount
Size (L x W x H)	17.6 mm x 29 mm x 29 mm
Weight	<10 g
Conformity	CE (includes RoHS), FCC, UL Listed, GenICam 2.4 The EU Declaration of Conformity is available on the Basler website: www.baslerweb.com

Processing Board Specifications

	Developer Board 8
Processor	Qualcomm Snapdragon 820E SoC
Memory/Storage	3 GB LPDDR4 1866MHz Internal Universal Flash Storage 2.0 Micro SD card slot (UHS-I)
Connectivity	1x USB 2.0 Micro B, 2x USB 3.0 Type A, WLAN 802.11ac, Bluetooth 4.1, GPS
Power Requirements	Input voltage: 6.5–18 V
Size (L x W)	125 mm x 125 mm x 15 mm

Mezzanine Board Specifications

	Basler BCON for MIPI Mezzanine Board
Interface	BCON for MIPI (MIPI DPHY CSI-2)
User I/Os	6 user I/Os
Size (L x W x H)	85 mm x 54 mm x 13 mm

Lens Specifications

	Evetar Lens N118B05518W
Focal Length	5.5 mm
Aperture	*f*/1.8
Lens Mount	S-mount
Iris Type	Fixed
IR Cut Filter	Yes
Max. Image Circle	1/1.8"
Working Distance	200 mm

Power Supply Specifications

	Power Supply
Power Requirements	100-240 V
Output Rating	18 W, 12V @ 1.5 A
Plug Types	United States / Canada / Japan (NEMA 1-15P config.) Europe (CEE 7/16 configuration)

Block Diagram of the Mezzanine Board

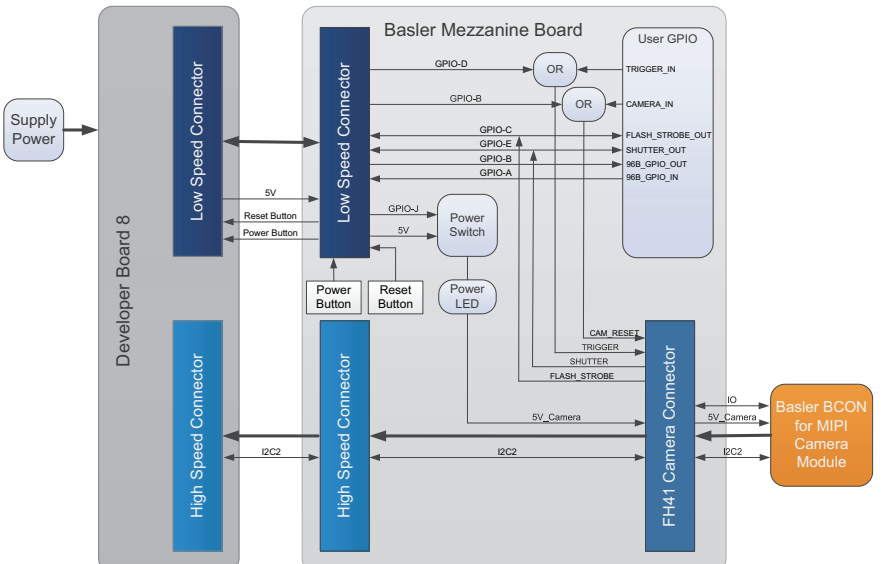


Fig. 2: Block Diagram of the Mezzanine Board

DISCLAIMER AND LICENSING INFORMATION

Disclaimer

This Embedded Vision Kit is intended for use for evaluation, engineering development, demonstration, or test purposes only. It is not considered a finished end product. The product is only offered for the use of professional business personnel. It does not fulfill the requirements for consumer use. Persons handling the product must have electronics training and observe good engineering practice standards. Basler does not assume any liability for the use of this Embedded Vision Kit in environments other than evaluation, engineering development, or demonstration and test environments. If the product is to be used with or integrated into a salable application, please contact your nearest Basler sales representative.

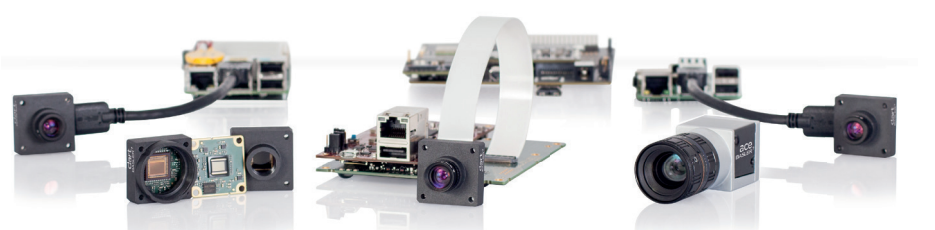
As such, the goods being provided are not intended to be complete in terms of required design, marketing, and/or manufacturing-related protective considerations, including product safety and environmental measures typically found in end products that incorporate such products. For its use in salable applications the user is responsible to assure compliance with all applicable regulatory requirements.

Software Licensing

The software delivered with this Embedded Vision Kit (the "Software") is licensed to you under the conditions of the "dart BCON for MIPI SD820 DB8 Development Kit License Agreement". Please see the license text file included in the Software for further information. This Software contains non-proprietary Basler software or software provided under open-source license by third parties ("third-party software") and is licensed to you subject to the terms and conditions of the software license agreement accompanying such third-party software. The use of the third-party software shall be governed entirely by the terms and conditions of such license. Please find the license terms and conditions of the applicable third-party licenses in the Software or contact Basler support. The Software provided by Basler includes some open-source software that may be used and modified by anyone and everyone, provided they, in turn, make the source code available to everyone else with the same licensing agreement. For a period of three (3) years, commencing from the reception of this Software, you or any third person may obtain a complete machine-readable copy of the source code for the components licensed under open-source licenses in the extent required by the respective licenses and on a medium customarily used for software interchange without charge, except for the cost of physically performing source distribution upon written request to Basler.

For further information and support documents on Basler's embedded vision portfolio please visit:

www.baslerweb.com/embedded



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