Videology®
Industrial-Grade Cameras
an inTEST Company

SCAiLX-DEV-POE-01

SCAiLX Board Swap

SCAiLX™ by Videology®
ZOOM BLOCK CAMERAS WITH AI ON THE EDGE

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Videology Industrial-Grade Cameras

Over 1 Million Cameras Worldwide
At Videology, we specialize in meeting the customized specification requirements of OEMs, large-scale integrators and other partners, which have resulted in the delivery of over 1 million embedded cameras worldwide. We are an ISO 9001-certifed company headquartered in Mansfield, Massachusetts (part of the greater Boston area), and our European operations are located in Eindhoven, the Netherlands.

Our Brand Difference
Our deep commitment to the customer experience delivers performance excellence throughout the entire customer journey. This is Videology's brand difference and it's our company's most important priority in serving the needs of our customers across the globe.

Our Brand Promise
How do we support our brand difference? We do so with a sincere promise we make to every Videology customer as follows: We provide competence, attention to detail and personal care with a level of excellence that will delight every customer in every interaction. This is Videology's brand promise and it's been the key to our growth and success – from a small start-up more than 25 years ago to a global leader in today's imaging industry.

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Excellence.
Every day. Every time.

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Videology reserves the right to modify the information in this document as necessary and without notice. It is the user's responsibility to be certain they possess the most recent version of this document by going to www.videologyinc.com, searching for the model number, and comparing revision letters on the respective document, located in the document's footer.

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2. Warning and Safeguards

- **Read instructions before operating the camera.**
- Please read/follow all instructions and read all warnings before operating the camera.
- Installation and servicing should only be done by Qualified Service and Installation Personnel.
- Installation shall be done in accordance with all local and national electrical and mechanical codes.
- Avoid mounting in direct sunlight.
- To reduce the risk of fire or electric shock, do not expose this appliance to rain, water or wet locations.
- If the camera is to be mounted outdoors a secondary waterproof enclosure should be used.

2.1 Precautions

- Do not put objects inside the unit. Make sure that no metal objects or flammable substances get inside the camera. It could cause fire, short-circuits or damage.
- Be careful when handling the unit.
- To prevent damage, do not drop the camera or subject it to strong shock or vibration.
- Install away from electric or magnetic fields.
- Protect it from humidity and dust.
- Protect from high temperature.
- Be careful when installing the camera close to the ceiling, in a kitchen or boiler room, as the temperature may raise to high levels.
- Cleaning - Dirt can be removed from the cabinet only by wiping it with a soft cloth moistened with a soft detergent solution.
- Mounting Surface - The mounting surface material must be strong enough to secure the camera.
- Avoid viewing a very bright object (such as light fittings) during an extended period.

2.2 Care of the Unit

- Remove dust or dirt on the surface of the lens with a blower (commercially available).
- Avoid the use of volatile solvents such as thinners, alcohol, benzene and insecticides. They may damage the surface finish and/or impair the operation of the camera.
- Be careful not to spill water or other liquids on the unit.

2.3 Operating and Storage Location

- Extremely hot or cold places; operating temperature -40^{0}C- 60^{0}C (-40^{0}F – 140^{0}F)
  however, we recommend that the unit be used within a temperature range of 0^{0}C – 45^{0}C (32^{0}F – 113^{0}F)
- Damp or dust places
- Places exposed to rain
- Places subject to strong vibration
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters.
- 
  If the product is to be put out of operation definitively, take it to a local recycling plant for disposal which is not harmful to the environment.

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3. Document History

Document History

Revision	Issue Date	Reason
A	9/12/2024	Initial Creation

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4. Introduction

This document describes the steps needed to alter the SCAiLX-DEV-POE-01 to make it compatible with LVDS Zoom Block Cameras. This is done by swapping out the attached MIPI board level camera with the LVDS-2-MIPI conversion PCB, in front of the PCB assembly. The LVDS-2-MIPI board can then be connected to a LVDS Zoom Block Camera using the supplied 30-pin LVDS cable.

The camera can then potentially also be used in a multi sensor set-up, with a LVDS Zoom Block Camera and the MIPI board level camera.

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Figure 1 Introduction

5. Dev-kit Contents

- 1x SCAILX 2MP GS POE camera assembled - color **SCAILX-CAM-POE-01**
  - 1x 2MP Color Global Shutter Camera with M-12 Mount **SCAILX-2GS234-5C**
  - 1x 42x42mm Universal SoM Board **SCAILX-SOM-AI**
  - 1x Ethernet Interface Board with **PoE SCAILX-ETH-POE**

- 1x Single or Double Channel LVDS to MIPI Interface Board **SCAILX-LVDS-2-MIPI**
- 1x 2.5mm Lens **32M02524F-5M**
- 1x 3.6mm Lens **32M03618F-5M**
- 1x 6.0mm Lens **32M06018F-5M**
- 1x 120mm Board to Board Universal Flex Cable **SCAILX-FLEX-120**
- 1x 30-Pin LVDS Cable **60C5011**
- 1x 0.9mm Hex Key **70V5042**

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Figure 2 SCAiLX-DEV-POE-01 contents

6. Preparing

For this hardware swap the following items are needed.

1. Assembled SCAiLX PCB stack
2. LVDS-2-MIPI PCB (included in the Dev-Kit)
3. 30-pin LVDS Cable (included in the Dev-Kit)
4. 1.5mm hexagon hex key or screwdriver (not included in the Dev-Kit)
5. A small tweezer (optional, not included in the Dev-Kit)

*Please take into account ESD safety measures.

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7. Disassemble instructions

7.1 Disassemble 1/4

The assembled SCAiLX PCB stack (**SCAILX-CAM-POE-01)** consists of multiple PCBs with heat pads and heat sinks in between, connected by two flex foil cables, and held together by four screws. Unscrew the four M2 screws, located on each side of the board stack. Use a 1.5mm hex key or screwdriver.

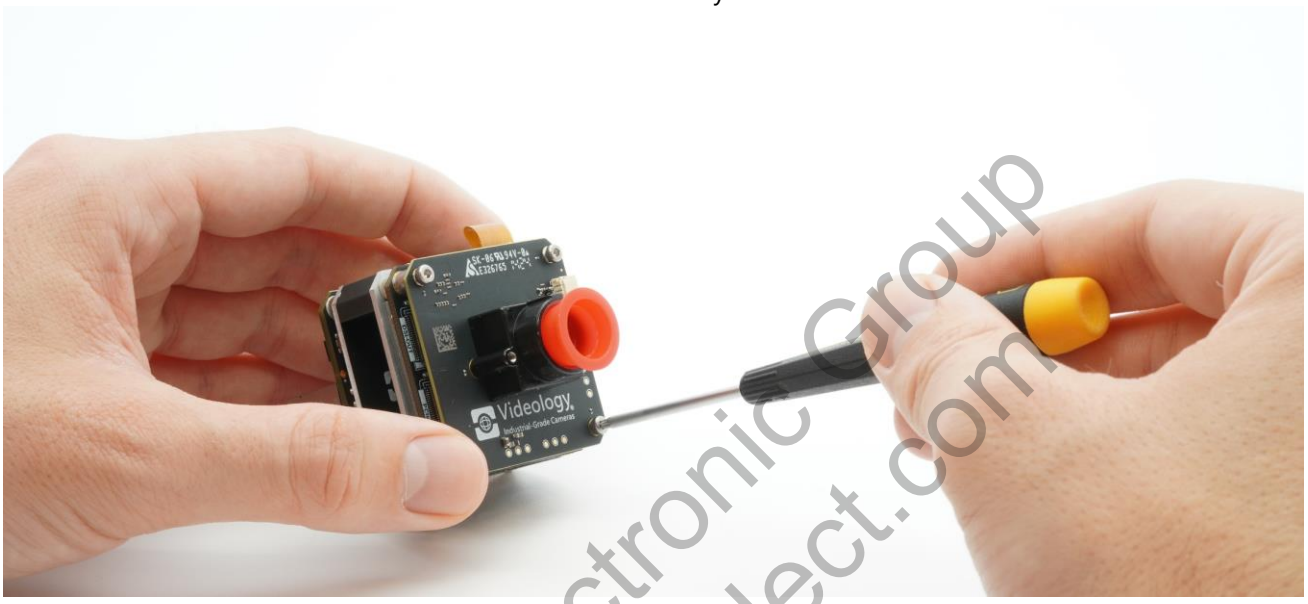

Figure 3 Unscrewing

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7.2 Disassemble 2/4

After the four screws are completely undone, the board assembly will no longer be held together. Only the two flex foil cables (**SCAILX-FLEX-ETH & SCAILX-FLEX-60**) will still be attached. Try to keep the stack as intact as possible and not have PCB's fall out of the loose stack.

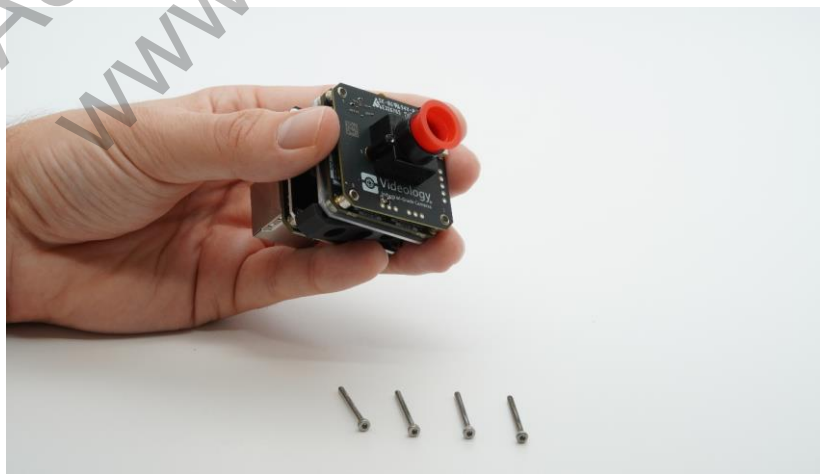

Figure 4 The loose board stack

7.3 Disassemble 3/4

Layout the board as depicted. Position the front MIPI camera PCB (**SCAILX-2GS234-5C**) so that there is access to the back of the PCB. Carefully detach the **SCAILX-FLEX-60** flex foil cable from the CSI-OUT connector on the back of the PCB, by pulling on the aluminum base of the cable. Pull straight up from the board. This can be done with a tweezer or by hand.

Figure 5 Layout board stack

Figure 6 Detach **SCAiLX-FLEX-60** from MIPI camera

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7.4 Disassemble 4/4

Detach the **SCAILX-FLEX-60** flex foil cable from the CSI0-IN connector on the middle processing PCB (**SCAILX-SOM-AI**). Use the same technique as described in the previous step.

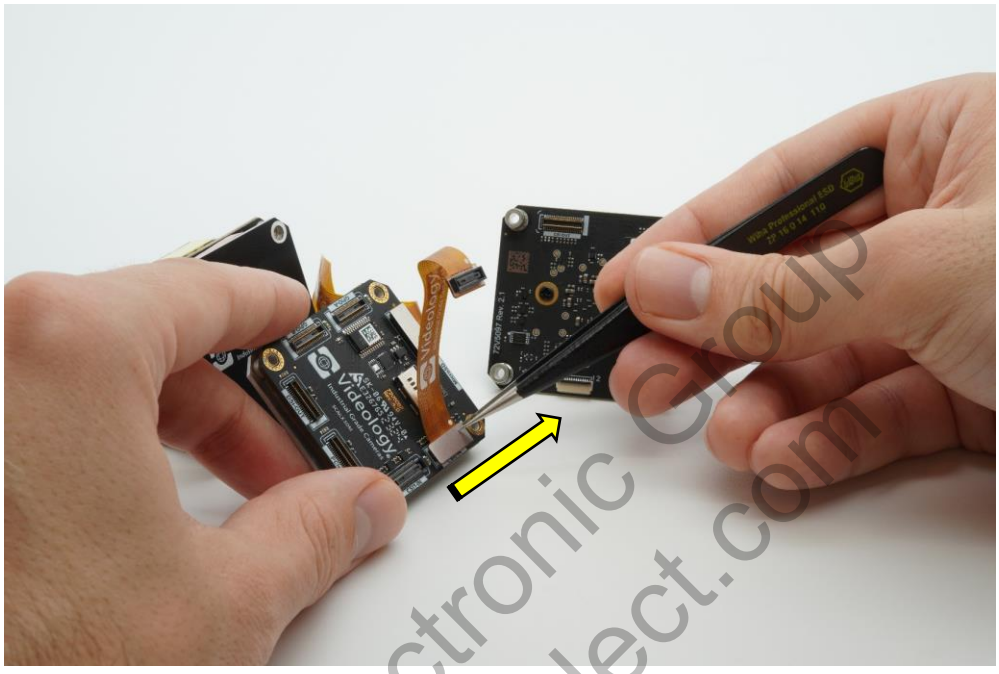

Figure 7 Detach **SCAiLX-FLEX-60** from SOM PCB

Figure 8 Overview after MIPI camera disconnect

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8. Assemble instructions

8.1 Assemble 1/3

Attach the LVDS conversion PCB (**SCAILX-LVDS-2-MIPI)** to the processing PCB (**SCAILX-SOM-AI**). The LVDS-2-MIPI PCB is smaller in size and included separately in the Dev-Kit. Use the board-to-board connectors to connect the LVDS-2-MIPI PCB to the SOM PCB. On the backside of the LVDS-2-MIPI PCB this is the MIPI-OUT connector, on the SOM PCB this is the CSI1-IN connector. After aligning the connectors, gently press the PCB's together, softly clicking together. The PCB's will stay attached to each other with just the board-to-board connectors.

Figure 9 Aligning board-to-board connectors

Figure 10 Connecting **SCAiLX-LVDS-2-MIPI** PCB to **SCAiLX-SOM-AI** PCB

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Figure 11 Overview connected PCBs

8.2 Assemble 2/3

Insert the two plastic spacers back in between the two heatsinks, see figure 10/11 for the correct placement. Position the PCB stack so all screw holes are aligned. Use the four screws to fix the PCBs in place again.

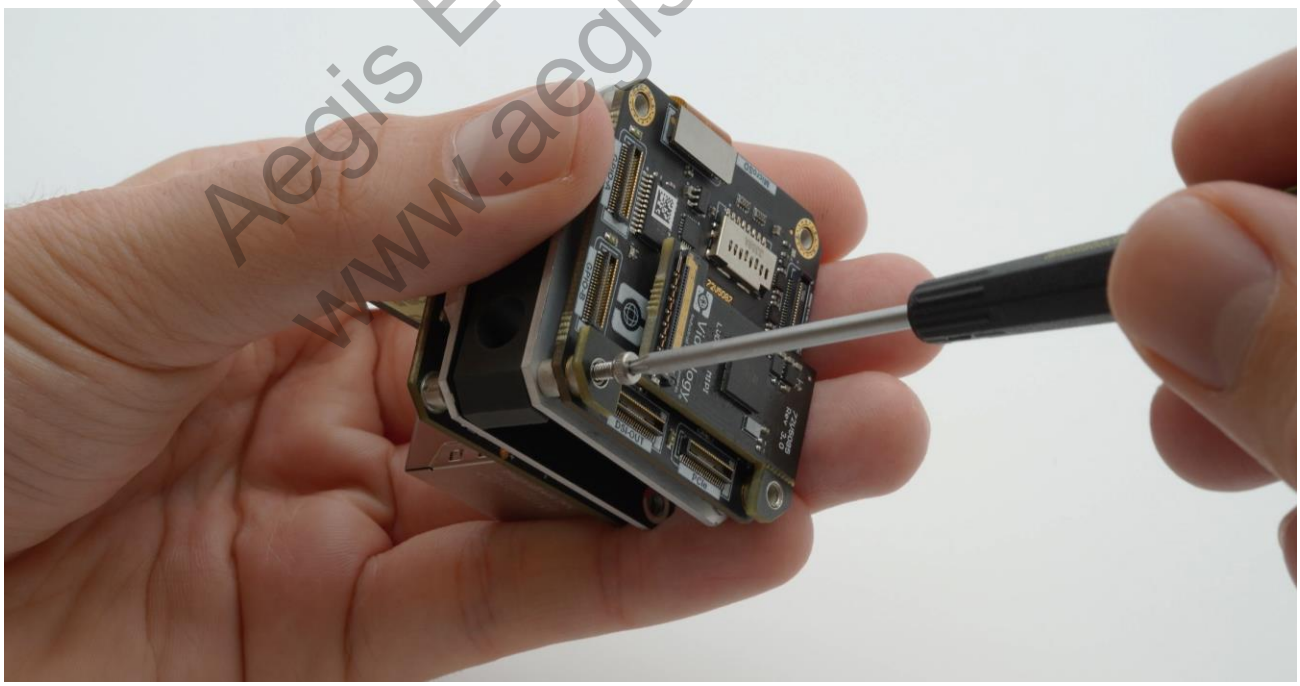

Figure 12 Screwing PCB stack

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Figure 13 AWB example

8.3 Assemble 3/3

Finally, plug the 30-Pin LVDS Cable (**60C5011)** into the **SCAILX-LVDS-2-MIPI** PCB, using the connector on the top of the LVDS-2-MIPI PCB. It does not matter which end of the LVDS cable is used. When inserting, the exposed golden pins should be on the top side. Gently push in until it clicks into place. Now SCAiLX is ready to be connected to a 2 MP LVDS zoom block camera of your choice, from Videology, Tamron or Sony.

Figure 14 Attach 30-pin LVDS cable

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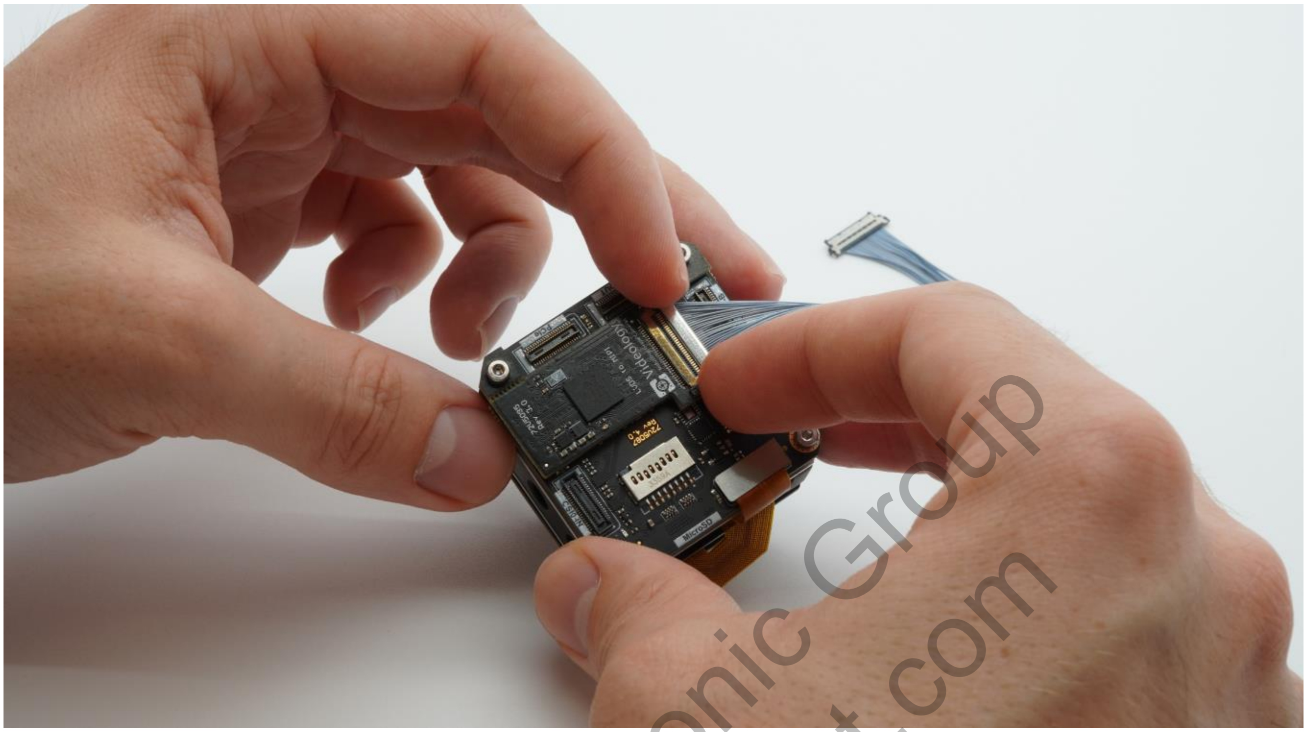

Figure 15 Attach 30-pin LVDS cable

Figure 16 Final overview with LVDS zoom block camera attached

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9. Contact Information

Excellence for More Than 25 Years

Founded in 1995, Videology is a global leader in the design, engineering and manufacturing of industrial-grade embedded video cameras, related systems, software and solutions. For more than 25 years we have been providing performance excellence in a broad spectrum of applications including biomedical devices, life sciences, banking, aerospace, traffic management, pipe inspection, and more. In October 2021, Videology was acquired by inTEST Corporation and currently is a part of the Process Technologies Division.

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