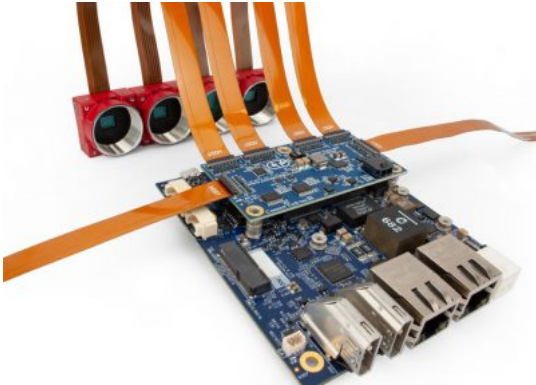


APPLICATION NOTE

Hardware Setups for Carrier Boards with NVIDIA Developer Kits and Alvium CSI-2 Cameras

V1.0.0
2024-Mar-05



Scope

This document shows some typical hardware setups for applications based on NVIDIA Developer Kits with Alvium 1500 C, 1800 C, FP3, and GM2 Coax cameras. This includes schematic overviews and lists of involved components with links for manuals and ordering.

The examples shown in this document are just a small piece of suitable components. For other combinations or more information, please contact [Allied Vision Support](#). For Connect Tech carrier boards, please contact [Connect Tech Support](#).

Helpful links

For current products and links, please use the general links in this table.

Link	Link
NVIDIA embedded boards	www.nvidia.com
Connect Tech boards	https://connecttech.com
Alvium camera documentation	www.alliedvision.com/en/support/technical-documentation
Alvium accessories , such as interface cables, adapter boards, deserializer boards, lenses, and tripod adapters	www.alliedvision.com/en/products/accessories
Drivers for embedded applications	https://connecttech.com/resource-center/l4t-board-support-packages/

Table 1: Helpful downloads

Jetson AGX Orin/Orin Nano Dev Kits with Alvium CSI-2



Terms in schematic images

See [Component descriptions](#) on page 7 for term use in the schematic images of hardware setups.

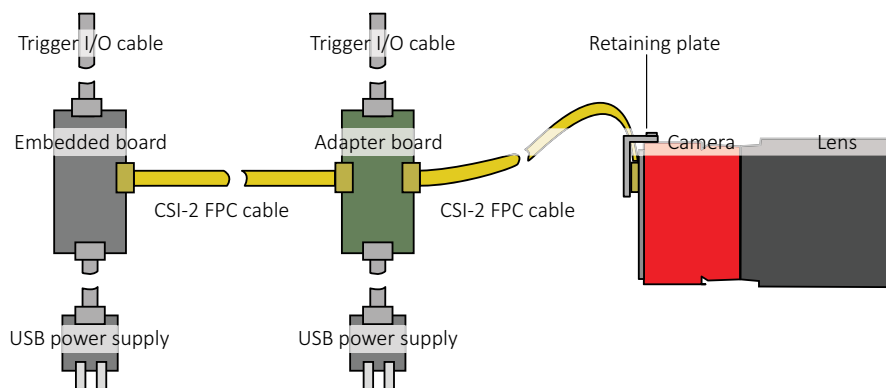


Figure 1: Schematic hardware setup for NVIDIA Dev Kit with Alvium CSI-2

Component	Product code	Product name or description	Documentation	Ordering
Embedded board	—	NVIDIA Jetson AGX Orin Dev Kit		NVIDIA website
	—	NVIDIA Jetson Orin Nano Dev Kit		
USB power supply	—	... for the embedded board		—
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>		—
FPC cable	—	Included with adapter board		—
MIPI CSI-2 adapter board	22559 (19616)	Adapter Board CSI-2 NVIDIA Jetson AGX Orin Dev Kit	User guide	Allied Vision
	22560 (19623)	Adapter Board CSI-2 NVIDIA Jetson Orin Nano Dev Kit	User Guide	
MIPI CSI-2 FPC cable	18947	MIPI CSI-2 FPC cable 70 mm	User guide	Allied Vision
	12316	MIPI CSI-2 FPC cable 120 mm		
	12317	MIPI CSI-2 FPC cable 220 mm		
	12318	MIPI CSI-2 FPC cable 420 mm		
USB power supply	—	... for the adapter board		—
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>		—
Retaining Plate for MIPI CSI-2 cables	16298	Retaining Plate Set for Alvium 1500 C and 1800 C	User guide	Allied Vision
Camera	Various	Alvium CSI-2 camera	User guide	Allied Vision
<i>Tripod adapter</i>	<i>12310-02</i>	<i>Tripod adapter for Alvium cameras</i>	Data sheet	Allied Vision
Lens	Various	See Allied Vision lenses	Data sheets	Allied Vision

Italics = Optional

Table 2: Setup components for Jetson AGX Orin/Orin Nano Dev Kits with Alvium CSI-2

Jetson AGX Xavier SoM on Connect Tech Carrier board with Alvium CSI-2



Connect up to 4 Alvium CSI-2 cameras

See [Jetson AGX Orin SoM with Alvium FP3/GM2 Coax](#) on page 6.

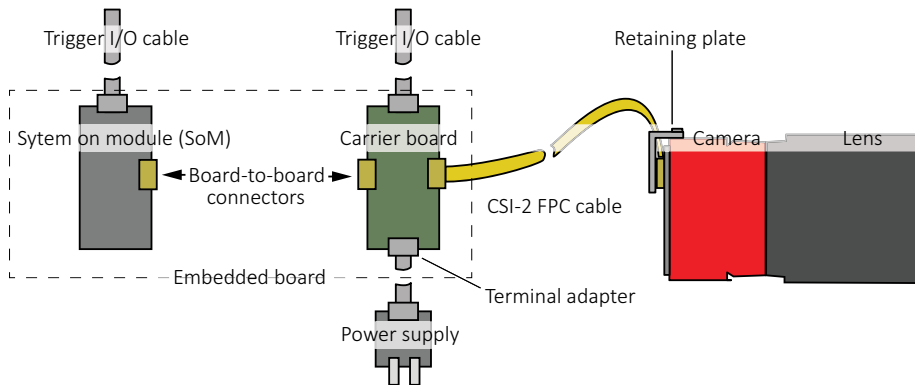


Figure 2: Schematic hardware setup for NVIDIA SoM with Alvium CSI-2

Component	Product code	Product name or description	Documentation	Ordering
System on module	—	NVIDIA Jetson AGX Xavier SoM	NVIDIA website	
Carrier board	—	Connect Tech Rogue Carrier for NVIDIA Jetson AGX Orin	Flyer	Connect Tech
MIPI CSI-2 FPC cable	18947	MIPI CSI-2 FPC cable 70 mm	User guide	Allied Vision, WDL
	12316	MIPI CSI-2 FPC cable 120 mm		Allied Vision, WDL
	12317	MIPI CSI-2 FPC cable 220 mm		Allied Vision, WDL
	12318	MIPI CSI-2 FPC cable 420 mm		Allied Vision, WDL
Power supply	—	... for the carrier board	—	
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>	—	
Retaining Plate for MIPI CSI-2 cables	16298	Retaining Plate Set for Alvium 1500 C and 1800 C	User guide	Allied Vision, WDL
Camera	Various	Alvium CSI-2 camera	User guide	Allied Vision
<i>Tripod adapter</i>	12310-02	<i>Tripod adapter for Alvium cameras</i>	Data sheet	Allied Vision, WDL
Lens	Various	See Allied Vision lenses	Data sheets	Allied Vision

Italics = Optional

Table 3: Setup components for Jetson AGX Xavier SoM with carrier board and Alvium CSI-2

Jetson AGX Orin/Orin Nano Dev Kits with Alvium CSI-2 Flex

The board-to-board connector of Alvium CSI-2 Flex cameras connects to the Add-on Board, with a perpendicular orientation of the Flex FPC cable.

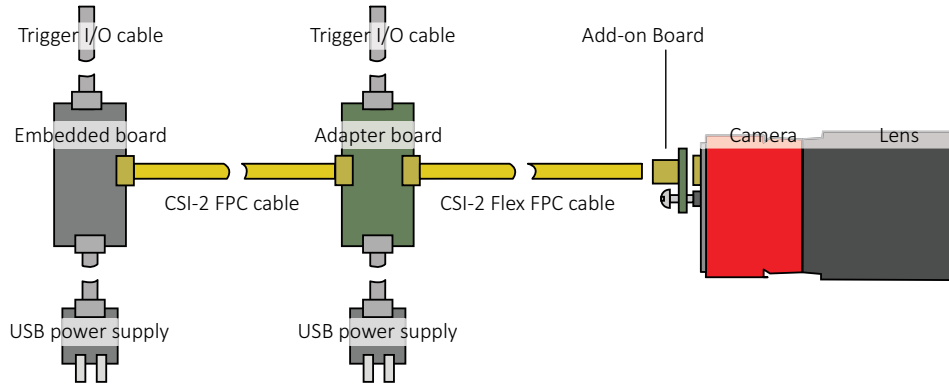


Figure 3: Schematic hardware setup for NVIDIA Dev Kits with Alvium CSI-2 Flex

Component	Product code	Product name or description	Documentation	Ordering
Embedded board	—	NVIDIA Jetson AGX Orin Dev Kit		NVIDIA website
	—	NVIDIA Jetson Orin Nano Dev Kit		
USB power supply	—	... for the embedded board		—
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>		—
FPC cable	—	Included with adapter board		—
MIPI CSI-2 adapter board	22559 (19616)	Adapter Board CSI-2 NVIDIA Jetson AGX Orin Dev Kit	User guide	Allied Vision
	22560 (19623)	Adapter Board CSI-2 NVIDIA Jetson Orin Nano Dev Kit	User Guide	
USB power supply	—	... for the adapter board		—
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>		—
FPC cable	Various	Flex CSI-2 cable 120 mm	User guide	Allied Vision
Add-on Board	22554 (19366)	Flex CSI-2 Add-on Board	Included in Kit Alvium Flex CSI-2 120 mm (see above)	
Camera	Various	Alvium CSI-2 camera	User guide	Allied Vision
<i>Tripod adapter</i>	12310-02	<i>Tripod adapter for Alvium cameras</i>	Data sheet	Allied Vision
Lens	Various	See Allied Vision lenses	Data sheets	Allied Vision

Italics = Optional

Table 4: Setup components for Jetson AGX Orin/Orin Nano Dev Kits with Alvium CSI-2 Flex



More benefits of Alvium CSI-2 Flex

Alvium Flex adds more options to hardware setups: Design individual connections, based on the Hirose DF40C-50DP-0.4V board-to-board connector. See the [Alvium Flex Design and Accessory Guide](#).

Jetson AGX Orin/Orin Nano Dev Kits with Alvium FP3/GM2 Coax

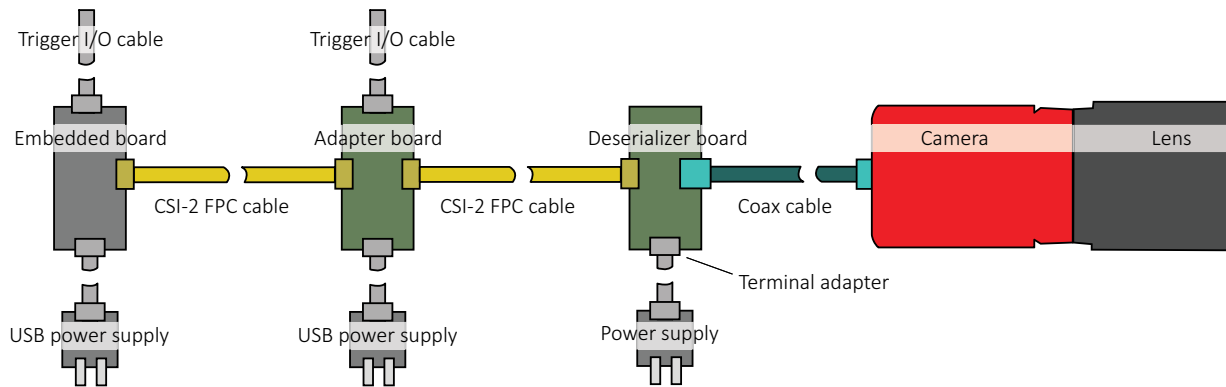


Figure 4: Schematic hardware setup for NVIDIA Dev Kits with Alvium FP3/GM2 Coax

Component	Product code	Product name or description	Documentation	Ordering
Embedded board	—	NVIDIA Jetson AGX Orin Dev Kit		NVIDIA website
	—	NVIDIA Jetson Orin Nano Dev Kit		
USB power supply	—	... for the embedded board		—
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>		—
FPC cable	—	Included with adapter board		—
MIPI CSI-2 adapter board	22559 (19616)	Adapter Board CSI-2 NVIDIA Jetson AGX Orin Dev Kit	User guide	Allied Vision
	22560 (19623)	Adapter Board CSI-2 NVIDIA Jetson Orin Nano Dev Kit	User Guide	
MIPI CSI-2 FPC cable	18947	MIPI CSI-2 FPC cable 70 mm	User guide	Allied Vision
	12316	MIPI CSI-2 FPC cable 120 mm		
	12317	MIPI CSI-2 FPC cable 220 mm		
	12318	MIPI CSI-2 FPC cable 420 mm		
USB power supply	—	... for the adapter board		—
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>		—
Deserializer board	19559	Deserializer Board FPD-Link III Coax to CSI-2	User guide	Allied Vision
	19503	Deserializer Board GMSL2 Coax to CSI-2	User guide	
Power supply	—	... for the deserializer board		—
FAKRA Coax cable	18424	FAKRA Coax cable 5 m	User guide	Allied Vision
	18425	FAKRA Coax cable 10 m		
	18426	FAKRA Coax cable 15 m		
Camera	Various	Alvium FP3 or GM2 camera	User guide	Allied Vision
<i>Tripod adapter</i>	12310-02	<i>Tripod adapter for Alvium cameras</i>	Data sheet	Allied Vision
Lens	Various	See Allied Vision lenses	Data sheets	Allied Vision

Italics = Optional

Table 5: Setup components for Jetson AGX Orin/Orin Nano Dev Kits with Alvium FP3/GM2 Coax

Jetson AGX Orin SoM with Alvim FP3/GM2 Coax

As an alternative, you can set up Alvim FP3/GM2 Coax cameras with various other NVIDIA boards, using carrier boards and camera boards by **Connect Tech**.

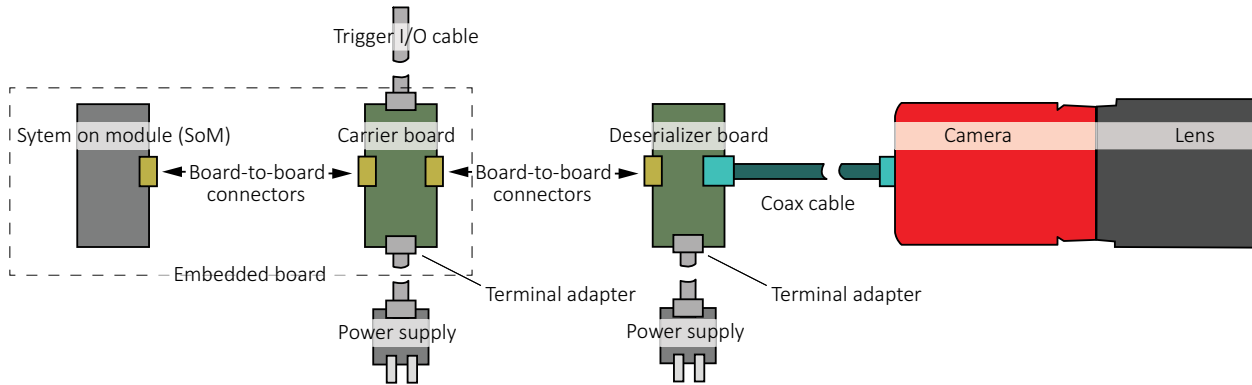


Figure 5: Schematic hardware setup for NVIDIA SoM with Alvim FP3/GM2 Coax

Component	Product code	Product name or description	Documentation	Ordering
System on module	—	NVIDIA Jetson AGX Orin SoM		NVIDIA website
Carrier board		Rogue Carrier for NVIDIA Jetson AGX Orin Dev Kit	Manual	Connect Tech
Power supply	—	... for the carrier board	—	
<i>Trigger I/O cable</i>	—	<i>Manufactured by users</i>	—	
Deserializer board	—	Deserializer board for FPD-Link III		Connect Tech
	—	Deserializer board for GMSL2		Connect Tech
Power supply	—	... for the deserializer board	—	
FAKRA Coax cable	—	FAKRA Coax cable CGB341*		Connect Tech
Camera	Various	Alvim FP3 or GM2 camera	User guide	Allied Vision
<i>Tripod adapter</i>	12310-02	<i>Tripod adapter for Alvim cameras</i>	Data sheet	Allied Vision, WDL
Lens	Various	See Allied Vision lenses	Data sheets	Allied Vision

Italics = Optional | * Depends on the selected carrier board.

Table 6: Setup components for Jetson AGX Orin with carrier board and Alvim FP3/GM2 Coax

Let us support your application

Do you have any questions? Maybe you have not found the solution for your application here?

Allied Vision offers additional adapter boards for such as Avnet, NXP, or Xilinx embedded boards.

For Alvim FP3/GM2 deserializer boards with HSD STP connectors are available.

Please contact the [Support team](#).

Connect Tech enable offers various embedded solutions for SoMs by NVIDIA, including embedded boards, deserializer boards, and cabling.

Please contact the [Support team](#).

Component descriptions

Boards

Embedded board

SoM (system on module) connected to a carrier board

Adapter board (by Allied Vision)

PCBA (printed circuit board assembly) to convert the pinouts between embedded boards and Alvium CSI-2 cameras. Where supported by the embedded board, this includes I/O lines.

Camera power is provided by an external USB power supply.

Deserializer board

PCBA (printed circuit board assembly) to deserialize the signal of Alvium FP3 or GM2 cameras' on-board serializer for embedded boards. Where supported by the embedded board, this includes I/O lines.

Board power is provided by an external power supply.

Cables and cable support

FPC cable

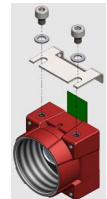
FPC (flat printed circuit) cables connect embedded boards to adapter boards.

MIPI CSI-2 FPC cable

MIPI FPC (flat printed circuit) cables connect Alvium CSI-2 cameras or deserializer boards to adapter boards.

Retaining plate for MIPI CSI-2 FPC cable

We recommend mounting this accessory to Alvium CSI-2 cameras for strain release with MIPI CSI-2 FPC cables. See the [16298 FH55 Retaining Plate User Guide](#).



FAKRA coaxial cables

FAKRA coaxial cables connect Alvium FP3/GM2 Coax cameras to deserializer boards.

HSD STP cables

HSD STP (shielded twisted pair) cables connect Alvium FP3/GM2 STP cameras to deserializer boards.

I/O cables

Users must manufacture their own cables, based on specifications of embedded boards, adapter boards, and deserializer boards.

Power supply

USB power supplies or power converters connecting to terminal adapters.

Contact us

Website, email

General

www.alliedvision.com/en/contact

info@alliedvision.com

Distribution partners

www.alliedvision.com/en/avt-locations/avt-distributors

Support

www.alliedvision.com/en/support

www.alliedvision.com/en/about-us/contact-us/technical-support-repair-/rma

Offices

Europe, Middle East, and Africa (Headquarters)

Allied Vision Technologies GmbH
Taschenweg 2a
07646 Stadtroda, Germany
T// +49 36428 677-0 (Reception)
T// +49 36428 677-230 (Sales)
F// +49 36428 677-28

North, Central, and South America, Canada

Allied Vision Technologies Canada Inc.
300 – 4621 Canada Way
Burnaby, BC V5G 4X8, Canada
T// +1 604 875 8855

USA

Allied Vision Technologies, Inc.
102 Pickering Way- Suite 502
Exton, PA 19341, USA
Toll-free// +1-877-USA-1394
T// +1 978 225 2030

Asia-Pacific

China

Allied Vision Technologies Shanghai Co Ltd.
B-510, Venture International Business Park
2679 Hechuan Road
Minhang District, Shanghai 201103
People's Republic of China
T// +86 21 64861133

Japan

Allied Vision Technologies
Yokohama Portside Bldg. 10F
8-1 Sakae-cho, Kanagawa-ku
Yokohama-shi, Kanagawa, 221-0052
T// +81 (0) 45 577 9527

Singapore

Allied Vision Technologies Asia Pte. Ltd
82 Playfair Rd, #07-01 D'Lithium
Singapore 368001
T// +65 6634 9027

Copyright and trademarks

All text, pictures, and graphics are protected by copyright and other laws protecting intellectual property. All content is subject to change without notice. All trademarks, logos, and brands cited in this document are property and/or copyright material of their respective owners. Use of these trademarks, logos, and brands does not imply endorsement.

Copyright © 2025 Allied Vision Technologies GmbH. All rights reserved.