CAM-5943-081CLR, CAM-5943-155CLR

Data brief

VD5943 promodules:
Camera module evaluation samples for instant integration of VD5943 sensor

ST Bright Sense

Order code	Description
CAM-5943-081CLR	VD5943 promodule with 81° FoV lens, clear filter
CAM-5943-155CLR	VD5943 promodule with 155° FoV lens, clear filter

Features

- "Promodules": turnkey camera modules for evaluation:
  - Including VD5943 image sensor, lens holder, lens, and plug-and-play flex connection.
  - Lens focused, glued, and tested in a cleanroom environment using specialized equipment.
  - Small footprint down to 14.0 mm square, with smaller dimension achievable as a customized solution from partner camera module integrators.
- High lens flexibility:
  - General-purpose lens enabling compact module design (81° DFOV, clear filter).
  - Ultrawide-angle lens for maximizing the field of view (155° DFOV, clear filter).
- Plug-and-play connector to change promodules at any time:
  - FPC-to-board 30-pin connector.
  - Same connector for all ST promodules.
- Ready for evaluation and integration:
  - On a computer with a USB output using the EVK Main hardware tool and the Evaluation GUI free software.
  - On embedded processing platforms with a MIPI CSI-2 output using the P-Board hardware tool and free Linux software tools.

Description

The CAM-5943 promodules are a full range of sample camera modules made for a seamless evaluation and integration of the VD5943 5-megapixel monochrome image sensor. These ready-to-use vision extensions integrate VD5943 image sensor, lens holder, lens, and plug-and-play flex connection in a compact format down to 14.0 mm square.

The CAM-5943 line leverages the complete toolbox of on-chip features of the VD5943 image sensor embedded, such as hybrid global/rolling shutter, on-chip HDR, multi-exposure and more. Multiple GPIOs enable users to synchronize the modules with triggers and illumination. Featuring two or four lanes MIPI CSI-2 output and low operating power, the promodules are perfectly suited for embedded low-power setups.

Multiple promodule references are available, featuring various lenses to best match the needs of every application in terms of optical setup and mechanical constraints. All camera modules are equipped with the same FPC-to-board connector and pinout. This plug-and-play architecture allows users to change promodule instantly, and reuse the same setup with different lenses, color options and even different image sensors in the ST BrightSense portfolio.

CAM-5943 promodules can be tested and integrated on computers or embedded processing boards using hardware and software tools from STMicroelectronics. The compatible EVK Main and P-Board hardware kits enable straight connection to PC and embedded processing platforms respectively. A double sided adhesive sticker is supplied with the module to facilitate mounting on the target board. Evaluation GUI software and Linux drivers are available for download from the Imaging Software section of the website.

Figure 1. CAM-5943 promodule connector and pinout

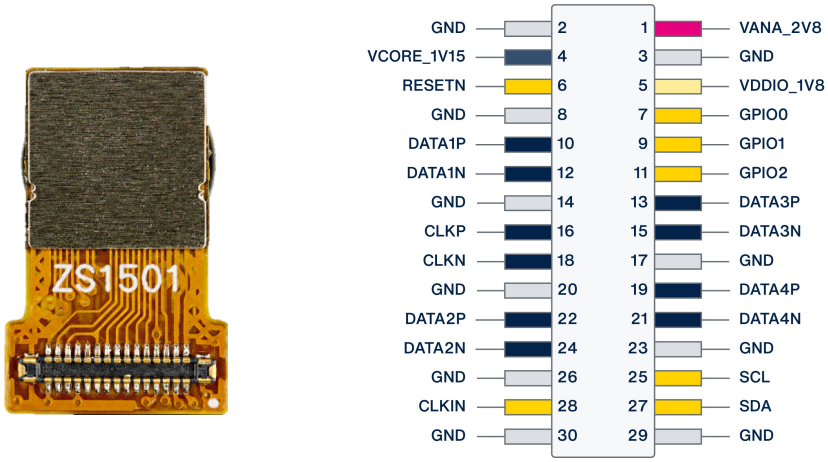
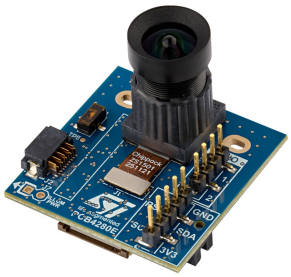


Table 1. Evaluation & development setup with CAM-5943 promodules

	
Setup for embedded platforms with MIPI CSI-2 output	**Setup for computer with USB output**
CAM-5943 promodule + P-Board	CAM-5943 promodule + EVK Main

1 Technical specifications

Table 2. Technical specifications

Category	Parameter	Common specifications	
Image characteristics	Sensor featured	VD5943	
	Resolution	5.1 MP – 2560 x 1984	
	Aspect ratio	4 : 3	
	Shutter type	Hybrid global/rolling shutter	
	Color option	Monochrome	
Electrical characteristics	Connector type	FPC-to-board	
	Connector reference	Hirose BM28 B0.6-30DP/2-0.35V	
	Pinout	30 pins	
	Output interface	MIPI CSI-2 | 2 or 4 lanes	
	Control interface	I²C	
	Output format	RAW8, RAW10 (global shutter) RAW8, RAW10, RAW12 (rolling shutter)	
	Supply voltages	2.8 V – 1.8 V – 1.15 V	
	External clock frequency	12 to 50 MHz	
Embedded features	Image quality optimization	• Hybrid global/rolling shutter • HDR • Multi-exposure • Noise reduction • Dark calibration • Analog and digital gains • Image statistics	
	Power and data optimization	• Cropping • Subsampling • HDR compression via customizable PWL • Context management with up to 4 contexts	
	Others	• Mirror/Flip • Test pattern generation • Temperature sensor • GPIOs x3	
Category	**Parameter**	**CAM-55943-081CLR**	**CAM-5943-155CLR**
Optical characteristics	Aperture – f/#	F/2.2	F/2.0
	Field of view – D | H | V	81° | 68° | 55°	155° | 119° | 90°
	Depth of field	64.1 cm → 227.9 cm (1)	49 cm → INF
	EFL	4.2 mm	2.9 mm
	Distortion (TV)	< 1%	< 33.02%
	Filter	Clear	Clear
Mechanical characteristics	Head dimension without lens – L x W	13.2 x 13.2 mm	13.2 x 13.2 mm
	Lens diameter - L, W	14.0 mm	17.0 mm
	Total height - H	23.1 mm	26.3 mm
	Distance from connector to optical center - L	15.0 mm	15.0 mm
	Total outer dimension - L x W x H	23.7 x 14.0 x 23.1 mm	25.2 x 17.0 x 26.3 mm

1. *The lens is factory-focused at 100 cm and fixed with glue to optimize image quality for generic evaluation. If needed, carefully rotate the lens to break the glue and adjust the focus to a different distance. After this adjustment, the lens is no longer glued in place, so the focus may change if the lens is moved, and a small amount of foreign material could land on the sensor surface and affect image quality.*

Revision history

Table 3. **Document revision history**

Date	Version	Changes
11-Jun-2026	1	Initial release