Image Verification & Development Support Device USB 3.2 - Portable Type

Camera inspection
- Parallel
- MIPI-CSI-2
- MIPI-DSI
- Jig

Automotive SerDes
- FPDLinkⅢ
- GMSL2
- GVIF2
- A-PHY

Multi Interface
- USB3.2
- Display Port
- HDMI
- SDI LAN

SV series

NetVision Co., LTD.

NetVision

Table of Contents

◇**NetVision Company Profile**

◇**SV Series Milestones**

◇**Vendor-Class Board: For Camera Development**

- For Camera Development and New Camera Evaluation

◇**Generator Board: For Video Emulation**

- Verification Data Input to DSP, ISP, ECU, etc.
- Embodying Simulation Images

◇**Monitor Board: For Actual Devices and Verification**

- Driving Tests, Camera Evaluation, Production Equipment, etc.

◇**USB3.2-Gen2-FX10 Board**

◇**Automotive SerDes Board: Made to Order**

◇**SV Series Application Examples**

◇**Automotive Network Verification Examples**

◇**SV Series Product Line-Up (Price List)**

SV series board type number rule

SV L – 03 – UVC (Manufacturing number:SVL-03)

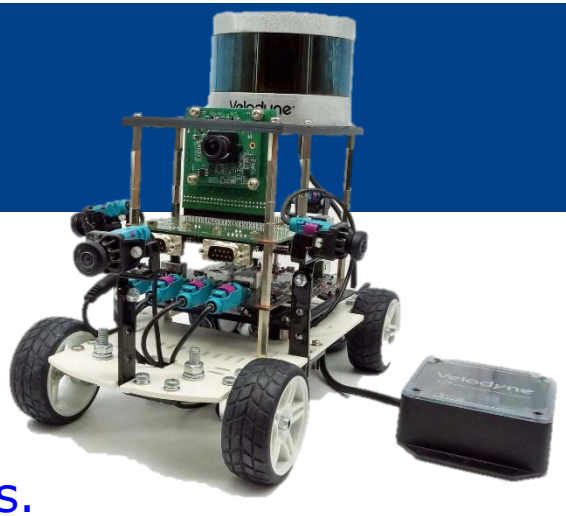
1. Series name
   SV:Smart Vision
2. Camera interface
   L:LVDS(MIPI)
   P:Parallel
3. Board revision
4. Function
   UVC:USB Video Class
   GEN:Generator
   VND:USB Vendor Class

SerDes board type number rule

FP I – 914A – F (Manufacturing number:NV012-C)

1. Interface
   FP:FPD-Link III
   GM:GMSL, GMSL2
   GV:GVIF2
   AP:A-PHY
2. I/O direction
   I:Input, O:Output
3. Integrated SerDes IC number
   914A:DS90UB914A,
   96706:MAX96706GTJ etc.
4. Mounted connector
   F:FAKRA, H:HSD, M:MX
   FH:FAKRA&HSD

Company Overview



Location: 1-28 Kanda Sudacho, Chiyoda-ku, Tokyo

Established: March 6, 2001

Capital: 60 million yen

Corporate Philosophy: Proposing world-class products in niche areas.

We focus on product development environments, which require less investment but are more challenging than product development, and offer affordable, high-performance product development environments. To develop these product development environments, we have established a system for in-house product development and production, from boards to FPGAs, software, and firmware.

CEO: Yuichi Miyazaki

Employees: 16

URL: https://www.net-vision.co.jp/

Business Area: Manufacturing and sales of electronic products

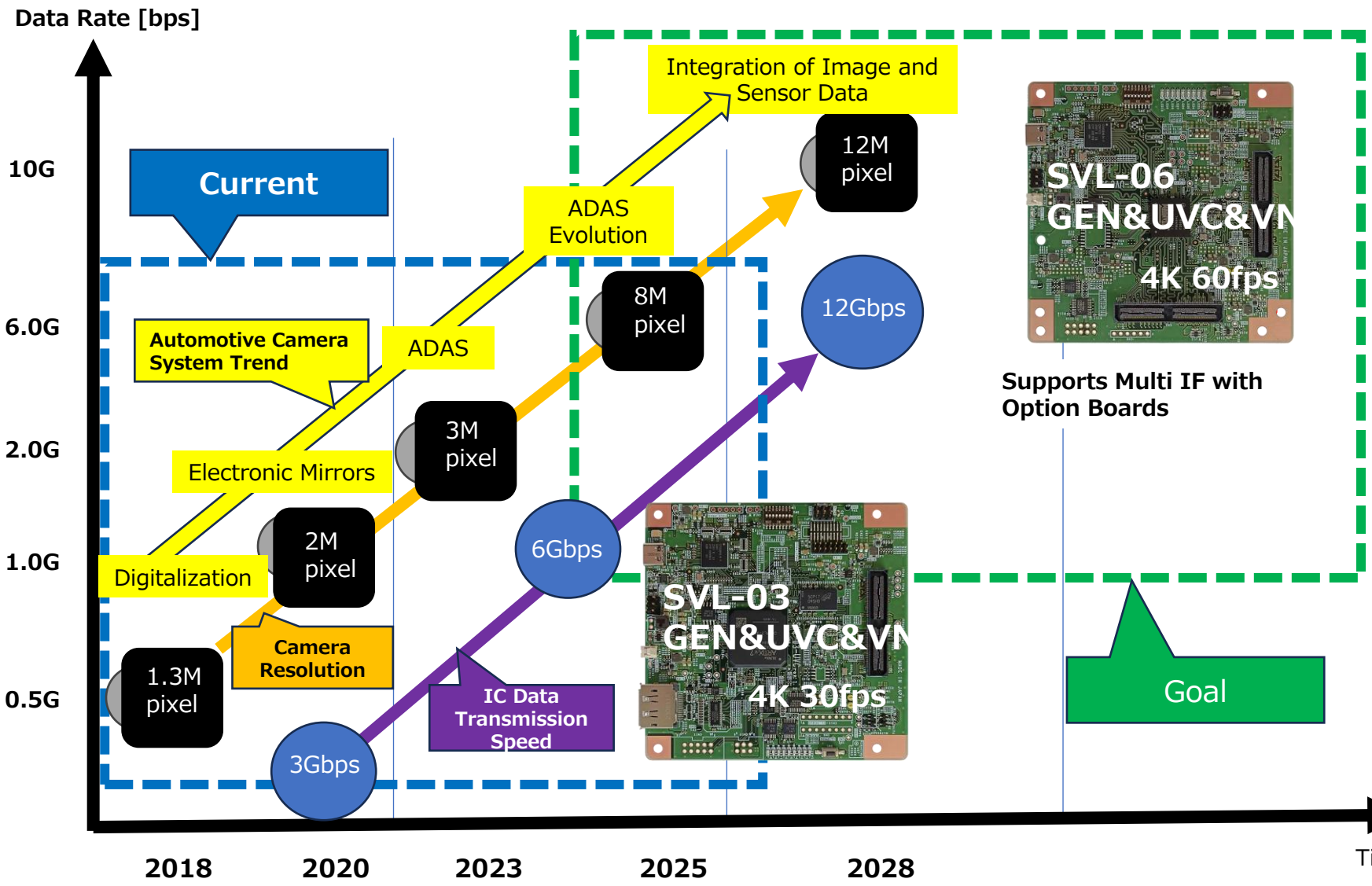
In-house Product: Image Inspection SV Series

Major Customers:

Panasonic, Aisin, Honda Motor, Denso, Denso Ten, Nissan Motor, Sony, SMK, Mitsubishi Electric, Hitachi Electric, Kyocera, Canon etc.

mipi® member

SV Series Milestones

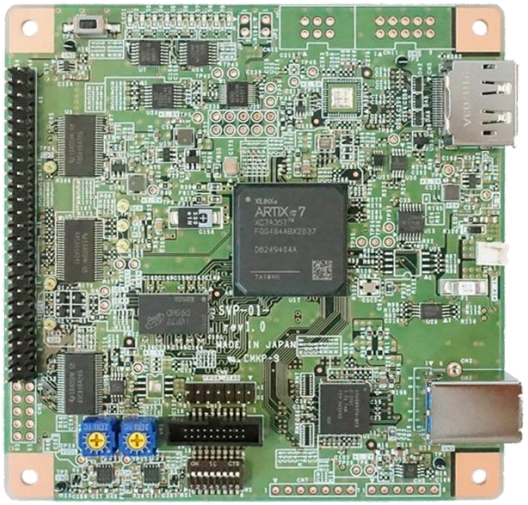


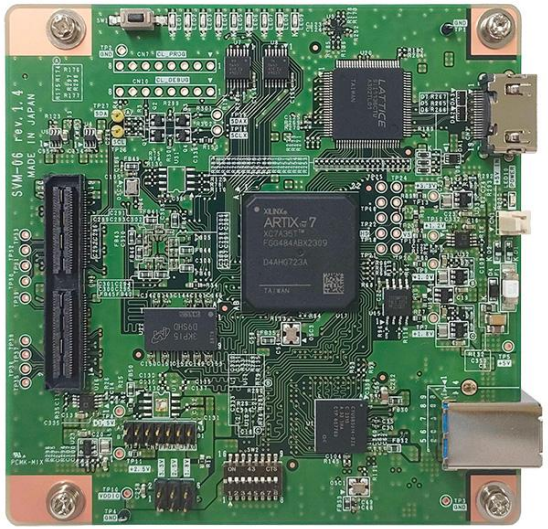
In-house development environment for cutting-edge video environments

- Video Size
- Transmission Bandwidth
- Virtual Channel
- Embedded Data
- MIPI Video Analyzer
- Simple RAW Development
- Lossless Compression
- MIPI Signal Splitting and Combining

Development Purpose Boards

This device is for displaying and recording images from CMOS sensors and in-vehicle cameras. Using a vendor class driver, you can check images without any board configuration. It comes equipped with a number of apps for image verification, making it ideal for camera development and inspection. The MIPI version includes a MIPI video analyzer.





◇Parallel Image Recorder SVP-01-VND

Input: Parallel

- YUV4:2:2 8-bit & 16-bit, RAW 8, 10, & 12, RGB24

Output: USB 3.0 (FRM)

- PC Driver: Vendor Class

◇MIPI Image Recorder SVI-09-MIPI

Input: MIPI CSI-2 or DSI

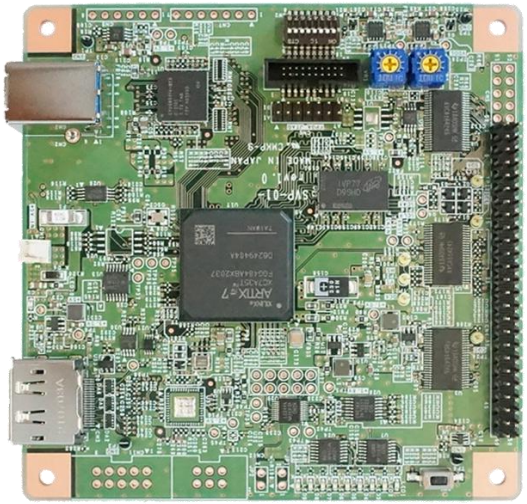
- YUV422 8-bit, RAW 8, 10, 12, & 16
- MIPI CSI-2 1~4 lanes, 1.5 Gbps per Lane
- Effective Pixel Data Rate: ~6.0 Gbps
- Clock Rate: 10 MHz ~ 750 MHz

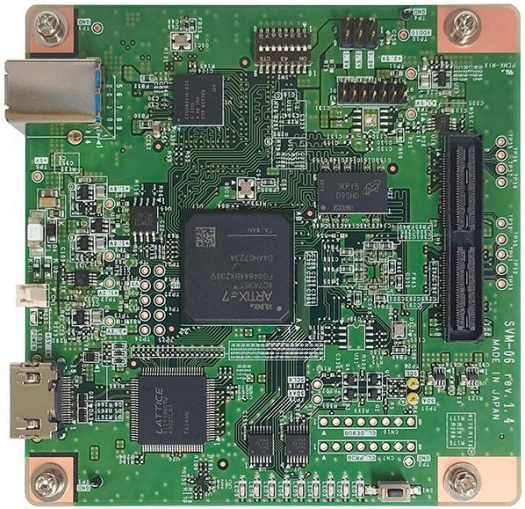
Output: USB 3.0 (FRM)

- PC Driver: Vendor Class

Image Emulation Boards

This device inputs verification data for DSP, ISP, ECU, etc. It reproduces recorded images and CG images as real images.
Two types are available: Parallel and MIPI.





◇Parallel Generator SVP-01-GEN

Input: USB 3.0 (AVI/FRM) or DisplayPort
Output: Parallel
- YUV422 8-bit & 16-bit, RAW8, 10, & 12, RGB24

◇MIPI Generator SVO-06

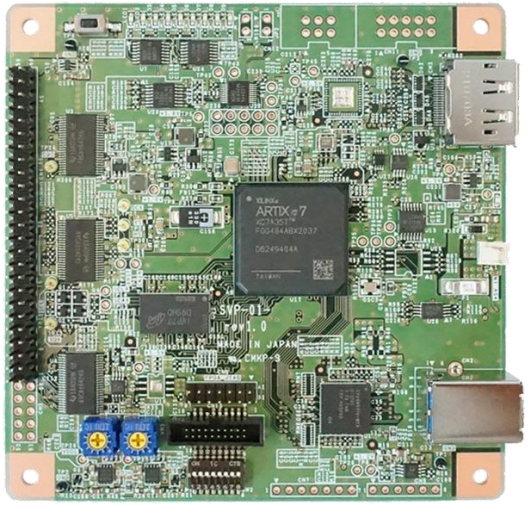
Input: USB 3.0 (AVI/FRM)
Output: MIPI CSI-2 or DSI
- YUV422 8-bit, RAW 10&12&20, RGB 24

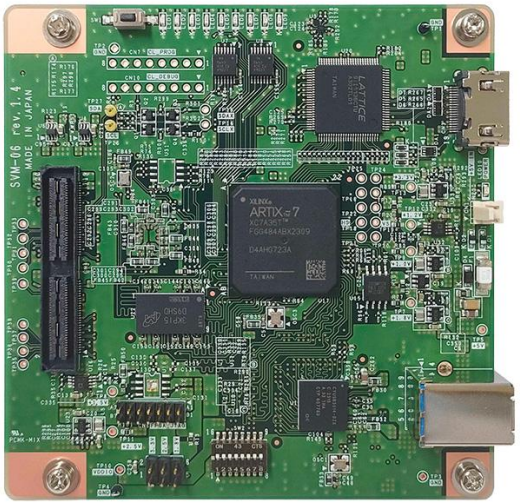
MIPI CSI-2 1-4 lanes, 1.5Gbps per lane
- Effective pixel data rate: ~6.0Gbps
- Clock rate: 10MHz ~ 750MHz

Actual Equipment Verification Boards

This device displays and records images from CMOS sensors and in-vehicle cameras for use in driving tests, camera evaluation, production equipment, etc.

Two types are available: Parallel and MIPI.





◇Parallel Monitor Board SVP-01-UVC

Input: Parallel
- YUV422 8-bit & 16-bit, RAW8, 10, 12, & 16, RGB24

Output: USB3.0 (AVI) or DisplayPort

◇MIPI Monitor Board SVM-06

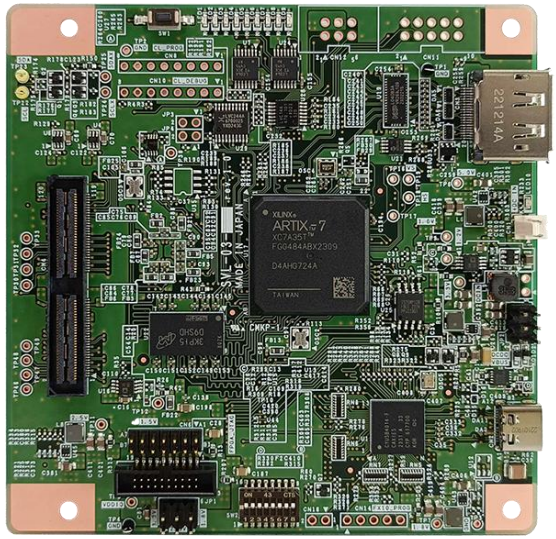
Input: MIPI CSI-2 or DSI
- YUV422 8-bit, RAW8&10&12&16&20, RGB24

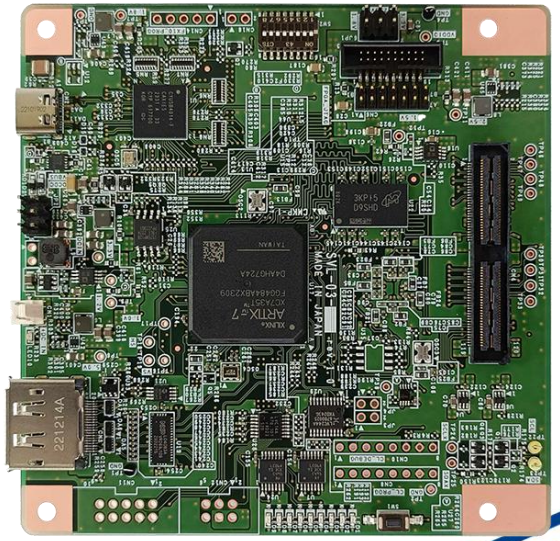
MIPI CSI-2 1~4 lanes, 1.5Gbps per lane
- Effective pixel data rate: ~6.0Gbps
- Clock rate: 10MHz ~ 750MHz

Output: USB3.0 (AVI) and HDMI

USB3.2-Gen2-FX10 Boards

The SVL-03 MIPI board with FX10 was developed by replacing the FX3 of an existing MIPI-compatible FX3 board with the EZ-USB™ FX10. With support for USB3.2-Gen2, it can now handle in-vehicle video transfers at 6Gbps.





◇MIPI Monitor Board SVL-03-UVC

Input: MIPI CSI-2

- YUV422 8bit, RAW8&10&12&16&20, RGB24
- MIPI CSI-2 1~4 lanes, 1.5Gbps per lane
- Effective Pixel Data Rate: ~6.0Gbps
- Clock Rate: 10MHz ~ 750MHz

Output: USB3.2-G2-6Gbps & Display Port

◇MIPI Generator SVL-03-GEN

Input: USB3.2-G2-5Gbps & Display Port

Output: MIPI CSI-2 1~4 lanes, 1.5Gbps per lane

- Effective Pixel Data Rate: ~6.0Gbps
- Clock Rate: 10MHz ~ 750MHz

Automotive SerDes Boards

◇Analog Devices GMSL standard

- Serializer Board
- Deserializer Board
- Connection board for manufacturer-made SerDes evaluation boards

◇Sony GVIF standard

- Serializer Board
- Deserializer Board
- Connection board for manufacturer-made SerDes evaluation boards

◇Valence Semiconductor A-PHY standard

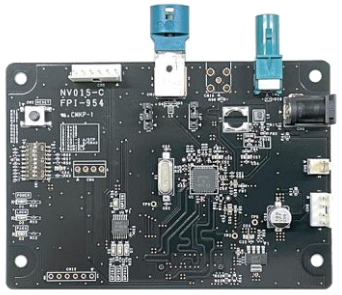
- Serializer Board
- Deserializer Board

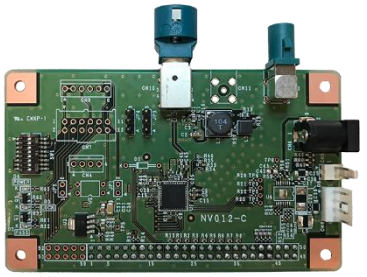
◇Microchip ASA standard

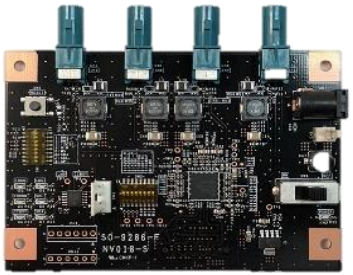
- Serializer Board
- Deserializer Board
- Connection board for manufacturer-made SerDes evaluation boards

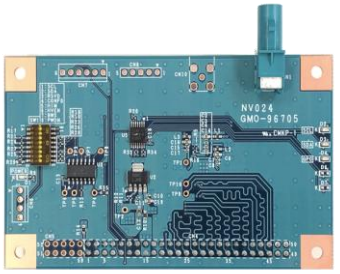
◇Texas Instruments FPDlink standard

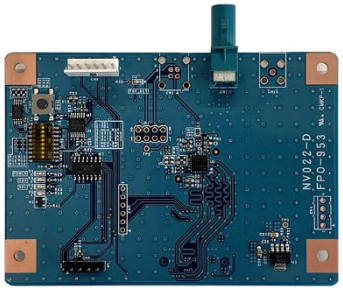
- Serializer Board
- Deserializer Board

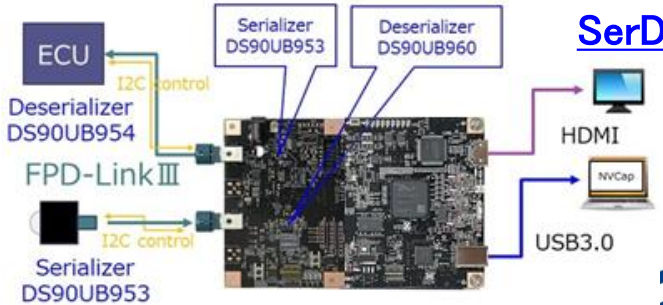












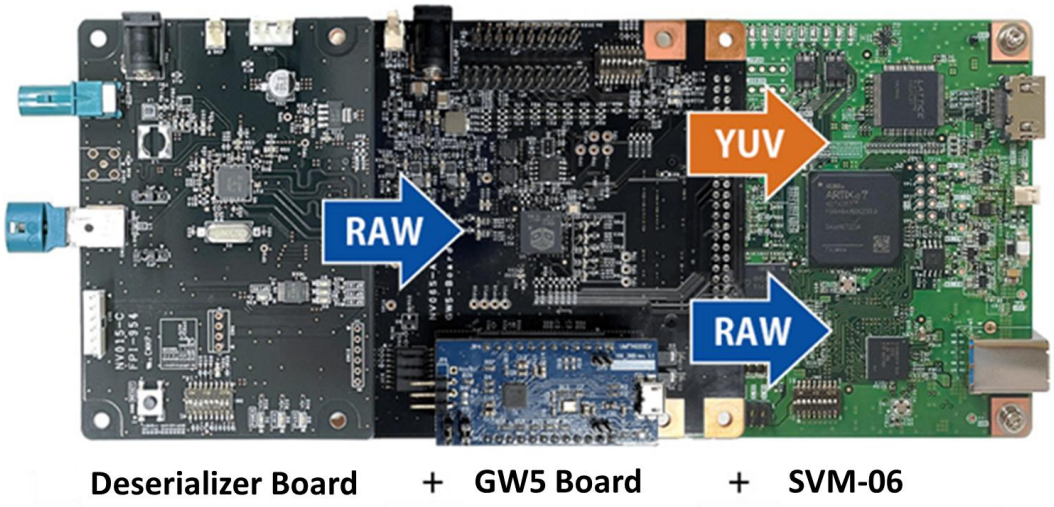
SerDes split

SV Series Application Examples

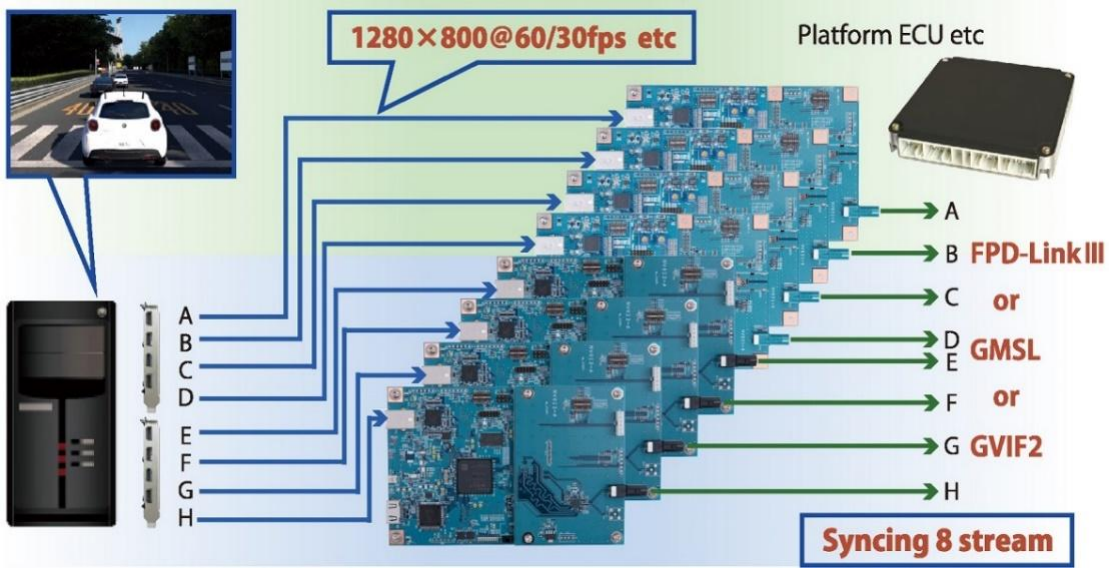
GW5 Board

Indie Semiconductor GW5 mounted

The GW5 board is equipped with the GW5 series ISP, and is capable of image processing such as distortion correction, RAW to YUV conversion, area specification, etc. The video input is MIPI CSI-2, so it can be used with various cameras by replacing our in-vehicle Des standard (FPD-Link III, GMSL, GVIF2) boards.



Turning CG images into real images



In addition to actually recorded videos, videos created using CG can be emulated as real images.

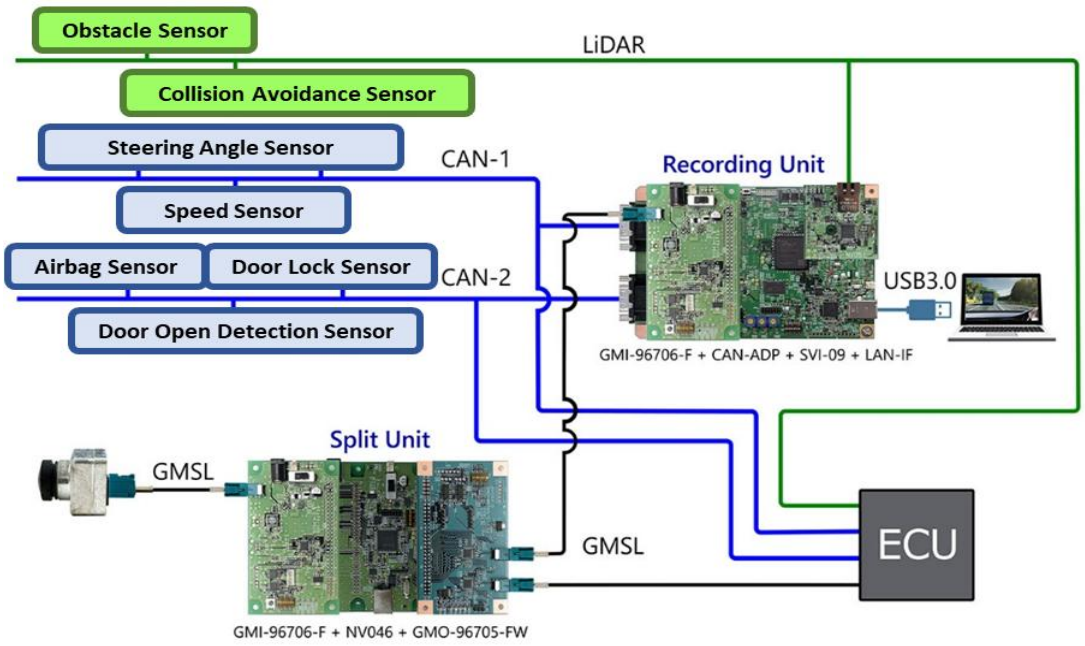
If the video cannot be handled as a PC file, it can also support video signals from a PC monitor or the HDMI port of a recorder.

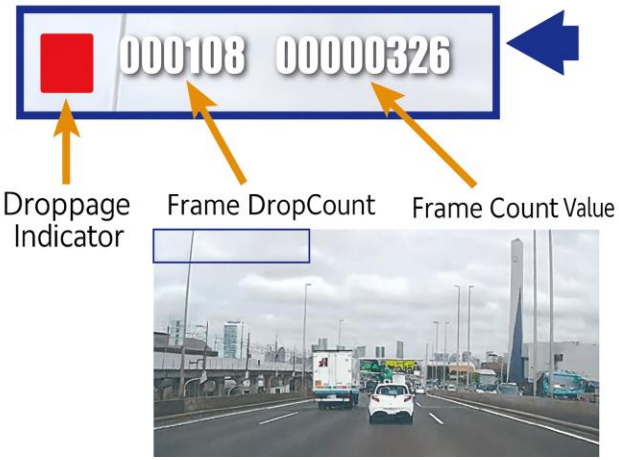
This means that scenes that cannot be actually captured can be input into ECUs, deep learning devices, etc.

By using an optional board, it is also possible to simultaneously emulate CAN and LiDAR data.

NetVision

Automotive Network Evaluation





Recording unit features

- Synchronize multiple videos or record via MIPI data branching.
- The Split Unit allows data recording without disrupting the existing operating environment.
- The equipment configuration is a combination of an SV series board, a SerDes board, a CAN board, a LiDAR (LAN) board, and a Split board.

Features of the regeneration unit

- Synchronize multiple videos or play them by composing MIPI data.
- The equipment configuration is a combination of an SV series board, a SerDes board, a CAN board, and a LiDAR (LAN) board.

Additional features

- Handling **Embedded Data**
  - The image on the left shows an example of frame counter analysis results.
- **Virtual Channel** (VC/VCX)
  - VC camera emulation using MIPI data synthesis
  - MIPI data split capture function from VC camera

SV Series Product Line-Up

Tax not included

◇Parallel Monitor Board: SVP-01-UVC: ¥168,000
Main board - 256MB memory, application software included

◇Parallel Generator: SVP-01-GEN: ¥198,000
Main board - 256MB memory, application software included

◇Parallel Image Recorder: SVP-01-VEN: ¥168,000
Main board - 256MB memory, application software included

◇MIPI Monitor Board: SVL-03-UVC: ¥198,000
Main board - 256MB memory, application software included

◇MIPI Generator: SVL-03-GEN: ¥198,000
Main board - 256MB memory, application software included

◇MIPI Monitor Board: SVM-06: ¥198,000
Main board - 256MB memory, application software included

◇MIPI Generator: SVO-06 : ¥198,000
Main board - 256MB memory, application software included

◇MIPI Image Recorder: SVI-09-MIPI: ¥198,000
Main board - 256MB memory, application software included

SerDes board + SV board configuration

◇SerDes Board (GMSL, GVIF, FPDlink, etc.): ¥69,000～ MOQ:10 or more / Made to Order

◇SerDes Board In-Stock: ¥92,000 @ and up

◇SDK: Software Development Kit: ¥298,000 @ / Site License
For UVC: Windows, For Vendor class: Windows