Building the Future of Intelligent Vision, Block by Block.

The Seyeon Tech Modular Ecosystem for OEM/ODM Partners.

SEYEON TECH

FlexWATCH®
IP surveillance leader

The Foundation: A Complete Toolkit of IP Camera Modules.

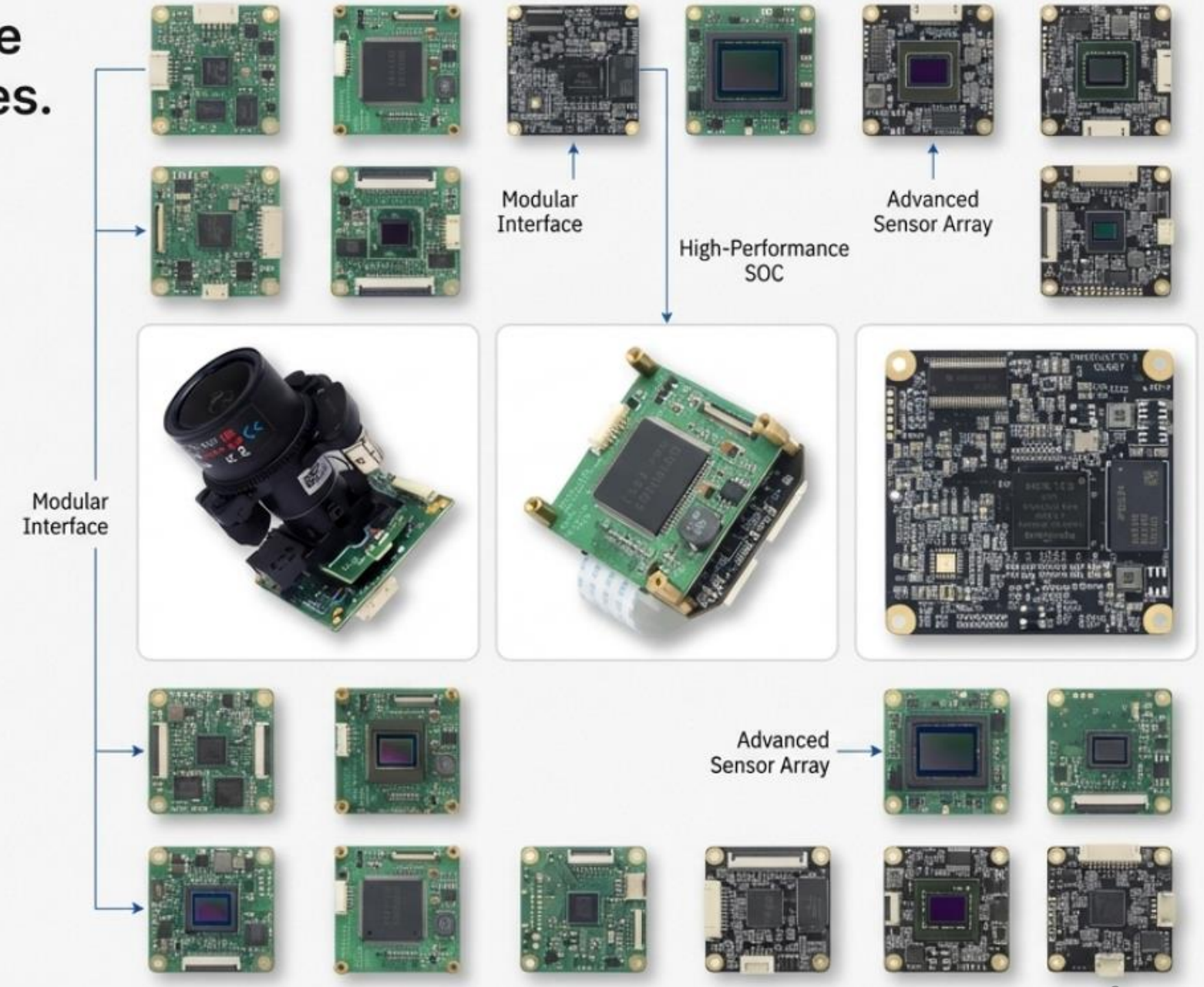
We provide over 20 distinct modules in a Lego-like form, giving you the flexibility to build for any application.

Core Specifications

- **Resolution:** 2M ~ 12M
- **SOCs:** Eyenix, Ambarella (NDAA Free)
- **Sensors:** Extensive SONY sensor support (307, 335, 462, 678, 900, etc.)
- **Shutter:** Rolling and Global shutter options
- **Form Factors:** 42x42, 38x28, 1.5 board, single board configurations
- **Input:** BT1120/LVDA/YUV support for zoom blocks, thermal modules, and more

Integrated Capabilities

- **Onboard AI-VA:** Intrusion/Line Crossing, Tampering, Face Detection, Tracking, LPD, Counting
- **PTZ Ready:** Native support for PTZ modules, including Korea Expressway Corporation protocol
- **Certified & Secure:** TTA and NIS (National Intelligence Service) security certification services available
- **Standards Compliant:** ONVIF Profile S/T



From Modules to Market-Ready: Our Finished Product Lineup.

Every finished camera is built upon our proven modular platform, ensuring consistent performance and quality across a diverse range of form factors.



Dome Cameras



Bullet Cameras



Specialized Cameras

Platform Features

- Leverages the full range of 2M to 12M modules with Eyenix & Ambarella (NDAA Free) SOCs.
- Utilizes high-quality SONY sensors with both Rolling and Global shutter options.
- Offers the same powerful AI-VA, PTZ control, and security features found in our modules.
- Provides a strong foundation for development collaboration with partners.



Advanced PTZ Cameras

A Rich Ecosystem of Accessories & Processing Power.

Specialized Accessories



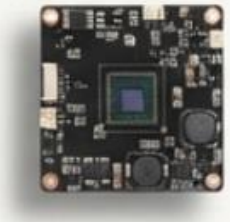
PoE Modules

Compact 38×38mm form factor



LED Modules

Custom-designed for dome and bullet housings



Global Shutter Power Module

50W continuous power with 400W peak support for high-power strobes.

Sensor & Control Units

Sensor Box (Temp, Flame, CO2)
Traffic Light Detector (TLD)
Data & Power Supply Module (CPNS)

A Spectrum of SOC Environments

From cost-effective to high-performance AI, choose the right NPU for the job.

Current Lineup:

- Eyenix: 1.2 TOPS (Commercialized)

Roadmap:

- HAILO: 5 / 11 / 20 TOPS (Q1 2025)
- Eyenix: 5.4 TOPS (Q2 2025)
- NVIDIA: Jetson Nano / NX product family support

HAILO NVIDIA

SOC Partners

The Unifying Intelligence: One Platform to Power Everything.

Superior hardware requires brilliant software. Our architecture is built on two core principles for maximum flexibility and simplified management.

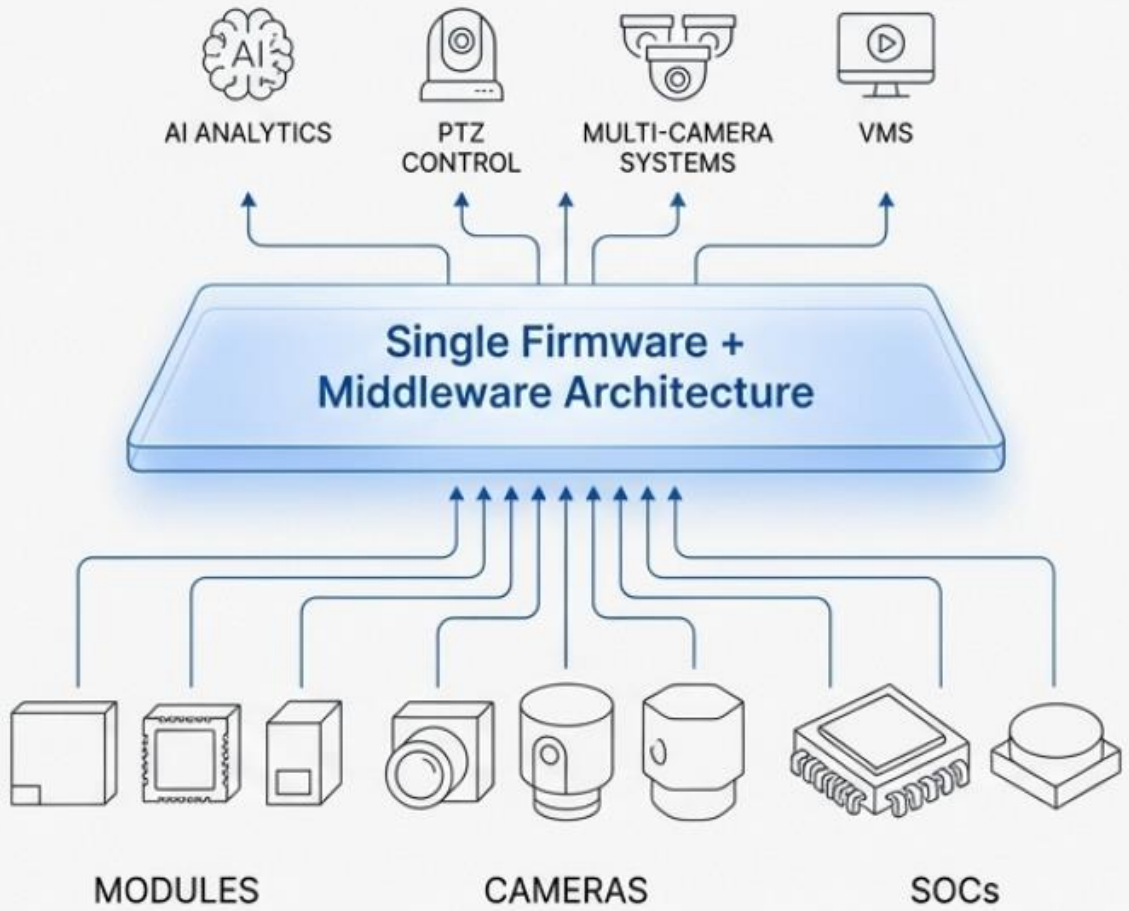
Middleware Architecture

Concept

All software components are designed as independent modules communicating via network sockets.

Benefit

This creates a physically and logically modular system that is easily scalable from a single camera to a full VMS.



Single Firmware System

Concept

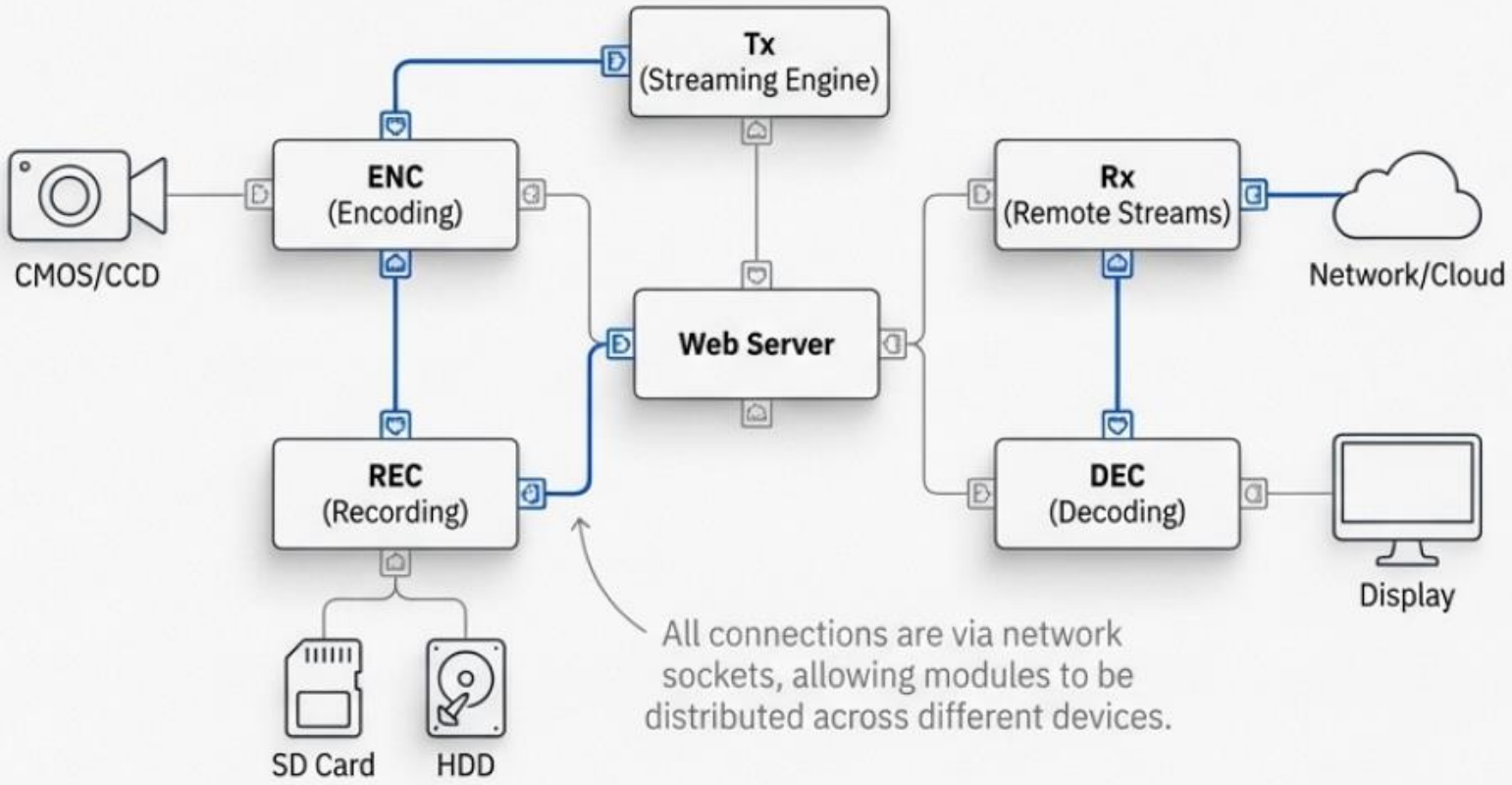
A single firmware binary supports every Seyeon Tech model.

Benefit

Eliminates firmware fragmentation. Guarantees forward and backward compatibility, drastically simplifying OEM/ODM product management.

How it Works: The FlexWATCH Middleware Architecture.

Every function, from encoding to recording, is a self-containes module. This architecture is shared across our IP Cameras, NVRs, and VMS for seamless interoperability.



- **ENC (Encoding)**
  Captures and compresses video.
- **Tx (Streaming Engine)**
  Manages outgoing video streams.
- **REC (Recording)**
  Writes video to storage (HDD, SD).
- **Rx/DEC (Receive/Decode)**
  Handles incoming streams for display or analysis.
- **Web Server**
  Manages device configuration.

The Power of PNcode: One Firmware, Infinite Configurations

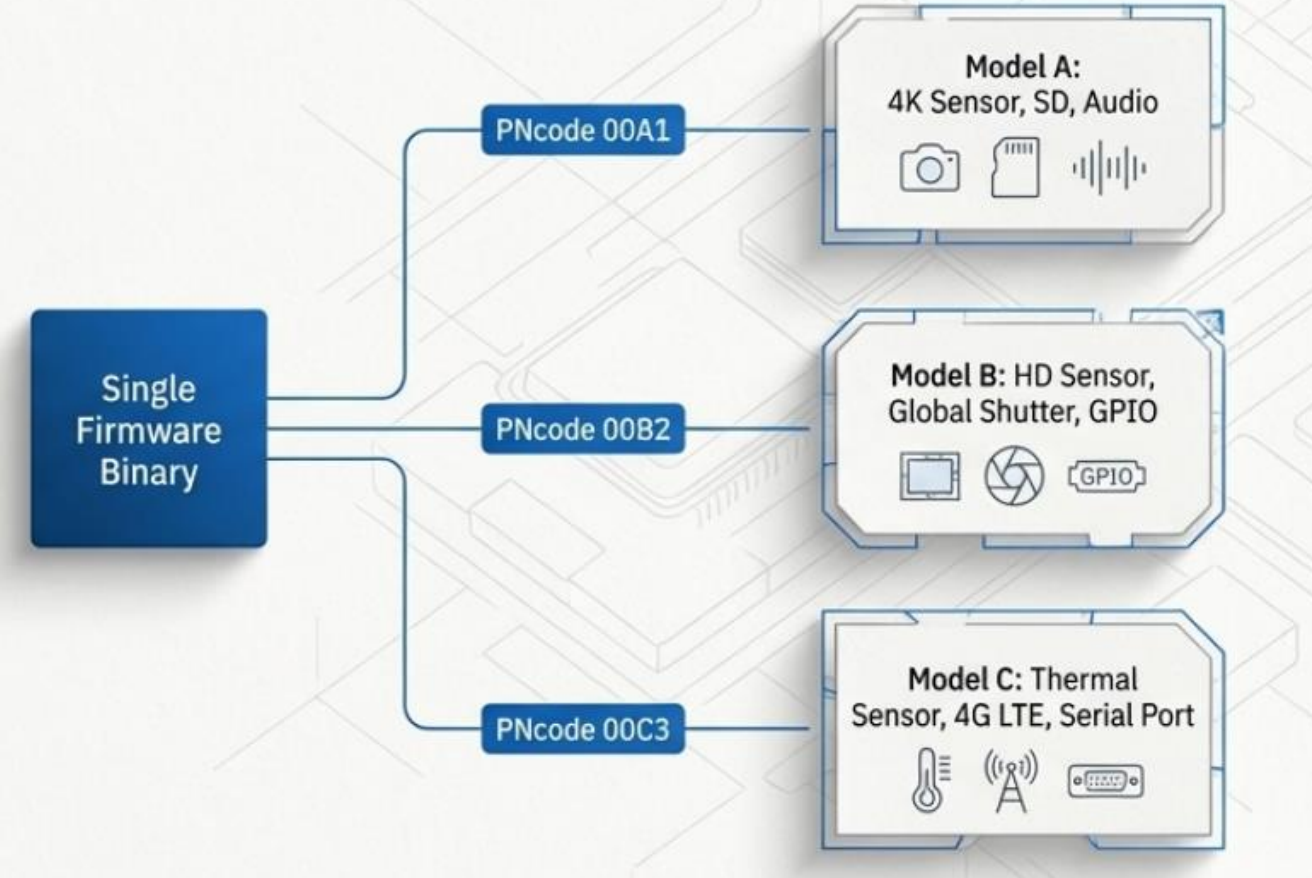
Our proprietary PNcode system allows a single firmware to adapt to any hardware variation, streamlining development, production, and support.

How PNcode Works

- A unique management code defines the specific attributes of each OEM/ODM model.
- **Defines Hardware:** Specifies memory (DDR, Flash) size, sensor type, lens, etc.
- **Defines Interfaces:** Enables or disables I/O like SD cards, audio, GPIO, and serial ports.
- **Defines Initial State:** Sets all default customer-specific configurations.

The OEM/ODM Advantage

- **Simplified Updates:** One firmware update for your entire product line.
- **Guaranteed Compatibility:** No risk of breaking older models with new firmware.
- **Flexible Production:** PNcodes can be assigned individually or during mass production.



Your AI, Your Edge: Our Open AI SDK.

Move beyond pre-canned analytics. We provide a complete workflow for you to train, compile, and deploy your own proprietary AI models directly on the camera.

1 → 2 → 3 → 4 → 5 → 6

Train: Use models supported by the SOC manufacturer (e.g., MobileNetV2 + SSDLite, Deformed YOLOv7-tiny).

Compile: Use our tools to prepare your trained model (onnx, anchor files).

Compress: Package the compiled files (.bin, .cfg) into a single `User.tar.gz` for upload.

Upload: Upload the package directly to the camera via the web browser interface.

Select & Run: Choose your custom model from the AI Control menu.

Verify: View the inference results (e.g., bounding boxes) directly on the video stream.





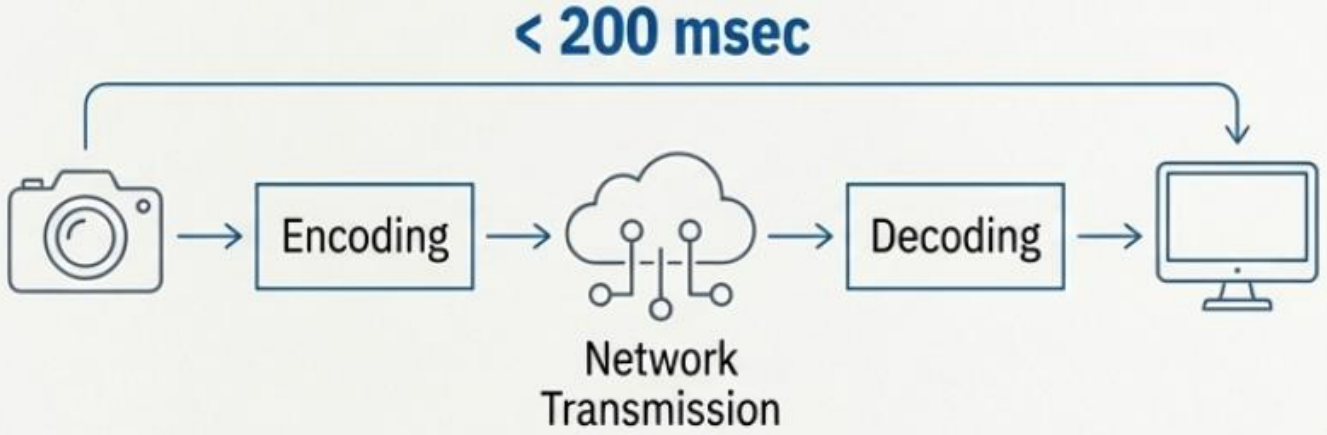
Benefit: Provides a framework for customers to manage and control their own AI model licensing and deployment.

Real-Time Performance: Low-Latency Streaming.

150-200 msec

Glass-to-Glass Latency

(at Full HD, 3Mbps)



How We Achieve It

- Utilizes our proprietary, optimized streaming protocol.
- Engineered for minimal buffering.
- Low memory footprint on both the camera and the client.

Ideal Applications

- Remote operation of machinery and vehicles.
- Real-time process monitoring.
- Interactive surveillance.

Glass-to-Glass Latency: The total time delay from the moment light enters the camera lens to the moment the image is displayed on a monitor after compression, transmission, and decoding.

Advanced Imaging: Multi-Shutter Streaming Mode.



Stream 1 (Context)

H.265, 30fps, **1/250sec shutter**.
Captures the surrounding scene clearly.

+ =



Stream 2 (Plate)

H.265, 30fps, **1/1000sec shutter**. Freezes motion and prevents glare, capturing a perfectly clear license plate.

The Challenge

At night, a slow shutter is needed to see the environment, but it causes motion blur and overexposes reflective license plates, making them unreadable.

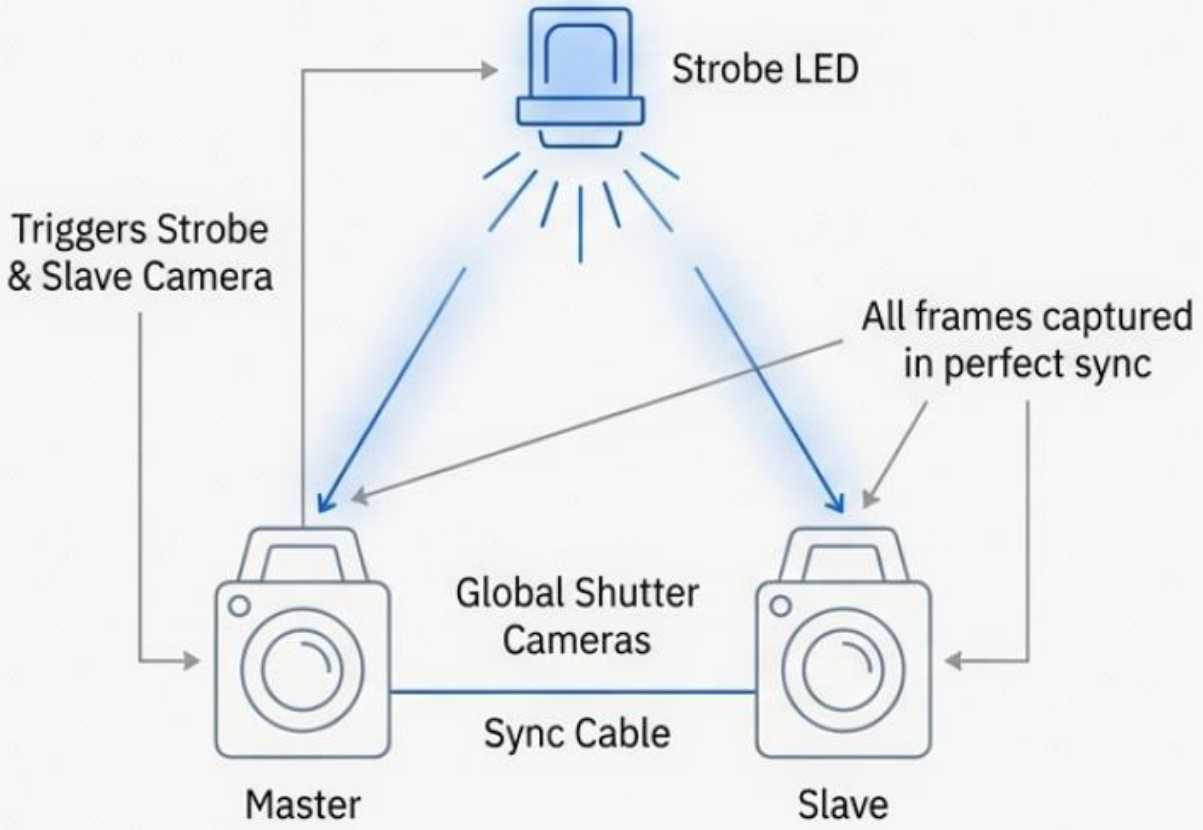
The Solution

Simultaneously transmit two independent streams from a single camera, each with its own shutter speed and ISP settings.

Benefit

The client application can use both streams, overlaying the clear plate information onto the contextual video, achieving a result impossible with a single-stream camera.

Precision for Multi-Camera Systems: Frame Sync Mode



The Challenge

In multi-camera setups using a global shutter and a single strobe light, any misalignment in frame capture timing results in inconsistent, unusable images where some frames are illuminated and others are not.

The Solution

A hardware and software feature that enables a Master-Slave synchronization between camera modules.

Benefit

Guarantees homogenous, high-quality images across all cameras in a synchronized system, essential for stereoscopic vision, 3D scanning, and advanced LPR. (Note: Feature is model-specific).

Total Flexibility in Streaming and System Control.

A Protocol for Every Need

Simultaneous support for multiple streaming methods to suit any application.

- **Lowest Latency:** Proprietary Protocol
- **Standard Compliant:** RTP/RTSP
- **Secure:** RTSPS over TLS
- **Firewall Friendly:** RTSP over HTTP/HTTPS Tunneling
- **Web & Mobile:** WebSocket streaming for multi-browser compatibility

Trigger Action Service (TAS)



Concept

Transform the camera into an independent I/O control hub.

Functionality

Define inputs, set service conditions, and define outputs to automate actions without an external controller.

Application

The camera can act as a MODBUS gateway, reading data from sensors (e.g., temperature) and triggering actions (e.g., activating a cooling fan or alarm).

Seamless Integration with the Global VMS/NVR Ecosystem.

We ensure broad compatibility through adherence to industry standards and dedicated engineering support, protecting your investment and simplifying deployment.

Broad 3rd Party Compatibility

- Dedicated integration and ongoing support for major domestic and international NVR and VMS platforms.
- Proactive support to align with partner upgrade cycles.

Standards-Based Approach

- **ONVIF** : Full support for Profile S and Profile T, including metadata transmission.
- **Korean Standards** : Free support for TTA and NIS security certifications.

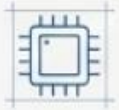


The Seyeon Tech Advantage: Your Vision, Built Your Way.

A Modular Hardware Toolkit



Build with a versatile set of "Lego-like" camera modules.



Leverage a wide range of SOCs, from cost-effective to high-performance AI.



Complete your design with a rich ecosystem of accessories.

A Unified Software Core



Drastically simplify product management with our Single Firmware platform.



Scale effortlessly from cameras to VMS with a modular Middleware architecture.



Future-proof your products with guaranteed forward/backward compatibility.

Application-Ready Capabilities



Deploy your own models with our Open AI SDK.



Achieve true real-time performance with <200ms low-latency streaming.



Solve complex challenges with advanced imaging modes like Multi-Shutter and Frame Sync.

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