

SENSING

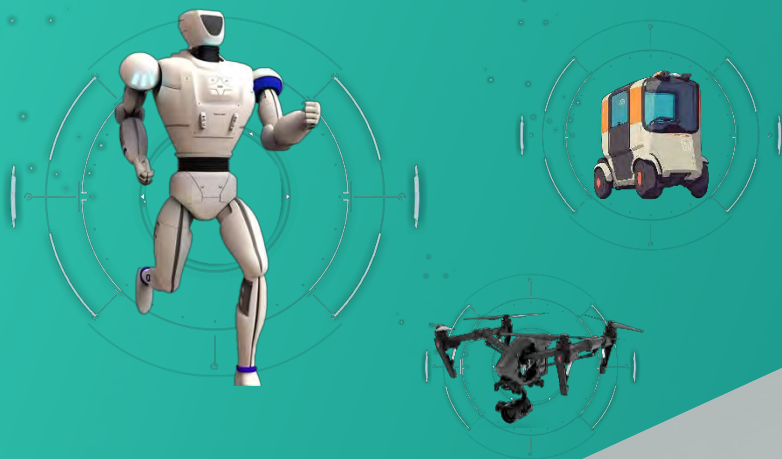
SENSING

Report: AOIEA

Reporter: Show of APOSTAR

APO

Provide High-Quality Images for AI





01

PART ONE

Introduction of SENSING

SENSING

Provide High-Quality Images for AI



Full-stack capabilities for generating high-quality images to power diverse AI applications



ELITE
PARTNER

intel
partner

Rockchip
瑞芯微电子

QUALCOMM

地瓜机器人

HUAWEI

TEXAS
INSTRUMENTS



indie
Microelectronics

Ecosystem

SONY

ST

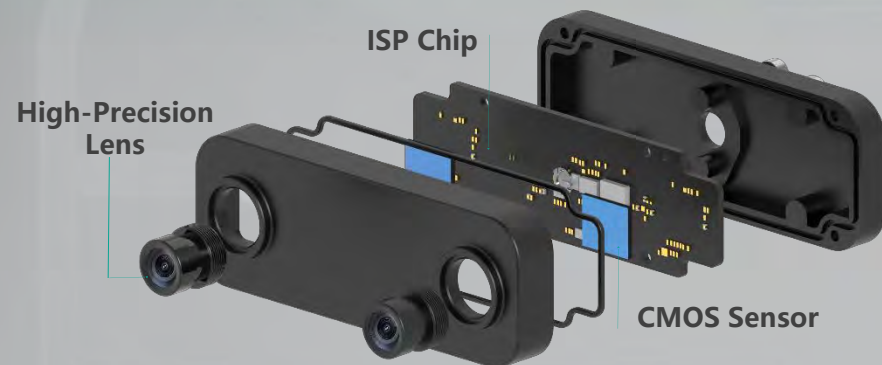
ADVANTECH

AEON

AVerMedia

Core Competencies

Self-Developed High-Precision Optical Module



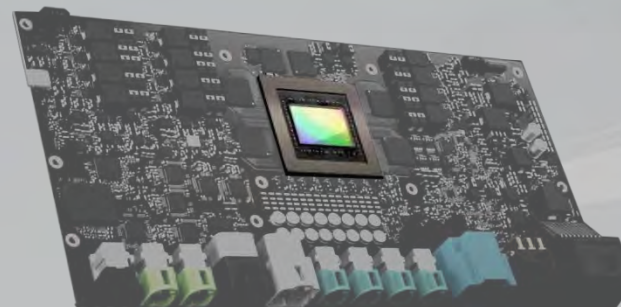
✓ Optical Design

✓ Precision-Manufactured

✓ Module Design

✓ IATF-16949

Proprietary Vision Core Software & Algorithm Suite



Sgmix & Driver

ISP Tech

Multi-Sensor Fusion

Stereo Depth Algorithms

VisionCore

150+

Vision Solution Experts

Optical Expertise

Camera Design

Software Expertise

ISP Expertise

Precision Manufactured

ISP Competence

SENSING



Optical Lab

Digital Imaging Lab

ISP member of 40+

Reflection Test Light Source

Intrinsic Calibration Programming Device



02

PART TWO

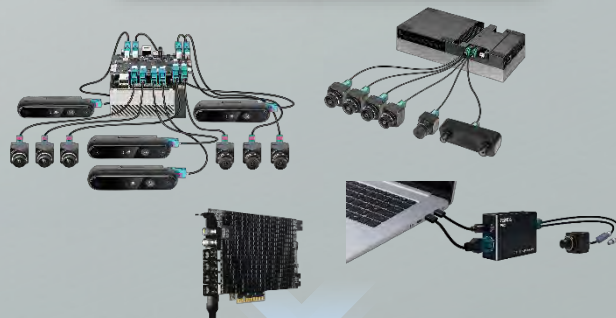
Product Portfolio

Product Portfolio

Camera



Imaging Solution



ISP Competence



Autonomous Driving



Autonomous Mobile Robot



Autonomous Transportation



Industrial Inspection



Low-Altitude Economy



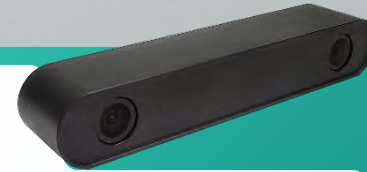
Camera Solution

MIPI Camera



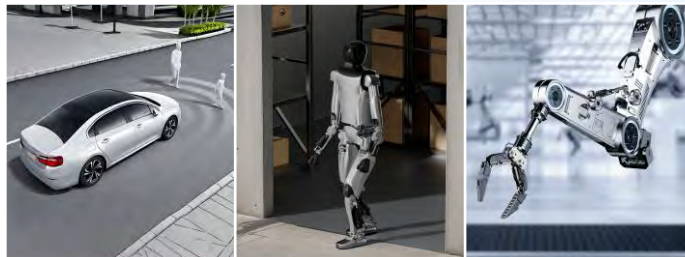
App: AIOT、Robotic Dog、Service Robot

Stereo Camera



App: Logistics Automation 、AMR、AGV.....

GMSL & FPDLINK



App: Robotaxi 、Humanoid Robot、Robot.....

Imaging Solution



App: Autonomous Driving 、AMR.....

Comparison of Camera Interface

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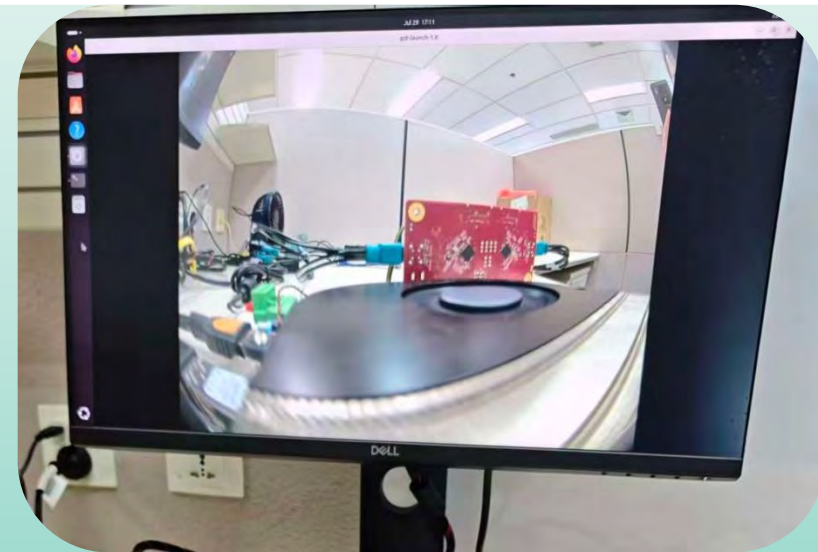


Usage Conditions		USB	MIPI	Ethernet	GMSL/FPDLINK
Distance Above 15 cm					
Multi-Camera Sync					
Low-Latency					
Superior Stability					

+ISP

Image ISP Services based on SoC

Mipi cameras are compatible with mainstream hardware platforms.



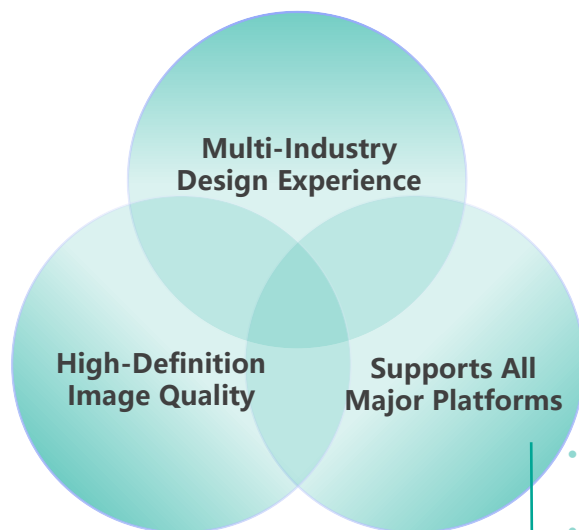
ISP Tuning Capabilities

Digital Coaxial Camera

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[GMSL/FPDLink](#) camera are widely used in scenarios requiring [Long-Distance](#), [Low-Latency](#) and [High-Quality transmission](#).



- Ecosystem(Chip):
NVIDIA/TI/Qualcomm/Intel
- Ecosystem(IPC):
Advantech/Neousys/Vecow

Applications



- 1M-8M Pixels
- Multi-Angle
- Automotive Quality

Autonomous Transportation



- 1M-2M Pixels
- Multi-Angle
- Automotive Quality

Autonomous Cleaning



- 2M Pixels
- Multi-Angle
- Automotive Quality

Intelligent Mining Truck



- 5M-8M Pixels
- Multi-Angle
- Automotive Quality

Agricultural Machinery



- 2M-8M Pixels
- Multi-Angle
- Automotive Quality

Autonomous Driving



- 1M-2M Pixels
- Multi-Angle
- Automotive Quality

Industrial Automation

Industrial-Grade GMSL Cameras

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Intel ISP

PTL
IPU7

Miniaturized Design



No More Space
Constraints for Installation

All-in-One Trinity Power / Data / Control



Lowering wiring complexity
and
overall system costs

Applications

AI-Driven Vision-Guided Robotics



優必選Walker S2人形機器人展示自主更換電池/Smart Ribots 智慧機器人

03

PART THREE

Platform & Application





Camera Solutions Base on INTEL Platforms



MIPI Camera

- MIPI CSI-2 Interface
- 30Pin to 15/22 Pin FPC Cable

Adapter Board(8CH)

- GMSL2 Interface
- Input 4 Channels



GMSL to USB

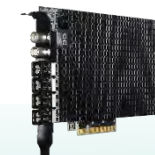
- GMSL2 Interface
- Input 2 Channels

FPDLINK to USB

- FPDLink3 Interface
- Input 2 Channel

GMSL to PCIE

- GMSL2 Interface
- Input 8 Channels

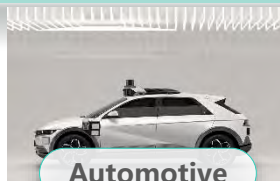


PCIE to GMSL

- GMSL Interface
- Output 8 Channels

Intel Mobile Platform(IPU6&IPU7) & Convertor

Intel High Performance Platform



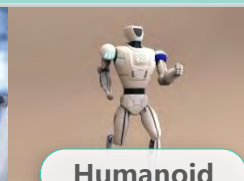
Automotive



AMR



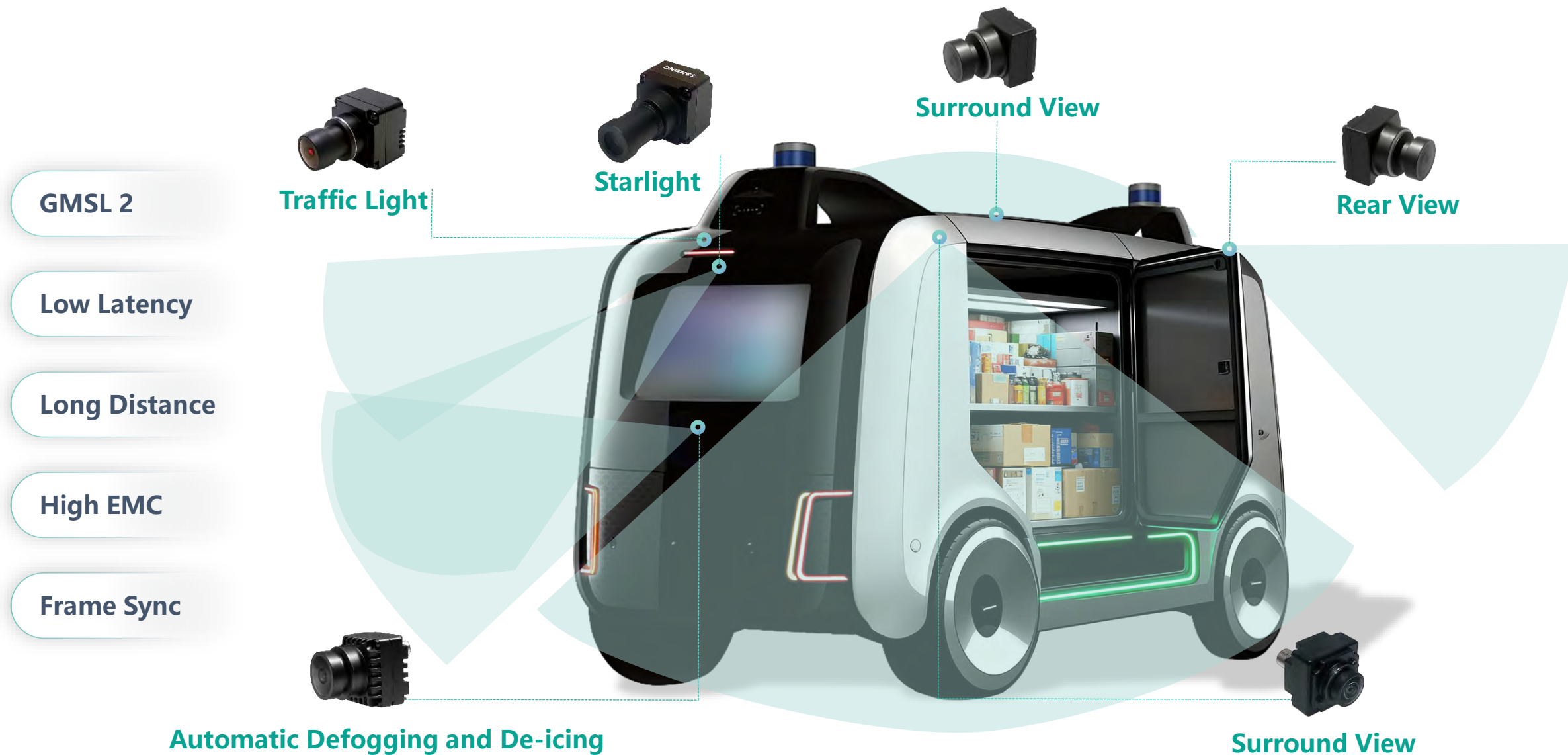
Robot



Humanoid

Autonomous Driving

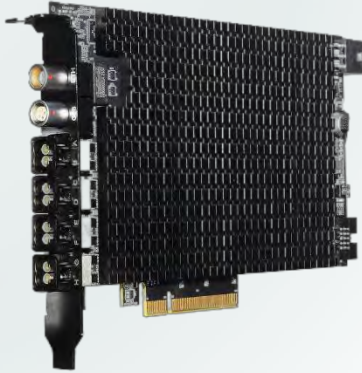
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Autonomous Driving

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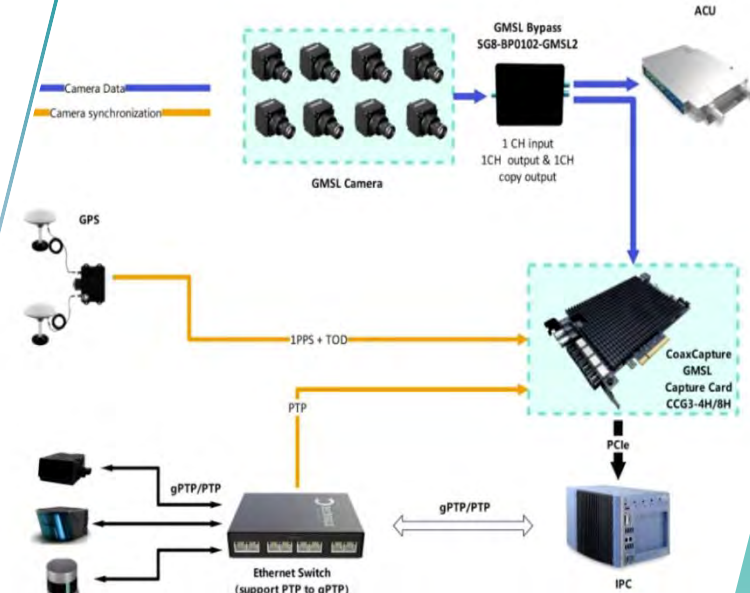


GMSL Video Capture Card

- 8 Channel Cameras
- PCIe x8 (Gen3)
- Timing Precision <1ms

Application

- 8 Channel Cameras
- Input video: 4K@30fps
- Support Time-Stamp
- Low-Latency
- Reading camera exposure parameters



Video capture card features high frame rate, high speed, and low latency.

Autonomous Driving

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Compact



Price-Performance



Easy to Use



GMSL Video Injection Card



B

Nvidia GPU
RTX5060

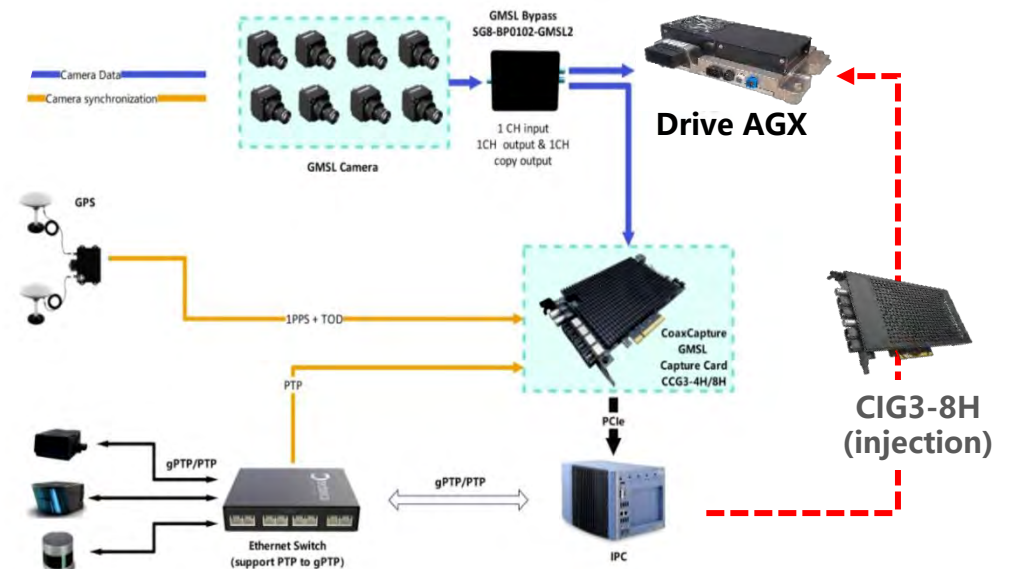
D

Video Injection Card
CIG3-8H

Application Historical Video Playback

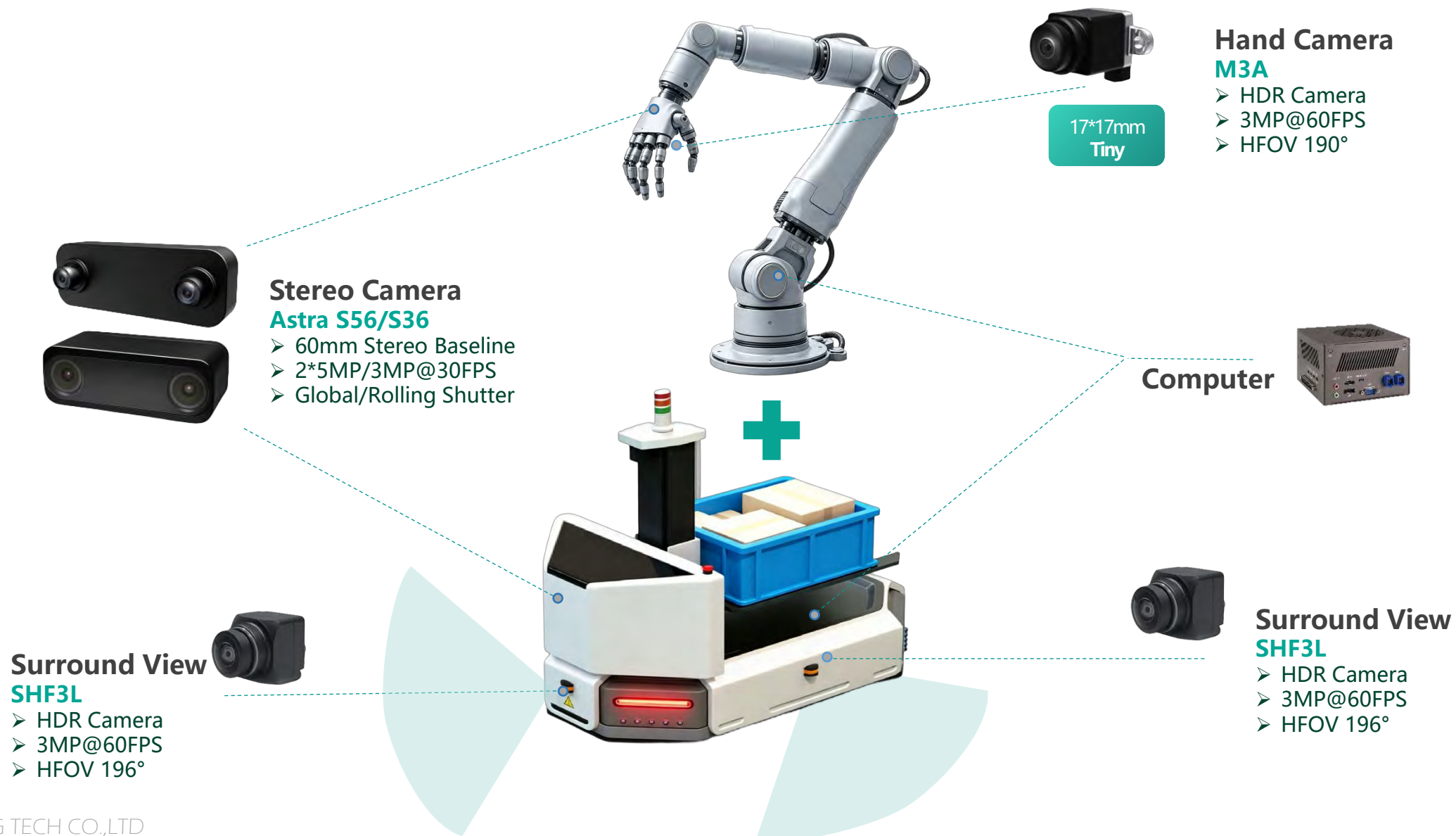
The CB2 system performs timestamp-based synchronization of image streams, radar network data, and CAN bus signals. The synchronized data is transferred through a PCIe interface to two replay cards, which subsequently output 8 video channels, 12 CAN FD channels, and 6 network radar channels to the ADAS/Autonomous Driving domain controller.

Architecture



Autonomous Mobile Robot

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Humanoid Robot

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Head Camera

SHW3G/SHW5G

- Global shutter
- 3MP/5MP@30FPS
- HFOV 122°/137°



Body Camera

SHW3H

- HDR Camera
- 3MP@60FPS
- HFOV 118°

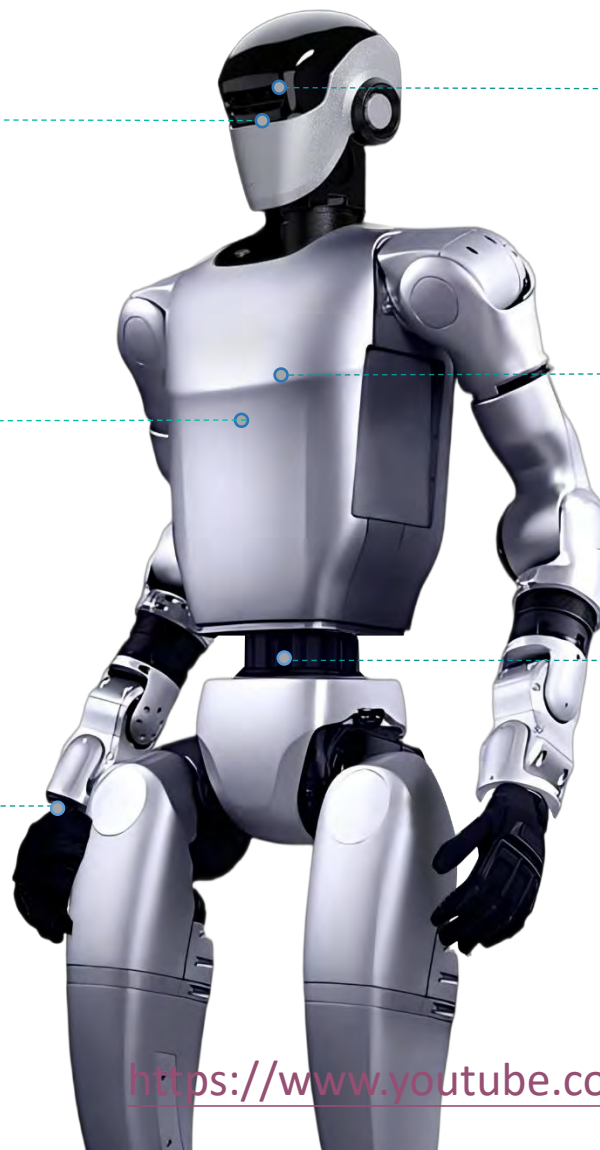


Hand Camera

M3A

- HDR Camera
- 3MP@60FPS
- HFOV 190°

17*17mm
Tiny



Stereo Camera

Astra S56/S36

- 60mm Stereo Baseline
- 2*5MP/3MP@30FPS
- Global/Rolling Shutter



Computer



Body Camera

SHF3L

- HDR Camera
- 3MP@60FPS
- HFOV 196°



<https://www.youtube.com/live/wSp6AiNIrsY?si=y3k15vH0ViIn40Zm&t=6492>

Autonomous Mobile Robot

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Provide High-Quality Images for AI



02-2249-0011



<https://www.apostar.com.tw/index>

www.sensing-world.com



show@apostar.com.tw

Thanks