



# AI X AOI BY ADLINK EDGE VISION

EDGE AI Vision Empower Smart Manufacturing

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# AI is Active in Various Verticals

Empower the Application being Intelligent, Effective and Efficient

## Transportation

### Medical Endoscope

China, AI-Enabled Vision Guided Endoscope

For Advanced Endoscope operation, adding the Vision as one of the Guiding for Symptom in Movement to increase the accuracy in diagnostic.

Converting From FPGA + CPU → GPU + GPU

**HD550-MXM-P3000**

- CDMe + MXM carrier, Complete System
- Dedicated Video Input Interfaces SDI / Analog / HS-USB for probes and image combination
- Passive Cooling CT Op. temperature

**Why Quadro / ADLINK**

- Medical Equipment demands longevity support.
- ADLINK's engineering team helps customer to reduce the latency between front-end device to GPU (to 50ms)
- High Performance & Low power consumption in Compact Size



### Railway Obstacle Detective & Warning System

HK, AI-enabled Vision Analyze

In the Urban Transportation, Railway plays a key role for Metropolis Traffic release. And the Public Safety is also highly concerned. To travel in a high speed and perceive potential threat software become more and more important.

**AVA-5500 w/ MXM-P3000**

- Intel® GEN6 SKL-15 6300TE
- M12 lockable connectors CIGe Cameras
- EN50155 Railway regulation certified
- MXM-P3000 w/ 1200+ CUDA cores in GPU computing

**Why ADLINK**

- Railway certified (EN51055)
- Fanless & Ruggedized design for System + GPU
- Work with customer in optimization



### 3D Oral Inspector

EMEA, AI-Enabled Vision Guided Endoscope

For Advanced Oral Inspection and pre-scan required for Aligner molding, better and non-invasive UI is always an important topic to address, shorten the time spent with better result combined with modern DL based diagnostics

**MXM-T1000 / T3000**

- AIO-PC with MXM extension + state of the art MXM
- Compact yet mobile workstation for Clinic Usage
- Passive Cooling CT Op. temperature

**Why Quadro / ADLINK**

- Medical Equipment demands longevity / embedded support
- ADLINK's engineering team helps customer to enable the HDMA capability and fully utilized the bandwidth available
- High Performance & Low power consumption in Compact Size



### Snow shoveling Machine

Japan, AI-enabled Vision

For Advanced Snow shoveling car, adding the Vision system to determine if there is living objects or foreign matters to avoid accidents or damage of the machine.

**DLAP-201-JT2**

- NVIDIA® Jetson™ TX2
- Compact size 148\*105\*50mm
- Passive Cooling Wide Op. temperature

**Why Jetson / ADLINK**

- Condensed solution for Computing + Inference
- Comprehensive know-how in m/c vision



## Healthcare

### Airport panorama enhanced surveillance system

China, Chengdu Airport

In the Airport, the Control tower is required to surveil the whole flight ground to detect hazard in advance, including non-allowed access to the ground and obstacles on the runway as a necessary security check before the flight take off.

**MVP-5100-MXM w/ P5000**

- Intel® GEN9 CFL-R 15 9500TE
- Compact and Fanless operation, 3L, 20 to 50C.
- MXM-P5000 w/ 2500+ CUDA cores in GPU computing

**Why ADLINK**

- Workstation Grade performance + High Power GPU computing in a superior compact system and passive cooling



### Vision Guided Robotics

EMEA, AI-Enabled Vision Controller

For Advanced Industrial Robotics, adding the Vision as one of the Guiding to Robot Movement for accurate and self-learning behaviors.

**DLAP-201-\*\*\***

- NVIDIA® Jetson™ TX2
- 6x Dedicated Camera Inputs, Power options
- Cabinet: DIN-Rail Input, high v/b/shock requirement
- Compact Size - 150x110x55 (mm)
- Passive Cooling Wide Op. temperature

**Why Jetson / ADLINK**

- Condensed solution for Computing + Inference
- Comprehensive know-how in m/c vision



### Factory Public Security & Safety

EMEA, AI-enabled embedded NVR

For modern Factories, work safety and security are highly emphasized topics. With DL based algorithms, we're able to achieve a 24/7 monitoring for multi-purpose along with worker safety, SOP following ups and facility security.

**M100-Nano-D55-\*\*\***

- NVIDIA® Jetson™ Nano
- 8x GBE/PoE for IP CIGe Cameras
- Intuitive integrations to Facilities
- Compact Size= 210 x 170 x 55 (mm)

**Why Jetson/ADLINK**

- Multiple monitoring required (behavior/detection/POI)
- Embedded experience in Factory & DSS



### Energy Facility Inspection Bot

CHINA, Vision based Inspection Robot

Vast Area Power Substations require constant equipment monitoring & inspection to ensure highest service availability, a robot with intelligence to outpacing and inspect the facility, running non-resting is an ideal solution to the scenario.

**M300-Xavier**

- NVIDIA® Jetson™ Xavier
- Fanless, anti-shock/vib enclosure for harsh env.
- Complete I/Os for Robotic controls

**Why Jetson / ADLINK**

- Most integrated SoC w/ highest performance for computing & image
- Embedded Robotics domain know-how in controls, I/Os & BSPs



## Industrial Automation

## Retail

### Smart cart and vision detection

JP/EMEA, Security control and AI-enabled self-checkout system

For the stores to monitor customer behavior and recognizing what's in customer's cart in advance for easier self-checkout process.

**M100-Nano-NVR**

- NVIDIA® Jetson™ Nano
- Fanless for lower maintenance requirement
- 8 POE for 8 stream of video in real-time
- SATA driver for video recording by event

**Why Jetson / ADLINK**

- Condensed solution for Computing + Inference
- Comprehensive know-how in m/c vision



### Sushi Express checkout service

Japan, AI-enabled auto checkout

Conveyor belt Sushi chain require system to monitor a customer and provide auto checkout / invoicing by counting plates in different color.

**M100-Nano-NVR**

- NVIDIA® Jetson™ Nano
- Fanless for lower maintenance requirement
- 8 POE for 8 stream of video in real-time
- SATA driver for video recording by event

**Why Jetson / ADLINK**

- Most integrated SoC
- 8 POE camera at the same time



# EDGE AI Vision Use Cases

ADLINK Edge Vision in Action



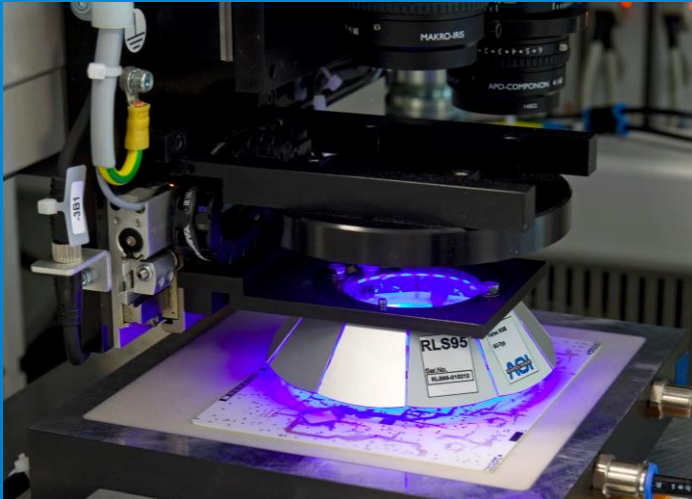
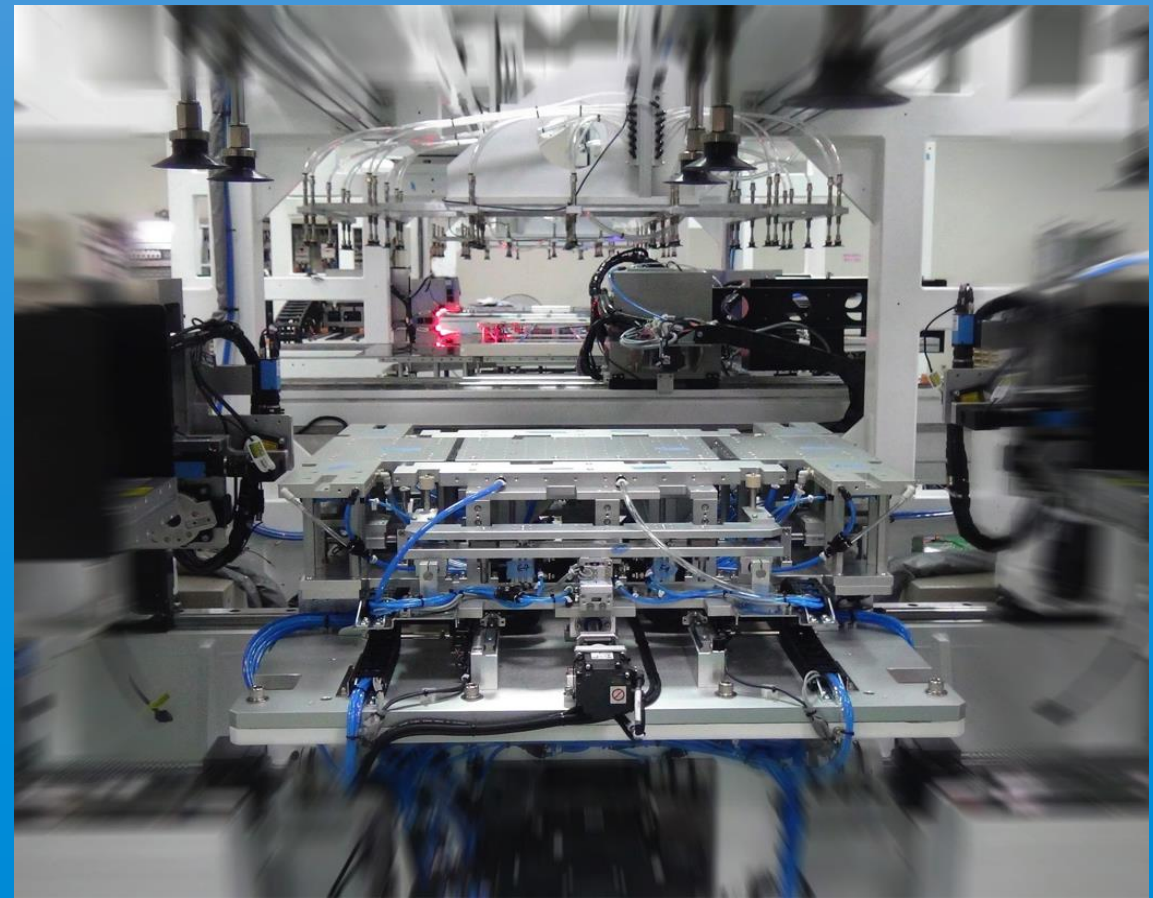


EDGE AI VISION  
ENHANCES  
SMART MANUFACTURING

**AOI is MUST** *for*  
*product quality assurance*

*AI AOI Market size*  
**\$4.1B (2020) to \$15.2B**  
**(2025) at CAGR: 30%**  
*(vs. 6.5% in Traditional AOI)*

*Source: IoT Analytics, 2019 Dec*  
*Source: MarketAndMarket, 2020 Jan*



# EDGE AI Vision Can Help



Increase efficiency and productivity



Enable product and service innovation

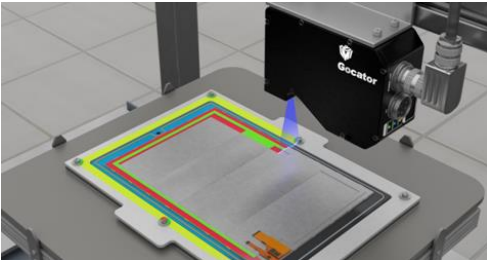
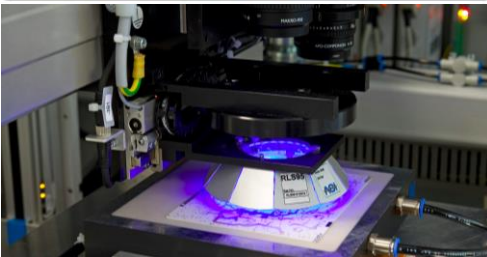


Optimize supply chain operations



Enhance safety & security

# ADLINK AIoT leads to Smart Factory Market



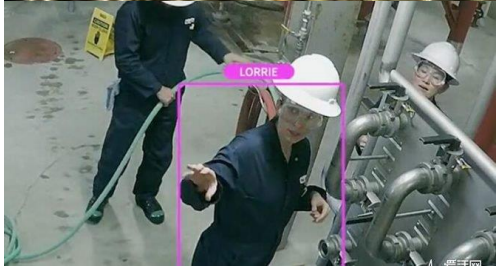
*AI for  
Product*

*AI for  
Operation*

**ADLINK  
AI Vision  
@Smart Factory**

*Conventional Machine  
Vision Algorithms plus AI  
Vision Modeling*

*Scalable & Sustainable  
AI NVR Manageability &  
Provisioning*





# Application Cases

Intelligent Robotics, Smart Pallet, AI Vision in Manufacturing

# AI Vision: Worker Safety

Safe Reinforcement

car: 1.0  
FPS: 12.2341 Run on GTX1060

cones: 1100

cones: 1.0

ADLINK AI Vision Zone Breach – Tank Wagon

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# AI Vision: OPE2OEE

OPE Improvement equals to RIGHT ROI ASSESSMENT

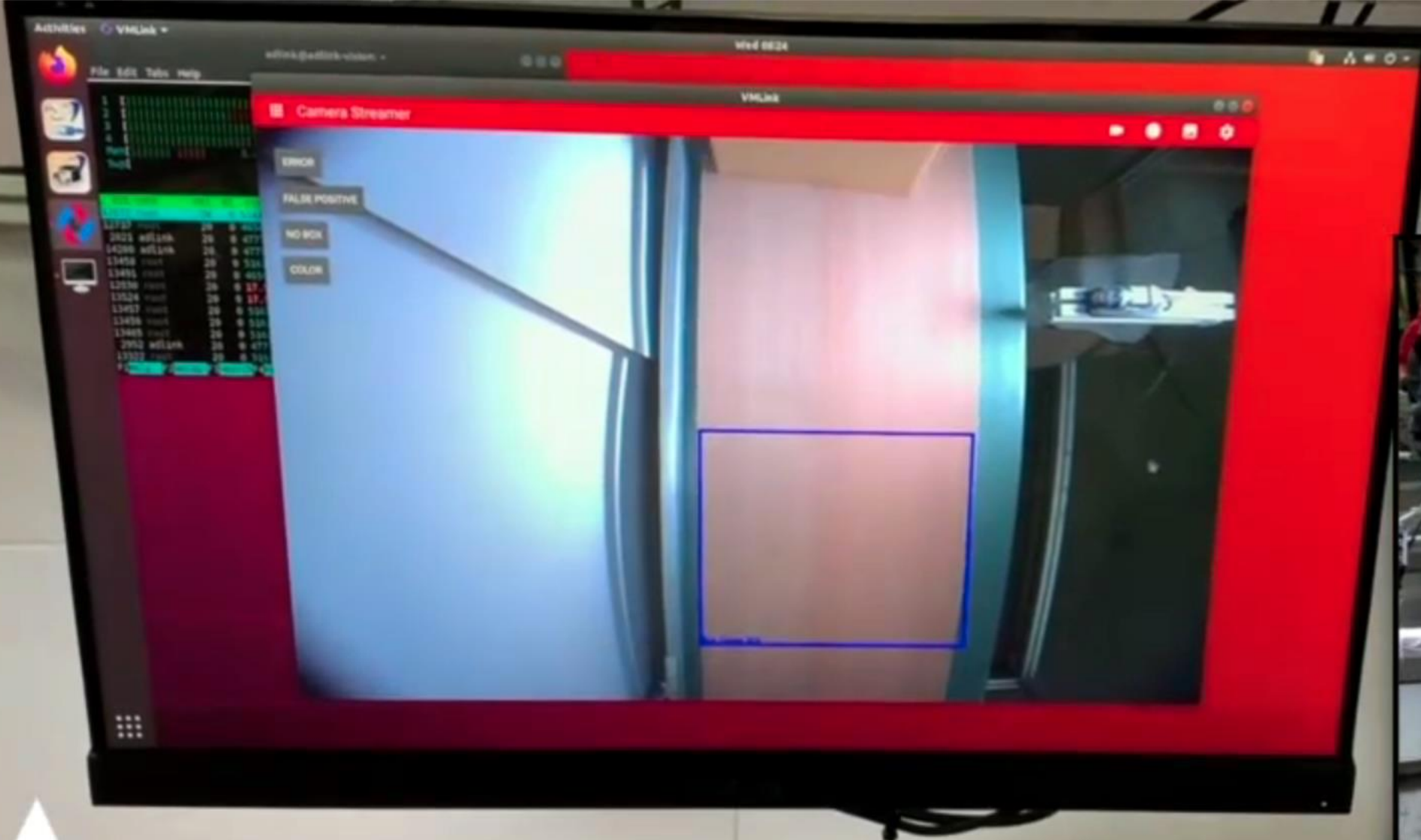
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VI with OPE = Availability x Performance x Quality

Timesheet automation and real-time production data presentation

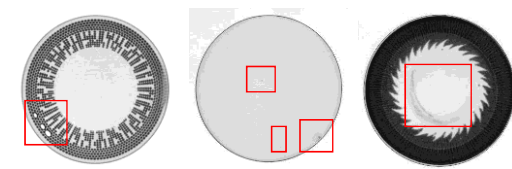
# Smart Logistic: Smart Pack



ADLINK SMART PACK – EDGE AI Vision

# AI x AOI for Contact Lens Defect Inspection

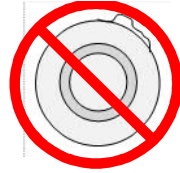
# Contact Lens Defect Inspection



All Defect Inspection

50X Throughput Improved

Transparency



Bubbles

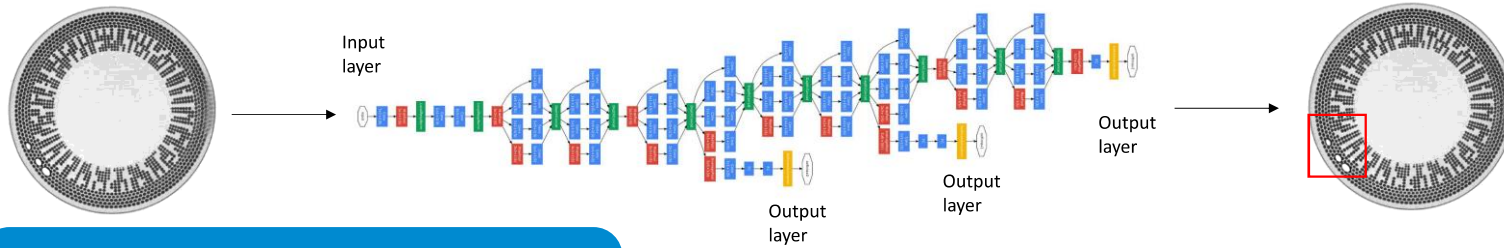


Water Ripple

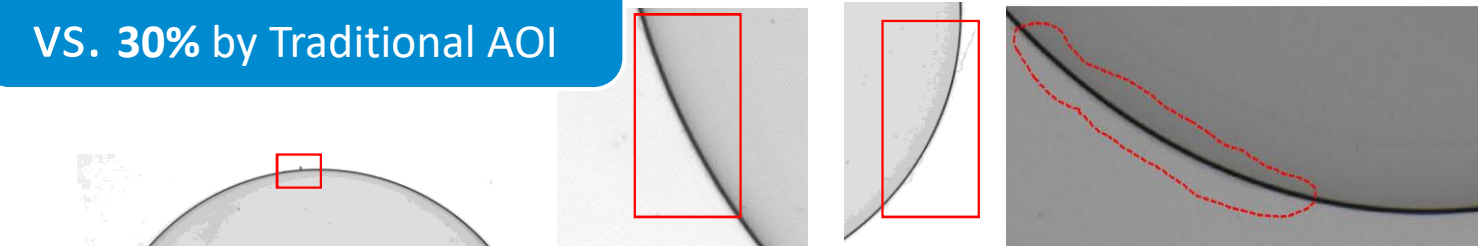


0.45 VS. 20S (by operator manually)

Deep Neural Network



95% Accuracy  
VS. 30% by Traditional AOI



Multimedia: LIVE STREAM



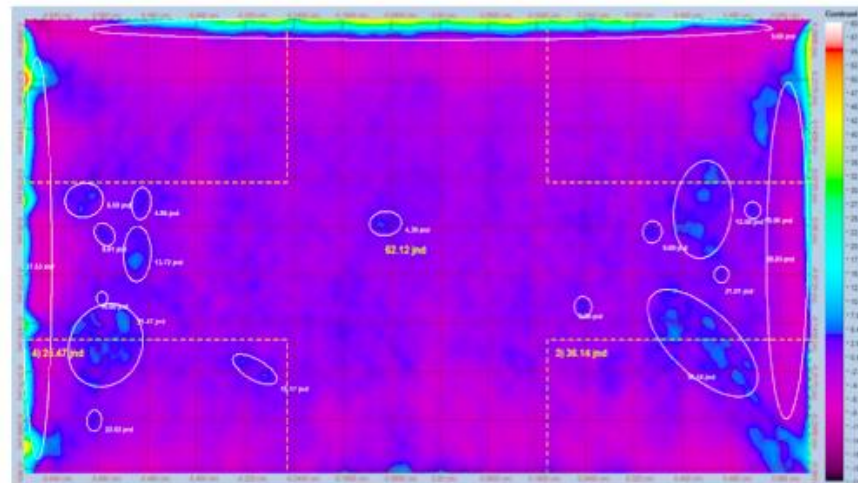
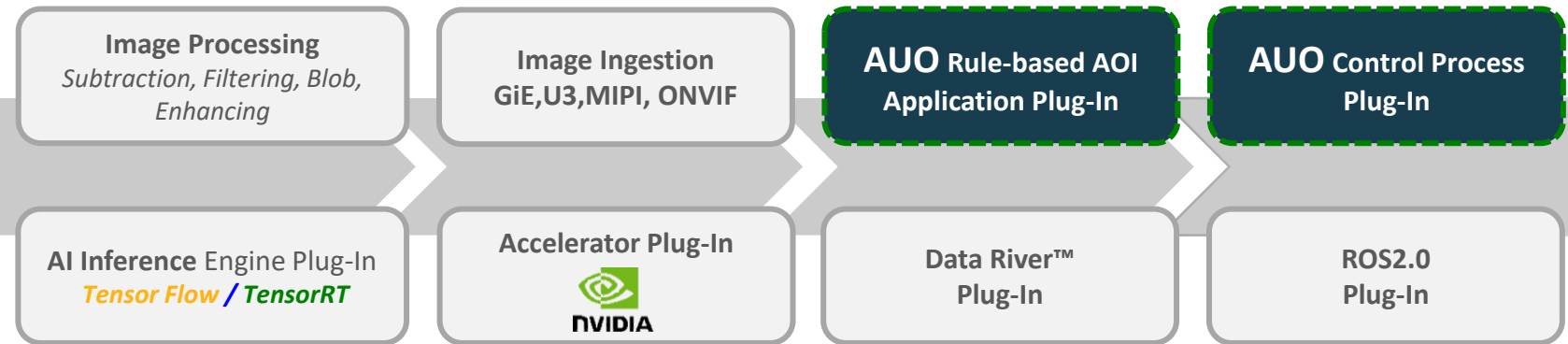
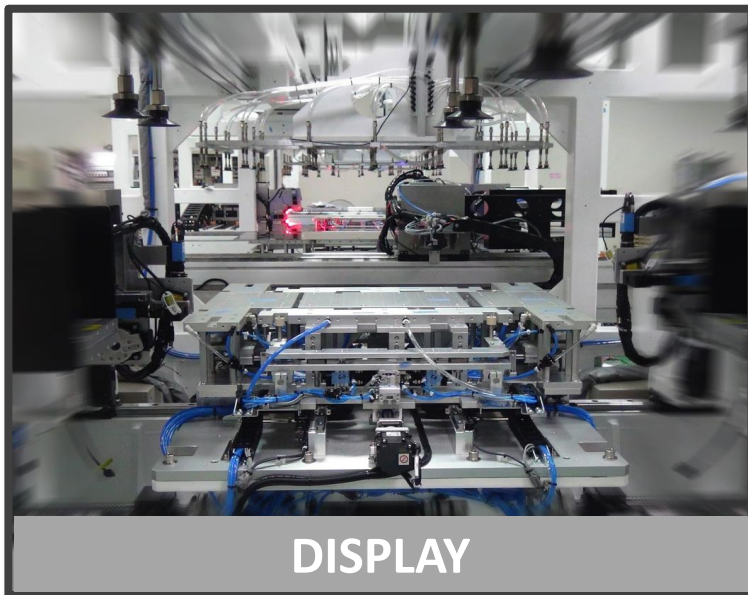
EOS-i614A



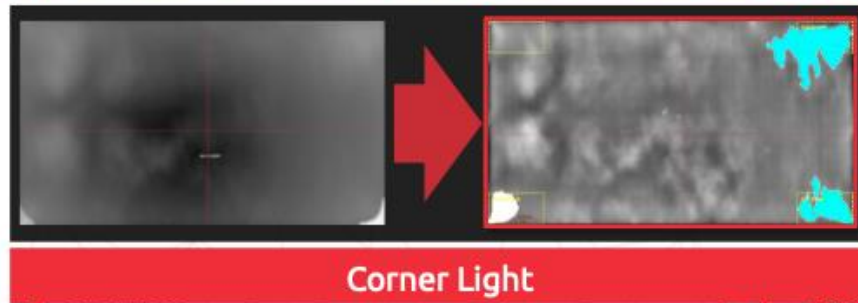
# AI x AOI for Challenged Display Defect Inspection

# EDGE Vision empowers AI AOI

Expertise of Challenged AOI in Display Manufacturing



**95%** (vs. 35% in original)  
**Accuracy Improvement**

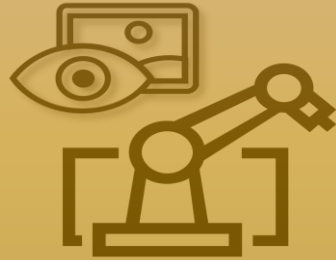




# WHAT'S THE CHALLENGE



System  
Integrator



In-House  
SI



Data Scientist

Complexity

Compatibility

Competitive  
-ness

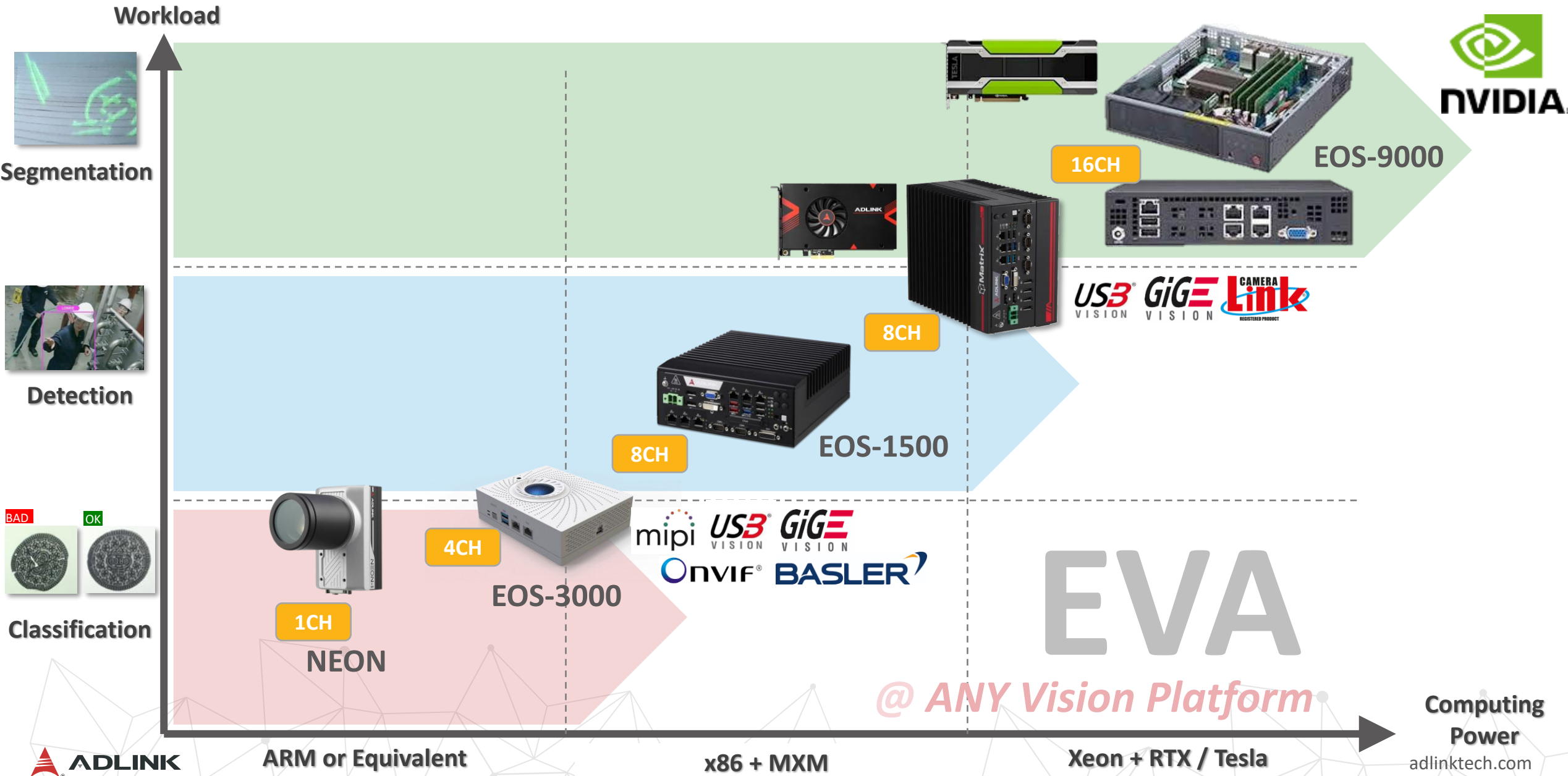
Certification





# WHY ADLINK

# ADLINK EDGE Vision Product Spectrum





# *TO BE GREAT WITH ADLINK*

*Eco System, Comprehensive Offering, E2E Optimization*

Strategic



Smart Manufacturing Partner  
ADLINK Shareholder

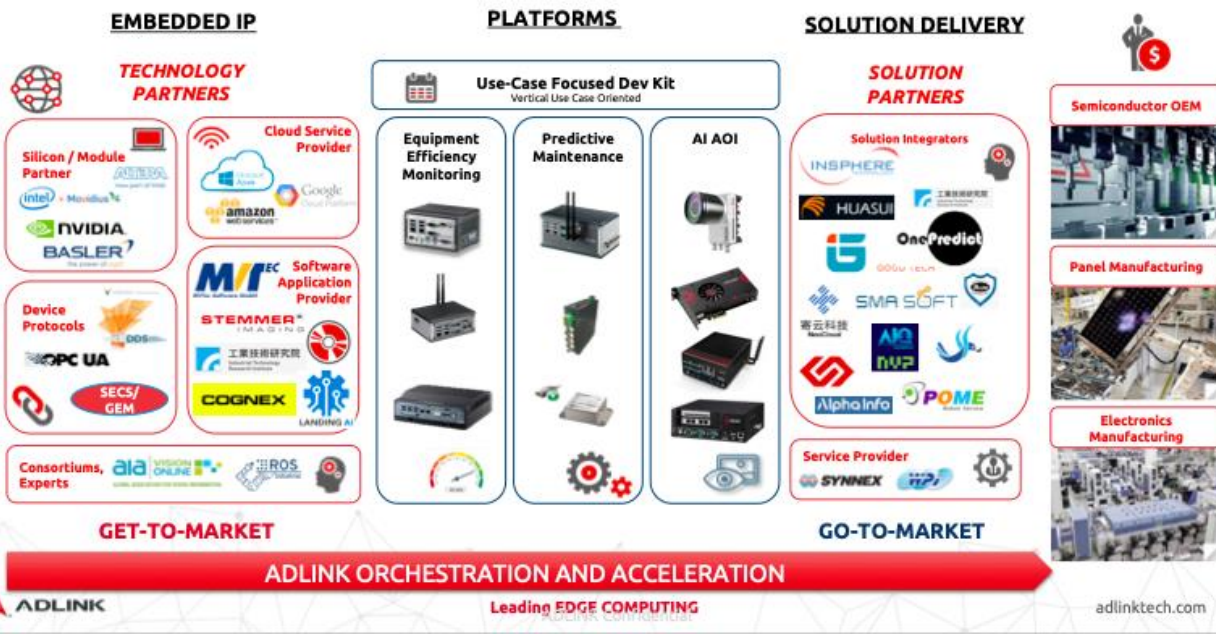


Quadro® Embedded  
Jetson™ Preferred  
OEM Preferred Partner

# Ecosystem Partner

Leading EDGE AI Market

Cloud



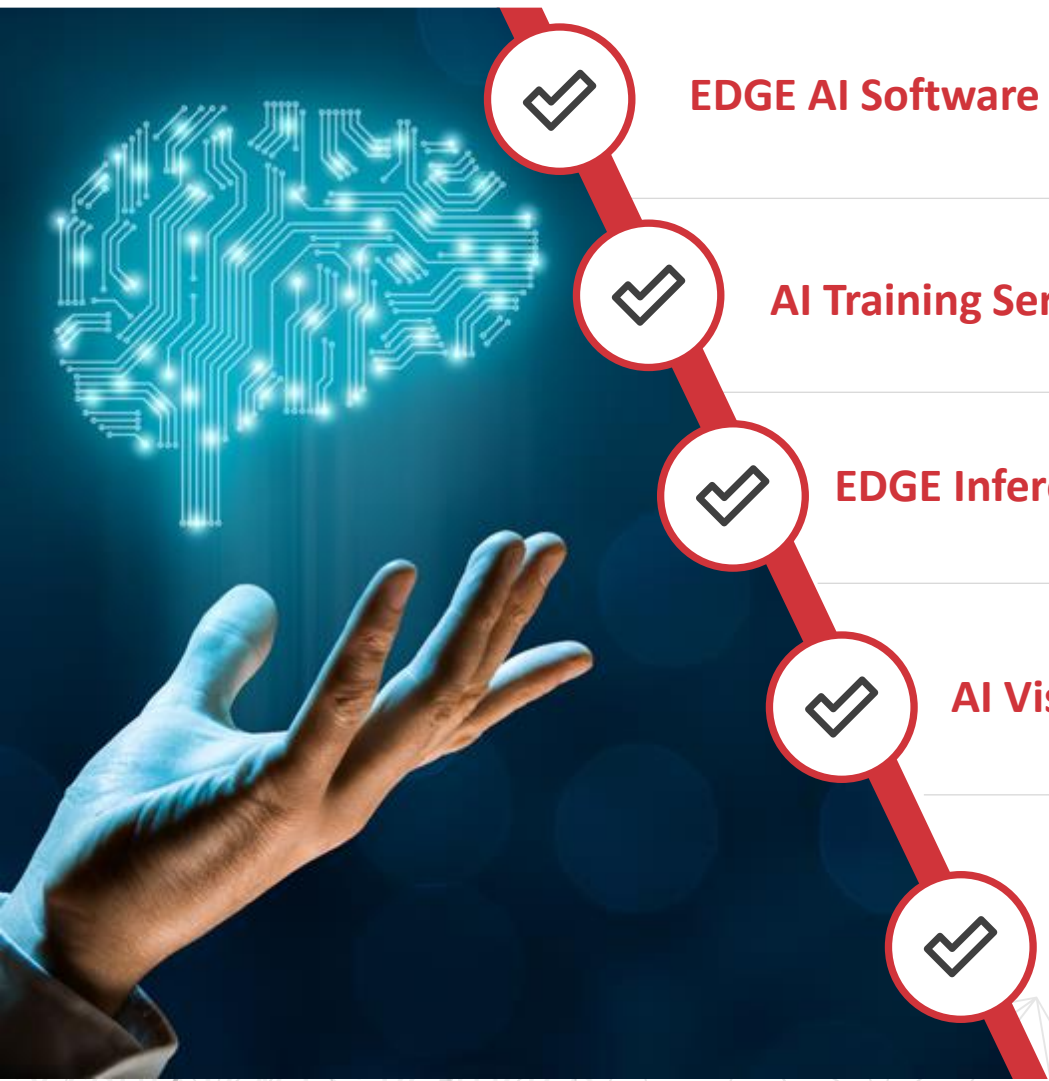
Security Level 2: Restricted



Leading EDGE COMPUTING

adlinktech.com

# ADLINK Can Help



EDGE AI Software



AI Training Server & AI-MEC



EDGE Inference Platform



AI Vision & Software Tools



AI On Modules



# THANK YOU

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