



# How UP AI Ecosystem can help to accelerate Your AI Project

## From Idea to Success

By: Owen Wei & Daniele Cleri

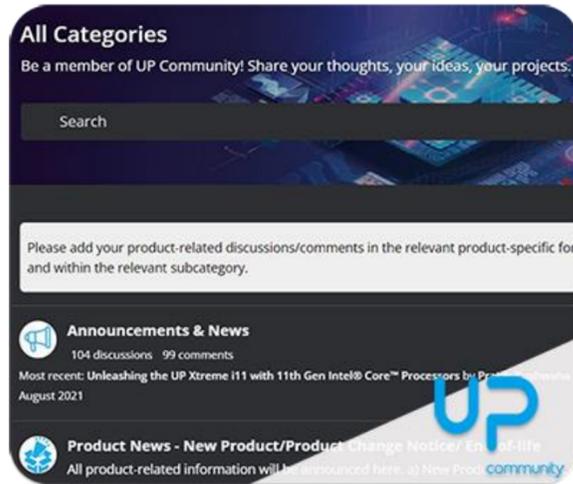
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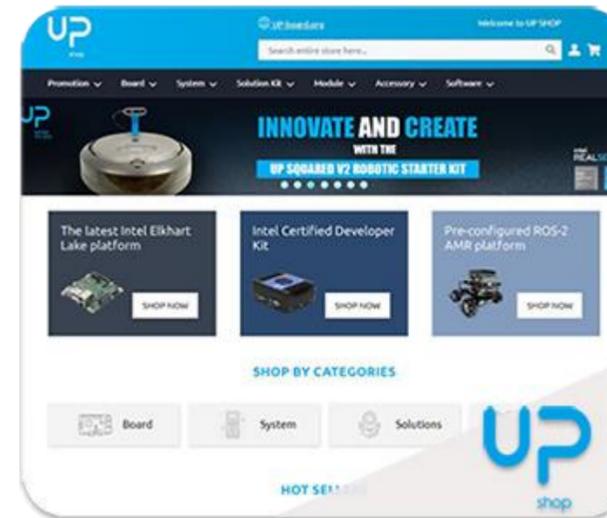


UP Bridge the Gap is a brand founded by AAEON Europe since 2015, it is UP's 10-year birthday  
 UP's HQ is in Eindhoven, NL which share office/resource with AAEON Europe.  
 As for UP Shop, it's the portal to engage with global industrial developer.  
 As for design/manufacturing, UP is leveraging AAEON in Taiwan.

# UP – An Industrial Developer Portal



A community of over 7,300 developers



18,000+ Shoppers at UP Shop



Engaging with over 12000 companies



UP Shop delivers to over 57 countries  
All UP delivers to 183 countries



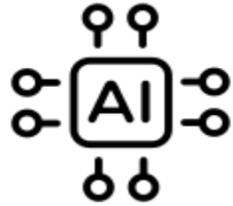
UP Shop supports over 13 languages



Sell over 3,000 dev kits  
Robotic: 233  
Vision: 2884

# UP Bridge the Gap

 Maker

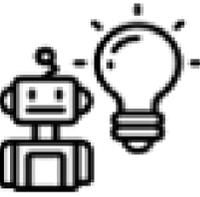
 AI

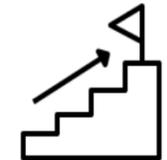
 POC



 Industry

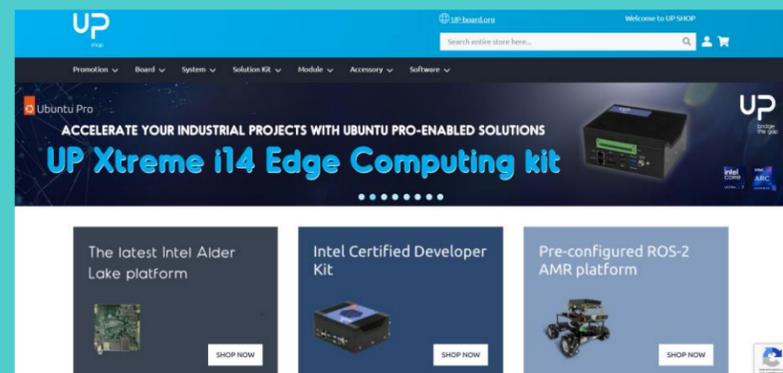
 Embedded

 Mass Production

UP scaling up your ideas 

# Pioneering Industrial Computing

## Business Model



UP, the 1st industrial computer brand with UP shop, wiki and community since 2015.

## Hardware Design



Small form factors from 56mm x 66mm to 120mm x 120mm

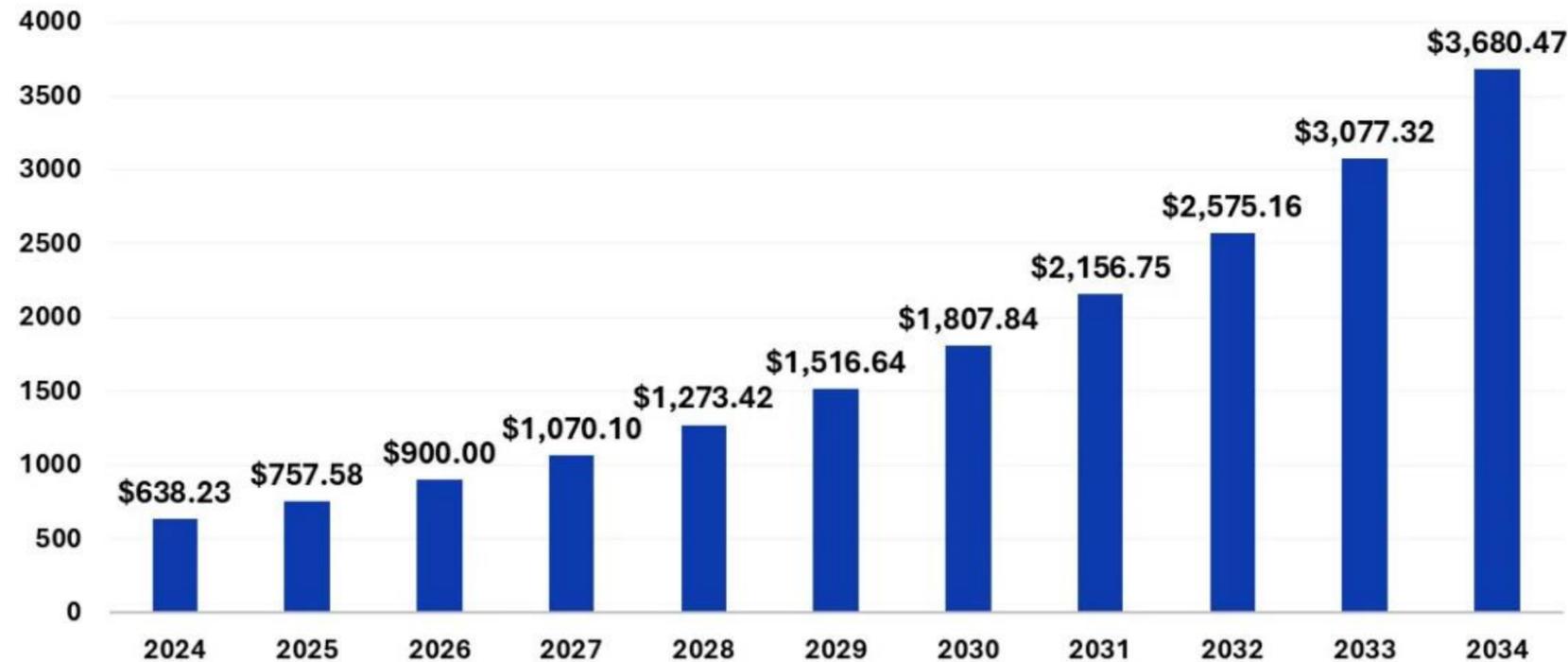
## Partnership



x86 Solutions with latest Intel Technology.

# AI Market Trend

## Artificial Intelligence (AI) Market Size 2024 to 2034 (USD Billion)



Source: <https://www.precedenceresearch.com/artificial-intelligence-market>

### Questions before you dive into development?

- Which platform should I use?
- Which AI module should I add to enhance performance?
- What camera should I integrate?
- Which software tools can help streamline development?
- Is there a solution that can accelerate time to market?

# UP AI Strategy



Pre-integrated HW & SW

UP AI SW Suite

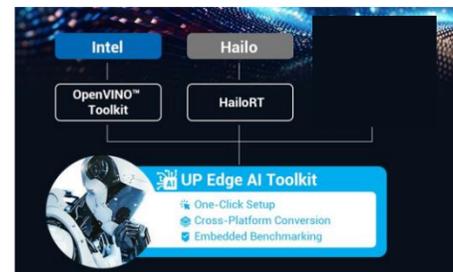
Rich I/O (GPIO)  
Validated Peripheral  
(USB, MIPI, Wi-Fi, LTE)

From prototype on dev kit  
to Production hardware

UP/UP AI Eco System Partner  
Documentation



Deploy model directly on  
devices via Network Optix



# UP AI Dev Kit & Ecosystem



### Value Proposition

- Compatibility: Works with a range of UP platforms
- Versatility: Supports Windows 10/11 and Linux OS
- Ease of Use: Quick setup with user-friendly installation scripts.

OS & AI SW Suite

HAILO

DEEPIX



AI Accelerator



UP Developer Boards

### Powered by

- Intel® Twin Lake SoC Processor
- Intel® Arrow Lake SoC Processor



MIPI-CSI/ GMSL2 Expansion Kit



AI Vision

APPROPHO



D3

TechNexion

# UP AI Dev Kits

Expand Beyond Limits. AI That Scales with You!



### MSRP: \$279

- Card size dev board
- Intel® Processor N150, 4 Cores
- Intel® Graphics, 24 EUs
- 8GB RAM/ 64GB Storage
- 40-pin HAT GPIO
- Pre-installed Ubuntu Pro 24.04
- Support UP AI Toolkit & Network Optix
- USB HD Camera

### MSRP: From \$469

- Palm+ size dev board
- Intel® Processor N150, 4 Cores
- Intel® Graphics, 24 EUs
- 8GB RAM/ 64GB Storage
- Hailo-8L M.2 AI Accelerator
- 40-pin HAT GPIO
- Pre-installed Ubuntu Pro 24.04
- Support UP AI Toolkit & Network Optix
- USB HD Camera

### MSRP: \$899

- Pocket size dev board
- Intel® Core™ Ultra 5 Processor 225H, 14 Cores
- Integrated Intel® Arc™ 130T GPU
- 16GB RAM/ 256GB Storage
- 40-pin HAT GPIO
- Pre-installed Ubuntu Pro 24.04
- Support UP AI Toolkit & Network Optix
- USB HD Camera

**From Entry to High-End – Scalable UP AI for Every Vision!**

**Expansion Ready! Supports additional camera modules and AI accelerators**

MIPI-CSI/ GMSL2 Cameras

M.2 AI Accelerator Modules

# UP AI Ecosystem Partners

## AI Accelerator

### HAILO

#### Hailo-8 & Hailo-8L

- 13~26 TOPS
- M.2 2230/ 2242/ 2280 Module
- TensorFlow, PyTorch & ONNX
- 2.5W
- Linux, Windows



#### METIS AI Accelerator

- Peak INT8 214 TOPS
- M.2 2280 Module
- PyTorch & ONNX
- 3.5-9W



### DEEPX

#### DEEPX DX-M1 M.2 AI Accelerator

- 25 TOPS
- M.2 2280 Module
- TensorFlow, PyTorch & ONNX
- 3~5W
- Linux, Windows



## Camera Vision

### D3 Engineering



#### DesignCore® Velocity AR0234

- MIPI-CSI-2
- Onsemi AR0234
- Max Resolution: 2MP Full-HD
- Shutter: Global
- Focal Length: 2.80mm

### APPRO.PH



#### GMSL2 Camera series

- AR0822 (4K + HDR)
- IMX335 (5MP + HDR)
- AR0234 (2.3MP + Global Shutter)
- IMX290 (2MP + HDR)



#### LI-ADL-ADP-IMX415-MIPI-081H

- MIPI-CSI-2
- Sony IMX415
- Active Pixels: 3864H x 2176V
- Optical Format: 1/ 2.8"



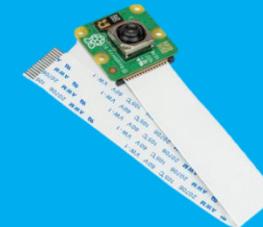
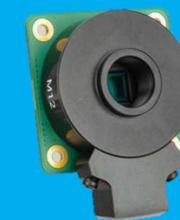
#### RPI-22 Camera series

- MIPI-CSI-2
- Global/ Rolling Shutter
- Built-in ISP
- <2MP~20MP options available



#### Raspberry Pi Mipi Camera

- Raspberry Pi High Quality Camera (IMX477)
- Raspberry Pi Camera Module 3 (IMX708)



# Network Optix – NX AI Manager & Tool Kit

Rapid Prototyping & Deployment

## Free Trial, Instant Start

Test full AI deployment and management functionality with no upfront license.

## Cross-Platform Deployment

Supports x86, ARM, GPU/NPU—develop once, deploy anywhere.

## Centralized Model Management

Manage versions, push updates remotely, and monitor edge devices via a unified platform.

## Visual AI Pipeline Editor

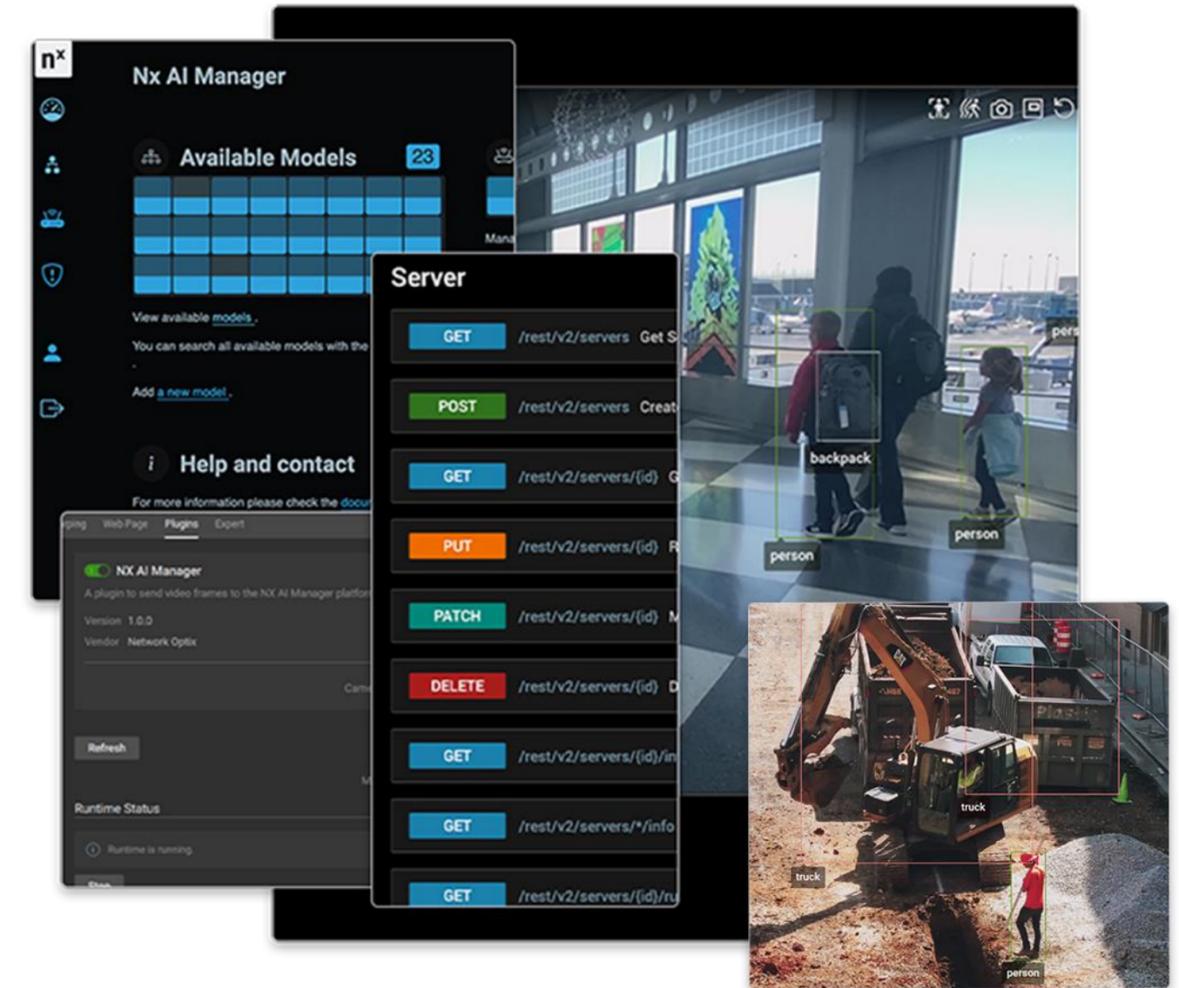
Drag-and-drop interface to build and connect multiple models with condition-based logic.

## Comprehensive SDK & API Access

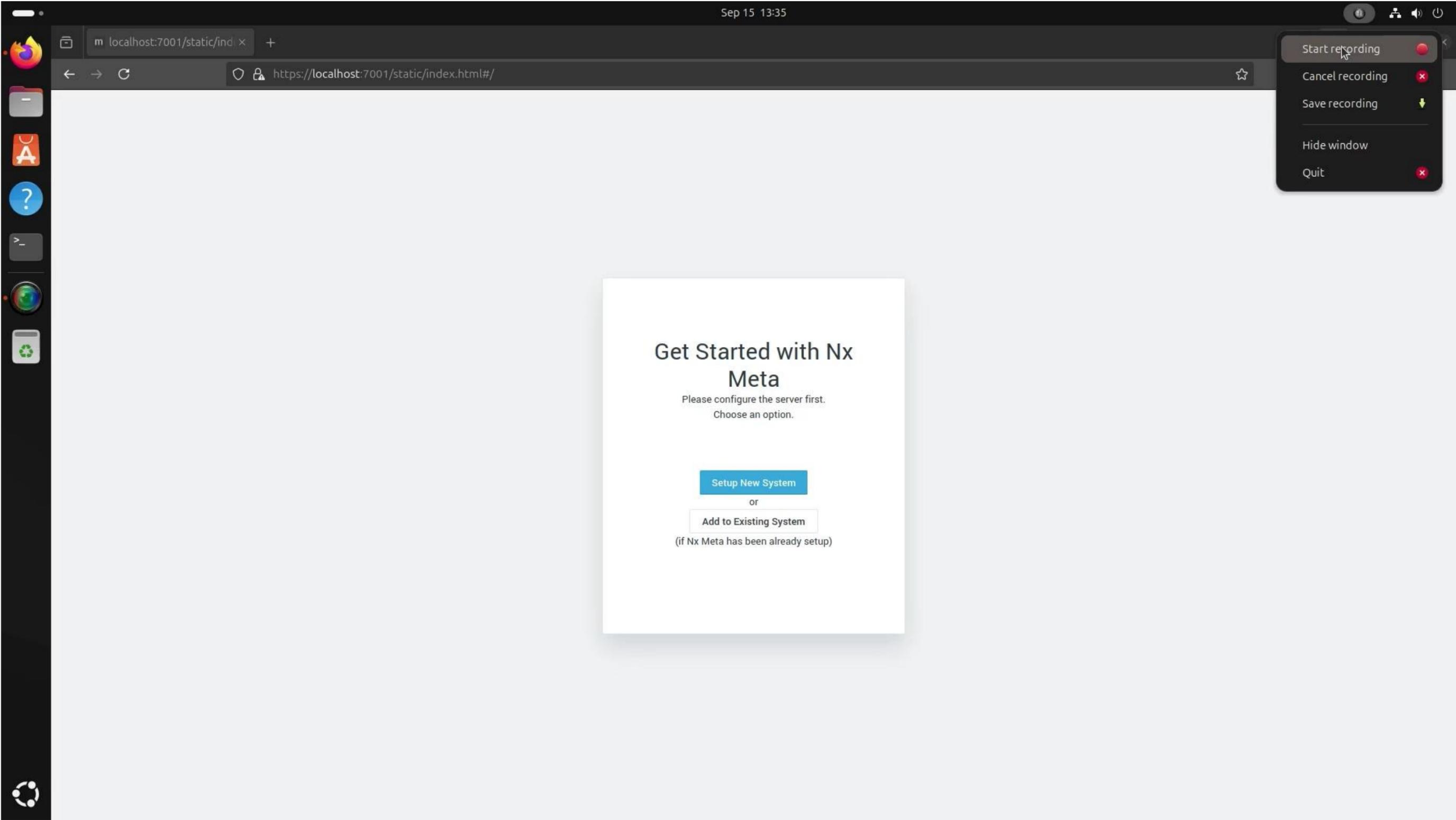
Includes RESTful APIs and language bindings for Python, C++, and more—easy to integrate into custom apps.

## Real-Time Debug & Monitoring

Seamless integration with Nx Meta enables visual confirmation of inference results and system performance.



# DevKit: First boot & Setup (Video)



# DevKit: Demo Application with Network Optix (Video)

The screenshot displays a software interface with a dark theme. On the left, a sidebar contains a search bar and a navigation tree with the following items: 'UP Xtreme ARL', 'admin', 'Server UPX-ARL01' (expanded), 'usb\_cam-FHD Camera: FHD ...', 'Web Pages', and 'Local Files'. The main area is currently empty. On the right, an 'EVENTS' panel is open, showing a filter menu with options for 'Any time', 'Any camera', and 'Any event'. Below the filters, it indicates '3 events' and lists three entries:

Event	Time
Server Started Server UPX-ARL01	12:12:44 PM
Server Started Server UPX-ARL01	12:07:26 PM
Server Started Server UPX-ARL01	12:06:45 PM

# Network Optix Documentation

Nx AI Manager Plugin Documentation:

<https://nx.docs.scaillable.net/nx-ai-manager/get-started-with-the-nx-ai-manager-plugin>



Nx Meta API/SDK Documentation:

<https://meta.nxvms.com/docs/developers>



Nx Meta Developer Documentation:

<https://support.networkoptix.com/hc/en-us/categories/32712042906647-Nx-Meta-Developer-Documentation>



# UP AI SW Tool Kits

Streamlining Integration for Effortless Benchmarking & Deployment



3

## AI Benchmark Tool for Intel/Hailo/CUDA

Provide a toolkit to effectively solve the problem of difficult performance comparison of multiple models on a single platform

2

## Model Converter Tool

Customers can use the toolkit to painlessly convert various models into formats suitable for Intel/Hailo/Dedicated GPU platforms and then deploy them on the edge device to easily achieve inference

1

## AI inference Runtime Library

Integrate the necessary drivers, libraries, and SDKs for Intel/Hailo/Dedicated GPU platforms for customers to install with one click, providing painless POC environment construction

Compatible with **UP boards**

Support AI Accelerators:

- Hailo
- Intel NPU
- Intel GPU
- Dedicated GPU

**Now Available!**



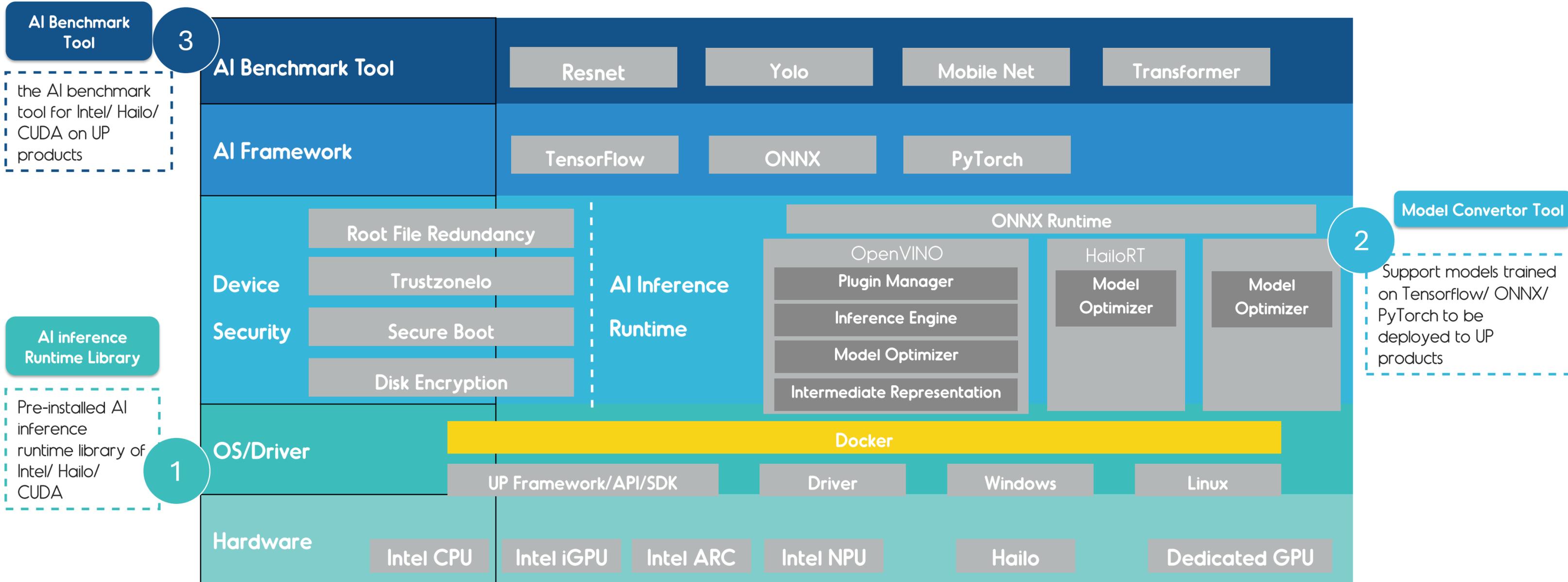
<https://github.com/up-division/up-ai/wiki>



SCAN ME

# UP AI SW Tool Kits

Streamlining Integration for Effortless Benchmarking & Deployment



<https://github.com/up-division/up-ai/wiki>



SCAN ME

# Get your UP AI Dev Kit Now !

## ENTRY



### UP TWL AI Dev Kit [Entry]

Intel® Processor N150; 12V  
DC-in; Ubuntu 24.04 LTS

\$279.00

## MID Up to 214 TOPS



up to 214 TOPS

### UP Squared Pro TWL AI Dev Kit Series [Up to 214 TOPs]

Intel® Processor N150; 12V  
DC-in; Ubuntu 24.04 LTS; AI  
module included

As low as  
\$469.00

## HIGH-END 83 TOPS



83 TOPS

### UP Xtreme ARL AI Dev Kit [83 TOPs with ex- pandability for additional AI acceleration module]

Intel® Core™ Ultra 5  
Processors; 9-36V DC-in;  
Ubuntu 24.04 LTS

\$899.00

Buy Link: <https://up-shop.org/default/solution-kit/ai-dev-kit.html>



# THANK YOU

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[UP! Bridge the gap](#)



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[UP-bridge the gap](#)



[upboard](#)

[www.up-board.org](http://www.up-board.org) / [www.up-shop.org](http://www.up-shop.org) / [www.up-community.org](http://www.up-community.org)



Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information go to [www.intel.com/benchmarks](http://www.intel.com/benchmarks).

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