bridge
the gap

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UP AI Edge

AI on the Edge

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UP Founder, Vice President & Managing Director AAEON Europe

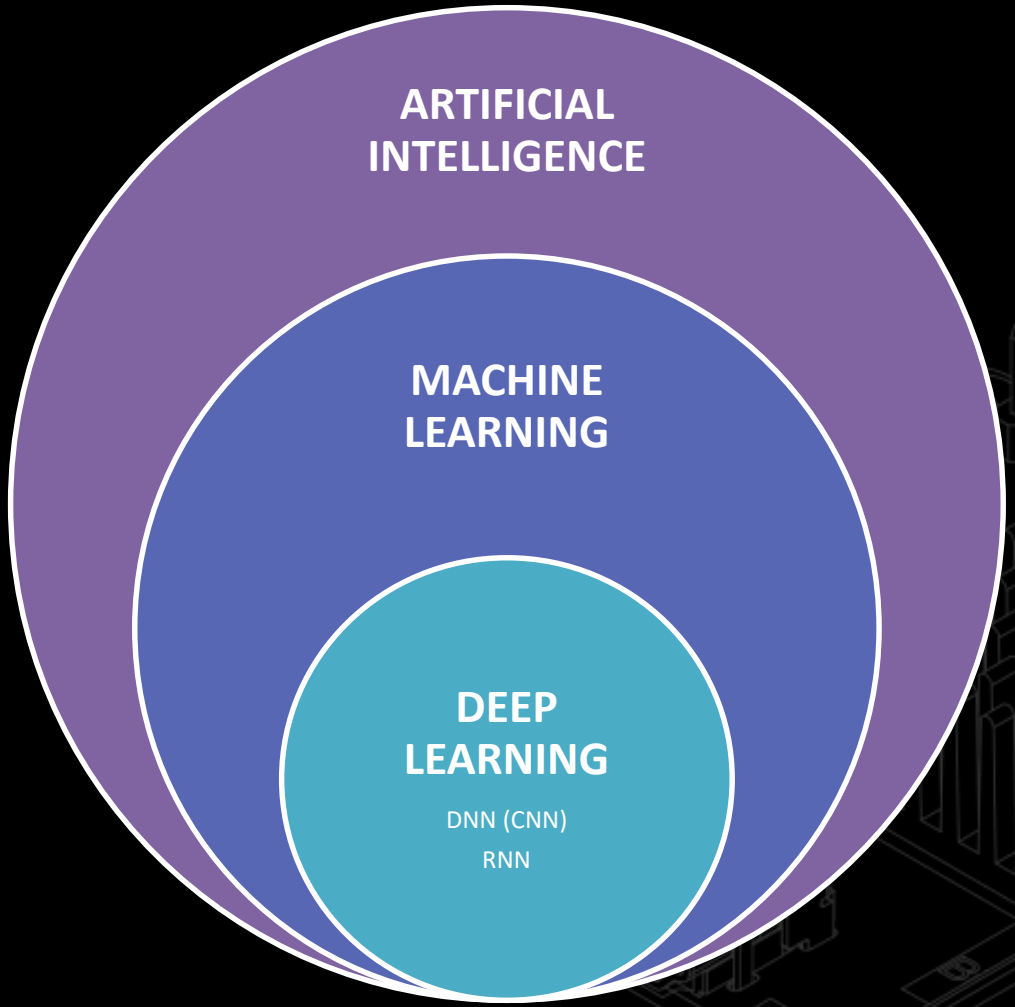
Date : Mar 2018

Version : 1.3

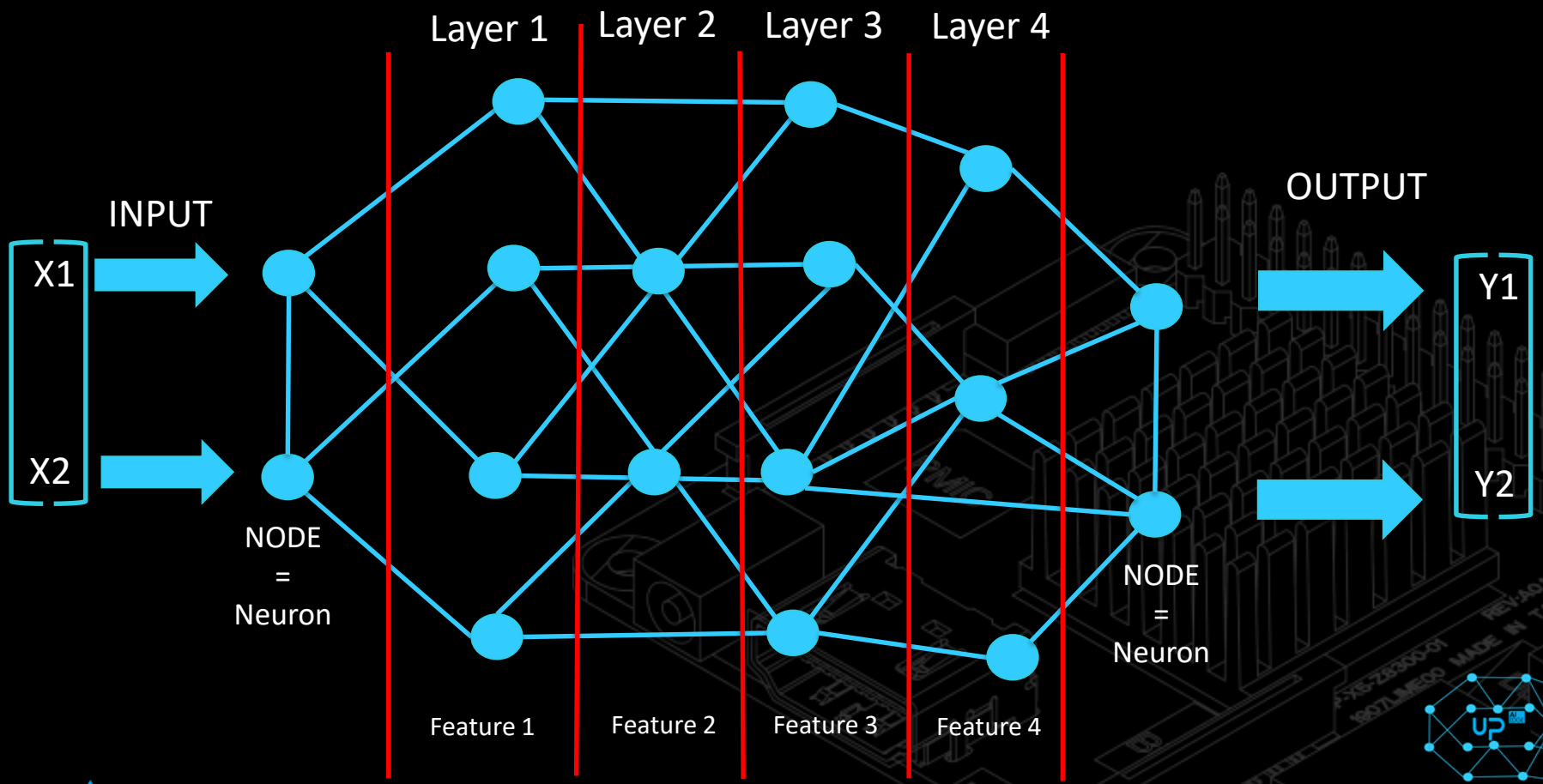
Audience : External

are you up for UP?

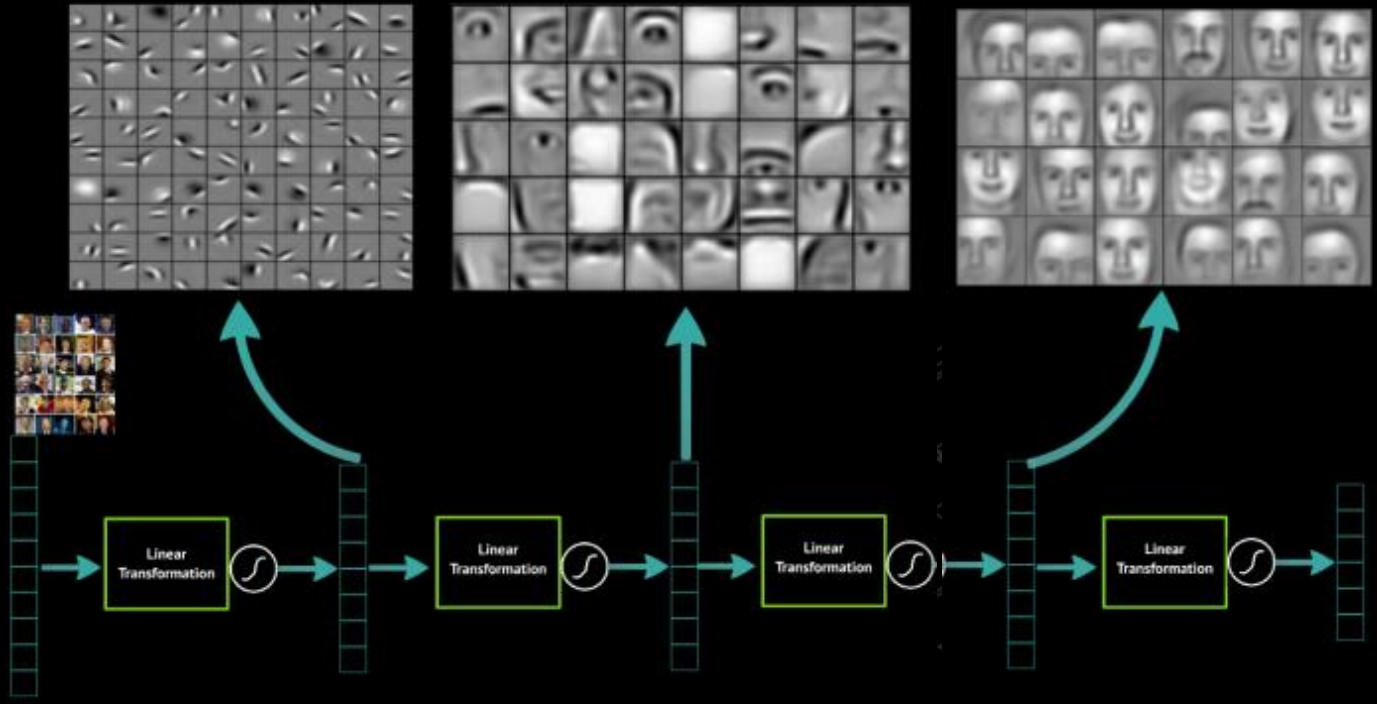
AI
Artificial
Intelligence


ARTIFICIAL INTELLIGENCE
MACHINE LEARNING
DEEP LEARNING
DNN (CNN)
RNN

Deep Neural Network



In Deep Learning Each Layer learns specific features



Current Approach : Centralized AI = (CPU + GPU + FPGA + TPU) * Thousand = Almost Unlimited Resources

Centralized AI
≠
Real Time Decision at the Edge

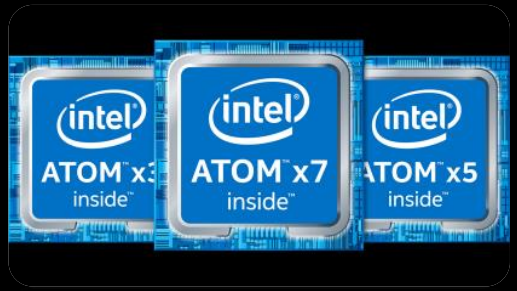
AI at the Edge with CPUs + GPUs = Expensive Not Efficient (Gflops/W)

AI On The Edge for Robots, Drones, Portable/Mobile Devices Outdoor Devices

=

Efficient (Gflops/W)
Reasonable Cost
Industrial Grade Archit.

UP AI Edge



Intel®
Atom x5/x7
Celeron/Pentium

Low Power Consumption
Quad Core 64 bit x86
Architecture

OS agnostic

GPU integrated

Rich I/O

\+

Intel® Cyclone® 10 GX

Programmable
Versatile
Architecture

Super Rich I/O

Good for CPU Offload,
Real Time High Speed Signal
Analysis

\+

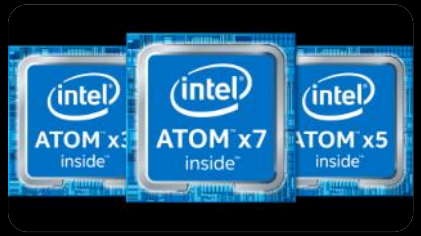
Intel®
MOVIDIUS™
Myriad 2

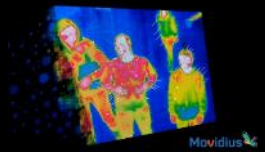
Video Processing Unit
(Hardware Neural Network)

Optimized for Machine
Learning and Real Time
Pattern Recognition

UP AI Edge

CREDIT SIZED STACKABLE ARTIFICIAL INTELLIGENCE PLATFORM
FULLY POWERED by Intel® TECHNOLOGY





UP core PLUS
bridge the gap

UP CORE PLUS

+

UP AI PLUS
bridge the gap

AI PLUS

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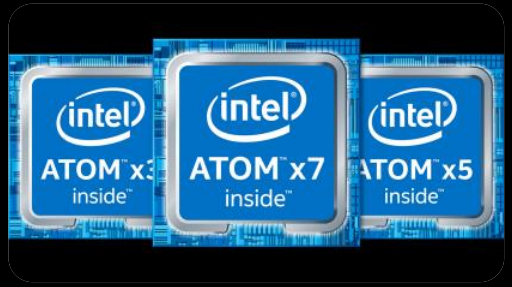
UP AI CORE
bridge the gap

AI CORE

UP AI Edge



UP core PLUS
bridge the gap

UP CORE PLUS

Intel® Atom™ x5 / x7 / Celeron ®/ Pentium ®
2/4/8 GB DDRL 4 Dual Channel 2.400 MHz
32/64/128 GB eMMC
DP 4K@60 Hz
eDP
CSI 2 Lane + CSI 4 Lane
USB 3.0 Type A
USB 3.0 Type B
WiFi 802.11 AC 2T2R
2 x 100 pin expansion connector
Compatible with UP Core expansion board
12V DC In

UP AI Edge

bridge the gap

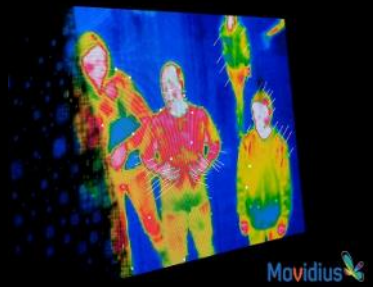
AI PLUS

Intel® Cyclone® 10gx 105 / 150 / 220 Kle
Display Port IN connected to Cyclone
LVDS IN connected to Cyclone
USB 3.1 Type C connected to Cyclone
GPIO connected to Cyclone

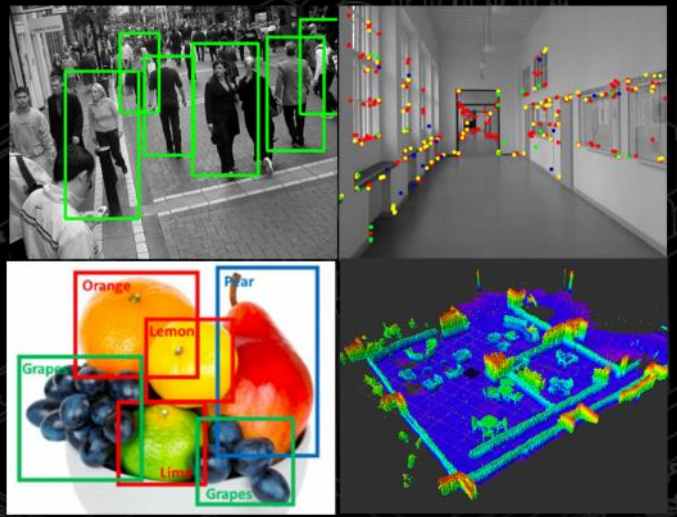
USB 3.0 Type A connected to mainboard UP Core Plus
mPCI-Express connected to UP Core Plus
Gbit Ethernet connected to UP Core Plus

UP AI Edge

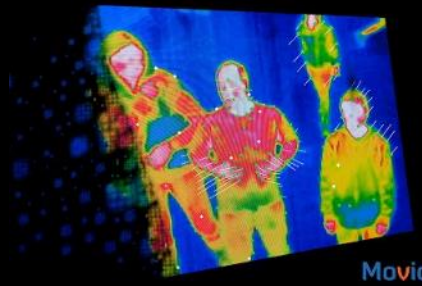
GIVE INTELLIGENT VISION TO YOUR GATEWAY !



UP AI CORE
bridge the gap



UP AI Edge



Hardware Neural Network

Optimized for Machine Learning and Real Time Pattern Recognition

Support of Tensor Flow & Caffe frameworks

Compatible with all x86 computers with mPCI-Express slot

Fully compatible with Intel Neural Compute Stick SDK

UP AI CORE bridge the gap

AI CORE

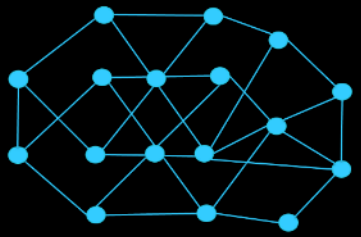
mPCIe expansion board

MOVIDIUS™ Myriad 2 Vision Processing Unit

Deep Learning Edge Accelerator

Ultra Low Power

UP AI Edge

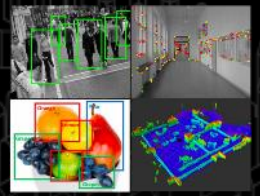


Create your model with Caffe or TensorFlow

Train Your Model in the Cloud

UP AI CORE

bridge the gap



Deploy it in the Field on AI Core

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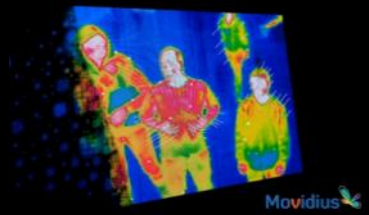
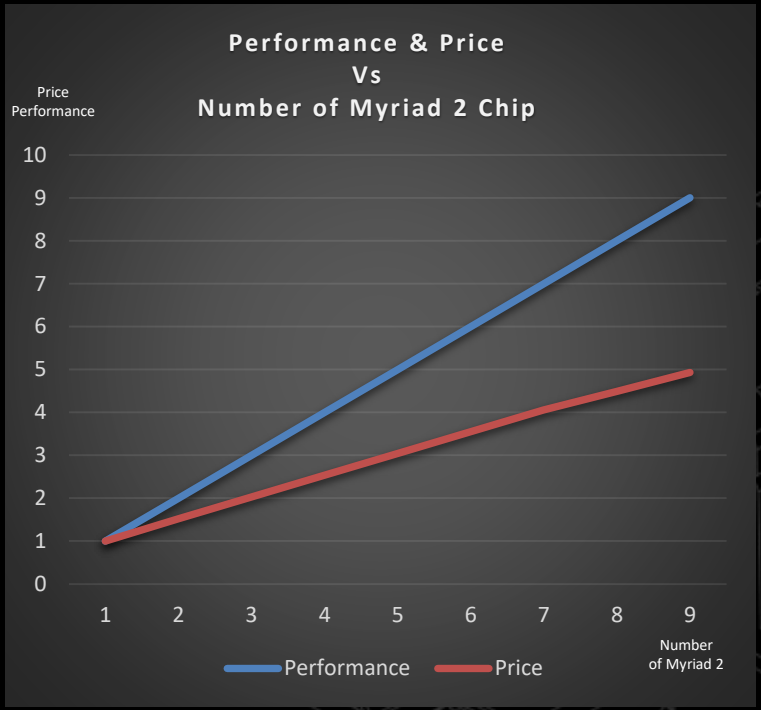




Example :

Custom Solution with 5 Myriad 2 onboard

Performance = 5 x AI Core
= 5 x Myriad 2

Price = 3 x Price of AI Core

N x Myriad 2 = N x Performance < N x AI Core price

UP AI Edge

Development and deployment on the same hardware

Development Kit

AI Edge Indoor Gateway

AI Edge Outdoor Gateway

UP AI Edge

UP AI Edge Vision Gateways

Intel® Atom™ x5 / x7 / Celeron ®/ Pentium ®
(Formerly known as Apollo Lake)

Intel® Cyclone® 10 GX

Movidius™ Myriad 2

4G, WiFi, Bluetooth

Rich I/O

IP40, 68

UP AI Edge

Where AI Edge makes the difference

Predictive Maintenance
Machine Vision

Commercial
Robot

Video Surveillance /
Traffic Control

Industrial
Augmented Reality

Intelligent
Retail

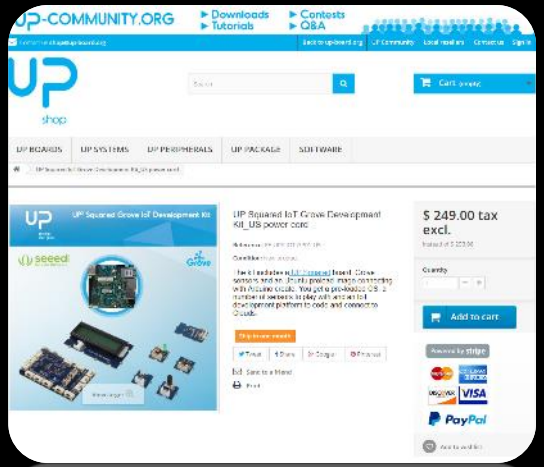
Professional Air
Drone

UP AI Edge

Join UP Ecosystem

UP AI Edge

Get the board from your favorite distributor



UP Web Shop
UP Distributors

AAEON Web Shop
AAEON Distributors

Intel Distributors

UP AI Edge

End User Prices:

UP CORE PLUS

→ **Starting at 139 USD X5-3930, 2GB RAM, 32GB eMMC**

- → Samples for test* from April
- → Available in pre-order from May
- → Delivery in June/July

AI PLUS

→ **Starting at 199 USD with Cyclone 10Gx 105Kle, 1GB RAM**

- → Samples for test* from April
- → Available in pre-order from May
- → Delivery in July/August

AI CORE

→ **69 USD**

- → Available in pre-order NOW on UP Shop and Mouser
- → Samples for test available
- → Delivery in April 2018

*Please contact Aling Wu for sample allocation

UP AI Edge

NET PLUS, the 4 LAN (Intel 211/210) expansion for UP CORE Plus

NET PLUS

- 4 LAN Intel 211AT (option for Intel 210 with TSS support)
- mPCI-Epress/mSATA w/Sim card reader
- SATA
- 100 pin I/O expansion
- USB 3.0

→ Starting at 69 USD with 4 x Intel 211AT

- Available in pre-order from May
- Available for test* from April

UP AI Edge

+

AI Core

+

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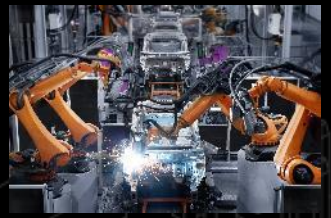


Industrial Automation

Machine Vision

UP CORE Plus
+ NET Plus

+

3G/4G
Modem

+

=

Industrial
Network Security

Smart City

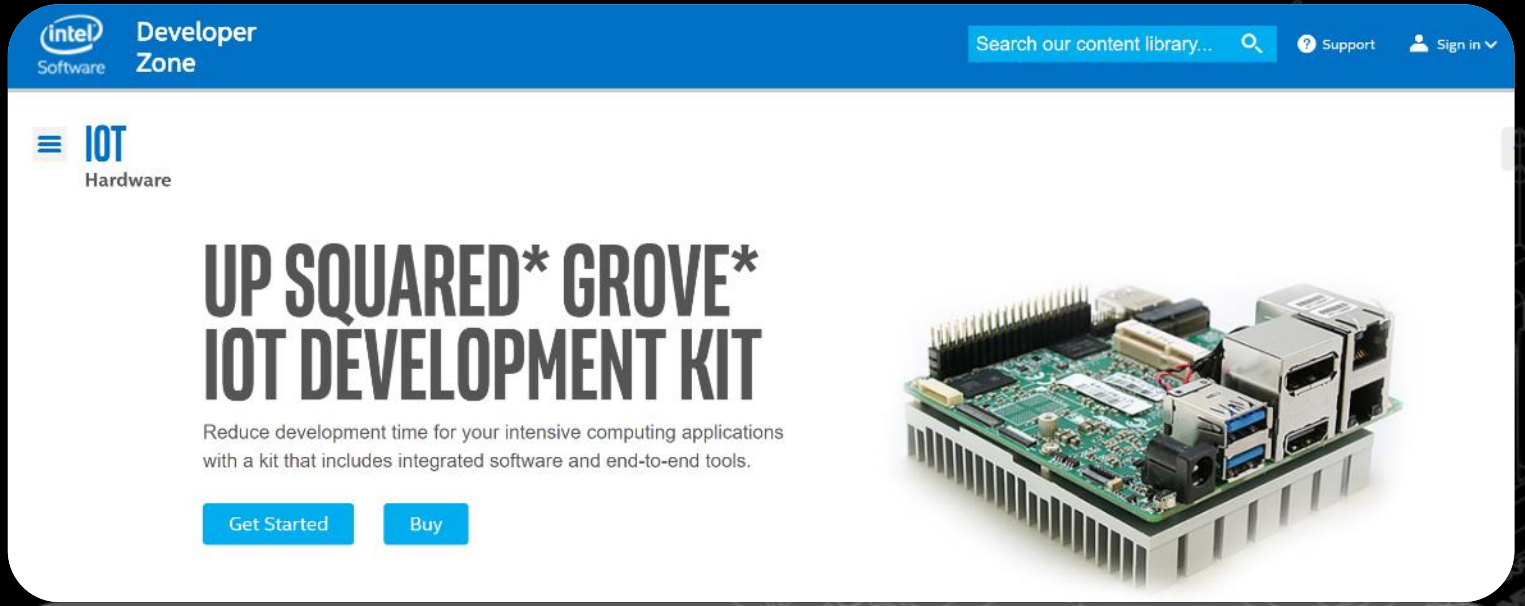
UP AI Edge

Get Support via Community

UP Community will support the solution but users can access to all the material
Of Altera Forum and Movidius NCS forum

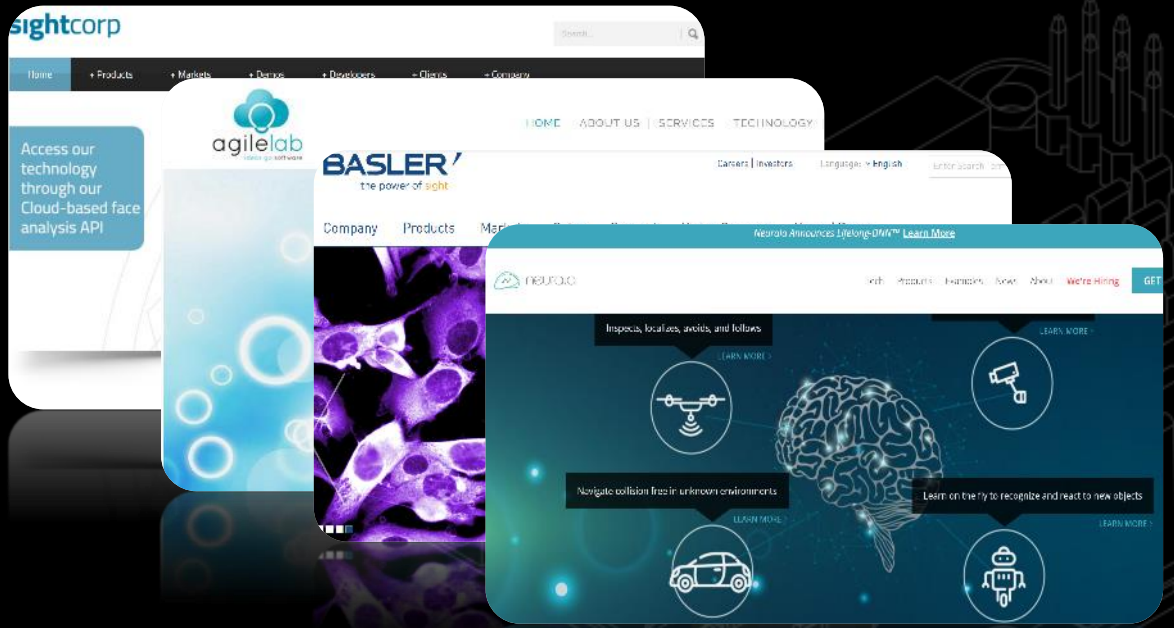
UP AI Edge

Join UP – Intel Ecosystem



UP AI Edge

Join our A.I. Ecosystem



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