UP Squared Pro

The ultimate Edge solution - Unleash the future of industrial automation and AI vision with 5G connectivity to shorten the deployment process and take your solutions to the **PRO** level.

intel.

UP² Pro - intelligent industry, powered by Intel.

After the success of UP², an official Intel AI & IoT platform, now we give you the UP² Pro.

UP² Pro is built for industrial use with multiple serial ports, multiple LAN ports, 5G support, and various M.2 expansion slots. UP² Pro also enables the next generation industrial automation and AI solutions, users can easily add on AI accelerators, powered by extension capabilities to Intel® Movidius™ Myriad™ X or the upcoming Intel Movidius™ chip.

UP² Pro embedded with 40-pin HAT expansion and versatile I/O (SATA3, M.2 2230 E key, M.2 2280 M key, M.2 3052 B Key) to allow for seamless integration. UP² Pro is ready to connect for 5G, AI accelerator, WiFi, Bluetooth.
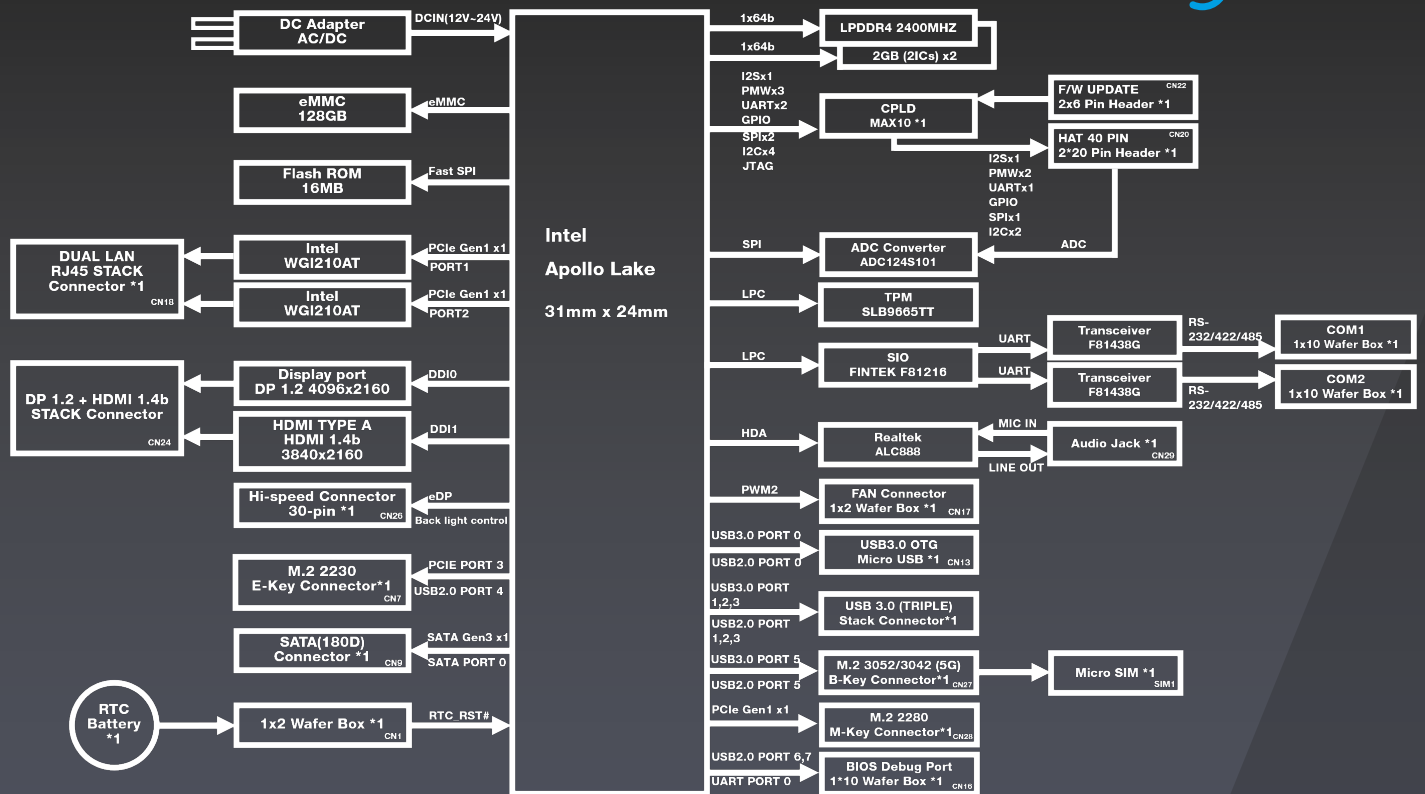
With Intel processors, FPGAs and accelerators deliver power-efficient performance and specialized capabilities for new industrial use cases, like Automation, Robotics, Drones, Machine Vision, and Internet of Things.

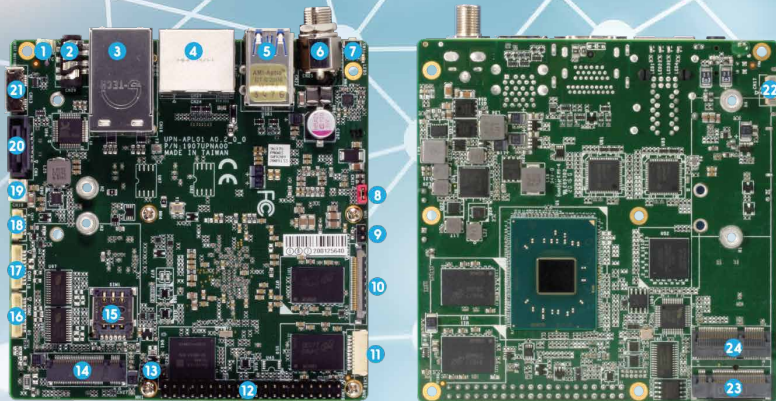# SPECIFICATIONS

CPU	Intel® Celeron® Duo Core N3350 (up to 2.4 GHz) Intel® Pentium®Quad Core N4200 (up to 2.5 GHz) Intel Atom® Quad Core x7-E3950 Processor (up to 2.0 GHz)	**Display**	1 (HDMI 1.4b) 1x DP 1.2 (4K@60hz) 1x eDP
Graphics	Intel® HD Graphics 500 for Celeron® N3350 Intel® HD Graphics 505 for Pentium® N4200 / Intel Atom® x7-E3950	**COM Ports**	FINTEK F81216, 2x RS232/422/485
FPGA	Intel® FPGA Altera MAX 10	**UART**	2x UART (Tx/Rx) debug port (pin header)
Memory	2GB / 4GB / 8GB	**HDD interface**	1x SATA 3.0
Storage	32GB / 64GB	**SIM slot**	1x SIM slot
Expansion Slot	1x M.2 E key 2230 1x M.2 M key 2280 1x M.2 B key co-lay 3042/3052	**TPM**	Infineon TPM SLB9670 on board
		Expansion HAT (40pin)	GPIO, SPI, I2C, I2S, PWM, UART, 3V3, 5V, GND, GPIO
Ethernet	2 x GbLAN (Intel i210 AT) support TSN	**Power**	12V~24V DC-IN (lockable connector) 1x Power Button / LED
Audio	Audio Out/Mic In	**Dimension**	101.6 x 101.6mm (4" x 4")
USB	3x USB 3.0 Type A 1x USB 3.0 OTG	**Compatible OS**	Microsoft Windows 10 full version, Linux (Ubuntu, Yocto)

block diagram

DC Adapter AC/DC — DCIN(12V~24V)

eMMC 128GB — eMMC

Flash ROM 16MB — Fast SPI

Intel Apollo Lake 31mm x 24mm

1x64b — **LPDDR4 2400MHZ**
1x64b — **2GB (2ICs) x2**

I2Sx3 / PMWx3 / UARTx2 / GPIO / SPIx2 / I2Cx4 / JTAG — **CPLD MAX10 *1**

F/W UPDATE 2x6 Pin Header *1 CN22
HAT 40 PIN 2*20 Pin Header *1 CN20

I2Sx1 / PMWx2 / UARTx1 / GPIO / SPIx1 / I2Cx2

SPI — **ADC Converter ADC124S101** — ADC

LPC — **TPM SLB9665TT**

LPC — **SIO FINTEK F81216**
UART — **Transceiver F81438G** — RS-232/422/485 — **COM1 1x10 Wafer Box *1**
UART — **Transceiver F81438G** — RS-232/422/485 — **COM2 1x10 Wafer Box *1**

HDA — **Realtek ALC888** — MIC IN / LINE OUT — **Audio Jack *1** CN29

PWM2 — **FAN Connector 1x2 Wafer Box *1** CN17

USB3.0 PORT 0 / USB2.0 PORT 0 — **USB3.0 OTG Micro USB *1** CN13

USB3.0 PORT 1,2,3 / USB2.0 PORT 1,2,3 — **USB 3.0 (TRIPLE) Stack Connector*1**

USB3.0 PORT 5 / USB2.0 PORT 5 — **M.2 3052/3042 (5G) B-Key Connector*1** CN27 — **Micro SIM *1** SIM1

PCIe Gen1 x1 — **M.2 2280 M-Key Connector*1** CN28

USB2.0 PORT 6,7 / UART PORT 0 — **BIOS Debug Port 1*10 Wafer Box *1** CN18

Intel WGI210AT — PCIe Gen1 x1 PORT1 / PORT2 — **DUAL LAN RJ45 STACK Connector *1** CN18

Intel WGI210AT

Display port DP 1.2 4096x2160 — DDI0 — **DP 1.2 + HDMI 1.4b STACK Connector** CN24

HDMI TYPE A HDMI 1.4b 3840x2160 — DDI1

Hi-speed Connector 30-pin *1 CN26 — eDP / Back light control

M.2 2230 E-Key Connector*1 CN7 — PCIE PORT 3 / USB2.0 PORT 4

SATA(180D) Connector *1 CN9 — SATA Gen3 x1 / SATA PORT 0

RTC Battery *1 — **1x2 Wafer Box *1** CN1 — RTC_RST#

1) RTC Battery Connector
2) Audio
3) LAN Dual Port
4) HDMI 1.4b + DP 1.2 Port
5) USB 3.0 Triple Port
6) DC Jack
7) PowerButton
8) Power Pin Header (12V)
9) Power Pin Header (24V)
10) eDP
11) USB Panel
12) 40-pin HAT connector

13) BIOS update
14) M.2 B Key co-lay 3042/3052
15) SIM card
16) 10-pin RS232/422/485 header
17) 10-pin RS232/422/485 header
18) Power Pin-header (Power switch & reset)
19) SATA Power
20) SATA
21) USB 3.0 OTG
22) FAN
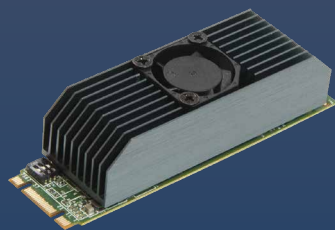23) M.2 E Key 2230
24) M.2 M Key 2280

Artifical Intelligence on the edge

Expand your UP Squared Pro board to fit your exact needs

M.2 2230 WiFi kit
Intel® Wireless-AC 9260
(802.11ac, Bluetooth 5.0)

UP AI Core XM 2280
AI hardware accelerator with
2x Intel® Movidius™ Myriad™ X