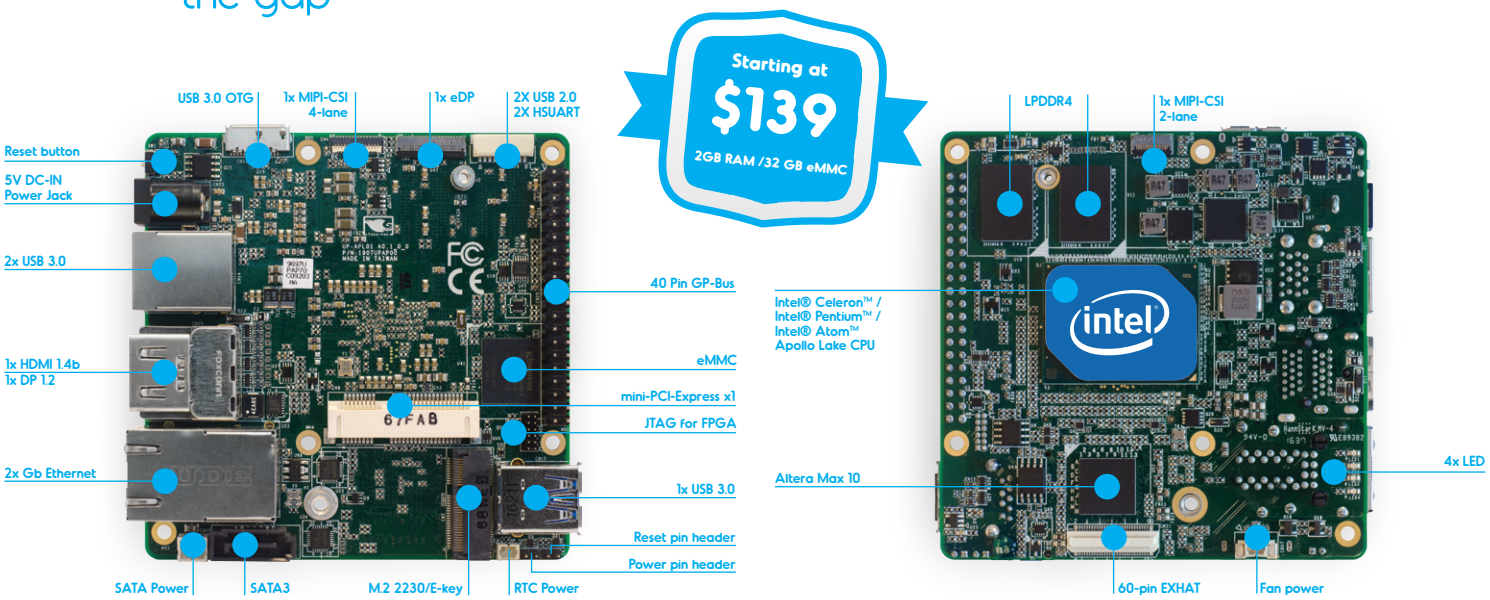
UP² bridge the gap

specification



UP² (UP Squared) is world's fastest maker board with the high performance and low power consumption features of **Intel® Celeron™, Pentium™ and Atom™ Processors (codename Apollo Lake).**

The internal GPU is the new **Intel Gen 9 HD with 12 / 18 Execution Units,** supporting **4K Codec Decode and Encode** for HEVC⁴, H.264 and VP8.
Thanks to the Vector Units Image Processing Unit and Precision Timing Management to synchronize CPU with I/O, improved determinism (cache QoS, Intel Virtualization Technology), all the graphic processing is effortless to UP² (UP Squared).

UP² (UP Squared) comes with **2GB/4GB/8GB LPDDR4** and **32GB/64GB/128GB eMMC**. A **40-pin GP-bus** provides the freedom for makers to build up their module. Additionally, there is a **60-pin EXHAT** for embedded applications. This allows for the exploration of more possibilities. The expansion capabilities of UP² (UP Squared) goes much further than this. Native **mini-PCI-e, M.2 2230 and SATA3** are all built in on the board. What more could one desire?

The board supports **Windows 10, Windows IoT Core, Ubilinux, Ubuntu, Yocto and Android Marshmallow**. It's really UP to you to decide which operating system is best for your application. Now, all you need is an UP² (UP Squared) to begin your project!

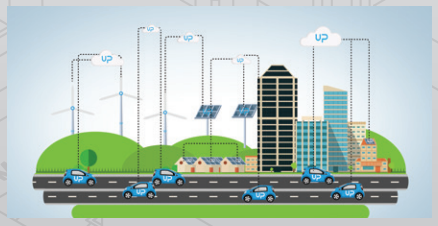
UP - Applications

Drones

Education

Robotics

Media Center



Internet of Things

Home Automation

UP

SOC
Intel® Celeron™ N3350 (up to 2.4 GHz)
Intel® Pentium™ N4200 (up to 2.5 GHz)
Intel® Atom ™ E3940 (up to 1.8Ghz)

Graphics
Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8

Video & Audio
HDMI 1.4b x1 4K @ 30 hz + DP 1.2 1x 4K @ 60 hz
I2S audio port

Camera interface
CSI 2-lane + CSI 4-lane

Display interface
eDP

Power
5V DC-in @ 4A-6A

Operating humidity
10%~80%RH non-condensing

Operating Tempature
32-140°F / 0~60°C

Altera MAX 10 FPGA
2KLE --Celeron/ Pentium
4KLE -- ATOM

Memory
2GB (single channel) LPDDR4
4GB/8GB (dual channel) LPDDR4)

Storage Capacity
32 GB / 64 GB / 128 GB eMMC

USB
3x UB3.0 (Type A) + 1x USB 3.0 OTG (Micro B)
2x USB2.0+2 X UART (Tx/Rx) debug port (pin header)

Ethernet
2x Gb Ethernet (full speed) RJ-45

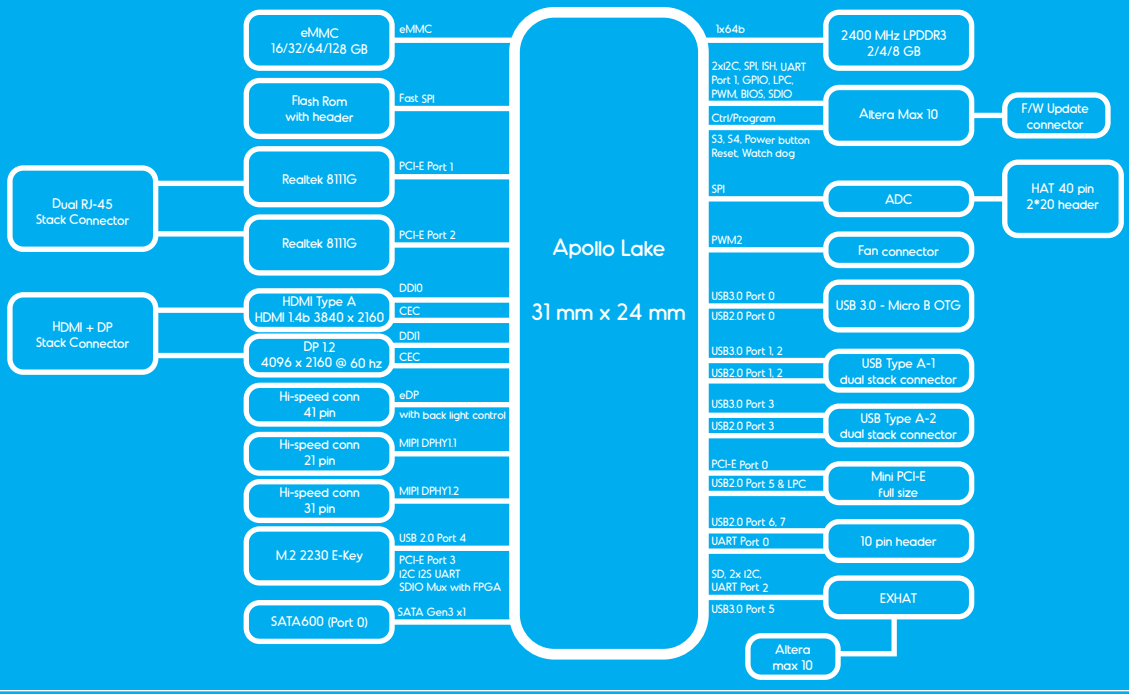
RTC
Yes

Expansion
40 pin General Purpose bus
60 pin EXHAT
1xmini-PCIe , M.2 2230, SATA3

Compatible Operating system
Microsoft Windows 10 (full), Windows IOT Core, Linux (ubilinux, Ubuntu, Yocto), Android Marshmallow

Dimensions
3.37" x 3.54" / 85.60 mm × 90 mm

Certificate
CE/FCC Class A, RoHS complaint, REACH



UP - Pinout

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

1 3V3	2 5V	3 GPIO0/ I2C1_SDA	4 5V	5 GPIO1/ I2C1_SCL
6 Ground	7 GPIO2/ ADC_in1	8 GPIO15/ UART_TXD	9 Ground	10 GPIO16/ UART_RXD
11 GPIO3/ UART_RTS/ SPI_2_FS1*/ ADC_in2	12 GPIO17/ I2S_BCLK/ SPI_2_FS0*	13 GPIO4/ ADC_in3	14 Ground	15 GPIO5/ ADC_in4
16 GPIO18	17 3V3	18 GPIO19	19 GPIO6/ SPI_1_TXD	20 Ground
21 GPIO7/ SPI_1_RXD	22 GPIO20	23 GPIO8/ SPI_1_CLK	24 GPIO21/ SPI_1_FS0	25 Ground
26 GPIO22/ SPI_1_FS1	27 GPIO9/ I2C0_SDA	28 GPIO23/ I2C0_SCL	29 GPIO10	30 Ground
31 GPIO11	32 GPIO24/ PWM0	33 GPIO12/ PWM1	34 Ground	35 GPIO13/ I2S_WS_SYNC/ SPI_2_RXD*
36 GPIO25/ UART_CTS/ SPI_2_FS2*	37 GPIO14	38 GPIO26/ I2S_SDI/ SPI_2_TXD*	39 Ground	40 GPIO27/ I2S_SDO/ SPI_2_CLK*

* 2nd SPI and ADC will be available only with E3940 SoC

Part number :

UP-APLC2-A10-0232	Intel® Celeron™ N3350 - 2 GB + 32 GB eMMC
UP-APLC2-A10-0432	Intel® Celeron™ N3350 - 4 GB + 32 GB eMMC
UP-APLP4-A10-0432	Intel® Pentium™ N4200 - 4 GB + 32 GB eMMC
UP-APLP4-A10-0864	Intel® Pentium™ N4200 - 8 GB + 64 GB eMMC
UP-APLA4-A10-0432	Intel® Atom™ E3940 - 4 GB + 32 GB eMMC

www.up-board.org/ www.up-shop.org /www.up-community.org