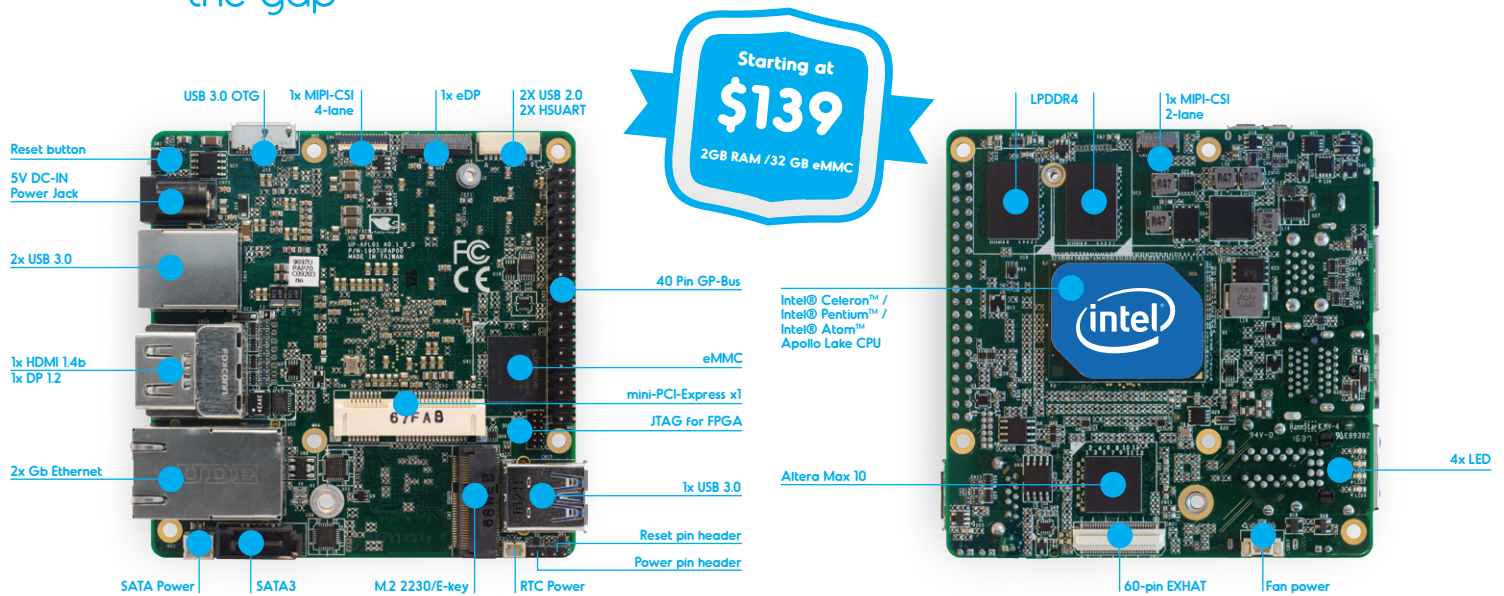


# UP<sup>2</sup>

bridge  
the gap

# specification



**UP<sup>2</sup> (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 HEVC<sup>4</sup>, 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 UP<sup>2</sup> (UP Squared).

UP<sup>2</sup> (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 UP<sup>2</sup> (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, Ubinlinux, 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 UP<sup>2</sup> (UP Squared) to begin your project!

## UP - Applications



Drones



Education



Robotics



Media Center

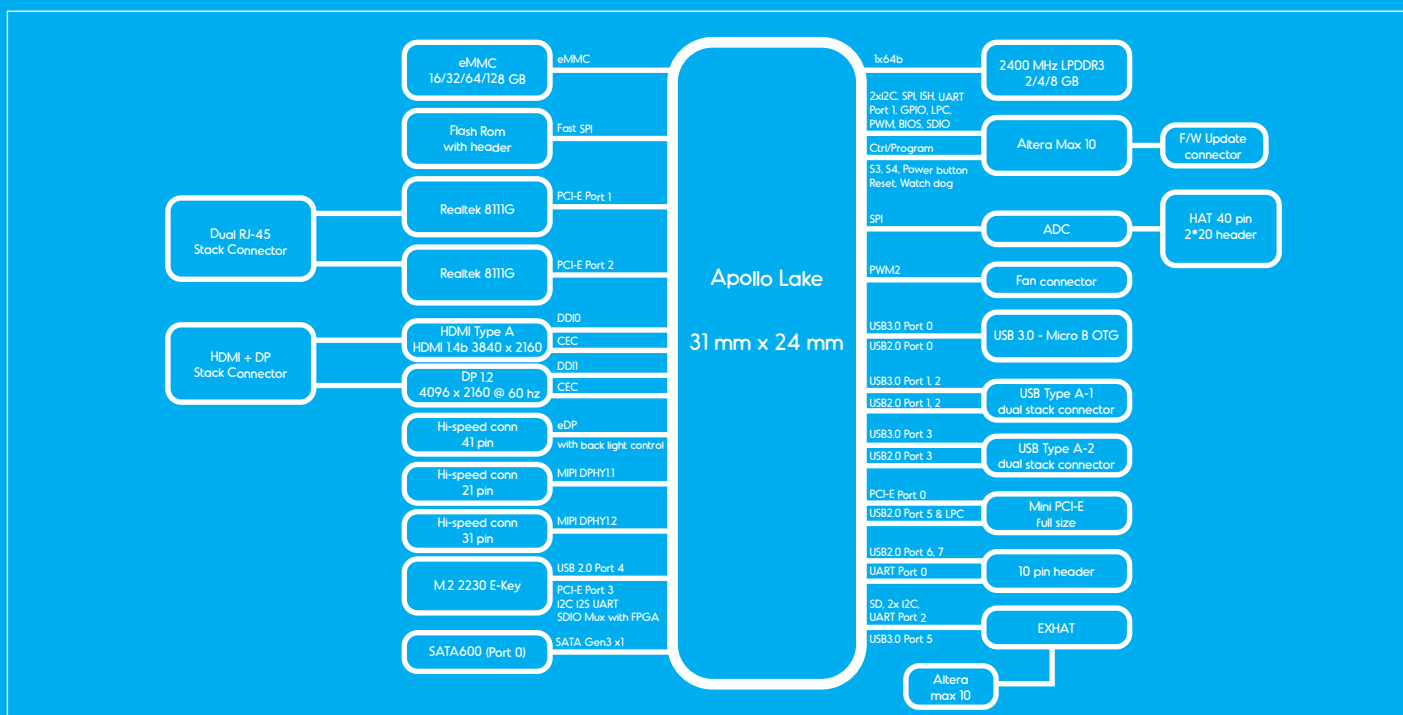


Internet of Things



Home Automation

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><br><br><br><br><br><br><br> | <p><b>SOC</b><br/>Intel® Celeron™ N3350 (up to 2.4 GHz)<br/>Intel® Pentium™ N4200 (up to 2.5 GHz)<br/>Intel® Atom™ E3940 (up to 1.8GHz)</p> <p><b>Graphics</b><br/>Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8</p> <p><b>Video &amp; Audio</b><br/>HDMI 1.4b x1 4K @ 30 hz + DP 1.2 1x 4K @ 60 hz<br/>I2S audio port</p> <p><b>Camera interface</b><br/>CSI 2-lane + CSI 4-lane</p> <p><b>Display interface</b><br/>eDP</p> <p><b>Power</b><br/>5V DC-in @ 4A-6A</p> <p><b>Operating humidity</b><br/>10%~80%RH non-condensing</p> <p><b>Operating Temperature</b><br/>32~140°F / 0~60°C</p> <p><b>Altera MAX 10 FPGA</b><br/>2KLE --Celeron/ Pentium<br/>4KLE -- ATOM</p> | <p><b>Memory</b><br/>2GB ( single channel) LPDDR4<br/>4GB/8GB ( dual channel) LPDDR4)</p> <p><b>Storage Capacity</b><br/>32 GB / 64 GB / 128 GB eMMC</p> <p><b>USB</b><br/>3x UB3.0 (Type A) + 1x USB 3.0 OTG (Micro B)<br/>2x USB2.0+2 X UART (Tx/Rx) debug port ( pin header)</p> <p><b>Ethernet</b><br/>2x Gb Ethernet (full speed) RJ-45</p> <p><b>RTC</b><br/>Yes</p> <p><b>Expansion</b><br/>40 pin General Purpose bus<br/>60 pin EXHAT<br/>1xmini-PCle , M.2 2230, SATA3</p> <p><b>Compatible Operating system</b><br/>Microsoft Windows 10 (full), Windows IOT Core, Linux (ubilinux, Ubuntu, Yocto), Android Marshmallow</p> <p><b>Dimensions</b><br/>3.37" x 3.54" / 85.60 mm x 90 mm</p> <p><b>Certificate</b><br/>CE/FCC Class A, RoHS complaint, REACH</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



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

UP-APLC2-A10-0432

UP-APLP4-A10-0432

Intel® Celeron™ N3350 - 2 GB + 32 GB eMMC

Intel® Celeron™ N3350 - 4 GB + 32 GB eMMC

Intel® Pentium™ N4200 - 4 GB + 32 GB eMMC

UP-APLP4-A10-0864

UP-APLA4-A10-0432

Intel® Pentium™ N4200 - 8 GB + 64 GB eMMC

Intel® Atom™ E3940 - 4 GB + 32 GB eMMC

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