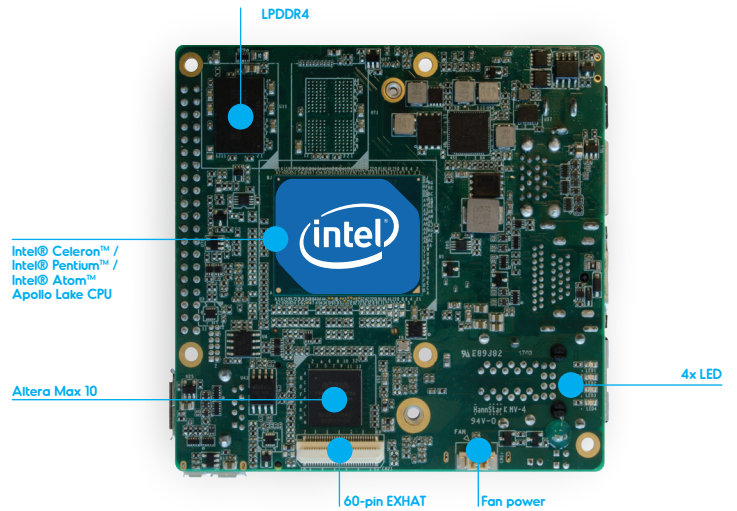
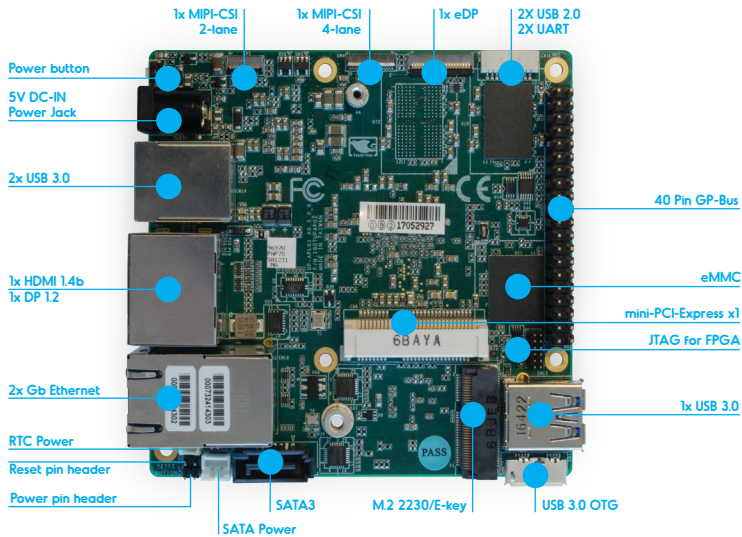


# UP<sup>2</sup>

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

## UP - Applications



Drones



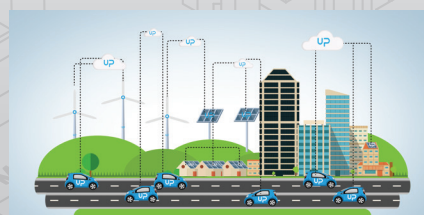
Education



Robotics



Media Center
























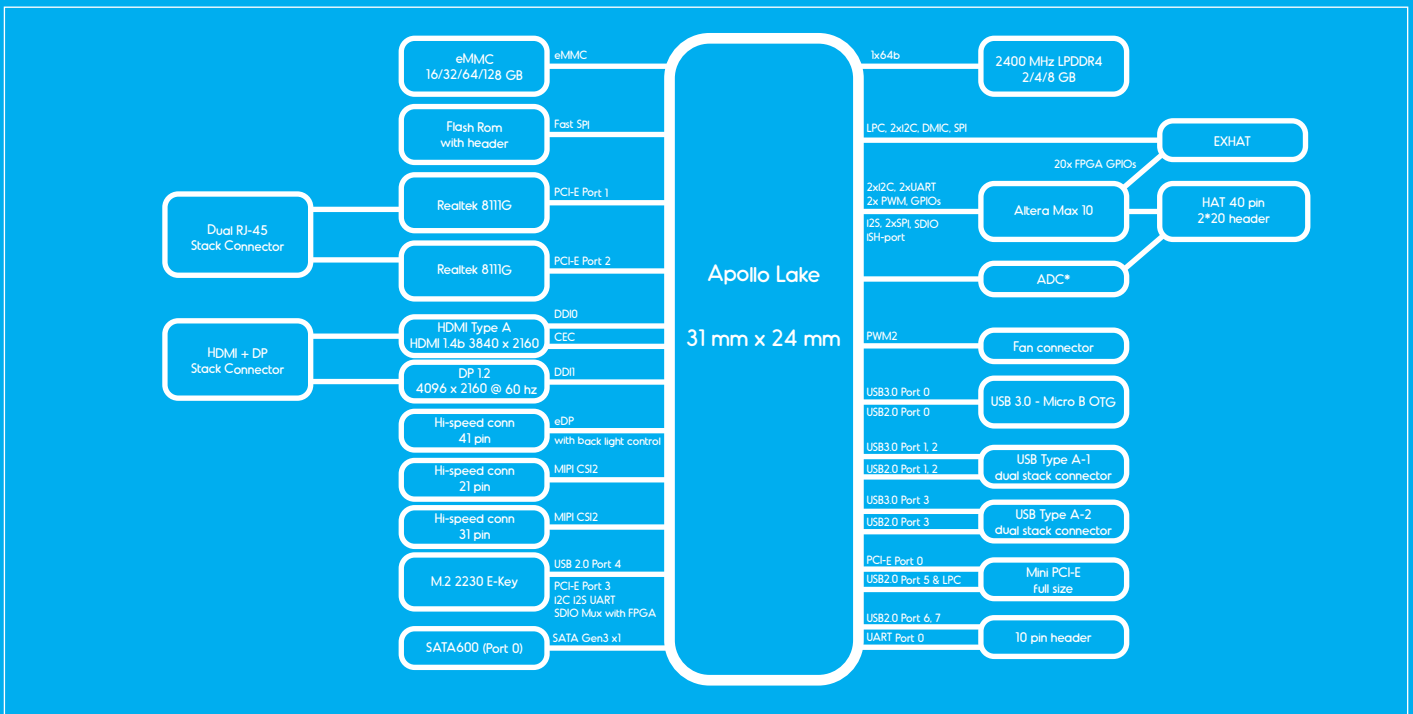
Internet of Things



Home Automation

# UP<sup>2</sup> - Specifications

        	<p><b>SOC</b> Intel® Celeron™ N3350 (up to 2.4 GHz) Intel® Pentium™ N4200 (up to 2.5 GHz) Intel® Atom™ E3940 (up to 1.8GHz)</p> <p><b>Graphics</b> Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8</p> <p><b>Video &amp; Audio</b> HDMI 1.4b x1 4K @ 30 hz + DP 1.2 4K @ 60 hz I2S audio port</p> <p><b>Camera interface</b> MIPI-CSI2 2-lane (2MP) + MIPI-CSI2 4-lane ( 8MP)</p> <p><b>Display interface</b> eDP</p> <p><b>Power</b> 5V DC-in @ 4A-6A</p> <p><b>Operating humidity</b> 0% ~ 90% relative humidity, non-condensing</p> <p><b>Operating Temperature</b> 32-140°F / 0-60°C</p> <p><b>Altera MAX 10 FPGA</b> 2KLE --Celeron/ Pentium 4KLE -- ATOM</p>	           	<p><b>Memory</b> 2GB ( single channel) LPDDR4 4GB/8GB ( dual channel) LPDDR4</p> <p><b>Storage Capacity</b> 32 GB / 64 GB / 128 GB eMMC</p> <p><b>USB</b> 3x UB3.0 (Type A) + 1x USB 3.0 OTG (Micro B) 2x USB2.0+2 X UART (Tx/Rx) debug port ( pin header)</p> <p><b>Ethernet</b> 2x Gb Ethernet (full speed, Realtek 8111G) RJ-45</p> <p><b>RTC</b> Yes</p> <p><b>Expansion</b> 40 pin General Purpose bus + 4-channel 12-bit A/D converter (500 ksps to 1 Msps) 60 pin EXHAT 1xmini-PCIe (full-size, auto switch to m-SATA) M.2 2230, SATA3</p> <p><b>Compatible Operating system</b> Microsoft Windows 10 (full), Windows IOT Core, Linux (ublinux, Ubuntu, Yocto), Android Marshmallow</p> <p><b>Dimensions</b> 3.37" x 3.54" / 85.60 mm x 90 mm</p> <p><b>Certificate</b> CE/FCC Class A, RoHS compliant, REACH</p>
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## UP<sup>2</sup> - 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 :

UPS-APLC2-A10-0232  
UPS-APLC2-A10-0432  
UPS-APLX5-A10-0432

Intel® Celeron™ N3350 - 2 GB + 32 GB eMMC  
Intel® Celeron™ N3350 - 4 GB + 32 GB eMMC  
Intel® ATOM™ x5-E3940 - 4GB DDR4 + 32GB eMMC

UPS-APLP4-A10-0432  
UPS-APLP4-A10-0864  
UPS-APLP4-A10-08128

Intel® Pentium™ N4200 - 4GB DDR4 + 32GB eMMC  
Intel® Pentium™ N4200 - 8GB DDR4 + 64GB eMMC  
Intel® Pentium™ N4200 - 8GB DDR4 + 128GB eMMC