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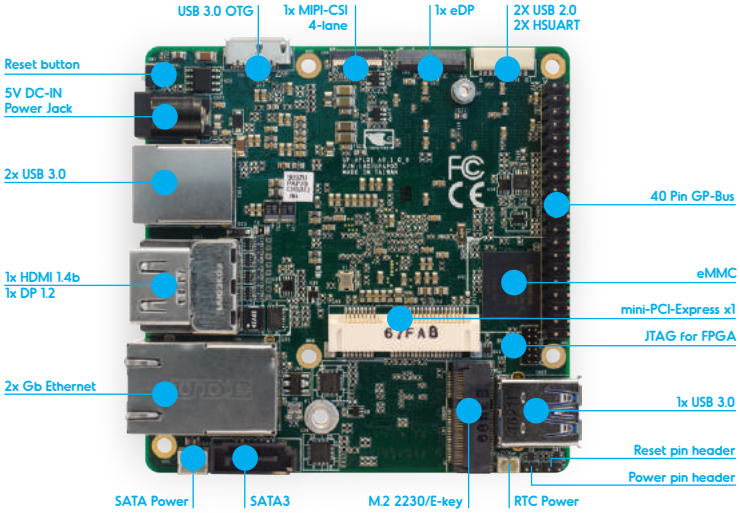
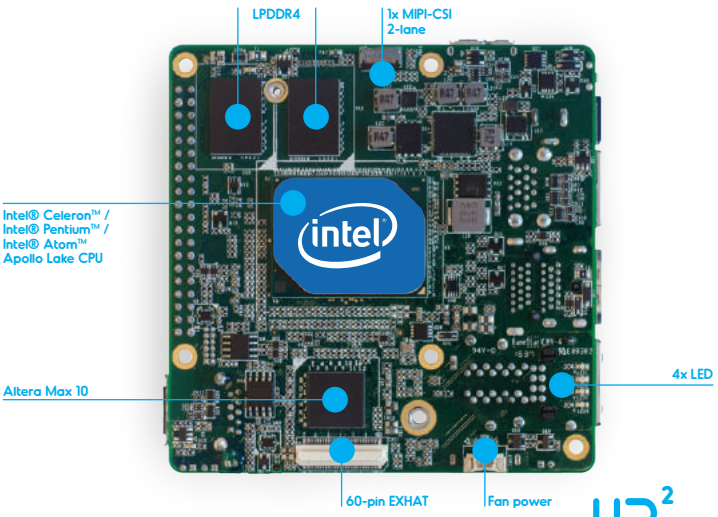
specification

# The World's Fastest x86 Maker Board



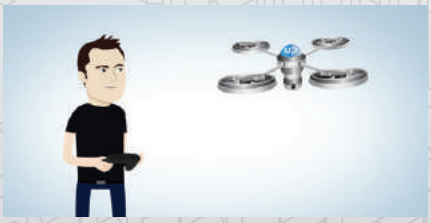

UP² (UP Squared) is world's fastest maker board with the high performance and low power consumption features of Intel® Celeron™, Pentium™ and Atom™ Processors (codename Apollo Lake).

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).

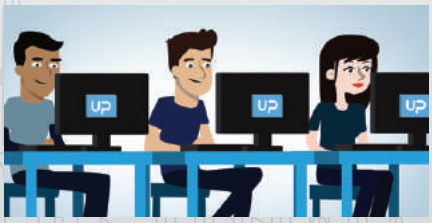
UP² (UP Squared) comes with 2GB/4GB/8GB LPDDR4 and 32GB/64GB/128GB eMMC . A 40-pin GP-bus provides the freedom for makers to build up their module. Additionally, there is a 60-pin EXHAT for embedded applications. This allows for the exploration of more possibilities. The expansion capabilities of UP² (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!

## - Applications -



Drones

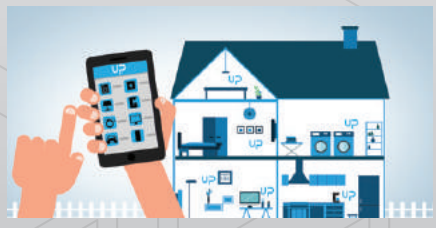


Education

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

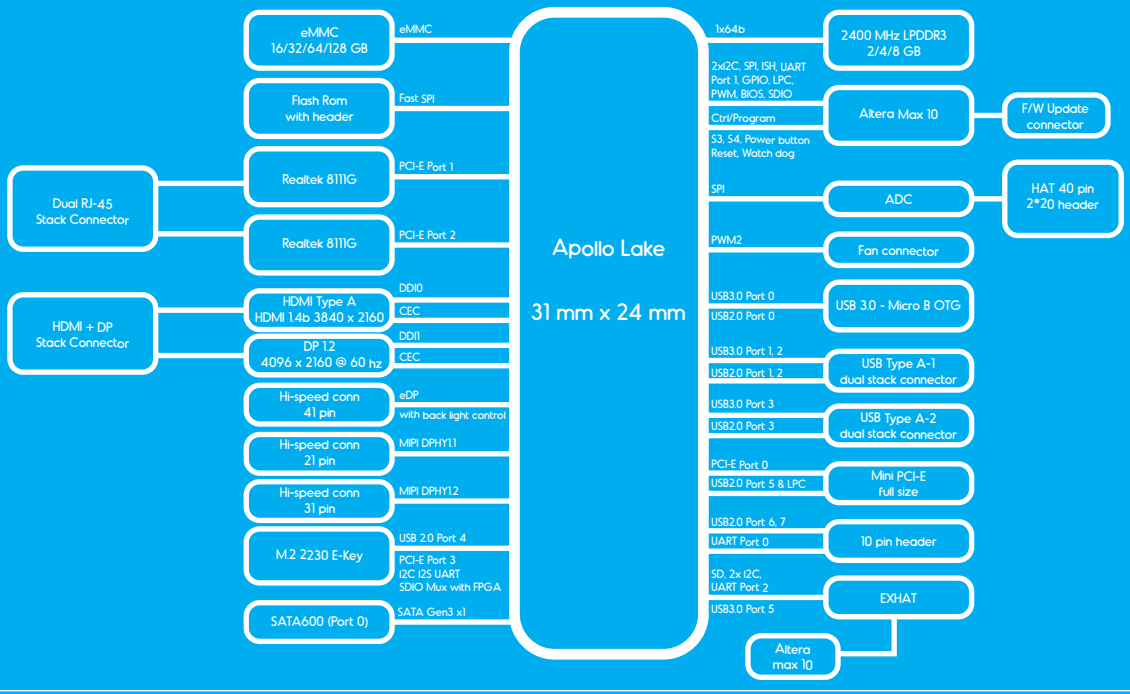
**RTC**
Yes

**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


| | | | | |
|---|---|---|---|---|
| 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-A20-0232 | Intel® Celeron™ N3350 - 2 GB + 32 GB eMMC |
| UPS-APLC2-A20-0432 | Intel® Celeron™ N3350 - 4 GB + 32 GB eMMC |
| UPS-APLP4-A20-0432 | Intel® Pentium™ N4200 - 4 GB + 32 GB eMMC |
| UPS-APLP4-A20-0864 | Intel® Pentium™ N4200 - 8 GB + 64 GB eMMC |

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