UP is a credit card size board with the high performance and low power consumption features of the latest tablet technology: the Intel® Atom™ x5-Z8350 Processors (codename Cherry Trail) 64 bits up to 1.92GHz. The internal GPU is the new Intel Gen 8 HD 400 with 12 Execution Units up to 500MHz to deliver extremely high 3D graphic performance. UP is equipped with 1GB/2GB/4GB DDR3L RAM and 16GB/32GB/64GB eMMC.

UP has 40-pin General Purpose bus which provides the freedom to makers to build up their shield. There are more interfaces available, such as 4x port USB2.0 on connectors, 2x port USB2.0 + 1x UART on header, 1x USB 3.0 OTG, 1x Gbit Ethernet (full speed), 1x DSI/eDP port, 1x Camera (MIPI-CSI), 1x HDMI, RTC.

When it comes to security, UP has Intel security features needed for professional IoT applications such Intel AES New Instructions and Intel Identity Protection Technology.

It’s UP to you to choose which operation system is best for your application. The CPU is supported by Android 5.0 Lollipop, Microsoft Windows 10 and we support and enable Linux, through our UP Community.

UP has a standard Industrial PC operating temperature range of 32-104°F/0-60°C which makes it flexible for many applications.

UP is perfect for professional makers.

- Applications -

Drones

Education

Robotics

Media Center

Internet of Things

Home Automation
SoC
Intel® Atom™ x5-Z8350 Processor (2M Cache, 1.44 GHz up to 1.92 GHz) CPU with 64 bit architecture; Quad Core

Graphics
Intel® HD 400 Graphics, 12 EU GEN 8, up to 500MHz Support D3 ample 11.1/11.2, Open GL 4.5-4.2, Open CL 1.2 OGL E53.0, H.264, HEVC (decoding, VP8

Video & Audio
HDMI 1.4b
I2S audio port

Camera interface
CSI (4 Mega pixel)

USB 2.0
4x USB 2.0
2x USB 2.0 pin header (10 pins in total)

RTC
Yes

Power
5V DC-in @ 3A 5.5/2.1mm jack

Dimensions
3.37" x 2.22" / 85.60 mm × 56.5 mm

Operating humidity
10% ~ 80%RH non-condensing

Memory
1GB / 2GB / 4GB DDR3L-1600

Storage Capacity
16GB eMMC / 32GB / 64GB eMMC

Display interface
DSI / eDP

Ethernet
1x Gb Ethernet (full speed) RJ-45

USB 3.0
1x USB3.0 OTG

Expansion
40 pin General Purpose bus, supported by Altera Max V, ADC 8-bit@188Kos

Compatible Operating system
Microsoft Windows 10 full version, Windows IoT Core Linux (ubilinux, Ubuntu, Yocto) • Android Lollipop • Brillo

Operating Temperature
32-140°F / 0~60°C

Certificate
CE/FCC Class A, RoHS complaint
Microsoft Azure certified

The “Android” name and the Android logo are property of Google Inc. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Intel, the Intel logo, Intel Insider, Intel SpeedStep, and Atom are trademarks of Intel Corporation in the U.S. and/or other countries. All rights reserved. Copyright ©AAEON 2017. All Rights Reserved.

Part number :
UP-CHT01-01-16-001
UP-CHT01-01-32-001
UP-CHT01-02-16-001
UP-CHT01-02-32-001
UP-CHT01-04-16-001
UP-CHT01-04-32-001

1GB RAM+16GB eMMC
2GB RAM+16GB eMMC
2GB RAM+32GB eMMC
4GB RAM+32GB eMMC
4GB RAM+64GB eMMC

www.aaeon.com

- Included accessories
- Optional accessories
- Heatink/RRTC battery
- Power adapter
- USB3.0 OTG cable
- HDMI cable
UP² (UP Squared) is the 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, 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 modules. 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) go 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**

![UP² (UP Squared) diagram](https://www.aaeon.com/images/products/up2/UP_2.png)
UP Core is a miniature board with the high performance and low power consumption features of the latest tablet technology: the Intel® Atom™ x5 Z8350 Processors (codename Cherry Trail) 64 bits up to 1.92GHz. The internal GPU is the new Intel Gen 8 HD 400 with 12 Execution Units up to 500MHz to deliver extremely high 3D graphic performance.

UP Core is equipped with 1GB/2GB/4GB DDR3L RAM and 16GB/32GB/64GB eMMC. With 100-pin docking connector, UP Core provides the freedom to makers to build up their carrier board. There are more interfaces available, such as 2x port USB2.0 + 1x UART on header, 1x USB 3.0 host, WiFi, Bluetooth 1x DSI/eDP port, 2x Camera (MIPI-CSI), 1x HDMI, RTC.

When it comes to security, UP Core has Intel security features needed for professional IoT applications such Intel AES New Instructions and Intel Identity Protection Technology. It’s UP to you to choose which operating system is best for your application. The CPU is supported by Android 6 Marshmallow, Microsoft Windows 10 and we support and enable Linux, through our UP Community.

UP Core has a standard industrial PC operating temperature range of 32-140°F / 0-60°C, which makes it flexible for many applications.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC</td>
<td>Intel® Atom™ x5-Z8350 (2M Cache, up to 1.84 GHz)</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD 400 Graphics</td>
</tr>
<tr>
<td>Memory</td>
<td>2GB / 4GB onboard DDR3L-1600</td>
</tr>
<tr>
<td>Storage Capacity</td>
<td>16GB / 32GB / 64GB eMMC</td>
</tr>
<tr>
<td>Video &amp; Audio</td>
<td>1x HDMI</td>
</tr>
<tr>
<td>Camera interface</td>
<td>1x MIPI-CSI 2 lane</td>
</tr>
<tr>
<td>Power</td>
<td>5V DC-in @ 4A</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>10%~80%RH non-condensing</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>32-140°F / 0-60°C</td>
</tr>
</tbody>
</table>

When it comes to security, UP Core has Intel security features needed for professional IoT applications such as Intel AES New Instructions and Intel Identity Protection Technology. It’s UP to you to choose which operating system is best for your application. The CPU is supported by Android 6.0 Marshmallow, Microsoft Windows 10 and we support and enable Linux, through our UP Community.

UP Core has a standard industrial PC operating temperature range of 32-140°F / 0-60°C, which makes it flexible for many applications.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB</td>
<td>1x USB 3.0 Host</td>
</tr>
<tr>
<td>WiFi / BT</td>
<td>WiFi 802.11 b/g/n @ 2.4 GHz</td>
</tr>
<tr>
<td>Expansion</td>
<td>Docking Connector 100 pin</td>
</tr>
<tr>
<td>Compatiable Operating system</td>
<td>Microsoft Windows 10 (full), Windows IoT Core, Linux (Ubuntu, Yocto), Android Marshmallow</td>
</tr>
<tr>
<td>Dimensions</td>
<td>56.50 mm × 66 mm</td>
</tr>
<tr>
<td>Certificate</td>
<td>CE/FCC Class A, RoHS complaint, REACH</td>
</tr>
</tbody>
</table>