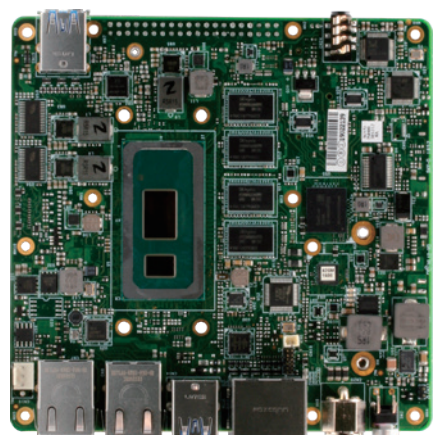
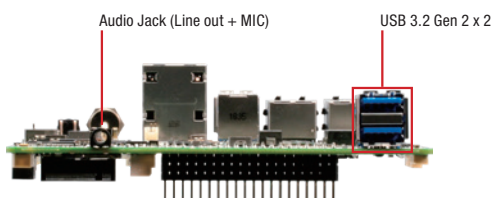


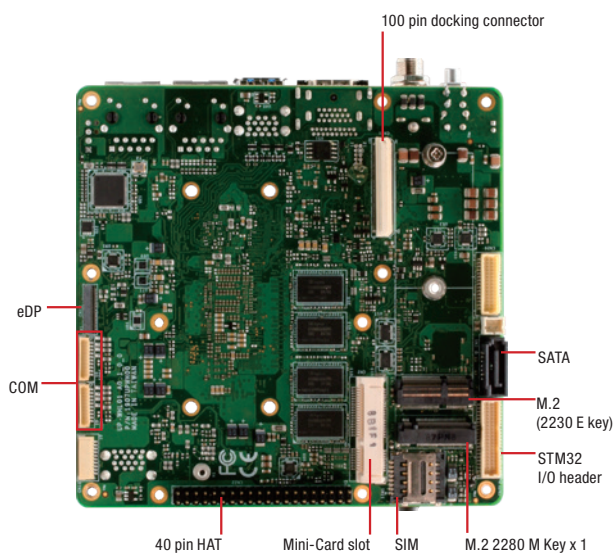


LAN (i210) LAN (i219) USB 3.2 Gen 2 x 2 HDMI & DP Locable 12-60V Power Button



Audio Jack (Line out + MIC)

USB 3.2 Gen 2 x 2



100 pin docking connector

eDP

COM

SATA

M.2 (2230 E key)

STM32 I/O header

40 pin HAT

Mini-Card slot

SIM

M.2 2280 M Key x 1

## Features

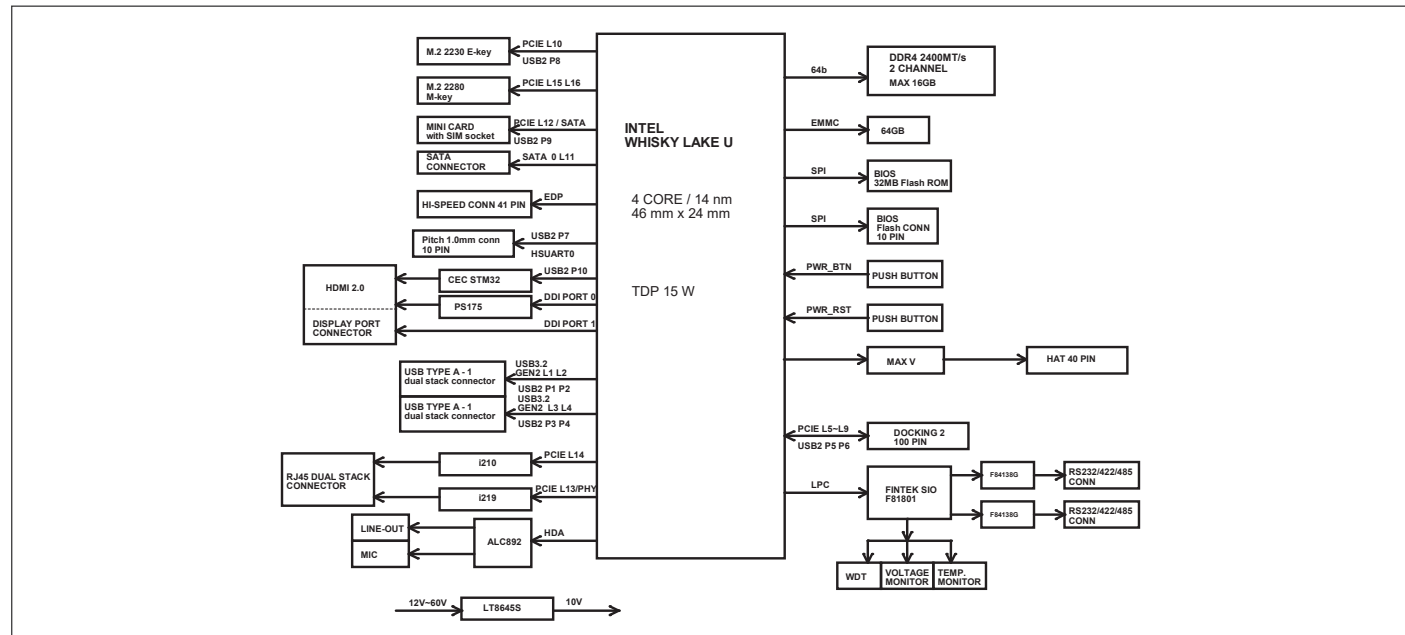
- Intel® WHL-U Core i7/i5/i3/Celeron® Processor SoC
- Onboard DDR4 memory, Max 16GB
- eMMC 64GB
- 40Pin HAT Connector
- 100pin docking connector
- SATA 6.0Gb/s x 3
- Mini-card slot x 1
- M.2 2280 M Key x 1
- M.2 2230 E key x 1
- Audio Jack x 1 (line out + Mic)
- Lockable DC connector



## Specifications

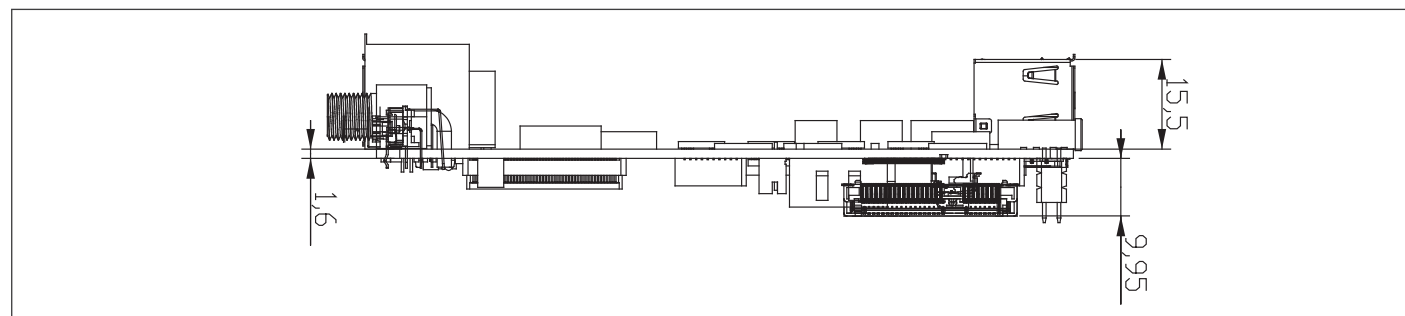
| System                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor             | 8th generation Intel® Core i7/i5/i3/Celeron® Processor SoC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Graphics              | Intel® Graphics , GEN 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| I/O                   | RJ45 Ethernet Connector x 2<br>HDMI/DP STACK Connector x 1<br>Power Button / LED x 1<br>Audio Jack (Line out + MIC) x 1<br>DC connector (Lockable) x 1<br>STM32 connector x 1<br>eDP with Backlight control Header x 1<br>10 pin 1xUSB2.0 x 1 / HSUART (TTL) x 1<br>SATA Connector with power connector (5V, GND) x 1<br>4 pin Fan connector x1<br>Power Button header x 1<br>Reset Pin header x 1<br>M.2 2230 E Key x 1<br>M.2 2280 M Key x 1<br>40 pin HAT connector x 1<br>mPCIe slot x 1<br>10 pin RS232/422/485 pin header x 2<br>100pin connector x 1 |
| Camera                | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| USB                   | USB 3.2 Gen 2 STACK Connector for 2 ports (Front) x 1<br>USB 3.2 Gen 2 STACK Connector for 2 ports (Rear) x 1                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Expansion             | M.2 2230 E Key x 1<br>M.2 2280 M key x 1<br>mPCIe slot x 1<br>100pin connector x 1<br>40pin HAT                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| RTC                   | RTC battery, CR2032 x 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Power                 | 12V - 60VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Dimension             | 122 x 120 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Memory                | Onboard DDR4 memory, Max 16GB<br>Single Channel: 4GB<br>Dual Channel: 8GB, 16GB                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Storage               | SATA3 (6Gb/s) x 3:<br>a. SATA connector x 1<br>b. M.2 2280 SATA option (auto detect) x 1<br>c. minicard mSATA option (auto detect) x 1                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Display Interface     | HDMI2.0 x 1<br>DP1.2 x 1<br>eDP x 1<br>CEC support with STM32 on HDMI x 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ethernet              | i7/i5 SKU LAN (i210 AT) x 1, LAN (i219 LM) x 1<br>i3/Celeron® LAN (i210 AT) x 1, LAN (i219 V) x 1                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| OS Support            | Win 10<br>Linux Ubuntu 18.04 with Kernel 5.0<br>Linux Yocto 2.7 with Kernel 4.19                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Operating Temperature | 32°F ~ 140°F (0°C ~ 60°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Operation Humidity    | 0% ~ 90% relative humidity, non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Certification         | CE/FCC class A, RoHS Compliant, REACH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Block Diagram



## Dimension

Unit: mm



## Ordering Information

| Part number          | CPU            | RAM  | Storage | LAN     | USB                              | RS-232/422/485 | Expansion Slot                                            | Power  | Operation Temp.          |
|----------------------|----------------|------|---------|---------|----------------------------------|----------------|-----------------------------------------------------------|--------|--------------------------|
| UPX-WHLI7-A20-16064  | Core I7-8665UE | 16GB | 64GB    | GbE x 2 | USB 3.2 Gen 2 x 4<br>USB 2.0 x 1 | 2              | Mini card x 1, M.2 2280 B + M key x 1, M.2 2230 E key x 1 | 12-60V | 32°F ~140°F (0°C ~ 60°C) |
| UPX-WHLI5-A20-08064  | Core I5-8365UE | 8GB  | 64GB    | GbE x 2 | USB 3.2 Gen 2 x 4<br>USB 2.0 x 1 | 2              | Mini card x 1, M.2 2280 B + M key x 1, M.2 2230 E key x 1 | 12-60V | 32°F ~140°F (0°C ~ 60°C) |
| UPX-WHLI3-A20-08064  | Core I3-8145UE | 8GB  | 64GB    | GbE x 2 | USB 3.2 Gen 2 x 4<br>USB 2.0 x 1 | 2              | Mini card x 1, M.2 2280 B + M key x 1, M.2 2230 E key x 1 | 12-60V | 32°F ~140°F (0°C ~ 60°C) |
| UPX-WHLCR-A20-04064  | Celeron 4305UE | 4GB  | 64GB    | GbE x 2 | USB 3.2 Gen 2 x 4<br>USB 2.0 x 1 | 2              | Mini card x 1, M.2 2280 B + M key x 1, M.2 2230 E key x 1 | 12-60V | 32°F ~140°F (0°C ~ 60°C) |
| UPX-WHLI7C-A20-16064 | Core I7-8565U  | 16GB | 64GB    | GbE x 2 | USB 3.2 Gen 2 x 4<br>USB 2.0 x 1 | 2              | Mini card x 1, M.2 2280 B + M key x 1, M.2 2230 E key x 1 | 12-60V | 32°F ~140°F (0°C ~ 60°C) |

## Packing List

- UPX-WHL01 with Heatsink + cooler

## Optional Accessories

| Part Number          | Description                                                                                             |
|----------------------|---------------------------------------------------------------------------------------------------------|
| 125530065A           | 19Vdc/3.42A.65W power adapter                                                                           |
| 1702031830           | Power cord for USA                                                                                      |
| 9741364A00           | Wireless LAN Kit M.2 2230 802.11ac/a/b/g/n + BT4.0,2T2R,with 2 sets of cable & antenna (Enli,QCNFA364A) |
| 9741159H00           | (TF)Wireless LAN kit.IEEE 802.11.b/g/n.w/BT 4.0/3.0.(AzureWave.AW-NB159H).w/cable.&antenna (mini card)  |
| PER-TAIX2-A10-2280   | AI Core XM 2280.M.2 2280 B+M key card.with Dual Myriad X.15 mm heat sink with FAN                       |
| UPCP-CR-VPX3-A10-001 | Vision Plus X.w/ 3x Myriad X 2485.fan heatsink.REV.A1.0                                                 |
| UPCP-CR-NPL4-A10-002 | Net Plus.i210-IT.for UP core Plus.A1.0                                                                  |