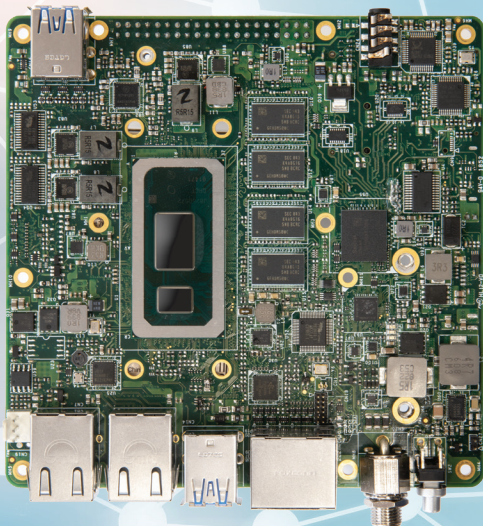# UP Xtreme

The ultimate ultra-low voltage embedded board powered by Intel® 8th generation Core™ CPU. A powerful, industrial, expandable, AI proof, production-ready computing platform.

intel

UP Xtreme-- the first Intel® Core™ platform from the UP family. With a measure of just 120mm x 122mm, UP Xtreme delivers a comprehensive set of features and I/O which allows you to reach astonishing performance rates of up to 4.4GHz and turbo clock frequency in just 15W.

With UP Xtreme we have consolidated the best I/O features from previous UP boards. The 40-pin GP-bus from UP board, mPCIe M.2 expansion from UP Squared and 100 pin expansion from UP Core Plus have all been utilized.

Powered by Intel® 8th Core™ processors (code name: Whiskey Lake), UP Xtreme is aimed at industrial, IoT, automation, robotics industries and much more.
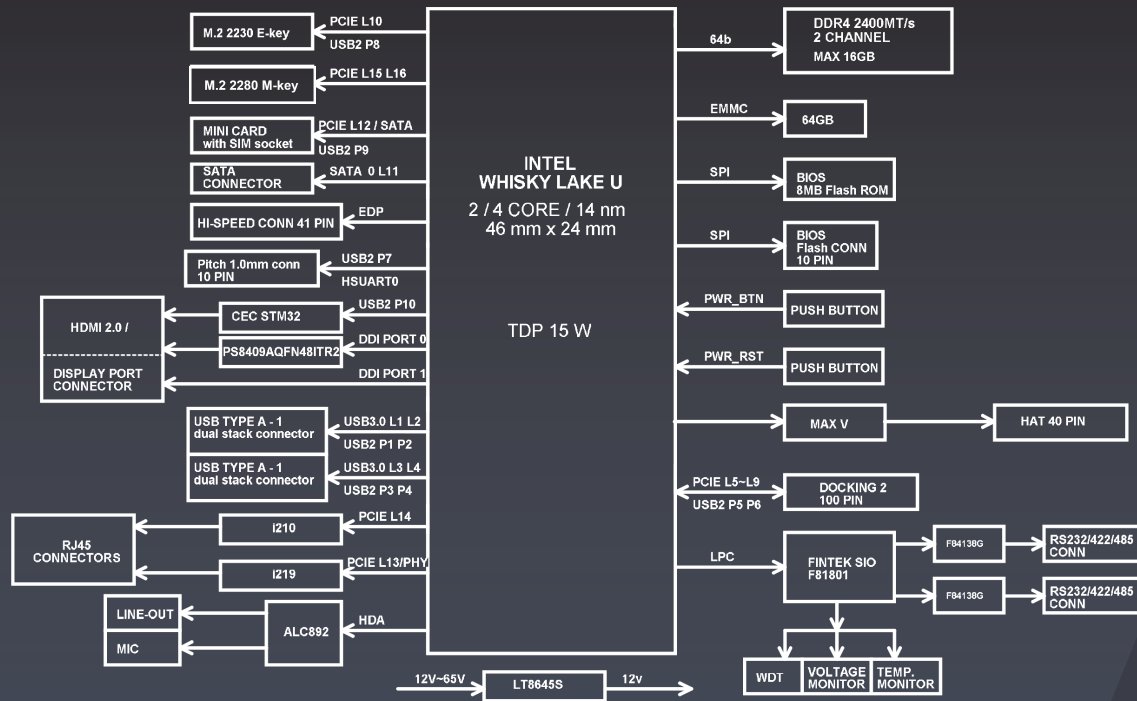
The addition of a 12-60V-power input, a lockable power connector and TSN networking chip has enabled UP Xtreme to be expandable as well as industrial. UPscaling any application that needs more CPU power, memory capacity and rich I/O's is all possible thanks to the extreme performance of UP Xtreme. Dubbed as the Ferrari of the UP family, the power of UP Xtreme goes up to 4.4 Ghz, ensuring that you'll never have to complain of having low CPU power. You'll also never feel that it's not smart enough as it is capable of expanding up to 6x Intel® Movidius™ Myriad X VPU. It boasts optional connectivity via WiFi, Bluetooth, LTE and LoRA. The possibilities are stretched to the extreme.
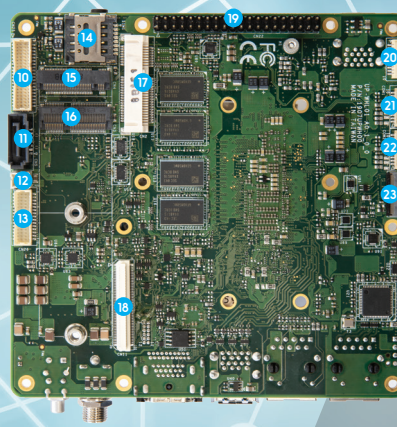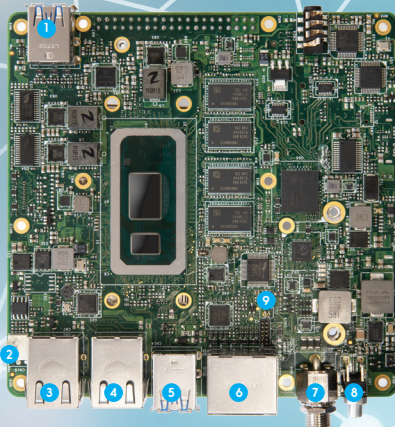
SPECIFICATIONS

CPU	Intel® 8th gen Dual/Quad Core Ultra Low Power 15W i3-8145UE (up to 3.9 Ghz), i5-8365UE (up to 4.1 Ghz) i7-8665UE (up to 4.4 Gh z), Celeron 4305UE
Memory	Onboard Dual Channel DDR4 memory, Max 16GB
Graphics	Intel® UHD Graphics 620 1x eDP with Backlight control Header 1 x HDMI/DP STACK Connector
Storage	1x SATA Connector with power connector
Expansion Slot	1. Minicard (1x PCIex1 (option mSATA), 1x USB2.0) with SIM 1x M.2 2230 E Key, 1x M.2 2280 M Key
Ethernet Controller (Core™ i7 / Core™ i5)	1x LAN (Intel® i210-AT), 1x LAN(Intel® i219-LM)
Ethernet Controller (Core™ i3 / Celeron)	1x LAN (Intel® i210-AT), 1x LAN(Intel® i219-V)
Audio	ALC887 for Audio Out/Mic In, I2S
USB	4x USB3.0, 2x USB2.0

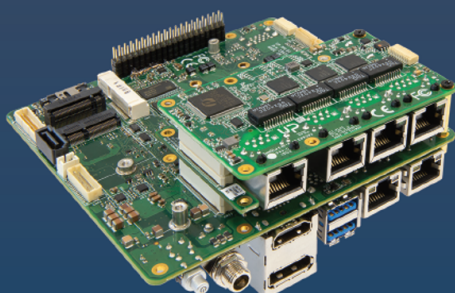|	
COM Ports	Fintech F81801, 2x RS232/422/485
Expansion HAT (40pin)	By MAX5: 28xGPIO, 2xSPI, 2x I2C, 1x ADC, 1x I2S, 1x UART, 3V3, 5V, GND
Docking Connector (100pin)	1. 12V, GND 2. 3xPCIe x1 3. 2x PCIe x1 or USB3.0 2xUSB2.0
Power	12~60V DC-IN (lockable connector) 1x Power Button / LED
Form Factor	120 mm x 122 mm
Operating Temperature	0 - 60°C
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Certification	CE, FCC
OS Support	Win 10, Linux (Ubuntu, Yocto)

block diagram

Block diagram labels:

- M.2 2230 E-key — PCIE L10 / USB2 P8
- M.2 2280 M-key — PCIE L15 L16
- MINI CARD with SIM socket — PCIE L12 / SATA / USB2 P9
- SATA CONNECTOR — SATA 0 L11
- HI-SPEED CONN 41 PIN — EDP
- Pitch 1.0mm conn 10 PIN — USB2 P7 / HSUART0
- CEC STM32 — USB2 P10
- PS8409AQFN48ITR2 — DDI PORT 0
- HDMI 2.0 / DISPLAY PORT CONNECTOR — DDI PORT 1
- USB TYPE A - 1 dual stack connector — USB3.0 L1 L2 / USB2 P1 P2
- USB TYPE A - 1 dual stack connector — USB3.0 L3 L4 / USB2 P3 P4
- i210 — PCIE L14
- i219 — PCIE L13/PHY
- RJ45 CONNECTORS
- LINE-OUT / MIC — ALC892 — HDA

Center: INTEL WHISKY LAKE U — 2 / 4 CORE / 14 nm — 46 mm x 24 mm — TDP 15 W

Right side:
- DDR4 2400MT/s 2 CHANNEL MAX 16GB — 64b
- 64GB — EMMC
- BIOS 8MB Flash ROM — SPI
- BIOS Flash CONN 10 PIN — SPI
- PUSH BUTTON — PWR_BTN
- PUSH BUTTON — PWR_RST
- MAX V — HAT 40 PIN
- DOCKING 2 100 PIN — PCIE L5~L9 / USB2 P5 P6
- FINTEK SIO F81801 — LPC — F84138G — RS232/422/485 CONN
- F84138G — RS232/422/485 CONN
- WDT / VOLTAGE MONITOR / TEMP. MONITOR
- 12V~65V — LT8645S — 12v

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1) 2x USB 3.0
2) CPU FAN
3) Gbps Ethernet port RJ-45 (i210)
4) Gbps Ethernet port RJ-45 (i219)
5) 2x USB 3.0
6) HDMI + Display Port
7) Lockable 12~65V DC-IN
8) Power button
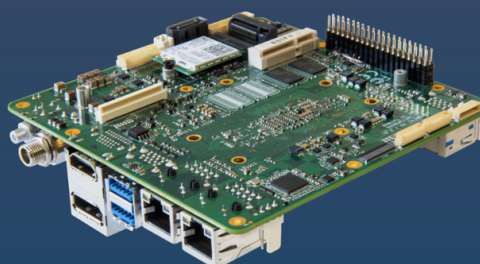9) RTC Battery
10) STM32 I/O Header
11) SATA
12) SATA Power

13) STM32 I/O Header
14) SIM Card slot
15) M.2 2280 M Key
    (compatible with M.2 2280 B+M Key Module)
16) M.2 2230 E Key
17) Minicard 1x PCIe x1
18) 100-pin docking connector
19) 40-pin HAT Connector
20) USB 2.0 header + HSUART
21) 10-pin RS232/422/485 header
22) 10-pin RS232/422/485 header
23) eDP Header

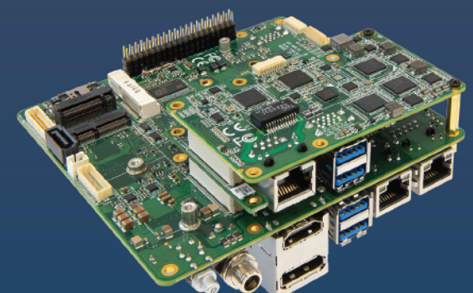# Artifical Intelligence on the edge

Expand your UP Xtreme board for fit your exact needs

NetPlus

Intel® 9260 WiFi Kit

Vision Plus X