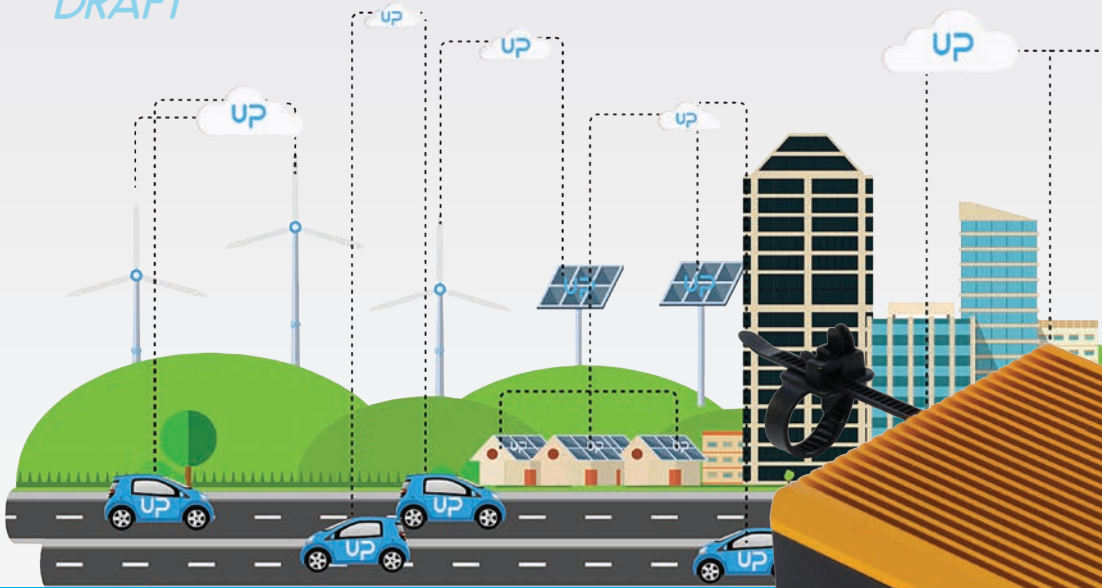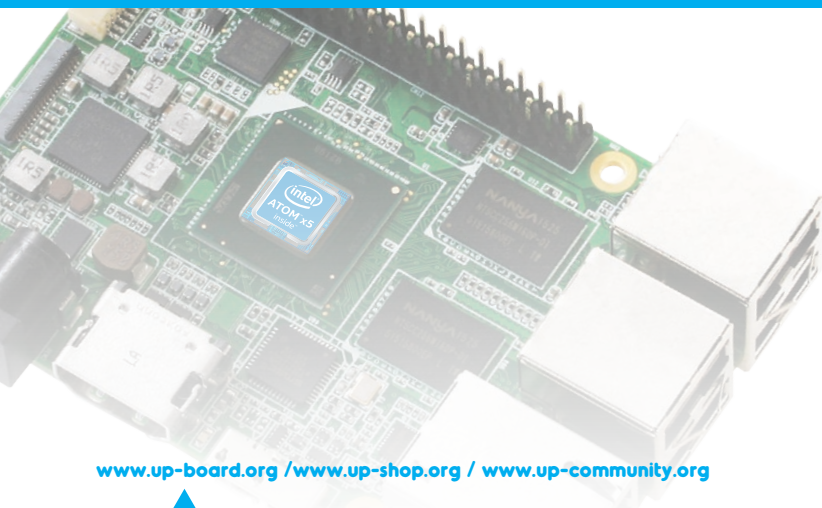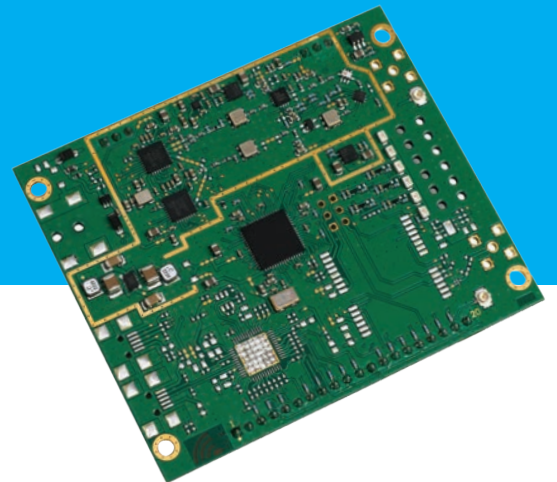# UP Lora™ Gateway

The UP Connect LoRa™ is a LoRa™ gateway powered by UP board and the IMST LoRa™ concentrator iC880A.

UP board is the ultra-compact industrial computer board powered by an Intel® Atom™ x5-Z8350 Quad-Core 1.44/1.92Ghz 64 bit CPU with 4GB RAM, 64 GB eMMC, on board, 4 USB 2.0, 1 USB 3.0 OTG, 1GBit Ethernet, HDMI, Wifi and several internal I/O. The board supports Ubilinux, Ubuntu, Yocto, Windows 10 IOT Enterprise and Android 6.0

The IMST concentrator iC880A is able to receive packets from different end devices send with different spreading factors on up to 8 channels in parallel. Due to the fact that the combination of spreading factors and signal bandwidths results in different data rates, the use of "Dynamic Data-Rate Adaption" becomes possible. This permits to distand LoRa™ end nodes to use higher spreading factors with lower data rate and LoRa™ nodes closer to the concentrator to use lower spreading factors and higher data rate. This allows to build easy to handle star or multiple star networks without the need of routers or repeaters.
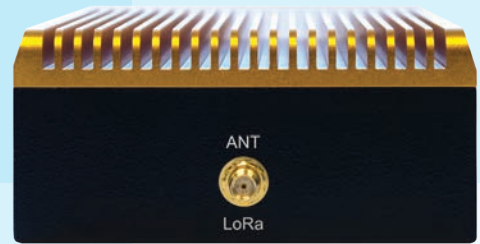
In combination with the HAL software from:
https://github.com/Lora-net, a complete LoRaWAN™ gateway can be setup easily.

DRAFT

UP LoRa™ Gateway
UP-LGWS-A10

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UP board general features

- Intel Atom QuadCore x5-Z8350 1.44GHz (up to 1.92GHz)
- 4GB DDR3 RAM onboard
- 64GB flash eMMC 5.0 onboard
- 4 USB 2.0 Port
- 1 USB 3.0 OTG
- 1 GBit Ethernet
- WiFi 802.11 a/b/g (optional)
- Power Input : 5V/3A
- Protection Grade : IP40
- Operating Temperature : 0-50 Degrees
- Chassis dimensions: 130 x 94 x 44 mm (w/o antenna)
- Weight : 520gr
- Supported OS: Linux, Microsoft Windows 10, Android 6.0

LoRa specific features

- Frequency band 868MHz
- Orthogonal spreading factors
- Sensitivity -138 dBm
- SX1301 base band processor
- Emulates 49 x LoRa demodulators
- 10 parallel demodulation paths

The gateway is fully compatible with The Things Network LoRa server (www.thethingsnetwork.org)

About LoRa

LoRaWAN™ is a Low Power Wide Area Network (LPWAN) specification intended for wireless, battery operated Things in a regional, national or global network. LoRaWAN target key requirements of Internet of Things such as secure bi-directional communication, mobility and localization services. This standard will provide seamless interoperability among smart Things without the need of complex local installations and gives back the freedom to the user, developer and businesses, enabling the roll out of Internet of Things. For more information about LoRa please visit : https://www.lora-alliance.org

Part number :
UP-LGWS-A10   UP LoRa™ Gateway Intel® Atom™ x5-Z8350 QuadCore, 4GB RAM, 64 GB eMMC, GbLAN, SX1301 baseband processor