AT&T IoT Starter Kit
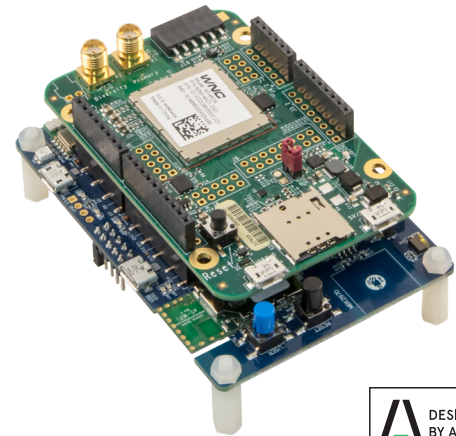# (LTE-M, STM32L4)

AVNET®
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The LTE-M, STM32L4 version AT&T IoT Starter Kit enables designers to easily develop and prototype cellular connected IoT devices utilizing AT&T's 4G LTE-M network. The kit includes all the elements required to collect sensor data, connect to the AT&T network, and utilize various cloud services for the management, storage, and analytics of a connected IoT device.

The Starter Kit features a versatile two board IoT solution comprised of a microcontroller based carrier board (STM32L475 IoT Discovery board) and a cellular connectivity daughter card (Avnet M14A2A LTE-M Cellular Shield). The STM32L475 IoT Discovery board functions as the host processor and provides an Arduino™ compatible R3 expansion interface for the LTE-M cellular modem, which plugs into the Arduino R3 connectors, forming a compact two board "sandwich".

The microcontroller IoT board contains an STM32L475VG microcontroller based on an ARM® Cortex®-M4 MCU (running at 80 MHz, with 1MB Flash memory, 128 KB RAM), plus 64-Mbit QSPI Flash memory, multiple radio modules (Bluetooth v4.1, Sub-GHz LPRF, Wi-Fi 802.11 b/g/n), dynamic NFC tag and security features, multiple sensors (temperature, humidity, magnetometer, 3D accelerometer, 3D gyroscope, barometric pressure, time-of-flight / gesture detection) and two digital microphones.

The 4G LTE-M cellular shield is built around an M14A2A modem module from WNC (Wistron NeWeb Corp) configured for LTE-M operation. Other features include: onboard temperature and humidity sensor, multiple serial interfaces to the host controller, plus an SMA-connected external antenna and USB-connected AC/DC 5V power supply. A 3FF uSIM connector accommodates the provided AT&T Starter SIM for connection to the internet

Application development is supported by AT&T's M2X Data Services and Flow Designer, which provide a scalable, reliable and highly secure environment for IoT-focused solutions. Additional cloud services from industry partners are also available. Software enablement is provided via promotional licensing options for ARM KEIL MDK, facilitating a professional grade development environment, with extensive libraries and advanced debugging capabilities, supported via the onboard ST-LINK debugger/programmer or external debug probe options.

DESIGNED BY AVNET

KIT INCLUDES

- STM32L4 Discovery Kit IoT Node
- Avnet M14A2A Cellular Shield
- AT&T IoT SIM Starter Pack
- One Pulse LTE Stealth Blade Antenna
- Two micro-USB Cables
- 5V AC/DC USB Power Supply
- Quick Start Card
- Downloadable Tutorials and Documentation

TARGET APPLICATIONS

- Mobile IoT
- Building Automation
- Factory Automation
- Smart Agriculture
- Cellular/Mesh Network Bridging

FEATURES

STM32L4 Discovery Kit IoT Node

- An STM32L475VG microcontroller (80 MHz, 1MB Flash, 128kB SRAM)
- 64-Mbit Quad-SPI Flash memory
- Bluetooth® V4.1 module (SPBTLE-RF)
- Sub-GHz low-power-programmable RF module (SPSGRF-915)
- Wi-Fi® 802.11 b/g/n module (Inventek ISM43362-M3G-L44)
- Dynamic NFC tag (M24SR)
- 2 digital omnidirectional microphones (MP34DT01)
- Capacitive digital sensor for relative humidity and temperature (HTS221)
- High-performance 3-axis magnetometer (LIS3MDL)
- 3D accelerometer and 3D gyroscope (LSM6DSL)
- 260-1260 hPa absolute digital output barometer (LPS22HB)
- Time-of-Flight and gesture-detection sensor (VL53L0X)
- 2 push-buttons (user and reset)
- USB OTG FS with Micro-AB connector
- On-board ST-LINK/V2-1 debugger/programmer

To purchase this kit, visit
www.cloudconnectkits.org/product/att-stm32-iot-starter-kit

Features cont...

Avnet M14A2A Cellular Shield

- LTE-M Cat-1 modem (WNC M14A2A)
- 3FF microSIM socket
- USB 2.0
- Arduino shield connectors
- External antenna connection
- Pmod x1
- Temp/Humidity sensor

AT&T IoT SIM Starter Pack

- 150 MB Data, 150 SMS messages, valid for up to 6 months
- Domestic AT&T US and AT&T Mexico (no roaming)

Pulse LTE Stealth Blade Antenna

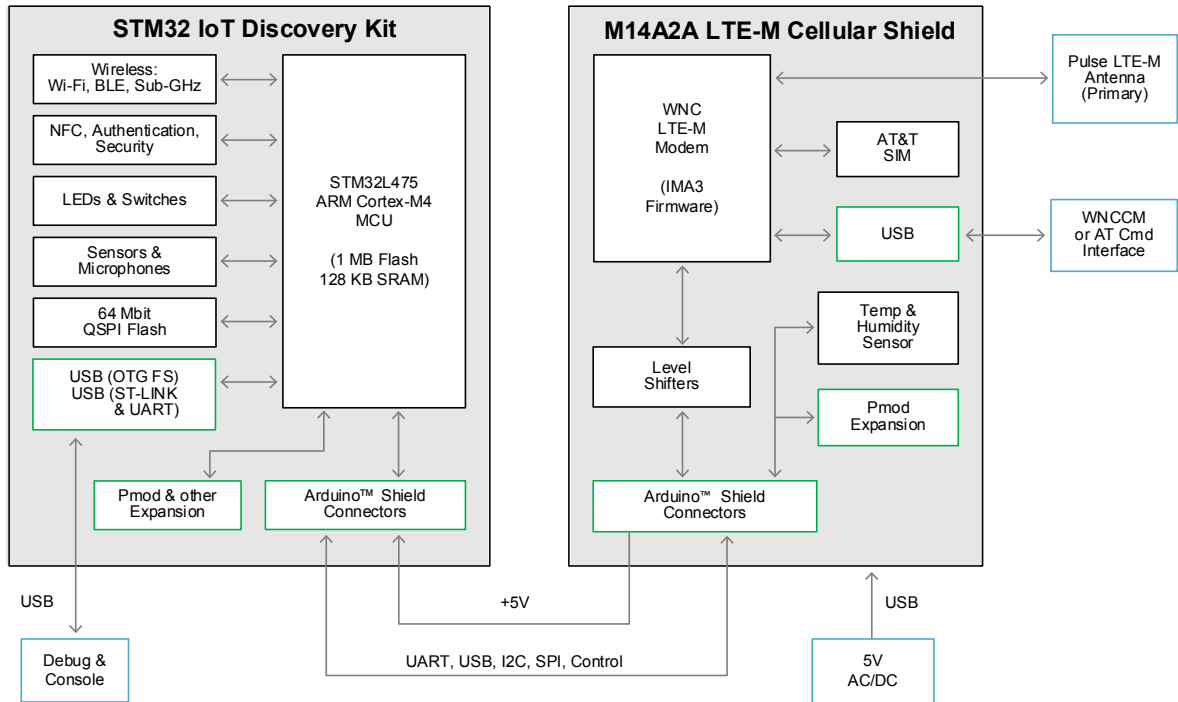- Dipole antenna. Supports LTE-M Bands 2, 4, and 12

ARM KEIL MDK Promotional Licenses

- 90-day eval license (Free)
- 6 month license ($795)
- Licenses may be combined
- Other licensing options on request

BLOCK DIAGRAM

STM32 IoT Discovery Kit

- Wireless: Wi-Fi, BLE, Sub-GHz
- NFC, Authentication, Security
- LEDs & Switches
- Sensors & Microphones
- 64 Mbit QSPI Flash
- USB (OTG FS) USB (ST-LINK & UART)

STM32L475 ARM Cortex-M4 MCU (1 MB Flash 128 KB SRAM)

- Pmod & other Expansion
- Arduino™ Shield Connectors

M14A2A LTE-M Cellular Shield

WNC LTE-M Modem (IMA3 Firmware)

- AT&T SIM
- USB
- Temp & Humidity Sensor
- Pmod Expansion
- Level Shifters
- Arduino™ Shield Connectors

- Pulse LTE-M Antenna (Primary)
- WNCCM or AT Cmd Interface

USB

Debug & Console

+5V

UART, USB, I2C, SPI, Control

USB

5V AC/DC

FEATURED MANUFACTURERS

ST life.augmented WNC Pulse Electronics samtec

PARTS

Part Number	Description	Resale
AES-ATT-IMA3-IOT-STM32L4-SK-G	AT&T IoT Starter Kit (LTE-M, STM32L4)	$139 USD

RELATED PARTS

Part Number	Description	Resale
SB698SMA3	Pulse LTE Blade Antenna	$20 USD

Countries Available for Purchase: Americas

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