



Product Brief

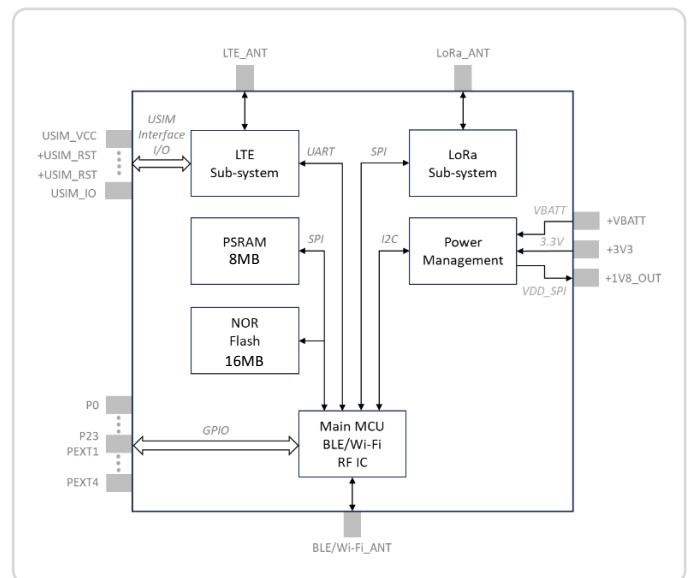
F1 Smart Module

The go-to for enterprise IoT solutions requiring flexible multi-network connectivity and rapid deployment and scaling.

The F1 Smart Module is a MicroPython-programmable microcontroller that provides a spectrum of short-to-long range connectivity for enterprise-grade IoT application development. Deployed through zero-touch provisioning for true plug-and-play to the SG low-code Ctrl. Cloud Platform for rapid proof-of-concept and go-to market prototyping.

Features

- Multi-network connectivity:
 - Bluetooth LE 5.0
 - Wi-Fi 802.11b/g/n (2.4GHz)
 - Semtech LoRa(WAN) 868MHz/915MHz
 - Cellular LTE-CAT M1/NB1/NB2
- Powerful Espressif ESP32-S3 MCU
- MicroPython programmable with 27 I/Os on module pads
- SMT-friendly semi-hole pins at module edges
- Compact for functionality: 42.67mm x 17.73mm x 3.50mm



F1 Starter Kit

Contents

- F1 Evaluation Board with global SIM card (pre-inserted)
- USB cable (type A to type C)
- LoRa FPC antenna

Features

- Plug-and-play to SG Ctrl. for device management and data visualization
- Zero-touch provisioning for hassle-free set-up
- MicroPython development tool with client library for application prototyping



Specifications

General	Xtensa® dual-core 32-bit LX7 microprocessor, up to 240MHz
	On-chip 384KB ROM and 512KB SRAM, on-board 8MB PSRAM and 16MB Flash
	Deep Sleep Mode: 10µA
BLE/Wi-Fi	Espressif ESP32-S3 on-chip RF frontend
	BLE: Bluetooth LE 5.0, Bluetooth mesh; Data Rate: 125kbps to 2Mbps; Max Tx Power: 20dBm
	Wi-Fi: IEEE 802.11b/g/n (2.4GHz band); Data Rate: 1M up to 54Mbps (MCS7); Max Tx Power: 20dBm
LTE	Sequans Monarch2 GM02S for CAT-M1, CAT-NB1 and CAT-NB2 support
	LTE CAT-M1/NB1/NB2 transmit power up to +23dBm
	PTCRB and GCF 1.3 3GPP release 13 compliant; Operator Approval: Verizon, AT&T, T-Mobile, Vodafone, Orange
LoRa(WAN)	Semtech SX1262 RF transceiver, 868MHz/915MHz LPWAN Module
	TX Power: Up to +22dBm; Sensitivity: -127dBm
	LoRaWAN stack – Class A and Class C Device

Orderable Part Number

F1 Smart Module and Variants*

- **SGW3501** F1 Smart Module: BLE, Wi-Fi, LoRa and LTE for full range programming flexibility
- **SGW3401** F1/C Cellular Module: BLE, Wi-Fi and LTE for high data volumes at high-speed transmissions
- **SGW3201** F1/L LoRa Module: BLE, Wi-Fi and LoRa for low-cost, long-range data transfer

F1 Starter Kit

- **SGW3501-EVK** F1 Starter Kit: F1 Evaluation Board for instant prototyping
- **SGW3501-EVK-8130D** F1 Starter Kit with CAP/T Sensor: F1 Evaluation Board with CAP/T Sensor (temperature, humidity)

*Pin-to-pin compatible with tape-and-reel packaging (250pcs)



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