

Micro-modular integrated modem



AI Overview

A micro-modular integrated modem is a compact, self-contained communication module that combines a cellular or satellite modem with processing, connectivity, and power management features for IoT, industrial, or mobile applications.

Overview A micro-modular integrated modem is designed to provide complete communication functionality in a small form factor, often including a cellular or satellite modem, processing capabilities, RF front-end, power management, and sometimes additional features like GNSS or WiFi. These modules are optimized for space, weight, and power (SWaP) efficiency, making them ideal for embedded systems, IoT devices, industrial gateways, and mobile applications.

Key Features

- Compact Form Factor:** Sizes can range from 10x16 mm (SiP solutions like nRF9161) to slightly larger industrial modules (e.g., 54x47.5 mm for RoM-1) allowing integration into small devices.
- Integrated Connectivity:** Supports LTE, 3G, 2G, NB-IoT, LTE-M, or satellite L-band communication, often with global coverage and backward compatibility.
- Processing Capabilities:** Many modules include an onboard microcontroller or Arm Cortex processor to handle application logic, protocol stacks, and peripheral management.
- Peripheral Support:** Modules can interface with external SIM cards, antennas, sensors, or additional processors, providing flexibility for diverse applications.
- Power Efficiency:** Designed for low-power operation with features like eDRX, PSM, and integrated power management systems, suitable for battery-powered or remote devices.
- Security and Management:** Advanced encryption, remote control, and monitoring tools are often included, especially in satellite or industrial modems.

Applications

- Industrial IoT:** Upgrading legacy equipment with LTE or NB-IoT connectivity for remote monitoring and control.
- Automotive and M2M:** Embedded in vehicles or machinery for telemetry, diagnostics, and fleet management.
- Satellite Communication:** L-band micro-modems provide secure, high-performance satellite I...

Article Content

ALT1250 CAT M & NB IoT, the most integrated cellular

This advanced modem features an integrated SIM (iSIM), MCU, and rich application layer, enabling miniature module sizes as small as 100mm². It is 5G ready and

RoM-1 LTE / 3G / GSM, WiFi Router Module

The RoM-1 is one of the first industrial-grade router modules with integrated modem, router, and WiFi functionality. With its compact form factor of 54 mm x 47.5 mm,

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Micromodem :: Acoustic Communications Group

Micromodem The WHOI Micromodem is a small-footprint, low-power acoustic modem based on the Analog Devices ADSP-BF548BBCZ-5A Blackfin DSP. Use the links to the right to find hardware and

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The SocketModem® MTQ embedded cellular modem is a complete, ready-to-integrate communications device ideal for customers looking to add 4G -LTE

Micro Modem

Get SAT Micro-Modem is a fully-featured L-band modem with the best in its class SWaP. It provides industry-leading performance, as an integrated unit with any

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Micromodem Bare Board Systems :: Acoustic

250035-SCH details a typical electrical integration of a Micromodem 2 Single-RX PSK RFF Stack. Micromodem 2 FSK Stack with Power Amplifier: This

The WHOI Micromodem-2: A Scalable System for Acoustic

I. INTRODUCTION The WHOI Micromodem was originally designed as a compact, low-power modem with modest capabilities, intended for use on small underwater vehicles and to be integrated

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Learn about the benefits of complete 5G modems with built-in RF modules, as well as Qualcomm's wide variety of 4G LTE modems and broad range of RF chipsets.

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Abstract Resilience, efficiency, sustainability, flexibility, security, and reliability are key drivers for microgrid developments. These factors motivate the need for integrated models and tools for

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The WHOI micro-modem: an acoustic communications and navigation

The micro-modem is a compact, low-power, underwater acoustic communications and navigation subsystem which has the capability to perform low-rate frequency-hopping frequency-shift

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Accessories

Cisco Fourth-Generation Network Interface Module - Modem cellulaire sans fil - 4G LTE Advanced - remanufacturé - pour Cisco 4451-X; Integrated Services Router 4221, 4321, 4331, 4351, 4431

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