

NXP Automotive Telematics On-board unit Platform (ATOP)

Take pole position in vehicle Telematics solutions

This cost-efficient, automotive-qualified component combines GPS, mobile, advanced security, and in-car connectivity. It enables secure, multi-service, tamper-resistant end-to-end telematics systems that are easy to develop and quick to deliver.

Key features

- ▶ Highly integrated single component featuring following functions
 - GNSS (GPS)
 - GSM/GPRS communication
 - Device and vehicle connectivity via CAN, USB, and NFC
 - Transaction security and authentication mechanisms
 - Secure, over-the-air software and applications upgrades
- ▶ Multi-service capable and multi App concept
- ▶ Secure and tamper-evident platform using Common Criteria Certified components

Key benefits

- ▶ Single-component, turnkey telematics solution with reference design
- ▶ Optimized cost, form-factor, in-car connectivity, and power consumption
- ▶ 3-processor architecture for compliance with automotive standards, GSM, security, and service certifications
- ▶ Open, flexible framework based on standard software

- ▶ Built-in, banking-grade security functions
- ▶ Meets automotive industry standards and quality requirements in compliance with government and OEM requirements
- ▶ Ultra-small footprint

Key applications

- ▶ Standalone and embedded OBUs
- ▶ Open multi-service telematics systems
- ▶ eCall, SVT, PAYD, fleet management, secure remote access, in-car payment
- ▶ In-car client for smartgrid-based e-cars and pool car applications
- ▶ Many more

NXP's ATOP draws on NXP expertise in automotive, mobile, security, and advanced RF identification technologies. It's internal functionality covers GSM/GPRS, GPS, SmartMX security, Near Field Communication (NFC), USB, and CAN all in a single tested and certified component that measures just 33 x 33 mm and is less than 3 mm thick.



ATOP can be used to create standalone On-Board Units (OBUs) for road pricing, eCall, and other certified or authenticated services and applications. It can also be used as a front-end in more advanced, open-service telematics platforms that contain a variety of services, such as pay-as-you-drive, stolen-vehicle tracking, eHorizon, eco navigation, fleet management, and location-based mobility services.

ATOP offers leading GSM performance and ultra low power consumption. The integrated memory supports advanced features like secure, over-the-air upgrades. The GPS receiver provides accuracy and sensitivity that exceeds automotive today's industry standards.

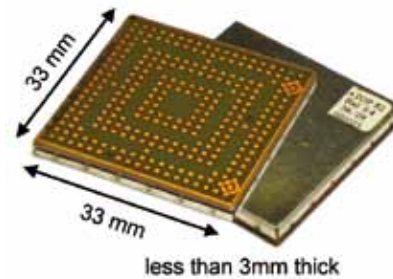
ATOP's industry-standard, ARM7-based automotive microcontroller provides a broad range of interfaces for easy in-car integration, including CAN and USB, multiple serial inter-processor buses and A/D and D/A converters and analog in & outputs for audio signals.

ATOP's CC level 5+ based SmartMX functionality provides security with support for multi-application environments. SmartMX microcontrollers were originally designed for high-security smart card applications, which require very high reliability, with or without multiple interface options, and need tamper-proof operation. As a result, the SmartMX functionality gives ATOP an added level of security and reliability.

Industry-standard NFC RFID technology enables several use cases, such as after-market self-installation, pay-per-use, and secure driver identification, while maintaining tamper evidence properties.

For the business and service logic aspects of the design, an open, multi-application software environment based on IBM's J9 virtual machine, which can execute JAVA code, ensures interoperability and secure co-existence in systems that run multiple telematics applications in parallel. The ARM7 environment, which uses C/C++, complements the IBM J9 environment with low-level, true real-time capabilities for application integration.

A reference toolkit, including an integrated software development suite, simplifies hardware and software design and speeds time-to-market.



ATOP block diagram

