OBU

On-Board Unit

Technical Specs

- Processor: IMX-6 Quad Core
- RAM: 1 GB DDR3
- Internal Memory: 4 GB
- 1 Cellular Channel (3G/4G/5G)
- ITS-G5 (802.11p), Dual Channel Operation
- (Compliance with ETSI ITS G5 for Europe Operation)
- PC5 (C-V2X release 14)
- WIFI: 802.11a/b/g/n & Bluetooth 4.2
- Ethernet
- SIM slot (uSIM)
- GPS (1-10Hz optional), DPGS optional
- 1 CAN Channel

DEVICE SPECIFICATIONS

Other

- KL15 and CAN to select Power Mode (Operational or Sleep)
 - KL15 and CAN wakeup capability
 - Dimensions: 165x135x50 mm
 - Weight: 750 g (w/o antennas)
- Designed according to ISO16750-2 & 4 (electric B-code and climatic D-code loads)

Functionalities/Capabilities

- Possibility to modular different configuration for Cellular, 802.11p and D-GPS, according to specific needs
- Possibility to deploy Cooperative services for the different communication technologies
- Possibility to deploy Infotainment & Telematic services
- Possibility to deploy AD services
- Possibility to deploy IoT services

TAG EVECTRONICS & IT'S DESIGN TEAM





CTAG

OBU **On-Board Unit**

MAIN **INTERFACES**

Connectivity

- ITS-G5 (802.11p): The unit is able to communicate through the 802.11p channel, allowing a bidirectional communication with other vehicles and infrastructure, and deploying different connectivity applications and services. Application can use both connection (cellular & 802.11p) allowing a hybrid environment for testing or real deployment of hybrid applications. Physical connector: FAKRA.

-PC5: Release 14. Cellular Vehicle-to-Everything (C-V2X), which uses device-to-device communication at 5.9GHz without requiring the presence of a base station. Physical connector: SMA

- Cellular: The unit allows to connect different cellular modules in its M.2 connector (USB): 3G/4G/5G, creating a flexible environment for the deployment of different connectivity applications and services. Physical connector: SMA

- Ethernet: Used to access internal data, programming and debugging the device or to connect to other ethernet devices. Physical connector: RJ45

- WIFI 802.11a/b/g/n: Can be configured as Client or AP mode giving wireless connectivity. This possibility enhances enormously the usability of the device when performing tests (wireless data access...). Physical connector: FAKRA.

- Bluetooth®: Used to get access to a mobile device (such as the mobile phone or hands-free). Physical connector: FAKRA.

- GNSS: Physical connector: FAKRA.

- 1 CAN HS interfaces: to provide a vehicle link 1 CAN networks (ISO11898-2 and 5) are available. They allow the connectivity with the vehicle for data acquisition (status, actuators, etc.) and also to connect with the HMI elements (Instrument Cluster, buttons) in order to interact with the driver.

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FUNCTIONALITIES

Main Functionalities

On-Board Unit is a system that allows the bidirectional communication of the vehicle with different elements (other vehicles, infrastructure, clouds, servers, etc.), in order to allow the implementation of different applications related to Cooperative services (Day 1, Day 1.5...), Infotainment & Telematic services or Automated Driving. The hardware configuration of the unit is flexible, allowing different connectivity settings (cellular, ITS-G5, GPS)

according to the desired purpose of the unit.

Software Stack

The On-Board Unit relies on a Custom Linux distribution that can be customized for different purposes.

Applications are developed under JAVA and the OSGI Framework, allowing a very flexible environment for the implementation and development of different solutions.

ITS Stack has been developed following ETSI Standard for the Geonetworking and Application layers, complying with the latest versions of the defined Standard.

OSGI provides the possibility of creating new Bundles that can use the ITS Stack or the other connectivity functionalities enhancing the flexibility of the unit.

OTHER FEATURES

Storage

- RAM (1 GB)
- Internal Flash Memory (4 GB)

Power Supply

- Power input range: 8-16 V
- Wake-up via CAN or KL15
- Low power consumption operation mode
 - (sleep mode) (less than 0.2 mA)

Housing

- Anodized aluminum
- Automotive JST connector to power supply
- and vehicle connectivity
- Dimensions: 165x135x50 mm
- Weight: 750 g (w/o antennas)

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