



Basic Telematics Unit

Low Cost Approach

The Flea is a telematics unit reduced to the minimal reasonable functions. That's why we could minimize the costs as much as possible.

Communication Gateway

Primary requirement is to establish communication paths between the bus system inside the vehicle, the user and the back-end. To use this paths it is necessary to have routing mechanisms beside basic services for secure data transmission and connectivity.

Car Integrated Services

Added value is generated by using a telematics unit in vehicles by vehicle specific applications, the so called Car Integrated Services. We designed The Flea for effortless support of services like telephony, remote diagnostics, emergency call or GPS. So here we have a system, that can be used as a Off-the-Shelf-Product for fleet requirements as well as a basis for serial development of car manufacturers.

Hardware	The Flea
Processor	32bit microprocessor
Main memory	16-128 MB SDRAM
Flash memory	40-2172 MB Flash
Ethernet	1 x Fast Ethernet 100 Base T
GSM/GPRS	Quadband
Wireless LAN	IEEE802.11g (54MBit/s), optional
Bluetooth	existent
GPS	20 channels
Interfaces (external)	1 x RS232 1 x K-Line 4 x CAN 2 x USB
Input voltage	6 V bis 35 V
Operating temperature	-25 - +70 °C
Dimensions	190 mm x 125 mm x 36 mm
Weight	420 g
Software	
Operating System	Embedded Linux, Kernel 2.4.x
Basic services	ssh, scp, tthttp, dhcp, iptables, ppp, sms, webmin, hostap
Communication	VPN, Roaming, Resuming, optional
Applications	locating, tracking, diagnostics, optional
Development	GNU toolchain v3



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More informationen about
The Flea, The Frog and
CarMedialab You will find on:



Basic Telematics Unit

General Specifications

- **Power Supply:**
 - Nominal Voltage Range: 6 to 35V
 - Overvoltage Protection
- **Interfaces:**
 - Digitale I/O
 - 4 x CAN
 - K-Line
 - RS232
 - 2 x USB 2.0 Host
 - I²C
 - RJ45 (Fast Ethernet)
 - GSM antenna connector
 - GPS antenna connector
- **Approvals:**
 - CE
 - E1 (in process)
- **Power Consumption – Typical @12V:**
 - Off: 0 mA
 - Sleep (PIC only): 1 mA
 - Run: 300 mA
- **Temperature Range:**
 - Operating: -25°C to +70°C

Firmware Specifications

- 32 bit Tricore 1130, 150 Mhz
- Linux OS Kernel V2.4.19

Memory (min/max)

- Flash (Mbyte) (NOR+NAND): 40 (8+32) – 2.172 (128+2048)
- RAM (Mbyte): 16/128

Development Kit

- GNU Toolchain V3
- Custom Driver API

USB Specifications

- 3xUSB 2.0 Host (1 internal)

Audio Specifications (V3)

(planned)

GSM/GPRS Specifications

- Quadband GSM 850/900/1800/1900
- Output Power Class: 4 (850/900), 1 (1800/1900)
- GPRS Class B, multi-slot Class 12
- Fax Group 3: Class 1
- Audio calls
- Data calls
- SMS (MO/MT)

GPS Specifications

- Receiver L1, C/A Code, 20 channels
- Position accuracy (SBAS/autonomous) <5m/<10m
- TTFF (hot/warm/cold) <4s/<35s/<45s
- Protocol support NMEA/Sirf binary
- 3V/5V power supply for active antenna

CAN Specifications

- Tricore MultiCAN, ISO 11898, 4 x 2.0B
- Operating indendently or as gateway
- 128 message objects with advanced filtering
- Transceiver (stand.): 2 high-speed, 2 low-speed

Network Specifications

- Ethernet 10/100 Mbps RJ45
- WLAN via USB (optional)

Bluetooth Specifications

- Bluetooth Class 2, V1.1 and V1.2
- HCI-UART and PCM Interfaces
- Infineon HCI+
- Configuration Data in internal E²PROM
- BlueZ protocol stack

Mechanical Specifications

- Dimension: 190x125x36 mm
- Weight: 420 gr
- Connectors: ELO

Wakeup Options

- Ignition
- CAN Highspeed on rezessive level
- CAN Lowspeed on dominant level
- RTC
- Modem Ring

Technical Specifications (Rev 2.0)



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