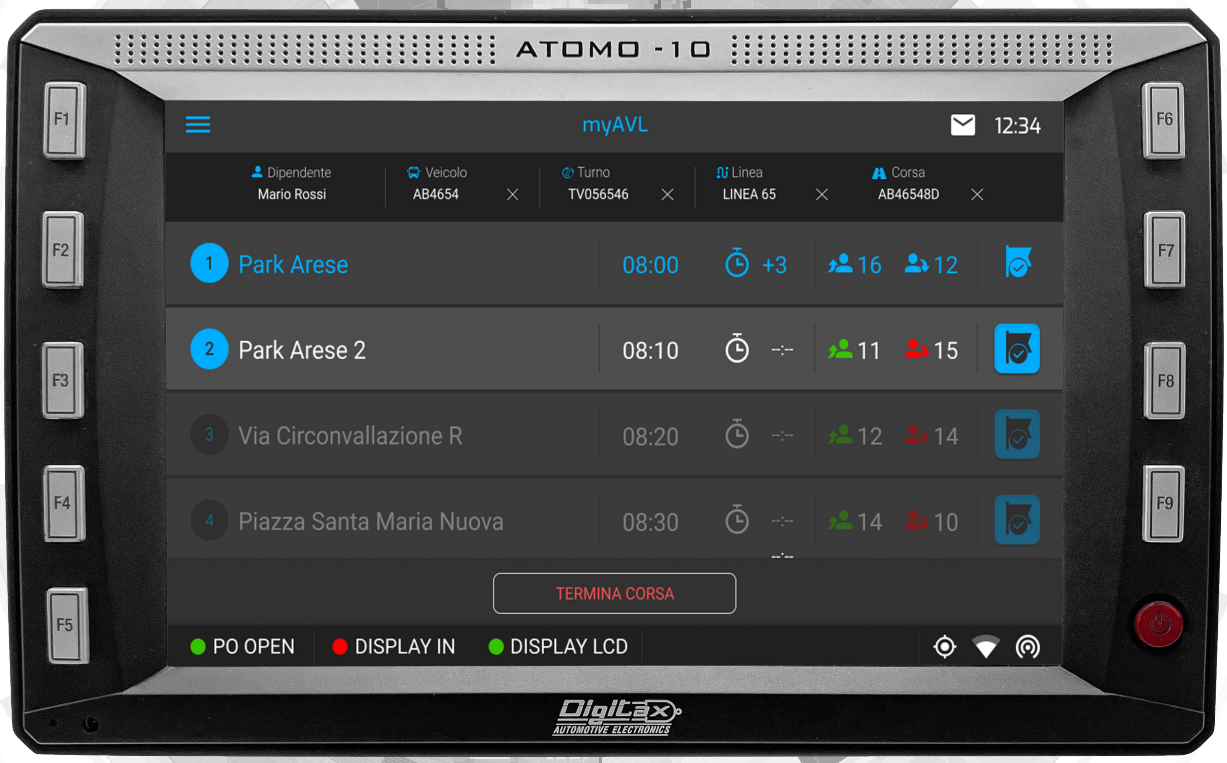
ATOMO -10



Digitax
AUTOMOTIVE ELECTRONICS

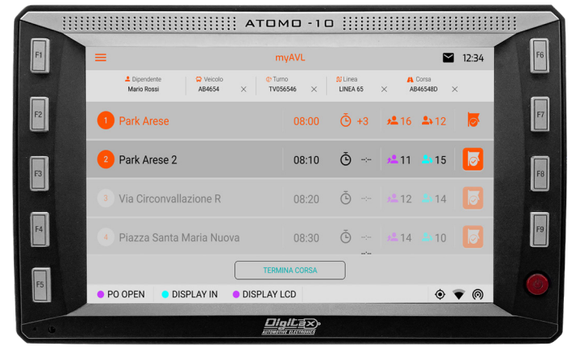
ATOMO -10

COMBINED AVM - TICKET VALIDATOR and PRINTER

ATOMO -10 MDT

The new ATOMO – 10 by Digitax is the solution for those companies and systems integrators who need to provide their customers with a professional, certified, flexible and modular Mobile Data Terminal (MDT) specifically designed to fulfill the requirements of applications like public transportation, fleets and special vehicles managements and many others.
ATOMO – 10 is available as a stand alone Mobile Data Terminal (ATOMO – 10 MDT) as well as a ALL IN ONE integrated system (ATOMO – 10 ETS) made of the stand alone device, one or more Ticket Validators and one Printer, all of them produced and provided directly by Digitax, to allow the maximum flexibility for new setups or exhisting installations updating. The use of standard communication protocols makes ATOMO – 10 MDT able to be interfaced also with any other manufacturers ticket validators and printers, when required.
ATOMO – 10 MDT is equipped with a revolutionary Android Platform On Module allowing the device to be upgraded at any time to the latest release of Android HW Platform, OS, network/modem, 4G and 5G, Wifi and Bluetooth.
Features like customisable user interface, navigation, job dispatching and many others are also available with ATOMO – 10 MDT while Digitax Ticket Validators are available both in onboard and remote configurations and with different skins (grey, yellow, green) on request.

ATOMO – 10 MDT is a Smart Mobile Data Terminal designed to acquire and process a huge number of different, in the format and complexity, inputs coming from the many different peripherals typically used in the applications where a MDT is requested.
In particular ATOMO – 10 MDT offers the possibility of interacting with passive peripherals, removing the need of any signal pre or post processing in specific devices or in the peripherals themselves. Smart pheripherals can be easily managed by ATOMO – 10 MDT as well.
The use of ATOMO – 10 MDT allows to place in one device, ATOMO -10 MDT itself, the total complexity and the criticalities of the whole architecture reducing the number of the smart components needed for the implementation of the integrated systems.
Many benfetis come from this revolutionaty approach like the cost reductions related to architecture installation, the easier defects detection, maintanance and assistance.



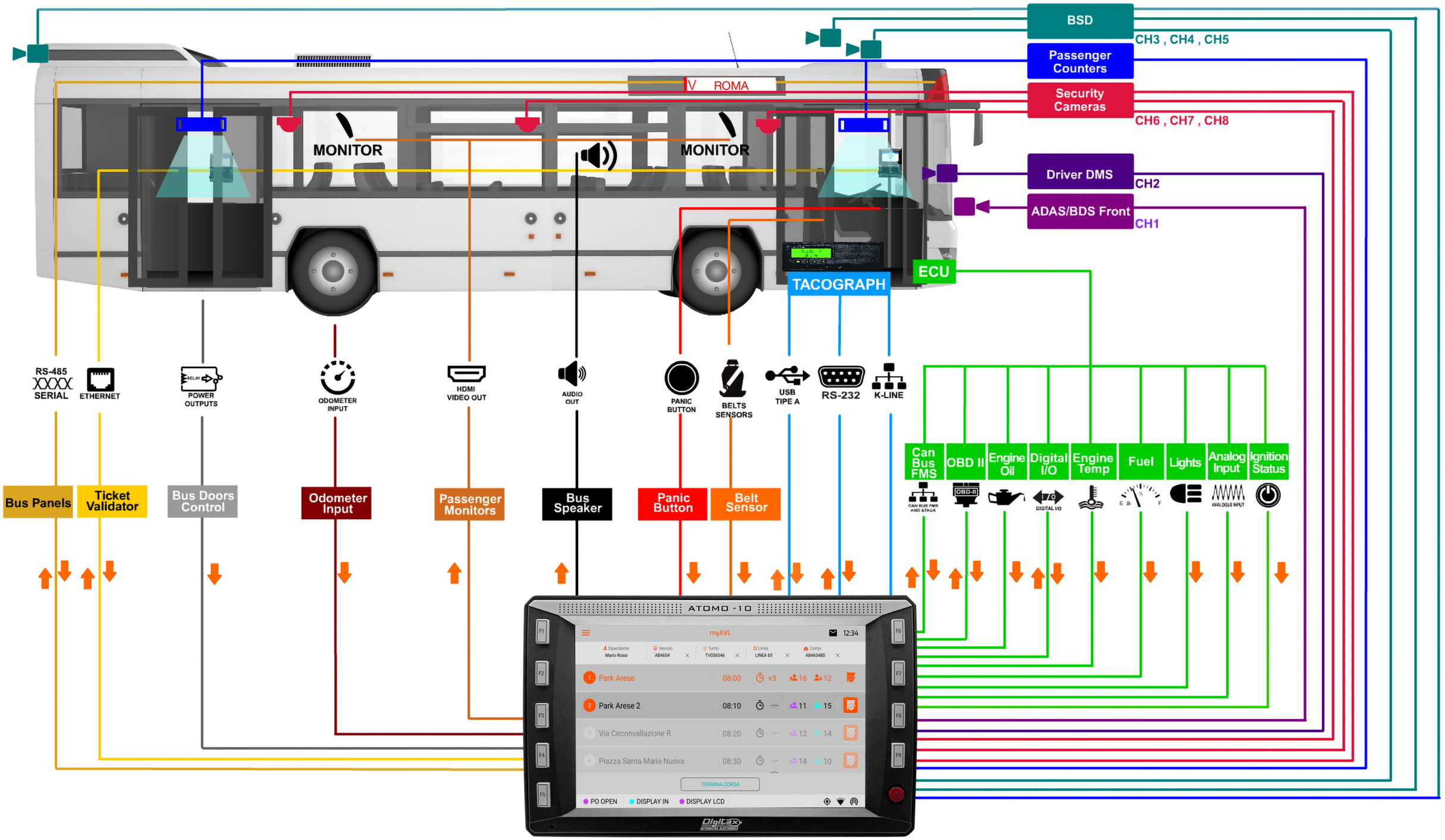
- ANDROID 9/10/11
- CORTEX A53 KRYO 360
- ADRENO 506/619
- OCTA-CORE 1.8 GHz
- BACKUP BATTERY *
- 16:9 DISPLAY 10.1” 1K NITS
- EMBEDDED MNDVR
- 9-AXIS ACCELEROMETER
- RAM 2GB-3GB / STORAGE 16GB-32GB
- GPS
- 4G LTE
- BLUETOOTH 4.2
- WIFI 2.4GB/5G
- DIGITAX SDK
- DEAD RECKONING *

* OPTIONAL

Digitax AUTOMOTIVE ELECTRONICS

ATOMO -10 MDT

DIRECT INTERFACES



ATOMO -10 MDT

EMBEDDED HYBRID MNDVR -AI DMS and ADAS & BDS

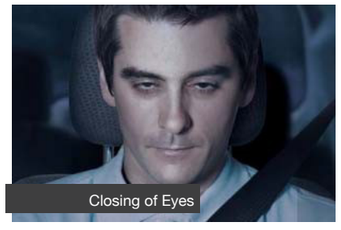
An **additional and advanced feature** available with ATOMO -10 MDT is the **embedded hybrid** (it supports up to **8 HD 1080p cameras** and **4 IPC 4K analogic cameras) Mobile Network Digital Video Recorder (MNDVR)** with **Artificial Intelligence (AI) – Driver Monitor System (DMS), Advanced Driver Assistance System (ADAS) & Blind Spot Detection System (BDS)**. In particular being able of processing 12 video channels ATOMO -10 supports the full **360° ADAS & BDS** in addition to other security features. Being the MNDVR embedded in ATOMO – 10 it is granted the execution of any assigned task with the **maximum efficiency and redundancy**.

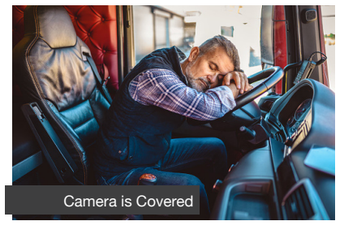
DMS FEATURES

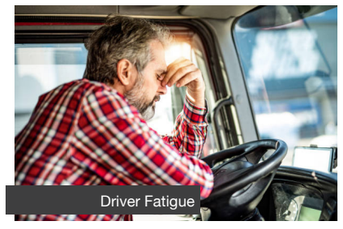

Driver Yawning


Driver Distraction

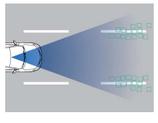

Driver Calling


Closing of Eyes


Camera is Covered


Driver Fatigue

ADAS & BDS FEATURES


Lane Departure Warning


Pedestrian Crossing Warning


Headway Monitoring Warning


360° ADAS Warning


Front Collision Warning

Blind Spot Warning

ATOMO -10 ETS

ALL IN ONE DEVICE

To match specific requests ATOMO – 10 MDT can be supplied with Digitax Printer and/or one or more than one Digitax Ticket Validators.
In particular an ALL IN ONE configuration made of ATOMO – 10 MDT, the Printer and one Ticket Validator by Digitax is available as ATOMO – 10 ETS.

1

Digitax Printer implements all the essential features for receipts, QR-code and forms printing and is available with ATOMO – 10 MDT only.

2

Digitax Ticket Validator (ATOMO – 5) can be fixed on the back of Digitax Printer or remoted in the vehicle. The Ticket Validator is equipped with a contactless reader, with payment capabilities on request, a professional NFC and barcode/QR scanner. A 1280×720 color TFT display shows messages and dynamic user informations.

2

1

ATOMO -10

AVAILABLE CONFIGURATIONS

ATOMO – 10 MDT STAND ALONE

ALL IN ONE ATOMO – 10 ETS

ATOMO – 10 MDT and PRINTER

ATOMO – 10 MDT, PRINTER and REMOTE VALIDATORS

ATOMO -10 MDT

ADDITIONAL FEATURES

DUAL CPU

PRIMARY CPU
The Octa-core, OS Android 9 - 10 and 11, LTE 4G Or LTE 5G allows remarkable flexibility and efficiency in computing power together with reduced power consumption.
SECONDARY CPU
The dedicated AITP (Automotive Intensive Task Processor) takes care of the functionalities requested by the automotive market: power management, Safe Shutdown, Wheel Pulses Odometer, Distance and Speed calculation, WakeUp on Ring, Over-the-Air services for software and firmware updates. The AITP is OTA programmable for remote automatic firmware and rates upgrade and it is always powered ON. The processor can switch-ON and OFF the device and the peripherals.

IDEAL FOR FLEET MANAGEMENT, AVM, TICKETING VALIDATOR, JOB DISPATCHING, SERVICE CERTIFICATION, NAVIGATION.

The device implements the latest technology to match any professional fleet and security application. It is a reliable, professional, compact, flexible, modular and automotive approved Mobile Data Terminal. The 4G LTE or 5G LTE modem allows very reliable communication with back-end servers.

CUSTOMIZABLE USER INTERFACE

The full HD 10.1” 1KNIT 16:9 TFT display allows to develop versatile and easily accessible applications thanks also to the integrated capacitive touchscreen controller and the 10 Function Keys with LEDs. The Function Keys, implementing the most used operations, allow to enhance the touchscreen life, while the optimal brightness of the display, in any light condition, is guaranteed by the ambient light sensor.
The ON/OFF Key is a Smart Power Button, fully programmable and used to perform more than one feature. It can also be disabled or programmed to trigger the Ghost Mode (fake shutdown).

STEALTH MODE

The Stealth mode is a special operating mode in which the system is working while the display and audio are switched off. This particular feature can be useful in many situations:

- Driver Monitoring: the device implements the “wake up on ring” feature to allow the Operating Central to remotely switch it ON, even in Stealth mode if necessary, to check the vehicle position, gather and/or record audio streams and other data.
- Ghost Mode: the device can be set to move to Stealth mode when switched OFF. This feature is particularly useful if the device is requested to remain always ON (only the display is switched OFF reducing power consumption) or in alarm state.
- Alarm managing: if the device is OFF and alarm button is pressed the system can start in Stealth mode hiding to anybody that it is active. With this special start the device can be programmed to send an alarm message, the GPS position or also screenshots or audio streams to the Operating Central.

RELIABILITY

The device can withstand glitches, when starting the vehicle engine, and overvoltage up to 32V. It is also immune to ESD and EMC interferences. Thanks to the AITP processor user applications and Android OS can close safely in case of sudden disconnection of the main power.

INPUTS AND OUTPUTS

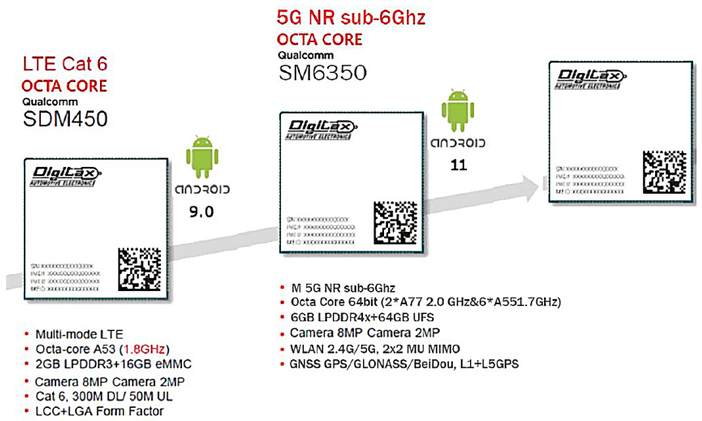
A wide range of I/O channels are available: 3 Hi-Speed Host, 1 USB Client port and a total of 7 RS232 and RS485 serial ports. In particular the special programmable digital I/O allow to bidirectionally interact with external generic devices and equipments.

ATOMO -10 MDT

ADDITIONAL FEATURES

Available ANDROID PLATFORM configurations

- Qualcomm Octa Core SDM450 CPU with 4G LTE CAT6 modem and Andorid 9.x/10.x Operating System
- Qualcomm Octa Core SM6350 CPU with 5G LTE 5G NR modem and Andorid 11.0x Operating System*



FUTURE TECHNOLOGY

* Under Development

ATOMO -10 MDT

OCTA CORE SYSTEM 4G FEATURES

CPUs (Option 1)	Fanless Device with Primary CPU Qualcomm SDM450 chipset, Octacore ARM Cortex-A53 64-bit CPU @1.8GHz. Adreno 506 GPU: OpenGL ES 3.02, OpenCL3, content security, and decreased power consumption
GPU	Qualcomm® Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing
Secondary Intensive Task CPU Processor (AITP)	Secondary CPU The dedicated AITP (Automotive Intensive Task Processor) supplies the functionalities required by the automotive market like power management, Safe Shutdown, Wheel Pulses Odometer, Distance and Speed calculation, Wake-Up on Ring, Over-the-Air services for software and firmware updates. The AITP is OTA programmable for remote automatic firmware and tariff upgrade and is always powered ON. It can also switch ON and OFF the device and the peripherals.
Ram Memory	+2/3 GB LPDDR
Storage Solid State Hard Disk Memory	16/32 GB EMMC
External SD	Up to 256 GB for external storage.
Communication Modem 4G	LTE Cat 6 modem supporting 2 × 20 MHz carrier aggregation, with maximum download speed up to 300 Mbps. Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage. 2 Sim Card slots.
GPS Receiver	Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment.
Antennas	Internal GPS-WiFi-BT-LTE External GPS-WiFi-BT-LTE Rugged Combo antenna (option)
Multimedia	Audio: MP3, AAC+,eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro. Video: Encode:30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8). Decode:30fps 1080P (H.264/MPEG-4/VP8/H.265 DivX4/5/6), 30fps WVGA (H.263).
Connectivity	Wi-Fi Connection2.4G/5.8G, 802.11 a/b/g/n Bluetooth class 2BT2.1+EDR/3.0/4.1 LE.
Operating system	Android 9.x/10.x

ATOMO -10 MDT

OCTA CORE SYSTEM 5G FEATURES*

CPUs (Option 2)	Fanless Device with Primary CPU Octacore Qualcomm SM6350, Octa-core 64Bit ARM V8, KyroCPU560(2*A77 2.0GHz & 6*A55 1.7GHz)
GPU	Qualcomm® Adreno™ GPU 619and V66A 1.2GHz+Dual HVX
Secondary Intensive Task CPU Processor (AITP)	Secondary CPU The dedicated AITP (Automotive Intensive Task Processor) supplies the functionalities required by the automotive market like power management, Safe Shutdown, Wheel Pulses Odometer, Distance and Speed calculation, Wake-Up on Ring, Over-the-Air services for software and firmware updates. The AITP is OTA programmable for remote automatic firmware and tariff upgrade and is always powered ON. It can also switch ON and OFF the device and the peripherals.
Ram Memory	+4GB LPDDR4
Storage Solid State Hard Disk Memory	64GB EMMC
External SD	Up to 256 GB for external storage.
Communication Modem 5G	3GPP Rel.15 5G NR,sub-6 GHz 5G NR,256 QAM uplink/downlinkin sub-6 GHz,Rel.15 LTE multimode 2 Sim Card slots.
GPS Receiver	Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment. Avlaible Dead Reckoning System ad Optional
Antennas	Internal GPS-WiFi-BT-LTE External GPS-WiFi-BT-LTE Rugged Combo antenna (option)
Multimedia	SupportVoLTEUltra HD voice call and SRVCC/ CSFB fallbacktechnology. 24-bit/192kHz HD Music playback.
Connectivity	2.4G/5G, 2x2 MU MIMO, 802.11 a/b/g/n/ac BT2.1+EDR/3.0/4.1 LE/5.xBLE. Support a maximum of 10 ACL/BEL/SCO links.
Operating system	Android 11.x

All Platforms include the following features

IP protection	IP65 waterproof sealed.
DISPLAY	Ergonomic and orientable 10.1" TFT IPS Normally black Transmissive Display with: • 1920x1200 pixel resolution and 16.7M colors. Aspect Ratio 16:9, 1000 cd/m2 and IK8 Capacitive Touch screen. (default) • 1280x800 pixel resolution and 16.7M colors. Aspect Ratio 16:9, 500 cd/m2 with Capacitive Touch screen. Ambient Light Sensor with Automatic Regulation.
User Interaction	Operation with capacitive touchscreen or dedicated and programmable Function Keys (10 Keys).
USB Ports	UpTo 3 X USB Host (with USB Support for Mouse and Keyboard) Hi-Speed. 1 USB Device.
Serial Ports	1 External Full Modem RS232 Port. 2 External TX/RX RS232 / RS485 Port. 4 External RS232 Serial Ports (option).
I/O ports connection	4 Digital Inputs. (Opto isolated option) 4 Digital Outputs. (Opto isolated option) 5 Extra Power Output Ports (option) Dedicated Ignition input. 2 Analog Ports input. External Speakers output. External Microphone input. Odometer input.
Can Bus	Can Bus Interface OBD-II OBD2-FMS-SAJ1708.
Alarm and Security	Panic Button input / Emergency Switch input. Stealth Mode Controller (system ON display, audio and lightings off).
Power on key	1 Smart Power On/Off button.
Connectivity	Ethernet: 10/100 Mbps LAN Controller. Witch 4 different switch ports.
Development Tools	Adb/Android Studio IDE with USB debugging support SDK for Android O.S. Serial port driver and test tools. Digital I/O driver.
OS Image Loader	Over The Air (OTA) OS image loader or microSDHC Card Image Loader.
Power Supply	8 - 32 V with Surge Protector.
Battery	Internal Battery Package (option) for controlled shutdown without any damage risk.
Operating Temperature	-20°C to 75°C
Humidity	Humidity up to 95% non-condensing.
Vibration	Vibration Sine wave, 10 ~ 500 ~ 10Hz, 1.5G, 0.37oct/min 3 axis, 1hour/axis.

* Under Developement

Printer

The Digitax Printer has all the features required to print recipes, QR codes, and forms.
The Printer can be easily connected to a Digitax Mobile Data Terminal ATOMO - 10 and used in any automotive application. The Printer supports ESC/POS Commands and it is provided of communication I/O Ports and all the required connection for external device.

Printer features

Max printing speed	200mm/s
Sensor	Paper nearly and end paper sensor.
Endurance	100km printing length.
Interfaces	RS232 and USB communication interface.
Printing method	Thermal printing.
Number of dots	576 dots/line
Resolution	8 dots/mm
Paper entry width(mm)	80mm
Printing width(mm)	72mm
Paper roll diameter (mm)	80mm Max
Paper thickness (µm)	60-80
Max printing speed	250mm/s
Paper loading	Easy loading.
Paper end/black mark sensor	By photo interrupter.
Head temperature	By thermistor.
Character set	1 resident
Charactersize	12*24
Character per line(max)	48Max

ESC/POS	
Graphics	Variable width and offset, double width and height.
Front	GB18030/ASC standard.
Barcodes	11barcodes: normal and rotated 90°.
Barcodes type	UPC-A, UPC-E EAN8, EAN13, CODE39, I25, CODABAR, CODE128, CODE11, MSI.

ATOMO 5

The Digitax ATOMO 5 can be provided in a ALL IN ONE configuration or together with ATOMO – 10 MDT and the Printer. It could be placed remoted where is needed in the veichle. The ATOMO 5 is equipped with the android operating system and can be programmed and customized with specially developed applications according to customer needs. ATOMO 5 is equipped with contactless reader with a payment module on request and a professional NFC and barcode/QR scanner. A 1280x720 color TFT display can show animated images and all you need for your custom Apps. The device is equipped with an extensive set of external interfaces with which it can be connected to external devices

MAIN FEATURES

CPUs	Fanless Device with Primary CPU Qualcomm MSM8909 chipset, Quad-core ARM Cortex-A7 32-bit CPU @1.1GHz. Adreno 304 GPU.
GPU	OpenGL ES 3.02, OpenCL3, content security and reduced power consumption.
Secondary Intensive Task CPU Processor (AITP)	Secondary CPU The dedicated AITP (Automotive Intensive Task Processor) supplies the functionalities required by the automotive market like power management, Safe Shutdown, Wheel Pulses Odometer, Distance and Speed calculation, Wake-Up on Ring, Over-the-Air services for software and firmware updates. The AITP is OTA programmable for remote automatic firmware and tariff upgrade and is always powered ON. It can also switch ON and OFF the device and the peripherals.
Ram Memory	+2GB LPDDR3
Storage Solid State Hard Disk Memory	16GB EMMC
External SD	Up to 2T for external storage
Communication Modem 4G	LTE Cat 4 GSM / GPRS Class 12 HSUPA Modem with 300Mbit/s downlink and 50Mbit/s uplink data rates based on LTE network (max). 2 Sim Card slots Always online.

Antennas	Internal WiFi-BT-LTE External WiFi-BT-LTE Rugged Combo antenna (option).
Multimedia	Audio: MP3, AAC+,eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro. Video: Encode:30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8). Decoding:30fps 1080P (H.264/MPEG-4/VP8/H.265 DivX4/5/6), 30fps WVGA (H.263).
Audio	3 Watt Audio Speaker
Connectivity	Wi-Fi Connection2.4G/5.8G, 802.11 a/b/g/n Bluetooth class 2BT2.1+EDR/3.0/4.1 LE.
Operating system	Android 7.1.x

DISPLAY

Viewing area	5” diagonal.
Resolution	1280x720
Colours	TFT LED Display with 1,67 M colors
Luminosity	Display clearly viewable with 1000 cd/m2.
Touchscreen	Automotive Full Rugged Pen/Finger Touchscreen. Extended Temperature Range. IK9

INPUT / OUTPUT

Input Output	2 Digital inputs and 2 Power Output
Serial Ports	2 RS232 Serial External Ports (485 Optional)
Ignition Input	1 Ignition Input to Tur ON Turn OFF Device Remotely
CAN	Can Interface to connect to veichle interface (Option)

QR scanner

Equipped with a smart and fast scanning engine the QR scanner include a camera taking picture of and de-coding the barcode. This scanning engine works at 800MHz with an integrated highly performing decoder and it can decode 1D & 2D barcodes and OCR-B font very fast. The high quality CMOS camera is capable of 100 frames/s and the device can scan paper, LCD, mobile phones, computers, or PDAs in a very readable way.

CPU Processor	High performance embedded and low power 800MHz CPU.
Reading capability	Ultra-fast 100 fps CMOS image sensor enabling high speeding scanning of 1D and 2D barcodes and OCR fonts. Improved scanning of curved, wide, poorly printed and demaged barcodes.
Motion Immunity	Exceptional motion tolerance for moving targets.
	Improved scanning of curved, wide, poorly printed and damaged barcodes.
LIGHT SOURCE	Aiming green LED, warm white illumination LED.
SCAN METHOD	CMOS area sensor, 640 x 480 pixels, black and white.
SCAN RATE	Up to 100 fps.
READING PITCH ANGLE	-65 to 0°, 0 to +65°.
READING SKEW ANGLE	-65 to 0°, 0 to +65°.
READING TILT ANGLE	360°
MINIMUM RESOLUTION AT PCS 0.9	4 mil (0.1 mm).
MINIMUM PCS VALUE	0.9
FIELD OF VIEW	Horizontal: 38° Vertical: 28.9°.
DEPTH OF FIELD AT QR CODE	6.7 mil (0.169mm) 2.52 - 4.17 in (64 - 106 mm) 15 mil (0.381mm) 1.18 - 9.21 in (30 - 234 mm).
DEPTH OF FIELD AT CODE 39:	5 mil (0.127 mm) 2.05 - 4.96 in (52 - 126 mm) 10 mil (0.254 mm) 1.81 - 9.68 in (46 - 246 mm) 20 mil (0.508 mm) 2.36 - 18.35 in (60 - 466 mm).
BARCODE (1D):	JAN/UPC/EAN including add on, Codabar/NW-7, Code 11, Code 39, Code 93, Code 128, GS1-128 (EAN-128), GS1 DataBar (RSS), IATA, Industrial 2 of 5, Interleaved 2 of 5, ISBN-ISSN-ISMN, Matrix 2 of 5, MSI/Plessey, S-Code, Telepen, Tri-Optic, UK/ Plessey.
BARCODE (2D):	Aztec Code, Aztec Runes, Chinese Sensible Code, Codablock F, Composite Codes, Data Matrix (ECC200), DotCode, Passport MRZ (OCRB), Maxi Code (mode 2~5), MicroPDF417, Micro QR Code, PDF417, QR Code.
BARCODE (POSTAL CODES)	Chinese Post, Intelligent Mail Barcode, Korean Postal Authority Code, POSTNET.

RFID Reader

The RFID Reader is equipped with a 13.56 MHz Proximity Read / Write device supporting transponders according to ISO 14443 Type A and Type B, ISO 15693, ISO 18000-3M3 as well as NFC devices according to ISO 18092.
The Reader Module is certifiable for applications like VDV-KA and ITSO. The 4 SAM sockets are tested according to EMVCo Contact Level 1.
The device can handle 4 different Sam modules; SoftCrypto and SAMCrypto High-Level-Functions offer a user friendly and fast interface for accessing encrypted data of mifare DESFire (EV0, Ev1), mifare PLUS and mifare Ultralight C.
It is possible to access also to newer chips such as mifare DESFire EV2 or NTAG 424 DNA via a secure communication channel.

Integrated RFID	ISO 15693, ISO 14443-A/-B, NFC (Near Field Communication) and Calypso compatible. Hi-level support SoftCrypto e SAMCrypto to handle crypt data smartcard MIFARE™ DESFire EV1, MIFARE™ PLUS e MIFARE™ Ultralight C.
Operating frequency	13.56 MHz
Transmitting power	450 mW
Antenna type	Internal embedded antenna.
LIGHT SOURCE	Aiming green LED, warm white illumination LED.
Smartcard interface	ISO 7816 – 4 SAM sockets (Id000 format). – T=0 and T=1 protocol. – Voltage categories A, B & C.
Reader modes	Polling-Mode, Scan-Mode.
Supported transponders	Mifare classic, mifare UltraLight, mifare DESFire, mifare PLUS, mifare UltraLight C, my-d move, JewelTM, FeliCa, NTAG, mifare / NTAG Ev2 Crypto Tag-It HFI, Fujitsu MB89R11x, STM24LRx, STMLRI2k, I-Code SLI / SLIX, I-Code ILT NFC Devices in Card Emulation Mode (Tag Type 1 ... 5), NFC Peer-to-Peer (P2P).
Radio approvals	Europe EN 300 330. North America FCC, IC.
EMC	EN 301 489, ISO 11452-2 / -4 (Functional status C).
SAM sockets	EMVCo Contact Level 1 (version 4.3).
Environment	WEEE – 2002/96/EC, RoHS – 2002/95/EC.

Open Payment Terminal

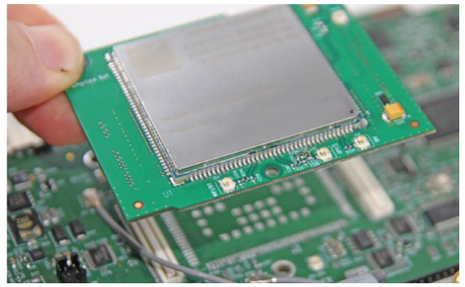
The Open Payment Terminal is a PCI PTS 5.1 certified terminal natively designed to meet national regulations and ensure the highest security standards for all open payments in the transport field. The module allows all the most known contactless payments methods: Visa, Mastercard, Amex, Discover, CUP, Interact, Flash, ApplePay, GooglePay among the others.

The Termoinal is able to manage all digital tickets:
- Closed-loop cards:
  - MIFARE® Classic (1 o 4 k)
  - MIFARE® Ultralight
  - Calypso
  - Desfire®
- NFC devices, contactless tickets.
- Mobile apps (through Bluetooth)... and others.

Based on the very powerful processor TETRA by Telium, the terminal it is able to handle all kinds of future ticketing media and new transport applications.

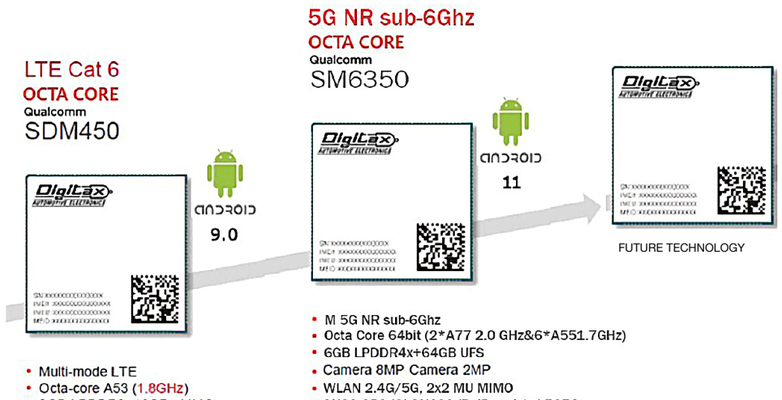
Processor / OS	Cortex A5 - Telium TETRA.
Memory	512 MB Flash, 512 MB RAM MicroSD up to 32GB.
SAM	4xSAM ID-000 ISO 7816 (High Speed protocol).
Contactless reader	EMV Level 1 / ISO 14443 A/B/B' ISO 18 092 (reader mode).
User interface	RVB backlighted landing zone. 4 RVB LEDs.
Audio	Buzzer Monotone. Polyphonic sound with external loudspeakers.
Security	PCI PTS 5.1 certified.
Operation conditions	Relative humidity: 95% non-condensing at 40°C External temperature range: -20°C to +70°C (-4°F to 158°F) for consumer product. External temperature range: -20°C to +55°C (-4°F to 131°F) for transportation (automotive, railways) product.

Upgradable Android Platform



Digitax ATOMO – 10 MDT can be equipped, on request, with the full Android Platform On Module. With this option the CPU can be updated to the latest features and O.S, Modem/ network, WiFi, Bluetooth releases. This unique feature allows to keep the MDT updated and tuned as per eventual future requirements.

Currently they are available 2 different chip-sets Platform: OCTA Core and OCTA Core with 5G NR Modem. The next step will be Digitax providing new platforms with AI features, increased computational power, newer and updated OS and peripherals.



Digitax OCTA-CORE LTE System-on-chip Module

Digitax OCTA Core LTE Modem

CPU
•Octocore: Qualcomm SDM450, Octa-core ARM Cortex-A53 64-bit CPU @1.8GHz

GPU
•Qualcomm Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing

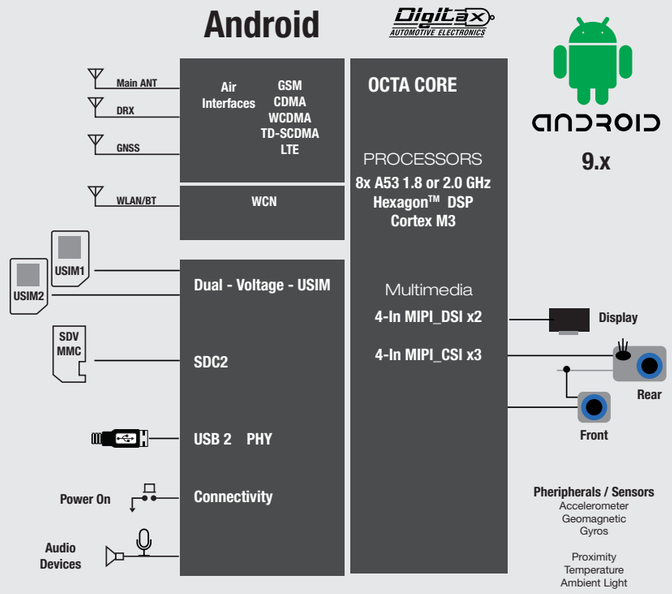
Memory
•2GB LPDDR3 + 16GB eMMC
•3GB LPDDR3 + 32GB eMMC

OS
•Android 9X

WLAN
•2.4G/5GHz, 802.11 a/b/g/n/ac, 433Mbps, STA/ AP/P2P

BT
•BT2.1+EDR/ 3.0/ 4.1LE/ 4.2LE
•Support a maximumof 10 ACL/BEL/SCO links

GNSS
•GPS/BeiDou/GLONASS, or GPS/BeiDou/Galileo



Digitax OCTA Core LTE

Modem
•LTE4G - Partial 3GPP Release 12 compliant

LCM
•Support dual LCDs for independent display: dual 4-lane MIPI_DSI; WUXGA(1920*1200) @60fps
•Wi-Fi display: 1080P 30fps (UBWC)

Camera
•3 groups of 4-lane MIPI_CSI, up to 2.1Gbps per lane
•Support three cameras (4-lane + 4-lane + 4-lane) or four cameras (4-lane + 4-lane + 2-lane + 1-lane)

Touch panel
•2, Capacitive-screen, I2C controls

Audio Analog channels:
•Two inputs: MIC1, MIC2
•Three outputs: speaker, earpiece, headphone

Video
•Video encoding and decoding: up to 1080P @60fps
•Video encoding and decoding: up to 4K at 30fps

USB
•USB 2.0 Compliant,Type-C,USB OTG + Charge

(U)SIM
•2, support 1.8/3V (U)SIM cards, with (U)SIM card detection function; DSDS supported

Digitax OCTA-CORE 5G/LTE 5G NR sub-6Ghz System-on-chip Module

Digitax OCTA-CORE 5G/LTE 5G NR sub-6Ghz

CPU
•Octocore: Qualcomm SM6350, Octa-core 64Bit ARM V8, Kyro CPU560(2*A77 2.0GHz & 6*A55 1.7GHz)

GPU
•Qualcomm Adreno™ GPU 619and V66A 1.2GHz+Dual HVX

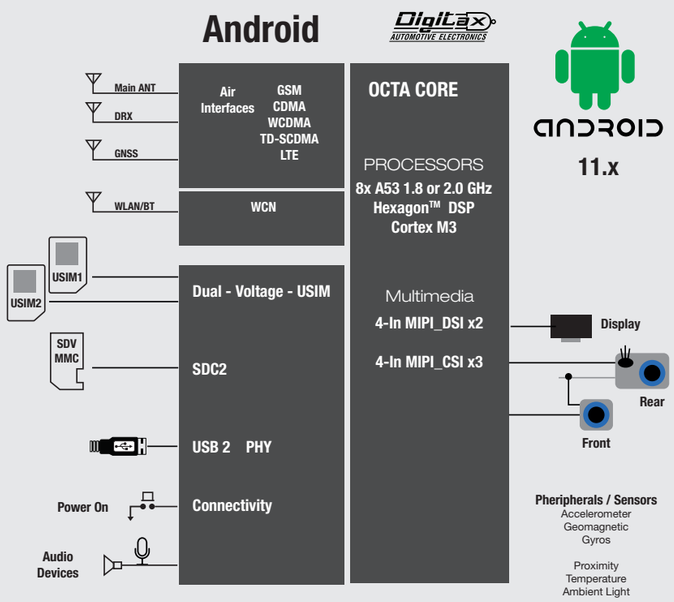
Memory
•4GB LPDDR4 + 64GB eMMC

OS
•Android 11X

WLAN
• 2.4G/5G, 2x2 MU MIMO, 802.11 a/b/g/n/ac

BT
• BT2.1+EDR/3.0/4.1 LE/5.xBLE
•Support a maximumof 10 ACL/BEL/SCO links

GNSS
• GPS/GLONASS/BeiDou, L1+L5GPS
•Support dual LCDs for independent display: dual 4-lane MIPI_DSI; WUXGA(1920*1200) @60fps



Digitax OCTA-CORE 5G/LTE 5G NR sub-6Ghz

Modem
• 3GPP Rel.15 5G NR,sub-6 GHz 5G NR,256 QAM up-link/downlink in sub-6 GHz,Rel.15 LTE multimode

LCM
• FHD+ 10 bit, 60/90/120 Hz support, One 4-lane DSI, D-PHY 1.2, C-PHY 1.0 DisplayPort support over USB Type-C

Camera
•3 groups of 4-lane MIPI_CSI, up to 2.1Gbps per lane
•Support three cameras (4-lane + 4-lane + 4-lane) or four cameras (4-lane + 4-lane + 2-lane + 1-lane)

Touch panel
•2, Capacitive-screen, I2C controls

Audio Analog channels:
•Two inputs: MIC1, MIC2
•Three outputs: speaker, earpiece, headphone

Video
Support VoLTE Ultra HD voice call and SRVCC/CSFB fallback technology
24-bit/192kHz HD Music playback
Video codec 4K30 decode+1080p30 encode

USB
•USB 2.0 Compliant,Type-C,USB OTG + Charge

(U)SIM
•2, support 1.8/3V (U)SIM cards, with (U)SIM card detection function; DSDS supported

Module Memory

Module Memory size could be customizable.Currently these are available options:

Module	Memory (LPDDR3 + eMMC)					
	1GB + 8GB	2GB + 16GB	3GB + 32GB	4GB + 32GB	6GB + 64GB	8GB + 128GB
OCTA-CORE	N	Y	Option	Option	Option	
OCTA-CORE 5G	N	N	N	N	Y	Option

Modules CPU comparison

Module	CPUs					
	Application	Modem	RPM	GPU	Audio DSP	Video
OCTA-CORE	Cortex-A53, Octa core, 64bit 4X1 .8GHz, 512 KB L2 cache 4X1 .8GHz, 512 KB L2 cache	Hexagon DSP V56850 MHz 768 kB l2 caches	Cortex-M3	Adreno 506@600 MHz, 64bit	Hexagon DSP V56 850 MHz 768 kB l2 caches	Venus333
OCTA-CORE 5G	CPU adopts 8nm FinFET with 64bit ARM VS core, Kyro CPU 560 (2 * A77 2.0 GHz&6 * A551.7 GHz) with Adreno GPU 619 and V66A 1.2GHz+Dual HVX	Support 5G NR sub-6Ghz, DL 4x4 MIMO SA/NSA mode and UL 2x2 MIMOSA mode	Cortex-M3	Adreno GPU 619 and V66A 1.2GHz+ Dual HVX	24-bit/192 kHz HD Music playback	Support 4K @30fps video recording and playback

Video

Module	VIDEO		
	HW performance	HW codec	SW codec
OCTA-CORE	Decoder. 1080P@60fps, 60 bps Encoder. 1080P@60fps, 60 bps Encoder HFR: 720P@120ps, 60 bps Maximum 972000 macro block/s 1080P@60fps de+1080P@30fps en	Decoder. HEVCIH.264NC-1/ PEG-4/DivX/H2631 PEG-2NP8NP9 Encoder: HEVC/H.264/MPEG-4/H263NP8	
OCTA-CORE 5G	4K30 decode+1080p30 encode	Video codec codec:Decode 4K@30fps 10 10-bitbit: Encode 4K@30fps 8 8-bitbit: 4K@30 playback+1080P@30 encode	

Modem

Module	Modem							
	3GPP Rei	GERAN	WCDMA	TDSCDMA	COMA	1xEV-DO	LTE-FDD	LTE-TDD
OCTA-CORE	Full conform R10 Partly support R12	GSM/GPRS/ EDGE EDGE Multi Slot Class 33 DL-236 Kbps UL-59.2 Kbps	DC-HSD-PACAT29 DC-HSUPACAT8 DL-84 Mbps UL-11 Mbps	HSDPA-Cat 24 HSUPA-Cat6 DL-4.2 Mbps UL-2.2 Mbps	1x-Advanced DL-307.2 Kbps UL-307.2 Kbps	DL-3.1 Mbps UL-1.8 Mbps	Cat6 DL-300 Mbps UL-50 Mbps	Cat6 DL-265 Mbps UL-35 Mbps
OCTA-CORE 5G	3GPP Rel.15 5G NR	Rel.15 LTE multimode modem						

WI-FI

Module	WIFI				
	WIFI Chipset	Band & Protocol	2*2 MIMO	WIFI Display	Mode
OCTA-CORE	WCN3680	2.4G&5G 802. 11 a/b/g/n/ac, 433Mbps	N	FHD(1920x1080)@ 30fps Both host&device	STA I AP(32) & Wifi direct Wifi probe
OCTA-CORE 5G	WCN3680B	2.4G/5G, 2x2 MU MIMO, 802.11 a/b/g/n/ac axready	Y		

Bluetooth

Module	BT		
	BT Chipset	Protocol	Profiles
OCTA-CORE	WCN 3680	BT3.x BT4.2/LE	FTP 1.1, HDP 1.0 , HID 1.0 - Hos, OPP 1.1. PAN 1.0, SAP 1.1 . AVRCP 1.3 , BLE GATT Client/Server, A2DP 1.2 - SRC/SNK HFP 1.6 - AG/HS, MAP 1.0 - MSE/MCE PBAP 1.0 - PSE/PCE, AVRCP 1.5 - Target, DUN 1.1 HID 1.0 - Client, HOGP 1.0, OPP 1.2, Dual-HFP, OBEX over L2CAP, AVRCP 1.5- Controller. BR/EDR Secure Connections, Dual Mode Topology, BLE Peripheral Mode, Multi-HFP HFP 1.7, Dual A2DP Handoff
OCTA-CORE 5G	4K30 decode+1080p30 encode	BT2.1+EDR/3.0/4.1 LE/5.x BLE	

GNSS

Module	Memory (LPDDR3 + eMMC)						
	GPS	Beidou	GLONASS	Galileo	QZSS	SBAS	Note
OCTA-CORE	Y	Y	Y	Y	N	N	▶GPS Beidou and GLONASS or ▶GPS Beidou and Galileo
OCTA-CORE 5G	Y	Y	Y	Y	N	N	

Features are subject to change without notice

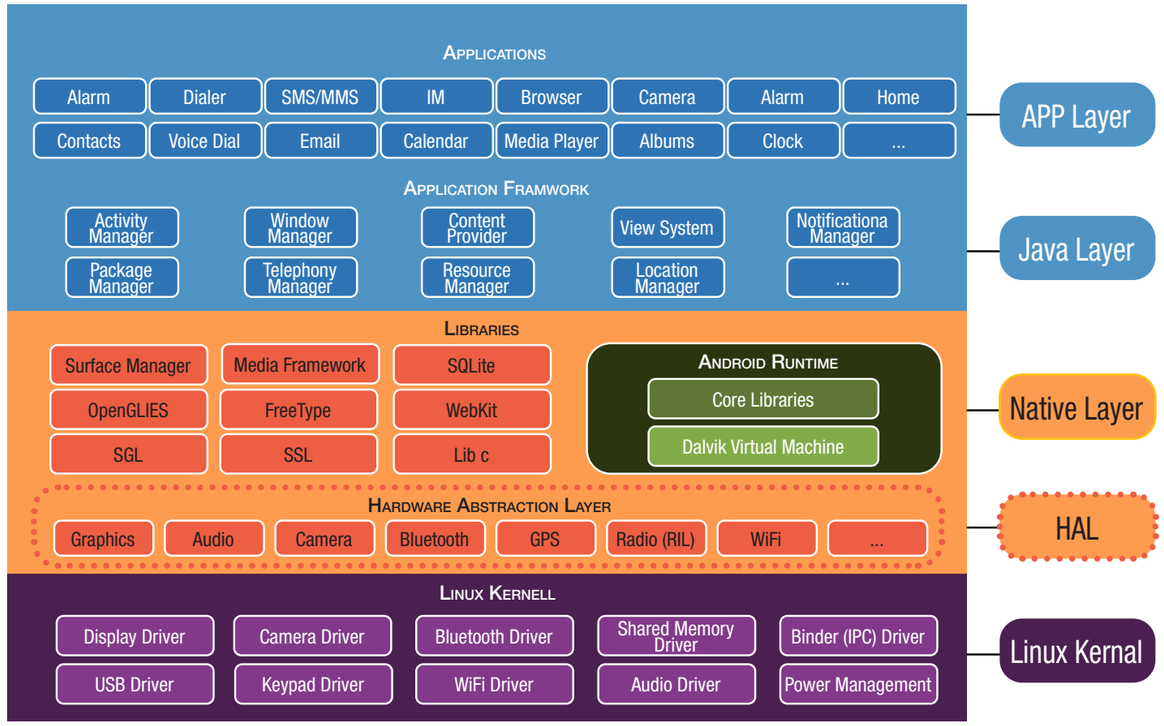
Software customization

Software customization

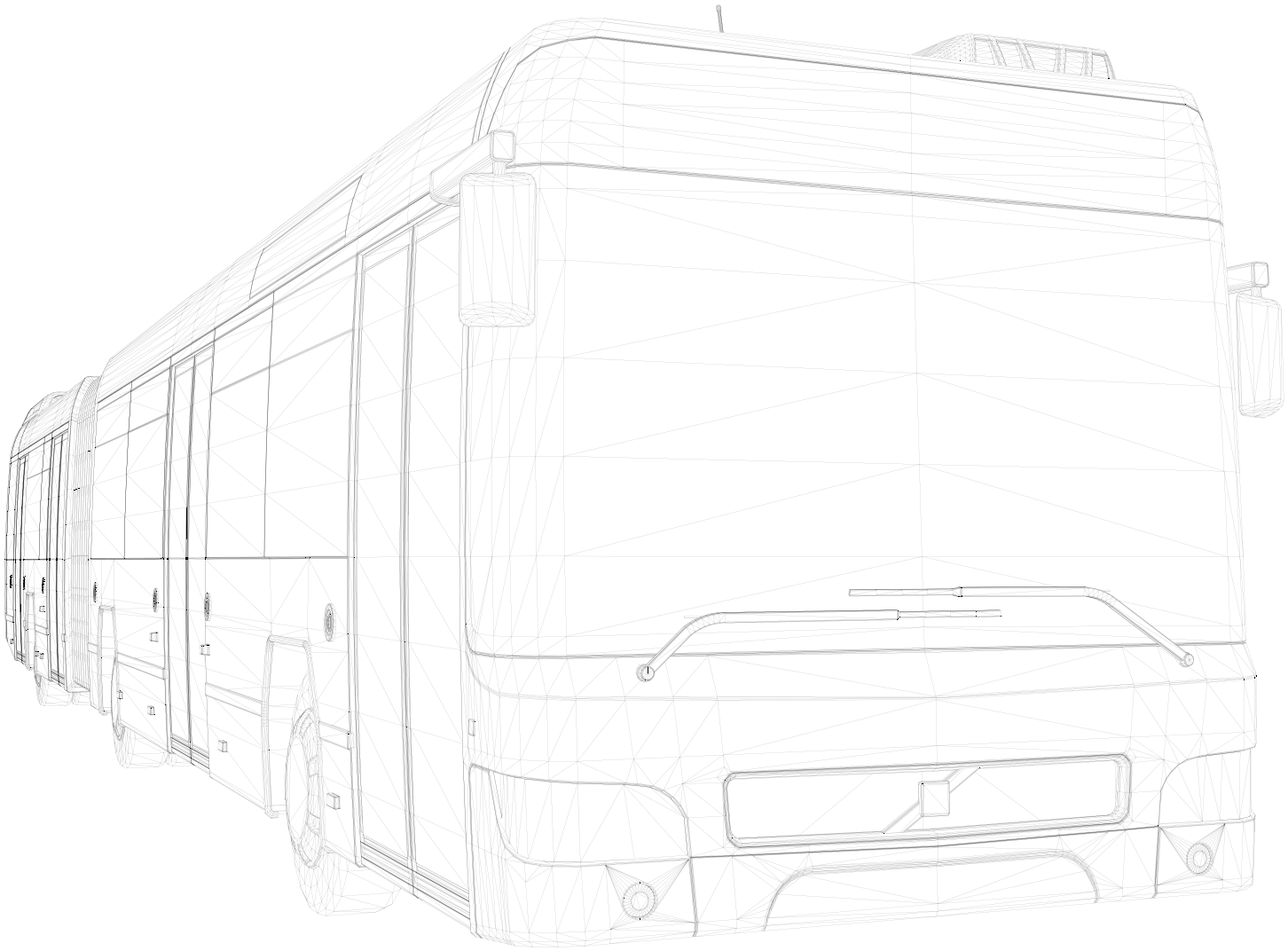
Digitax R&D Team can customize and keep updated every System software module.

Together with the technical support, Digitax also provides Libraries, Code Samples and anything is required to let the customers to develop customized and proprietary applications by their own.

Digitax will provide technical support



Notes



ver. 1
04/12/2023

Digitax Italy Headquarter
Via dell'Industria 16 - 62017 Porto Recanati (MC) - ITALY
Phone +39 071 7590984 r.a. - Fax +39 071 9797405 / E-mail info@digitax.com - Web www.digitax.com

Digitax España

C/Tomás Bretón, 7
28045 – Madrid
SPAIN
Phone +34 902366292
Fax +34 915271562
Web: www.digitax-es.com
E-mail: info@digitax-es.com

Digitax Electronincs U.K.

Smokehouse, 31
Tanners Bank North Shields
Tyne & Wear NE 30 1 JH
ENGLAND
Phone +44 (0191) 296 1294
Fax +44 (0191) 257 8438
Web: www.digitax.net
E-mail: digitaxuk@aol.com

Digitax Deutschland

Taxitech Handelsges. mbh
Sommerkamp 31a - 22335
Hamburg
GERMANY
Phone +49 40 555 05540
Fax +49 40 555 05530
Web: www.digitax-de.com
E-mail: digitax@taxitech.de

Digitax Nederland B.V.

Postbus 84112
3009 CC ROTTERDAM
HOLLAND
Phone +31 10 4512121
Fax : +31 10 4500453
E-mail: h.wittenberg@planet.nl
E-mail: info@digitax.nu