

ATOMO - 10 ETS



ATOMO - 10

COMBINED AVM - TICKET VALIDATOR AND PRINTER



ATOMO - 10 MDT

The new ATOMO – 10 by Digitax is the solution for 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 existing 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.

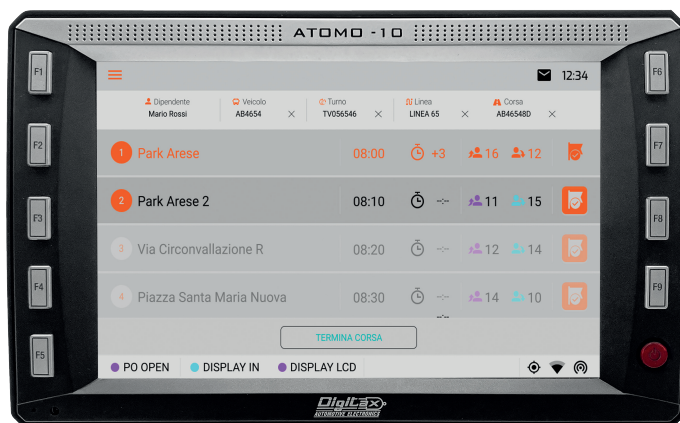
Features like customisable user interface, navigation, job dispatching and many others are also available with ATOMO – 10 MDT while Digitax Ticket Validators are available both in onboard and remote configurations and with different skins (grey, yellow, green) on request.

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 peripherals 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.

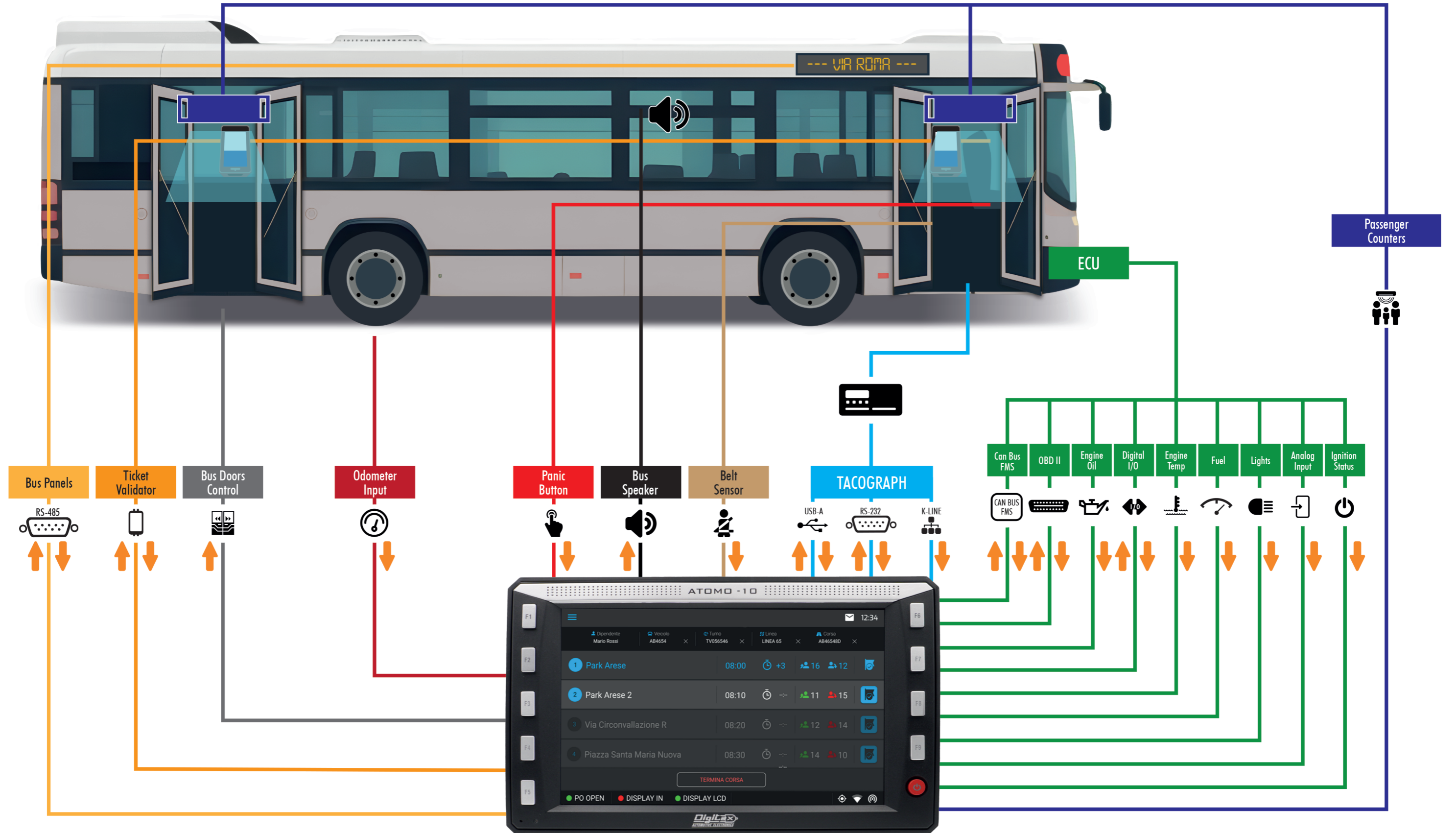
Many benefits come from this revolutionary approach like the cost reductions related to architecture installation, the easier defects detection, maintenance and assistance.



- ANDROID 9/10/14
- CORTEX A53
- GPU ADRENO 506/ KRYO TM 619
- OCTA-CORE 1.8 GHz / 2.0 GHz
- BACKUP BATTERY
- 16:9 DISPLAY 10.1" 1K NITS
- 9-AXIS ACCELEROMETER
- WIFI 2.4GB/5G
- DIGITAX SDK
- RAM 2GB-3GB / STORAGE 16GB-32GB
- GPS
- 4G LTE
- BLUETOOTH 4.2 / 5.1

ATOMO - 10 MDT

DIRECT INTERFACES



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 1280x720 color TFT display shows messages and dynamic user informations.



ATOMO - 10 ETS

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

FEATURES

Dual CPU

PRIMARY CPU

The Octa-core, OS Android 9 - 10 or 14, LTE 4G allows remarkable flexibility and efficiency in computing power together with reduced power consumption.

SECONDARY CPU

The dedicated AITP handles key automotive functions like power management, Safe Shutdown, Wheel Pulses Odometer, distance/speed calculation, WakeUp on Ring, and OTA software/firmware updates. Always ON and remotely programmable, it enables automatic firmware and rate upgrades and controls device/peripheral power.

Fleet and Security Applications

The device implements the latest technology to match any professional fleet and security application. Ideal for Fleet Management, AVM, Ticketing Validator, Job Dispatching, Service Certification and Navigation, 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 enables versatile and accessible applications, thanks to the integrated capacitive touchscreen controller and 10 LED-equipped Function Keys. These keys, handling common operations, extend touchscreen lifespan, while the ambient light sensor ensures optimal brightness in any lighting. The programmable Smart Power Button (ON/OFF) supports multiple functions, including disabling or activating Ghost Mode (fake shutdown).

Stealth Mode

Stealth mode keeps the system running while disabling display and audio, useful in various scenarios:

- **Driver Monitoring:** The "wake up on ring" feature allows remote activation to check vehicle position, record audio, and collect data.
- **Ghost Mode:** When turned OFF, the device enters Stealth mode, staying operational while reducing power consumption.
- **Alarm Management:** If OFF, pressing the alarm button starts the system in Stealth mode, discreetly sending alerts, GPS location, screenshots, or audio streams to the control center.

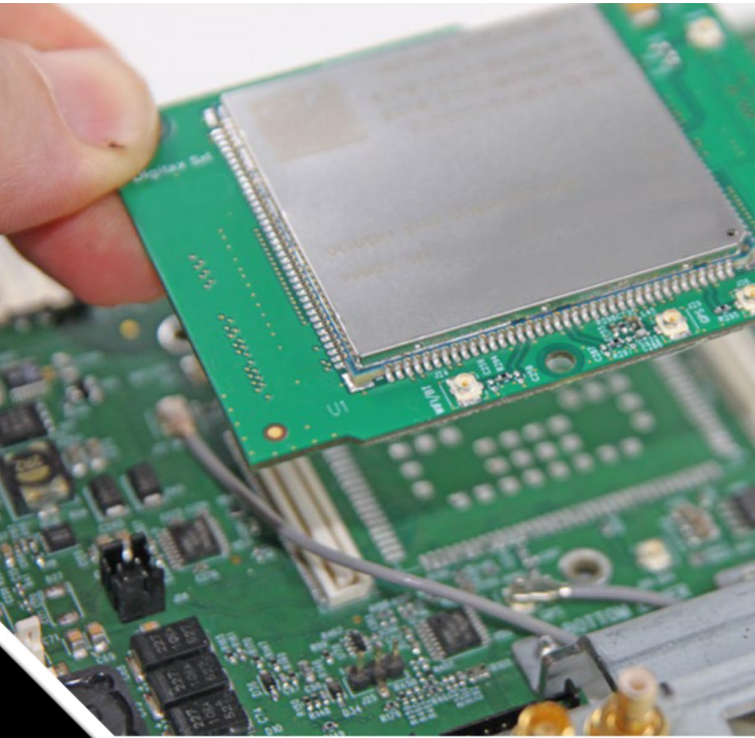
Reliability

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.

Upgradable Android Platform

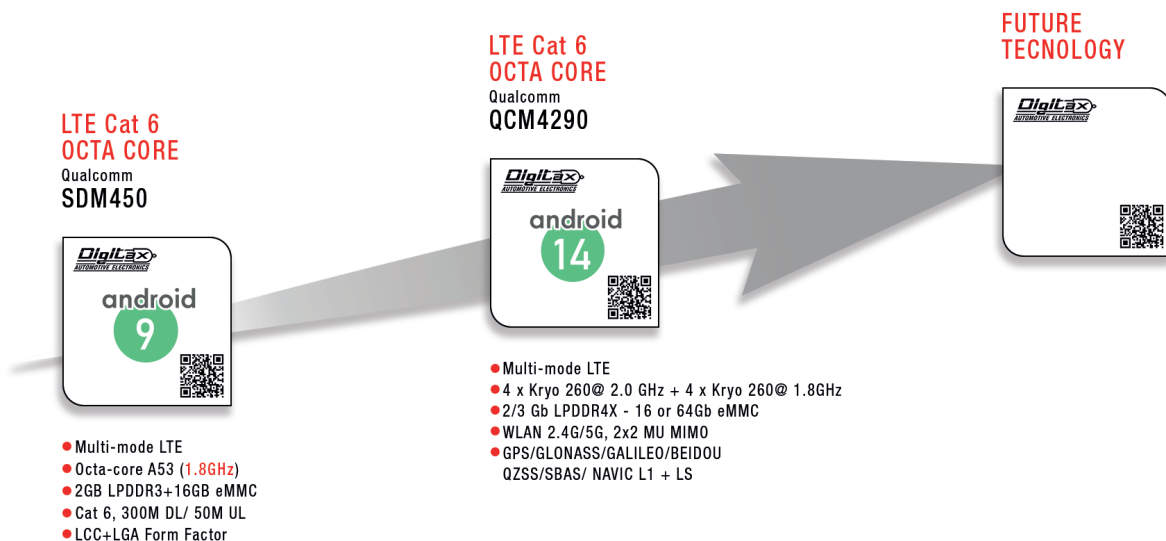


Digitax ATOMO – 10 MDT can be equipped, on request, with the full Android Platform On Module. With this option the CPU can be updated to the latest features and O.S, Modem/network, WiFi, Bluetooth releases. This unique feature allows to keep the MDT updated and tuned as per eventual future requirements.

Currently they are available 3 different chip-sets Platform: QUAD Core, 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.

Available Android Platform Configurations

- Qualcomm Octa Core SDM450 CPU with 4G LTE CAT6 modem and Andorid 9.x/10.x Operating System
- Qualcomm QCM4290 CPU with 4G LTE modem and Andorid 14.0x Operating System



ATOMO - 10 MDT

OCTA CORE SYSTEM 4G FEATURES

CPU (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
CPU (Option 2)	Fanless Device with Primary CPU Qualcomm QCM4290 Octa-core ARM Cortex 4 x Kryo 260@ 2.0 GHz + 4 x Kryo 260@ 1.8GHz
GPU (Option 1)	Qualcomm® Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing
GPU (Option 2)	Qualcomm Kryo™ 610 graphics processing unit (GPU) at 950 MHz
Secondary Intensive Task CPU Processor (AITP)	<p>Secondary CPU</p> <p>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.</p>
Ram Memory	+2GB LPDDR
Storage Solid State Hard Disk Memory	16GB EMMC
External SD	Up to 256 GB for external storage.
Communication Modem 4G	<p>LTE Cat 6 modem supporting 2 × 20 MHz carrier aggregation, with maximum download speed up to 300 Mbps.</p> <p>Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage.</p> <p>2 Sim Card slots.</p>
GPS Receiver	Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment.
Antennas	<p>Internal GPS-WiFi-BT-LTE</p> <p>External GPS-WiFi-BT-LTE Rugged Combo antenna (option)</p>
Multimedia (Option 1)	<p>Audio: MP3, AAC+,eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro.</p> <p>Video: Encode:30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8).</p> <p>Decode:30fps 1080P (H.264/MPEG-4/VP8/H.265 DivX4/5/6), 30fps WVGA (H.263).</p>
Multimedia (Option 2)	<p>Video encoding: 1080p @ 60 fps 8-bit HEVC (H.265); 1080p @ 60 fps 8-bit H.264</p> <p>Video decoding: 1080p @ 60 fps 8-bit H.264; 1080p @ 60 fps 8-bit HEVC (H.265), VP9</p> <p>Encoding + decoding: 1080p @ 30 fps + 1080p @ 30 fps</p>
Connectivity	<p>Wi-Fi Connection 2.4G/5.8G, 802.11 a/b/g/n</p> <p>Bluetooth class 2 BT 2.1+EDR/3.0/4.1 LE. / 5.1</p>
Operating system (Option 1)	Android 9.x/10.x
Operating system (Option 2)	Android 14.x

All Platforms include the following features

IP protection	IP65 waterproof <u>sealed</u> .
DISPLAY	Ergonomic and orientable 10.1" TFT IPS Normally black Transmissive Display with 1920x1200 pixel resolution (1280x800 500 cd/m2) and 16.7M colors. Aspect Ratio 16:9. Display clearly viewable with 1000 cd/m2 or 500 cd/m2. Ambient Light Sensor with Automatic Regulation.
Touchscreen	Capacitive Touch screen. Extended Temperature Range. IK8
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. 3 + 5 Power Output Ports. 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.

ATOMO - 7

The Digitax ATOMO 7 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 7 is equipped with the android operating system and can be programmed and customized with specially developed applications according to customer needs. ATOMO 7 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 (Option 1)	Fanless Device with Primary CPU Qualcomm MSM8909 chipset, Quad-core ARM Cortex-A7 32-bit CPU @1.1GHz. Adreno 304 GPU.
CPUs (Option 2)	Qualcomm QCM2290, Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz
GPU (Option 1)	OpenGL ES 3.02, OpenCL3, content security and reduced power consumption.
GPU (Option 2)	Qualcomm AdrenoTM 702 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	+2GB LPDDR3
Storage Solid State Hard Disk Memory	16GB EMMC
External SD	Up to 2T for external storage
Communication Modem 4G	4G LTE CAT 4 Max 150 Mbps (DL) Max 50 Mbps (UL)
Antennas	Internal WiFi-BT-LTE External WiFi-BT-LTE Rugged Combo antenna (option).
Multimedia (Option 1)	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).
Multimedia (Option 2)	Audio: MP3, AAC+,eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro. Video encoding + decoding: 720P @ 30 fps + 1080P @ 30 fps Encoding: up to 1080P @ 30 fps; Decoding: up to 1080P @ 30 fps
Audio	3 Watt Audio Speaker
Connectivity	Wi-Fi Connection 2.4G/5.8G, 802.11 a/b/g/n Bluetooth class 2 BT 2.1+EDR/3.0/4.1 LE.
Operating system (Option 1)	Android 7.1.x
Operating system (Option 2)	Android 12.x
DISPLAY	
Viewing area	7" diagonal.
Resolution	1280x800
Colours	TFT LED Display with 1,67 M colors
Luminosity	Display clearly viewable with 500 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 Turn ON Turn OFF Device Remotely
CAN	Can Interface to connect to vehicle interface (Option)

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 ITS0. 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, Jewel™, FeliCa, NTAG, mifare / NTAG Ev2 Crypto Tag-It HFI, Fujitsu MB89R11x, STM24LRx, STMLR12k, 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.

QR Scanner

Equipped with a smart and fast scanning engine the QR scanner include a camera taking picture of and decoding 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 damaged 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.

ATOMO - 7

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 Terminal 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.

ATOMO - 10 ETS

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.
Font	GB18030/ASC standard.
Barcodes	11barcodes: normal and rotated 90°.
Barcodes type	UPC-A, UPC-E EAN8, EAN13, CODE39, I25, CODABAR, CODE128, CODE11, MSI.

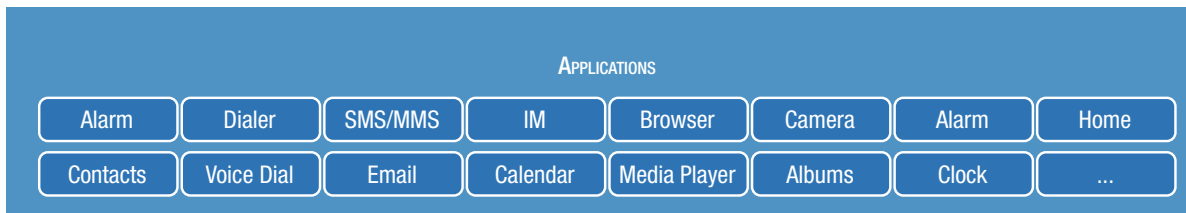
Software Customization

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

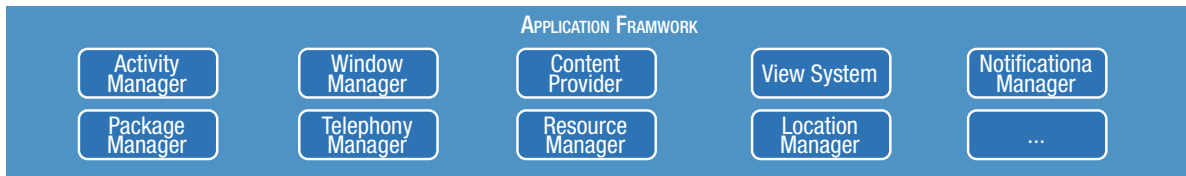
Together with the technical support, Digitax also provides Libraries, Code Samples and anything is required to let the customers to develop customized and proprietary applications by their own.

Digitax will provide technical support

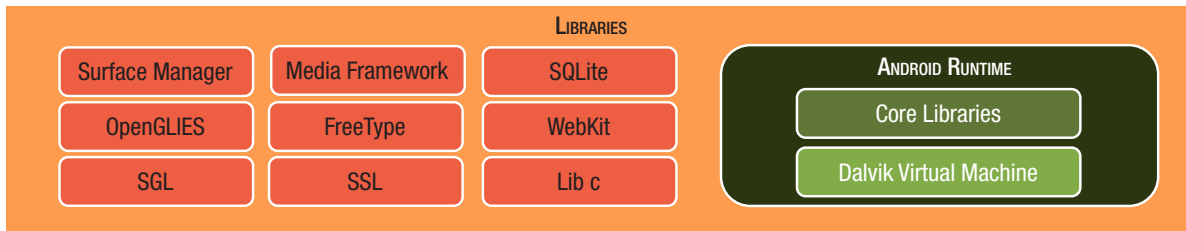
APP LAYER



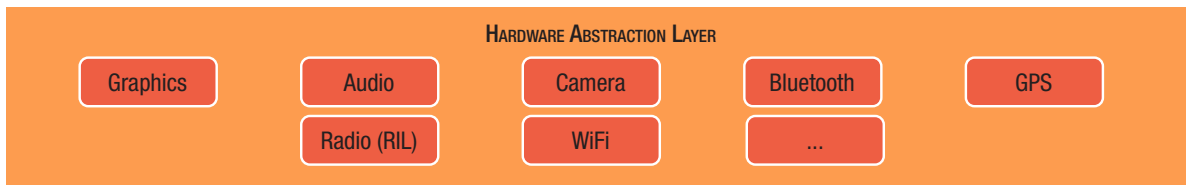
JAVA LAYER



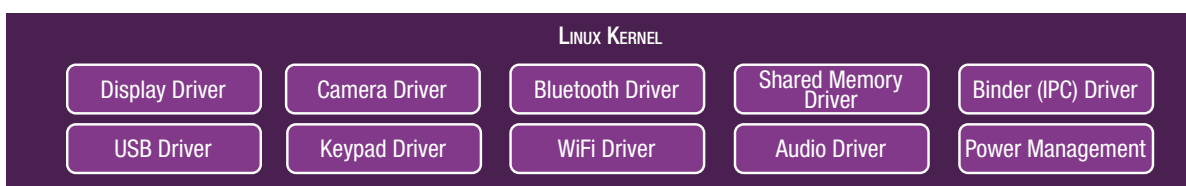
NATIVE LAYER



HAL



LINUX KERNEL



NOTES



Multiple horizontal dashed lines providing a ruled area for writing notes.

Digitax

AUTOMOTIVE ELECTRONICS



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MADE IN ITALY