

ATOMO -10



Digitax
AUTOMOTIVE ELECTRONICS

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.

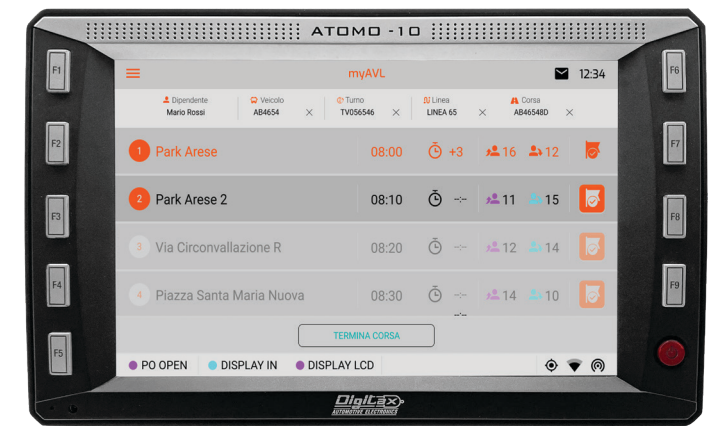
ATOMO – 10 is available as a stand alone Mobile Data Terminal (ATOMO – 10 MDT) as well as a ALL IN ONE integrated system (ATOMO – 10 ETS) made of the stand alone device, one or more Ticket Validators and one Printer, all of them produced and provided directly by Digitax, to allow the maximum flexibility for new setups or 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, Wifi and Bluetooth. Features like customisable user interface, navigation, job dispatching and many others.

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.

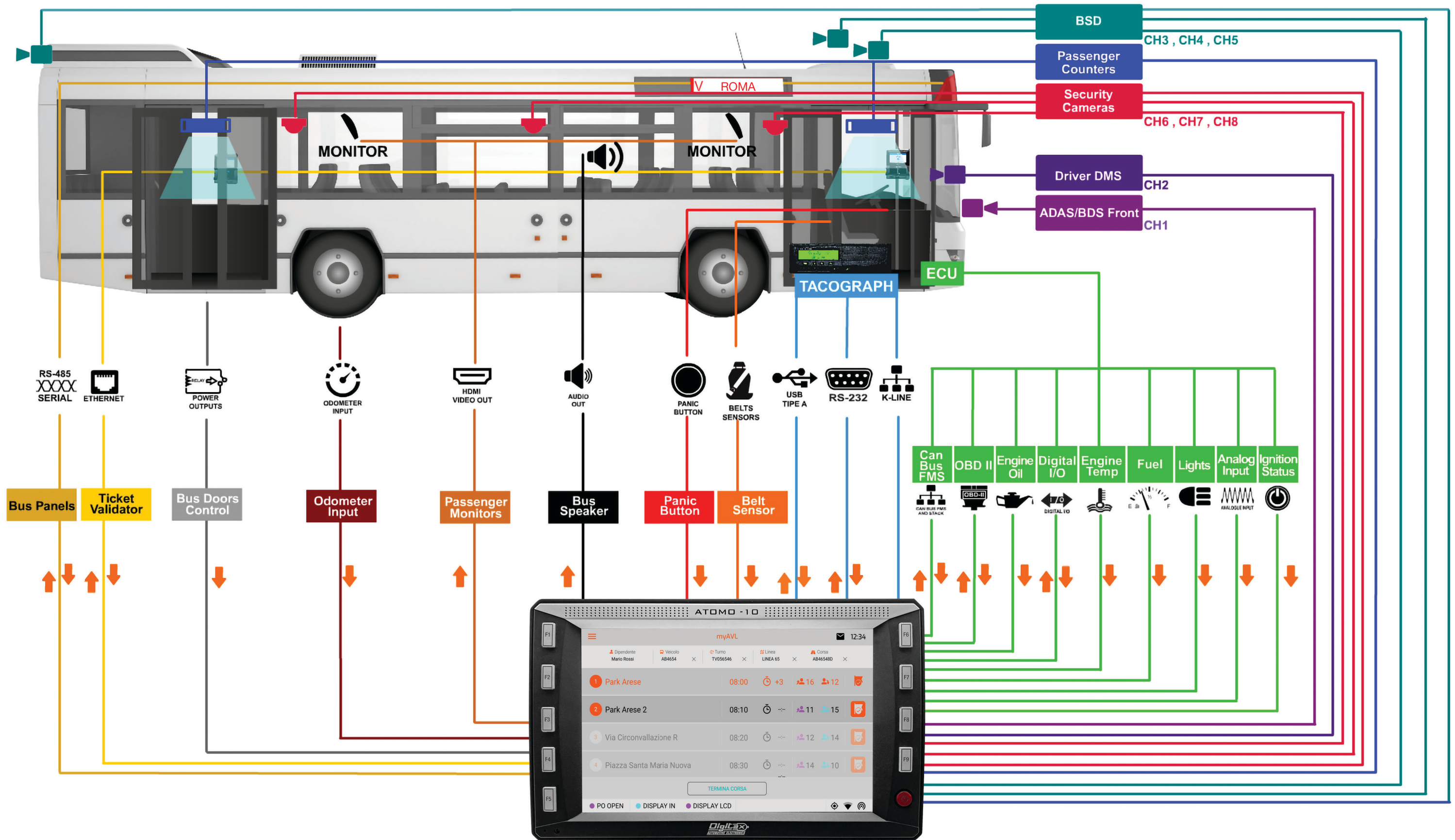


- ANDROID 9/10
- BACKUP BATTERY *
- RAM 2GB-3GB / STORAGE 16GB-32GB
- WIFI 2.4GB/5G
- CORTEX A53 64-bit
- 16:9 DISPLAY 10.1" 1K NITS
- GPS
- DIGITAX SDK
- ADRENO 506 GPU 64-bit
- EMBEDDED MNDVR *
- 4G LTE
- DEAD RECKONING *
- OCTA-CORE 1.8 GHz
- 9-AXIS ACCELEROMETER
- BLUETOOTH 4.2
- IP66

* OPTIONAL

ATOMO - 10 MOT

DIRECT INTERFACES



ATOMO - 10 MOT

ADDITIONAL FEATURES

DUAL CPU

PRIMARY CPU

The Octa-core, OS Android 9 - 10, LTE 4G 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 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, up to 7 RS232, 2 RS485 serial ports. In particular the special programmable digital I/O allow to bidirectionally interact with external generic devices and equipments.

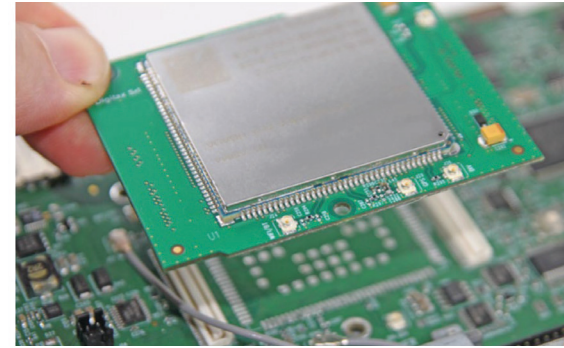
ATOMO - 10 MOT

OCTA CORE SYSTEM MAIN FEATURES

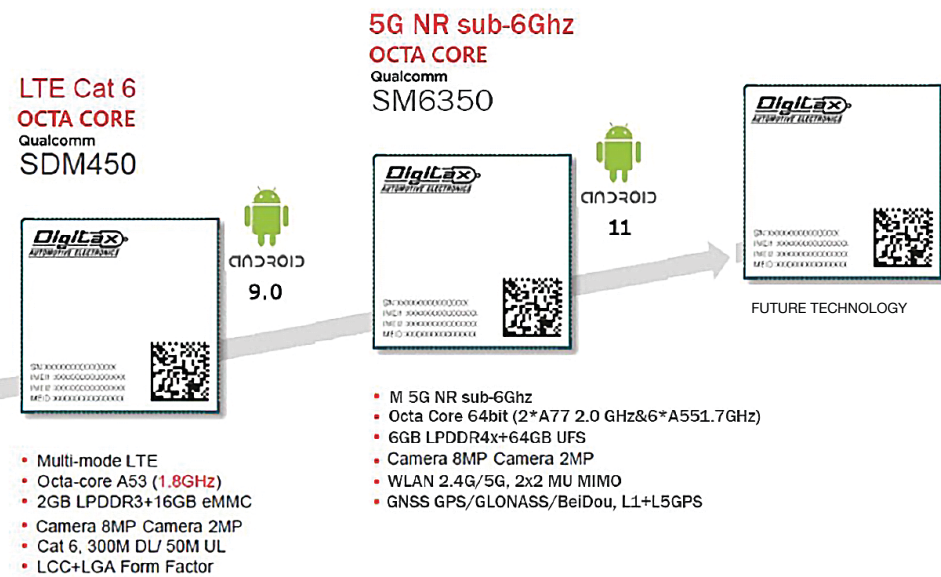
CPUs	Fanless Device with Primary CPU Qualcomm SDM450 chipset, Octacore ARM Cortex-A53 64-bit CPU @1.8GHz. Adreno 506 GPU: OpenGL ES 3.02, OpenCL3, content security, and decreased power consumption
GPU	Qualcomm® Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing
Secondary Intensive Task 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 GB LPDDR (3 GB Option)
Storage Solid State Hard Disk Memory	16 GB EMMC (32 GB Option)
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 Connection 2.4G/5.8G, 802.11 a/b/g/n Bluetooth class 2 BT2.1+EDR/3.0/4.1 LE.
Operating system	Android 9.x/10.x

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



CPU
 •MSM8909, QUALCUMM Quad-core A7, up to 1.1GHz

Memory
 •1GB LPDDR3 + 8GB eMMC
 •Option 2GB LPDDR3 + 16GB eMMC

OS
 •Android 7.1

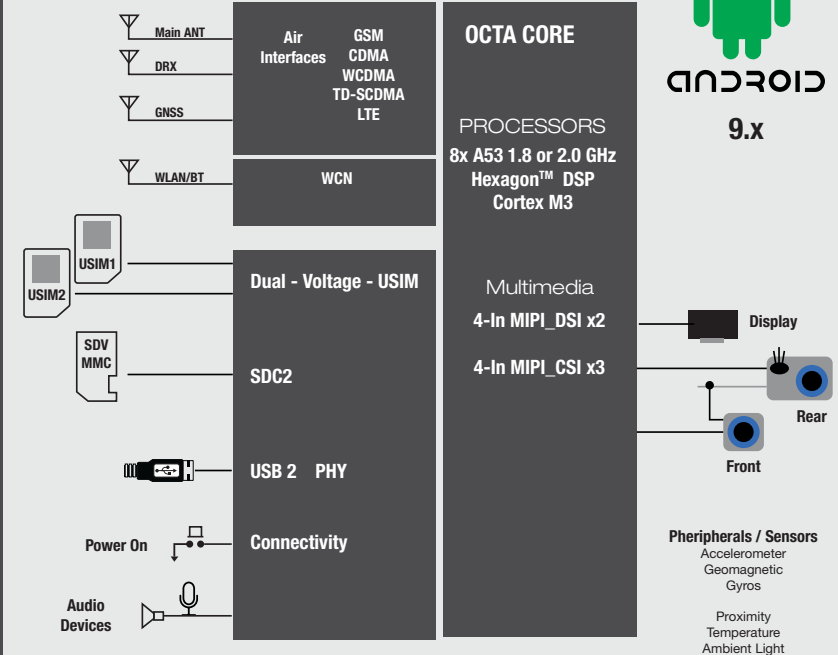
WLAN
 •2.4G/5G, 802.11 a/b/g/n
 •150Mbps, STA/AP/P2P

BT
 •BT 2.1 + EDR/3.0/4.1 LE /BT4.2
 •Support a maximum of 10 ACL/BEL/SCO links

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

Modem
 •LTE4G - 3GPP Release 10 compliant

Android



Digitax QUAD-CORE

•4-lane MIPI_DSI, 1.5Gbps/lane, HD (720P) @60fps
 •Support MIPI to RGB, MIPI to LVDS and MIPI to HDMI

Option Camera
 • 2 embedded cameras: 1 X 8mp 1 X 2mp 4-lane MIPI_CSI, 1.5Gbps/lane, 1 ISP, Bayer/YUV format

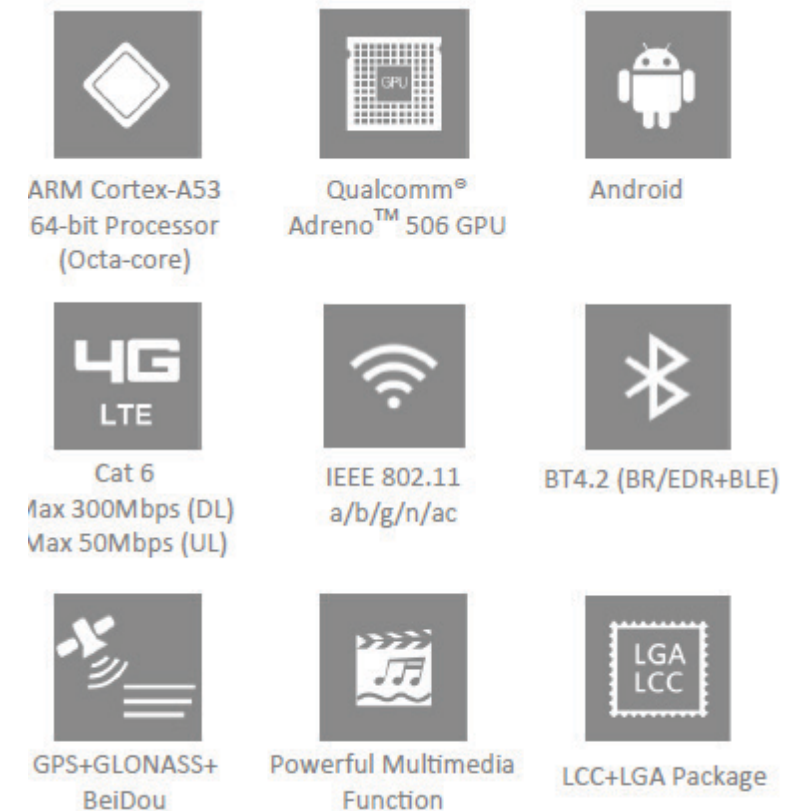
Touch panel
 •Capacitive-screen, I2C controls

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

Video
 •Encode: 720P (H.264) @30fps; WVGA (MPEG-4/VP8) @30fps
 •Decode: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @30fps; WVGA (H.263) @30fps

USB 2.0 Device
 •High Speed, 480Mbps
 •Support USB 2.0 OTG, USB OTG+Chargeand USB to Ethernet functions

(U)SIM
 •2 SIM online, 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	

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

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: HEVC/H.264/MPEG-4/DivX/H2631 PEG-2NP8NP9 Encoder: HEVC/H.264/MPEG-4/H263NP8	

Modem

Module	Modem							
	3GPP Re1	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

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 AP(32) & Wifi direct Wifi probe

Bluetooth

Module	BT			Profiles
	BT Chipset	Protocol		
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

GNSS

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

Features are subject to change without notice

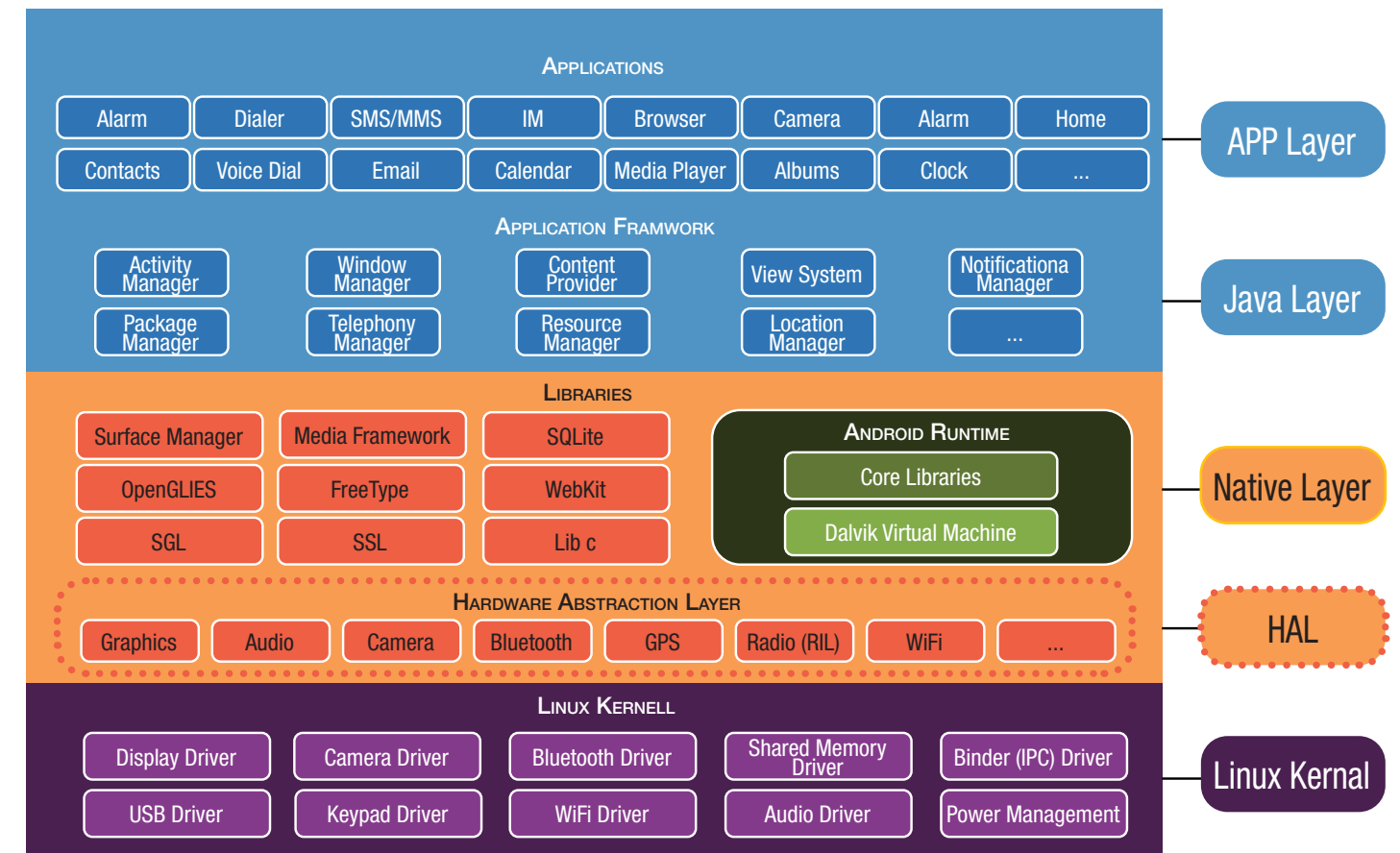
Software customization

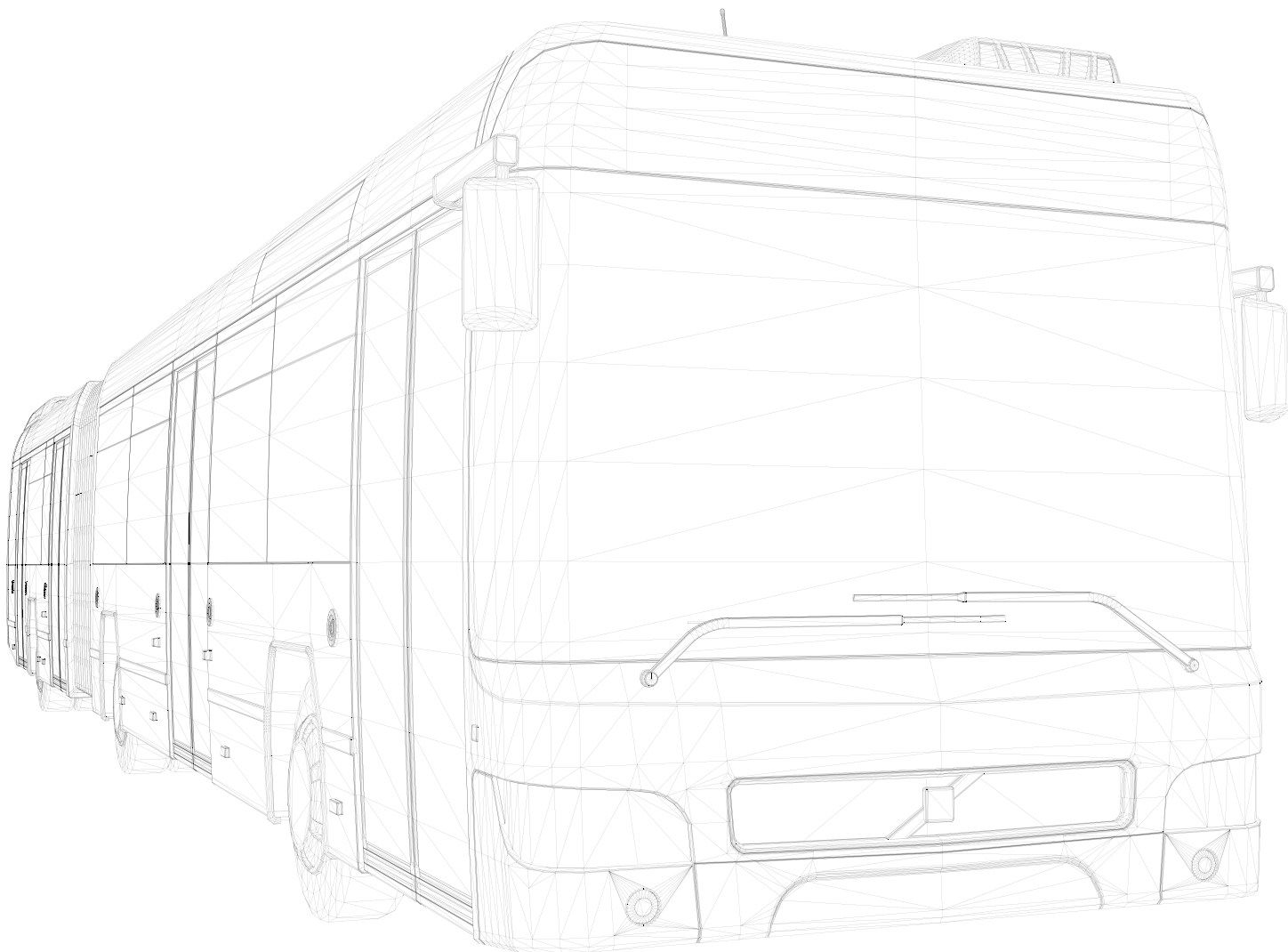
Software customization

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





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