

3GMDT+

Mobile Data Terminal



index

[Main Page](#)

[General concepts
& architecture](#)

[Technical](#)

[Specifications](#)

[Block Diagram](#)

[Development Tools](#)



The Most Powerful MDT available in the Market

- Main CPU and Companion Chipset 500 MHz - 1 GHz - 1,5 GHz
- X86 Architecture
- Multi OS Support: Win CE6 - XPe - XP Pro - Linux
- Secondary CPU for automotive intensive task



3GMDT+



3GMDT+

ALL-IN-ONE

DUAL CPU

VIAC7 Primary CPU is: 500MHz - 1Ghz - 1.5GHz with CX 700 Companion chipset and the x86 architecture allows this Device to supply a remarkable flexibility and efficiency in computing power.

Secondary CPU AITP (Automotive Intensive Task Processor) supplies the necessary functionalities in the automotive field, 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 upgrade, and is always powered ON; it can turn-ON and OFF the Device and all its peripherals.

IDEAL FOR FLEET MANAGEMENT AND JOB DISPATCHING

The Device represents the state-of-the-art device for job dispatching and fleets management, an ALL-IN-ONE powerful and compact solution.

Its modem GPRS allows very reliable communication with operating headquarters. The vehicle is located by the high performance GPS U-Blox 6 receiver with 50 channels, and compatible with the new European positioning system GALILEO.

Both GPS and GPRS modules can be powered ON and OFF regardless of Windows CE status.

An Hardware MUX Port is available which allows to send AT commands to the modem while the device is connected in GPRS, for example to request connection status, signal diagnostic and modem statistics.

All the communication and tracking features are assured by the AITP processor even when the Device is powered OFF: the GPS and GPRS modules are managed by the AITP both for power supply and for communication.

CUSTOMIZABLE USER INTERFACE

The 6.4 inches 4:3 clear readable TFT Displays with VGA (640x480 resolution) allow to develop versatile and high accessible applications, thanks also to the integrated TouchScreen controller, and to the 5 keys with LEDs available. Hardware Keys avoid consumption and damage of Touch Screen for heavily used operations.

The ambient light sensor allows to choose an optimal brightness of the display in any environmental light.

The power key is a Smart Power Button, completely programmable and used to perform several important tasks such as:

- normal press to start from System Disk
- long press to start from Hidden Disk (WinCE version) or SDHC Card
- long press to Shutdown the device safely

Can be also disabled or programmed to trigger Ghost Mode (fake shutdown).

TRIPLE BOOT FEATURE

Through this powerful functionality is possible to restore and to update the entire system anytime, starting from user application up to the complete operating system and all the CPU firmwares.

The system is able to boot from three different disks:

- Flash Disk, used for applications and data, visible by O.S.
- Protected Hidden Disk (Win CE), used for emergency boot, write protected with hardware signal, against undesired writings and not visible or accessible by O.S., even in case of crashes.
- SDHC for large data storage (large maps, images, movies, logs) and for service (system initialization or restore).

STEALTH MODE

Stealth mode is a special operating mode in which the system is working but the display is OFF. This feature can be useful in several situations:

- Driver Control: System has also the wake up on ring feature, so at the central it is possible to remotely turn-ON the device (also in stealth mode so nobody can see that it is starting) in order to check vehicle position, internal audio listening and other data.
- Ghost Mode: It is possible to set the device so that after pressing the shut down button the system goes on stealth mode instead of turning OFF. This feature is useful if you want the device to remain always ON (it turns OFF only the display, reducing power consumption) or in an alarm situation.
- Alarm managing: If system is OFF and alarm button is pressed the system can be started in stealth mode, so nobody can see that the system starts. On this special start the system can be programmed for example to send an alarm message to the central, GPS position or also screenshots or audio.

HIGH AVAILABILITY

The Device can withstand glitches at car start, or power loss problems thanks to the UPS Battery system, that is automatically recharged.

The AITP processor gives time to user applications and Windows to close gracefully and safely in case of sudden disconnection of the Main Power.

INPUTS AND OUTPUTS

The Device supplies a wide range of communication channels with the external environment: two USB Host and up to 4 Serial Ports.

The special programmable digital inputs and outputs allow to control devices and read signals coming from generic external equipments.

VIDEO GRABBER

A Build-In RGB Video Grabber Input can be used to acquire Analog video streaming and save images coming from a security camera, or to show real time fluid videos (Full screen or window overlay mode). A Device digital output is dedicated to power-ON the camera and its IR LEDs if needed. After connecting an external source, videos can be shown on a secondary VGA display, for example for advertising or leisure.

Technical Specifications

Display
Viewing area 6.4" diagonal
Aspect Ratio 4:3
VGA 640x480 Resolution
Colour TFT Double Replaceable CCFL Display
Display clearly viewable with 400 cd/m2
Ambient Light Sensor with 32 Steps Automatic Regulation

Touchscreen
Automotive Full Rugged Pen/Finger Touchscreen.
Extended Temperature Range

CPUs
Primary CPU VIAC7 x86 500MHz up to 1.5 GHz
CX700 Companion Chipset
Additional processing power for 3D graphics, multimedia, and streaming functions
Secondary RISC CPU for Automotive Intensive Tasks
Automatic and Programmable Fan control with Internal Temperature Sensor and PWM Driver

Ram Memory
256MB up to 1GB RAM Memory

Storage Memory
256 MB up to 4 GB capacity of Internal Flash Memory
128 MB Protected Hidden Disk (Soldered Flash Disk, available with WinCE version) Bootable
SDHC (High Capacity compatible) socket

GPRS Modem
GSM / GPRS Class 10
Modem can be powered on when the terminal is off.
Wake-up on ring programmable features
Warm reset and cold reset (dedicated electronic circuit) available through API calls
2 Hardware RS232 Serial Ports available on the modem (Hardware MUX) allow both RAS and AT command from user applications
2 Sim Card slots with Software switcher available through API calls
Support international standard protocol (ETSI AT command set)
Supports RAS (Remote Access Service) dialup function
GPS / GPRS Rugged Combo antenna (option)

GPS Receiver
Ublox 6 SuperSense Technology and Indoor Navigation, new generation GPS chipsets with improved precision and fast acquisition of position fix on start up and sleep mode
50 Channels, 2 Million correlators, GALILEO Compatible
Antenna Monitor (Disconnection and Short Circuit Detection / Protection)
GPS / GPRS Rugged Combo antenna (option)
- Hot starts: < 1 s
- Warm starts: 29 s
- Cold starts: 29 s

Supports international NMEA standard format and proprietary UBX Binary protocol
Messages interval up to 4 Hz Frequency
Warm reset and cold reset (dedicated electronic circuit) available through API calls
Assisted GPS (A-GPS) available

USB Ports
2 USB Host (with USB Support for Mouse and Keyboard)

Wireless Connections
Built-in Bluetooth EZURIO Bism2 (option)
Class 1 Bluetooth version 2.0
Range in excess of 300 metres and Data transfer rate up to 300 kbps

Hardware Keys
5 Lighted and Software programmable Hardware Buttons

Power on key
1 Power On/Off button

Serial Ports
4 External RS232 Serial Ports
2 RS232 Serial Ports available on embedded meter to connect 2G IU, Printer and Smart Roof sign (Option)

I/O ports connection
6 Digital Inputs
2 Analog Inputs
7 Power Output Ports
Dedicated Ignition input
Dedicated Emergency Switch input
1 PS2 Keyboard Connector
Video Grabber RGB Composite Input Port

Alarm and Security
Panic Button input
Stealth Mode Controller (system ON display, audio and lightings off)

Stealth Display Feature
Fully Programmable Stealth display mode, Screen saver mode and sleeping mode by:
- Power Button
- Hardware Key
- API
Enable Switching Off LCD without powering down MDT unit.

Multimedia
Speaker and Microphone
Supports wave speaker volume control
API provided
Playback wave and speech files

Boot
Triple Boot Manager (Flash Disk, SDHC Card, Hidden Protected Disk) with FileSystem Integrity Check, OTA Application update, Peripheral GPS and GPRS Power Management
Customizable Boot Up Splash Screen with End-User Logo
Soft/Hard Reset
Soft Reset available through HW switch
Soft Reset available by API calls
Hard Reset available by microSDHC Card (Factory default)
Safe Windows shutdown procedure.
Preshutdown notification
Disk Activity Signal Control
On-Board UPS
Operating System
WinCE .NET 6.0 or Windows Embedded Standard 2009, with ATL, MFC, .NET Compact Framework 3.5 SP1 and Digitax Framework 4.1
Development Tools
ActiveSync 4.5 (last version available) and USB debugging with ActiveSync support
SDK for Embedded Visual C++ 4.0 (EVC4)
Sample code for SDK in C++
Compact Framework 3.5 supported
Digitax Framework 4.1 (Digitax Libraries): GPS, GPRS, VoiceCall, I/O, Odometer, Taximeter, Hardware Keys, WatchDog, OTA, Windows Status, Stealth Mode Controller, Logs, Backup And Restore, Light Dimmer, Hardware Identification, Splash Screen, Alarm, Card Reader and Windows Status
Serial port driver and test tools
Digital I/O driver, API (DLL) and test tool
Read/Write Windows CE registry application and API to Supports permanent saving of system settings into registry
Software controllable Warm Restart and test tool
GPRS modem driver and test tool
GPS driver and test tool
Speaker and MIC test tool, wave playback and voice recorder
Contactless / NFC reader driver and test tool
Backlight control API and test tools
Ping tool
Dialup network
GSM phone dialer
Support network protocol TCP/UDP, IP, PPP
Virtual keypad
Text File editor
Explorer
Text-To-Speech
Support 3rd party Text-To-Speech

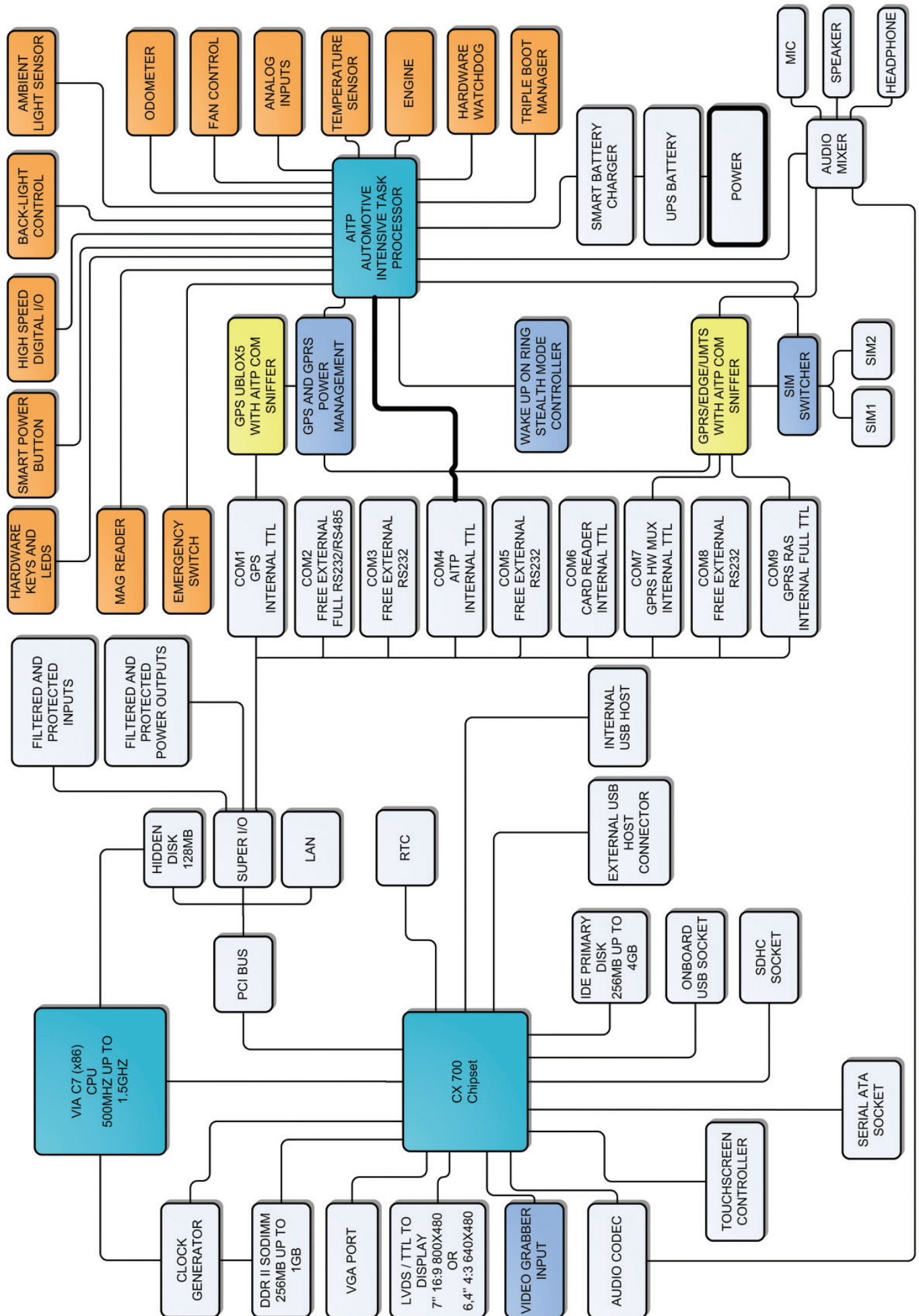
Software Navigation
Support 3rd party map application and navigation software with SDK
System diagnostic tools
On Field Test (OFT) OnBoard Diagnostic Utilities included, with Customizable CheckList to make tests of GPS Fix, GPS Antenna, GPRS Connectivity and Base Station Signal Quality, Odometer, Ignition, Panic Button, TouchScreen calibration, Hardware Keys, Ambient Light Sensor, Device version, OS Version, AITP Version, Taximeter, UPS and Battery Status, Roof Light, Navigation Software
All On Field Tests and enrolling features can be used during first installation and swap of devices.
OS Image Loader
Over The Air (OTA) OS image loader or microSDHC Card Image Loader
System Update Fleet Management
Professional OTA (Over The Air) CLIENT allows the update of the whole Operating System and all the CPUs Firmware (option).
Professional OTA (Over The Air) SERVER with vehicles enrolling, group management and selective update, remote debugging and logging. Web based user interface (option)
Taximeter
Embedded Hardware Taximeter (option) Full Firmware and TARIF OTA Programmable
Power Supply
9 - 16 V with Surge Protector
Battery
On-Board UPS with External Battery Package, Standard Battery Pack 30 minutes
Mounting
All the External Connectors, Accessible slots (such as SIM Card, SDHC, USB, etc.) and Screws are Sealed
Operating Temperature
-20°C to 70°C
Humidity
Humidity up to 95% non-condensing.
Vibration
Vibration Sine wave, 10 ~ 500 ~ 10Hz, 1.5G, 0.37oct/min 3 axis, 1hour/axis.
Dust Ingress Protection
All connectors covers sealed
Dimension
209 mm x 154 mm x 67 mm (H x W x D)

3GMDT+

Rear View



Block Diagram





3GMDT+

OPERATIVE SYSTEM AND DEVELOPMENT TOOLS

Microsoft Windows Operative System and Compact Framework 3.5 combined with the complete Digitax Framework 4.1 allow the developers to create their applications and their services with the maximum simplicity and in very reduced time.



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



Microsoft Partner
Silver OEM Hardware

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

Digitax CO. Mauritius

P.O. box 775
Bel Village
MAURITIUS

Phone +230 234 4533/4936

Fax +230 234 5866

Web: www.mtl-co.net

E-mail: mtlts@intnet.mu