Product Selection Book
Intelligent Transportation Systems
Certified Fanless Computer

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AI GPU COMPUTING
IN-VEHICLE COMPUTING
EMBEDDED COMPUTING
VIDEO SURVEILLANCE
About SINTRONES
Your Trusted Partner - In-Vehicle Computer

SINTRONES is a world-renowned and ISO 9001 & IRIS ISO/TS 22163 certified company of in-vehicle computing system products. We are dedicated to provide our customers with high quality system products that meet international traffic standards certification, including EN50121, EN50155, E-Mark, IEC60945, IACS E10, DNV and MIL-810.

Our team has years of product design and sales experiences in X86 platforms as well as vertical system integration of applications. Our in-vehicle computing products were awarded several patents in many countries across the world. With reliable and powerful engineering ability in R&D, SINTRONES provides stable and high-quality product solutions align with customers’ short and long-term needs. We are proud of the passion, agility, and professional efficient service we offer.

SINTRONES in-vehicle computing solutions aim to complement our customers’ success. We thoroughly integrate internal and external resources of sales, R&D, product planning and marketing to truly perform professional, high-quality and simultaneous services and create maximal value for our customers with best C/P ratio products. SINTRONES in-vehicle computing solutions have been widely adopted and approved by many well-known international brands and companies in industries.

Why SINTRONES?
Intelligent Transportation System

1. One-stop service
2. 100 Percent in-house R&D and Taiwan Manufacturing
3. 1,000+ Customers across over 100 countries
4. 100,000 Devices are provided by SINTRONES worldwide

Technologies
Environmental Design
It is a dedicated know-how for every environment to design, develop and manufacture high-quality and reliable products. SINTRONES is focusing on product stability and would like to be a leader among competitors.

- IP65 Standard
- Fanless Design
- Extended Temperature :-40~70°C
- Vibration & Shock
- Low Profile & Compact Design
- Sunlight Readable for LCD & Touch Screen

Software Service
- A Variety of OS Support,(Include Win 10, Win 7, WES7, Linux)
- Pre-load OS Image Service
- Software Utility, API

Flexible ME Design Service
- Customized Chassis
- Customized Logo
- Customized I/O
- Customized Placement

Patent Certificate
- M47854
- M482200
- M565941
SINTRONES has introduced the EN50155 certified VBOX-3620-M12X Intel Gen6 Core i7 CPU 2.6GHz (up to 3.4GHz) with HD 520 GPU On-Board Computer. The VBOX-3620-M12X On-Board Computer features triple independent display (2 x DP Port / VGA) outputs that can play Full HD video, 2 x RS-232/422/485, 2 x RS-232 w/ isolation (auto direction control), 3 x Intel LAN ports (Can be used M12 connectors), and 2 x USB 3.0 & 2 x USB 2.0 hosts and wide range 9-36V DC input with power ignition control and power off delay time.

The VBOX-3620-M12X includes 2 x SIM card sockets, 1 x M.2 slot, 3 x Mini-PCIe slots for additional LTE, 3G, Wi-Fi, Bluetooth, GPS and 4~8 channels D1 video capture input for mobile surveillance on buses & trains. The VBOX-3620-M12X On-Board Computer is ideal for mobile digital video recorder (Mobile DVR), mobile digital signage (MDS) and railway applications.
In-Vehicle Computing

Fleet Management Platform

Mobile DVR Solution

Applications

- Autonomous Vehicles
- AI Automations
- Smart Patrol
- Mobile License Plate Recognition
- Train Public Transportation Surveillance
- Police Car Real-time Voice & Data Communication
- Identification Patrol Waste Truck Logistic Service
- Bus Transit Infotainment Systems
- Ambulance Emergency Medical Services
- Truck Fleet Management

SINTRONES, the innovative provider of solutions in the global In-Vehicle computing, is proud to introduce the new ABOX-5200G4 and ABOX-5200G1 with Intel GEN 8th 6 Cores i7-8700T. ABOX-5200G4 and ABOX-5200G1 can support not only autonomous vehicles, deep learning A.I., automatic factory, but also apply to Smart Patrol and ADAS (Advanced Driver Assistance Systems).

New ABOX-5200G4 and ABOX-5200G1 Fanless AI Box Computers are powered by Intel GEN 8th 6 Cores i7-8700T CPU with NVIDIA® GeForce GTX technology: ABOX-5200G4 powered by GTX 1060 GPU while ABOX-5200G1 powered by GTX 1050TI GPU. It can provide high computing performance on more broadly to accelerate computational workloads. The new ABOX-5200G4 supports 1280 CUDA Cores and ABOX-5200G1 supports 768 CUDA Cores.

Regards to expansion capability, ABOX-5200G4 and ABOX-5200G1 both have 8 x GPI, 4 x GPO and 3 x RS-232/422/485 to connect and 10 x GbE LAN (Optional for 8 x PoE) with Dual Hot Swappable SATA Storage RAID 0,1,5. In terms of operating in extreme weather conditions, ABOX-5200G4 has wide range operating temperature -40°C ~ 60°C and ABOX-5200G1’s operating temperature range is -40°C ~ 70°C.

To highlight, ABOX-5200G4 and ABOX-5200G1 fanless AI box computers can process deep learning operations with NVIDIA CUDA technology, support end-to-end deep learning solutions which play a vital role for autonomous vehicles and automatic factory. Furthermore, ABOX-5200G4 and ABOX-5200G1 can be applied to assist the system to detect objects, do basic classification and alert the drivers (i.e. Smart Patrol, ADAS monitoring and warning).

Key Features:

- Intel GEN 8th 6 Cores i7-8700T
- NVIDIA® GeForce GTX 1060 GPU (G4) / 1050TI GPU (G1)
- Support 1280 CUDA Cores (G4) / 768 CUDA Cores (G1)
- 8 x GPI and 4 x GPO and 3 x RS-232/422/485
- Dual Hot Swappable SATA Storage RAID 0,1,5
- 9-48V DC Input and Operating Temp.: -40~60°C (G4) / -40~70°C (G1)
- 10 x GbE LAN (Optional for 8 x PoE)
GPS Dead Reckoning Navigation with Gyro sensor provides 100% coverage with continuous position fixes even in tunnels still working well. 3-axis accelerometer G-sensor provides Auto SOS for driving safety and recording Driver behavior. GPS Antenna can be supported auto detection.

GPS Dead Reckoning and G-Sensor

Fig 1. Positioning while GPS signals are lost

Fig 2. Positioning while under multipath propagation
### In-Vehicle Computer Reference Table

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<td>N/A</td>
<td>DDR3 2GB</td>
<td>2 x 2.5” HDD/SSD</td>
<td>1 x mSATA</td>
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<td>BT 4.0</td>
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<td>ABOX-5100D</td>
<td>Intel Gen 6</td>
<td>N/A</td>
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<td>2 x 2.5” HDD/SSD</td>
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<td>N/A</td>
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<td>DC 3 ~ 48V</td>
<td>DC 9 ~ 48V</td>
<td>CE, FCC Class A, E13</td>
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### ABOX-5200

**Intel 8th Gen Core i7/5/3 CPU w/ 10 x GbE (Optional for M12 connector and 8 x PoE total Max. 100W) 3 x COM/ 3 x DP/ 4 x USB 3.0/ 9-48V Input AI GPU Computing**

**Features**
- Intel 8th Gen Core i7/5/3
- 10 x GbE LAN (Optional for M12 connector and 8 x PoE total Max. 100W)
- 8 x GPO, 4 x GPO and 3 x RS-232/422/485
- 5 Display Ports
- Dual Hot Swappable SATA Storage RAID 0,1,5
- 9-48V DC Input and Operating Temp.: -40~70°C
- TPM 2.0

**System**
- **CPU**: Intel Core i7-8707T (12MB Cache 2.4GHz up to 4.4GHz), Intel Core i5-6407T (8MB Cache 2.0GHz up to 3.3GHz)
- **Memory**: Intel Core i5-6407T (8MB Cache 2.0GHz up to 3.3GHz)
- **LAN Chipset**: Intel 82583V (82583V), Intel 82587V (82587V)
- **Video**: HDMI 1.4, DisplayPort 1.2

**Graphics**
- **GPU Computing**: Intel Core i7-8707T (12MB Cache 2.4GHz up to 4.4GHz), Intel Core i5-6407T (8MB Cache 2.0GHz up to 3.3GHz)

**Environmental**
- **Operating Temp.**: -40~70°C
- **Relative Humidity**: 10% RH ~ 90% RH (non-condensing)
- **Vibration (random)**: 10~500Hz, 11ms (11ms)
- **Shock**: MIL-STD-810G, Method 516.6, Procedure I, Category 4

**Mechanical**
- **Construction**: Aluminum Alloy
- **Mounting**: Wall/mounting
- **Weight**: 510g (non-bond)
- **Dimensions**: 260 x 250 x 95 (mm)

**Ordering Information**
- **Part Number**: ABOX-5200P-I7 (Optional for i5/i3/C1 with PoE)
- **Description**: Intel 8th Gen Core i7/5/3 CPU w/ 10 x GbE 3 x COM/ 3 x DP/ 4 x USB 3.0/ 9-48V Input AI GPU Computing
- **State of Origin**: Made in Taiwan
**ABOX-5200G4**

Intel Gen 8th 6 Cores i7 CPU w/ 10 x GbE (Optional 8 x PoE)/ 3 x COM/ 3 x DP/ 4 x HDMI/ 4 x USB 3.0/ NVIDIA® GeForce GTX 1060 1280 CUDA cores GPU/ DC 9-48V Input APU Computing

**Features**
- Intel Gen 8th 6 Cores i7-8700T
- NVIDIA® GeForce GTX 1060 GPU
- Intel GEN 8th 6 Cores i7-8700T (with PoE)
- Intel Gen 6th 6 Cores i5-6500T (with PoE) / 3 x COM / 3 x DP / 4 x HDMI / 4 x USB 3.0 NVIDIA® GeForce GTX 1060 1280 CUDA cores GPU/ DC 9-48V Input APU Computing

**Specifications**
- CPU: Intel Gen 8th 6 Cores i7-8700T (12M Cache 2.60GHz up to 4.40GHz)
- Memory: 9V - 48V DC Input and Operating Temp.: -40~70°C
- Storage: Dual Hot Swappable SATA Storage RAID 0, 1, 5
- Power: 8 x GbE LAN (Optional for 8 x PoE)
- Expansion: 8 x GbE LAN (Optional for 8 x PoE)
- I/O: 6 x Full Mini-PCIe Slots and 1x M.2 A-E Key 2230 slot
- Audio: 1x Line-out, 1x Line-in, 1x Mic-in
- Interfaces: 2 x SIM Card Sockets for 3G/LTE

**Software**
- Operating System: Win 10, Ubuntu 18.04.46bit
- Graphics: NVIDIA® GeForce GTX 1060 GPU 1280 CUDA cores
- Power Supply: 9-48V DC Input and Operating Temp.: -40~60°C
- Power Management: Vehicle Power Ignition for Variety Vehicle

**Mechanical**
- Construction: Wall-mount
- Dimensions: 260(L) x 250(W) x 95(H) mm
- Weight: 5250g (bare-bone)

**Certifications**
- CE, FCC Class A, E13
- Environmental: MIL-STD-810G, Method 514.6, Procedure I, Category 4

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**ABOX-5100**

AMD Ryzen™ Embedded V1000 Processor w/ 8 x GbE/ 2 x COM/ 4 x DP/ 4 USB 3.0/ 9-48V Input APU Computing

**Features**
- AMD Ryzen™ Embedded V1000 Platform
- Vega GPU with up to 11 Compute Units and 4 x DP 1.4
- 8 x GbE, 4 x GPO and 2 x RS-232/422/485
- Dual Hot Swappable SATA Storage 9-48V DC Input and Operating Temp.: -40~70°C
- 8 x GbE LAN (Optional for 8 x PoE)

**Specifications**
- CPU: AMD Ryzen™ V1807B Quad Core Soc (3.3~3.6GHZ)
- Memory: 2 x 2.5G 2400 MHz SO-DIMM up to 32GB
- LAN Chipset: Intel i210
- Watchdog: 1 x 255 Level Reset
- TPM: 2.0
- I/O:
  - Serial Port: 3 x RS 232/422/485
  - USB Port: 4 x USB 3.0 Ports
  - LAN: 8 x Rj45 Ports for GbE (Optional for 8 x PCIe total 100W max.)
  - Video Port: 4 x DP
  - Audio: 1x Line-out, 1x Line-in and 1x Mic-in
  - Expansion Bus: 3 x Full Mini-PCIe Slots and 1 x M.2 A-E Key 2230/3200 slot (2 x SIM Card Sockets for 3G/LTE)

**Software**
- Operating System: Win10 LTSC 1809, Ubuntu 18.04 64bit
- Graphics: AMD Next-generation Graphics Core and Multimedia Vega GPUs with up to 11 Compute Units H.265 (10-bit) Encode, VP9 Decode Up to 4x DisplayPort 1.4
- Power Supply: 9-48V DC Input and Operating Temp.: -40~60°C
- Power Management: Vehicle Power Ignition for Variety Vehicle

**Mechanical**
- Construction: Wall-mount
- Dimensions: 260(L) x 226(W) x 95(H) mm
- Weight: 5250g (bare-bone)

**Certifications**
- CE, FCC Class A, E13
- Environmental: MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Operating: MIL-STD-810G, Method 516.6, Procedure I, Trucks and semi-trailers=150 (1tms) with SSD
- State of Origin: Made in Taiwan
**ABOX-5100G**

**AMD Ryzen™ Embedded V1000 Processor w/ 8 x GbE/ 2 x COM/ 4 x DP/ 4 x HDMI/ 4 USB 3.0/ AMD Radeon™ E9260 GPU/ 9-48V Input AI GPU Computing**

**Features**
- AMD Ryzen™ Embedded V1000 Platform
- AMD Embedded Radeon™ E9260 GPU
- 8 x GbE, 4 x GPO and 2 x RS-232/422/485
- Dual Hot Swappable SATA Storage
- 9-48V DC Input and Operating Temp.: -40~60ºC
- 8 x GbE LAN (Optional for 8 x PoE)

**Software**
- Operating System: Win10 LTSC 1809, Ubuntu 18.04 64bit

**System**
- CPU: AMD Ryzen™ V1807B Quad Core Soc (3.3~3.6GHz)
- Memory: 2 x DDR4 2400 MHz SO-DIMM up to 32GB
- LAN Chipset: Intel i219
- Watchdog: 1 ~ 255 Level Reset
- TPM: 2.0
- Power Input: 9-48V Input AI GPU Computing

**Environmental**
- Operating Temp.: 20ºC ~ 30 ºC (CPU configure at 25W, ambient w/ 0.6m/s airflow)
- Storage Temp.: -20ºC ~ 80ºC
- Relative Humidity: 10% ~ 90% (non-condensing)
- Vibration (random): ECD0008-2.64, random, 2.5G@5500Hz, 1hr/axis with SSD
- Vibration Operating: MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Operating: MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Trucks and semi-trailers=15G (11ms)

**Graphics**
- NVIDIA® GeForce GTX 1050 GPU
- Support for DirectX® 12 (Feature Level 12_0) features
- Support for Mantle and AMD LiquidVR™
- Support for OpenGL 4.5 and OpenCL™ 1.2 Support for Direct3D® 12 (Feature Level 12_0) features

**Ordering Information**
- Part Number: ABOX-5100G-V1807
- Description: AMD Ryzen™ Embedded V1000 Processor w/ 8 x GbE/ 2 x COM/ 4 x DP/ 4 x HDMI/ 4 USB 3.0/ AMD Radeon™ E9260 GPU/ 9-48V Input AI GPU Computing

**Power Requirement**
- Power Input: 48V - 48V DC Power Input
- Power Protection: Automatic Recovery Short Circuit Protection
- Power Management: Vehicle Power Ignition for Variety Vehicle

**State of Origin**
- Made in Taiwan

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**ABOX-5000G1**

**Intel 6th/7th-Gen Quad Core Xeon/ Core i7/5/i3 CPU w/ 6 x GbE/ 3 x COM/ 7 x HDMI/ 4 USB 3.0/ NVIDIA® GeForce GTX 1050 GPU/ 9-48V Input AI GPU Computing**

**Features**
- Intel 6th/7th-Gen Quad Core Xeon/Core i7 CPU
- NVIDIA® GeForce GTX 1050 GPU
- Support 768 CUDA Cores
- 8 x GbE and 4 x GPO and 3 x RS-232/422/485
- Dual Hot Swappable SATA Storage RAID 0,1,5
- 9-48V DC Input and Operating Temp.: -40~70ºC
- 6 x GbE LAN (Optional for 6 x PoE)

**Software**
- Operating System: Win 10, Ubuntu 16.04 64bit

**System**
- CPU: Intel Xeon E3-1268L v5 (8M Cache, 2.4GHz up to 3.4GHz)
- Memory: 2 x DDR4 2133 MHz SO-DIMM up to 32GB
- LAN Chipset: Intel i219
- Watchdog: 1 ~ 255 Level Reset
- TPM: 2.0
- Power Input: 9-48V Input AI GPU Computing

**Environmental**
- Operating Temp.: 0~70ºC, ambient w/ 0.6m/s airflow
- Storage Temp.: -40ºC ~ 70ºC, ambient w/ 0.6m/s airflow
- Relative Humidity: 10% ~ 90% (non-condensing)
- Vibration (random): ECD0008-2.64, random, 2.5G@5500Hz, 1hr/axis with SSD
- Vibration Operating: MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Operating: MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Trucks and semi-trailers=15G (11ms)

**Graphics**
- NVIDIA® GeForce GTX 1050 GPU (768 CUDA Cores)
- Support for OpenGL 4.5 and OpenCL™ 1.2 Support for Direct3D® 12 (Feature Level 12_0) features

**Ordering Information**
- Part Number: ABOX-5000G1-D0-P01
- Description: Intel 6th/7th-Gen Quad Core Xeon/ Core i7/5/i3 CPU w/ 6 x GbE/ 3 x COM/ 7 x HDMI/ 4 USB 3.0/ NVIDIA® GeForce GTX 1050 GPU/ 9-48V Input AI GPU Computing

**Power Requirement**
- Power Input: 48V - 48V DC Power Input
- Power Protection: Automatic Recovery Short Circuit Protection
- Power Management: Vehicle Power Ignition for Variety Vehicle

**State of Origin**
- Made in Taiwan
**ABOX-5000**

Intel 6th/7th-Gen Quad Core Xeon/ Core i7/i5/i3 CPU w/ 4 x GbE/ 4 x ISO COM/ 2 x DP/ VGA/ 4 USB 3.0 Fast Expansible Slot 9-36V Fanless Computer

**Features**
- Intel® 6th/7th-Gen Quad Core Xeon/Core i7 LGA1151 CPU
- Fast Expansible Slot support PCI-E, USB, SMBus, GPIO and SATA
- 9-36V DC input and operating Temp.: -40 ~ 70ºC
- Fast Expansible Slot support PCI-E, USB, SMBus, GPIO and SATA

**System**
- CPU: Intel® 6th/7th Gen Quad Core Xeon/ Core i7/i5/i3
- Memory: 2 x DDR4 2133 MHz SO-DIMM up to 32GB
- Chipset: Intel® Q170 for Intel 6th-Gen Skylake-S Core-i series
- LAN Chipset: Intel 2x 82576EB + 2x 82583V (optional)
- Watchdog: 1 ~ 255 Level Reset
- TPU: 2.0

**Power Requirement**
- Power Input: 9V - 36V DC Power input
- Power Protection: Automatic Recovery Short Circuit Protection
- Power Management: Vehicle Power Ignition for Various Vehicle
- Power Off Control: Power off Delay Time Setting by BIOS and Software

**Environmental**
- Operating Temp.: -40ºC ~ 70ºC (Default CPU 39Watts, ambient w/ 0.6m/s airflow)
- Storage Temp.: -40ºC ~ 80ºC
- Relative Humidity: 10% RH ~ 90% RH (non-condensing)

**Vibration**
- Vibration (random): EC20089-2.44, random, 2.5G@50-500Hz, 1hr/axis with SSD
- Vibration Operating: MIL-STD-810G, Method 514.6, Procedure I, Category 4

**Shock**
- Shock Operating: MIL-STD-810G, Method 516.6, Procedure I

**Certifications**
- ISO: EN50155-4, Build-in Battery
- Patent No.: M447854

**Mechanical**
- Construction: Aluminum Alloy
- Mounting: 1U 19’ Rack mount
- Weight: 386g (Baseboard)

**Dimensions**
- Dimensions: 244(L) x 226(W) x 79(H) mm

**Software**
- Operating System: Win 10, Ubuntu 16.04 64bit

**Power Ignition**
- Vehicle Power Ignition for Various Vehicle
- Automatics Recovery Short Circuit Protection
- 9V - 36V DC Power Input

**Battery Backup**
- Internal Battery Kit for 10 Mins Operating (Optional)
- Power off Delay Time Setting by BIOS and Software

**Ordering Information**
- Part Number: ABOX-5000P-i7 Optional for i5/i3/C1 (with PoE)
- Description: Intel® 6th/7th Gen Quad Core Xeon/ Core i7/i5/i3 CPU w/ 4 GbE/ 4 x ISO COM/ 2 x DP/ VGA/ 4 USB 3.0 Fast Expansible Slot 9-36V Fanless Computer

**Made in Taiwan**
- TN447854

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**RBOX-1000-M12X**

Intel Gen6 Core i7-6600U CPU with Isolated 110VDC Input 6 x GbE with optional PoE

**In-Vehicle Computer/ EN50155 Railway Applications**

**Features**
- Intel Core i7-6600U / i5-6300U / i3-6100U
- Wireless support Laptop w/ SIM Card, GPS, BT(opction)
- 6 x GbE optional PoE
- Isolated wide Input Range 77-137V DC
- Dual Hot Swappable SATA Storage, RAID 0,1,5
- EN50155 Tx temperature and class S2 interruption

**System**
- CPU: Intel® Core i7-6600U / i5-6300U / i3-6100U
- Memory: 2 x SO-DIMM DDR4 up to 32GB
- Chipset: Intel® Core i7-6600U / i5-6300U / i3-6100U
- LAN Chipset: Intel® HD Graphics 520
- Watchdog Chipset: Intel® I210AT

**Power Requirement**
- Power Input: 100-240V AC 50/60Hz
- Power Protection: Automatic Recovery Short Circuit Protection
- Power Off Control: Power off Delay Time Setting by BIOS and Software
- Power Off Control: Power off Delay Time Setting by BIOS and Software

**Environmental**
- Operating Temp.: -40ºC ~ 70ºC (Tx temperature and class S2 interruption)
- Storage Temp.: -40ºC ~ 83ºC
- Relative Humidity: 10% RH ~ 90% RH (non-condensing)

**Vibration**
- Vibration Operating: EN50155-3
- Vibration Operating: EN50155-3

**Certifications**
- Certifications: EN50155, EN50121-3-2

**Mechanical**
- Construction: Aluminum Alloy
- Mounting: 1U 19’ Rock mount
- Weight: 2600g

**Dimensions**
- Dimensions: 380 x 300 x 44mm

**Ordering Information**
- Part Number: RBOX-1000-M12X
- Description: Intel® Core i7-6600U CPU with Isolated 110VDC Input 6 x GbE with optional PoE

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All specifications are subject to change without notice.
VBOX-3620-M12X

Intel Gen6 Core i7-6600U CPU with Isolated Input
3 x GbE and 1 x iAMT In-Vehicle Computer/
EN50155 Railway Applications

Features
- Intel Core i7-6600U / i5-6300U / i3-6100U
- Wireless support LTE w/ SIM Card, WLAN, GPS Dead Reckoning, BT (Optional)
- 3 x GbE including 1 with iAMT
- Isolated wide Input Range 9-36V DC
- Max. 8 x SIM card Sockets
- Dual Hot Swappable SATA Storage, RAID 0, 1, 5
- EN50155 Tx
- E-13 Certified

Specifications
- 1 x iAMT In-Vehicle Computer/EN50155 Railway Applications

System
- CPU: Intel® Gen6 Core i7-6600U 2.6GHz up to 3.6GHz
- Memory: 2 x DDR3L 2133 MHz and 1 x DDR3L 1600 MHz
- Audio: Realtek ALC882 HD Codec Onboard
- Watchdog: Watchdog Timer Support, Ofrr 1 – 255 Step
- I/O: 4 x RS-232/242/485, w/ isolation (Auto Direction Control)
- USB Port: 2 x USB 3.0 Ports, 2 x USB 2.0 Ports
- LAN: 1 x 10/100/1000 Mbit/s w/ 6 x M12 x-code (1 port with iAMT)
- Video Port: 2 x OP Port, 1 x VGA (Support Triple Independent Display)
- DIO Port: 6 x GPs and 4 x GPO w/ isolation
- Audio: 1 x Line-out and 1 x Mic-in (Line-in Optional)
- SIM Card Socket: 2 x SIM Card Sockets, supported onboard with eject
- Expansion Bus: 3 x Mini card slots
- Dimensions: 250 x 150 x 55 mm
- Weight: 1900g

Software
- Operating System: Win 10, Ubuntu 16.04 64bit
- Graphics: Intel® HD Graphics 520
- Software: Support Dual Hot Swappable SATA Storage, RAID 0, 1, 5

Environmental
- Operating Temp.: -40ºC ~ 70ºC, ambient w/ 6%fs airfow
- Storage Temp.: -40ºC ~ 85ºC
- Relative Humidity: 10% RH ~ 90% RH (non-condensing)
- Vibration (random): MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Operating MIL-STD-810G, Method 516.6, Procedure I, Category 4
- Certifications: CE, FCC Class A, E13, EN50155, EN60950, EN60068-2-14, 2000-28-000-006-312, 100V(1000V)

Ordering Information
- Part Number: VBOX-3620-M12X
- State of Origin: Made in Taiwan

VBOX-3611

Intel Gen6 Core i7-6600U CPU with HD 520 GPU
On-Board Computer

Features
- Intel Core i7-6600U
- Wireless support LTE w/ Dual SIM Cards, WLAN, GPS Dead Reckoning, BT (Optional)
- 9V – 36V DC Power Input
- Smarter Vehicle Power Ignition for Variety Vehicle
- Dual Hot Swappable SATA Storage, RAID 0, 1, 5
- 1 x CAN Bus 2.0B (Optional)

Specifications
- 1 x iAMT In-Vehicle Computer/EN50155 Railway Applications

System
- CPU: Intel® Gen6 Core i7-6600U 2.6GHz up to 3.4GHz
- Memory: 2 x DDR3L 2133 MHz and 1 x DDR3L 1600 MHz
- Audio: 1 x Line-out and 1 x Mic-in (Line-in Optional)
- SIM Card Socket: 2 x SIM Card Sockets, supported onboard with eject
- Expansion Bus: 3 x Mini card slots
- Dimensions: 250 x 150 x 55 mm
- Weight: 1900g

Software
- Operating System: Win 10, Ubuntu 16.04 64bit
- Graphics: Intel® HD Graphics 520
- Software: Support Dual Hot Swappable SATA Storage, RAID 0, 1, 5

Environmental
- Operating Temp.: -40ºC ~ 70ºC, ambient w/ 6%fs airfow
- Storage Temp.: -40ºC ~ 85ºC
- Relative Humidity: 10% RH ~ 90% RH (non-condensing)
- Vibration (random): MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Operating MIL-STD-810G, Method 516.6, Procedure I, Category 4
- Certifications: CE, FCC Class A, E13, EN50155, EN60950, EN60068-2-14, 2000-28-000-006-312, 100V(1000V)

Ordering Information
- Part Number: VBOX-3611-i7
- State of Origin: Made in Taiwan
VBOX-3611-4L

Intel Gen6 Core i7-6600U CPU with 4 x GbE LAN

On-Board Computer

Features
- Intel Core i7-6600U
- Wireless support LTE w/ Dual SIM Cards, WLAN, GPS, Dead Reckoning, WiFi, BT (Optional)
- 9V - 48V DC Power Input
- Smarter Vehicle Power Ignition for Variety Vehicle
- Dual Hot Swappable SATA Storage, RAID 0, 1, 5
- 1 x CAN Bus 2.0B (Optional)
- E13 and EN50155 certified

Software
- Operating System: Win 10, Ubuntu 16.04 64bit

Power Requirement
- 9V - 48V DC Power Input

VBOX-3611-IP65

Intel Gen6 Core i7-6600U CPU with HD 520 GPU IP65

In-Vehicle Computer

Features
- Intel Core i7-6600U
- Wireless Support LTE, WLAN, GPS, Bluetooth (Optional)
- 9V - 48V DC Power Input
- Smarter Vehicle Power Ignition for Variety Vehicle
- 4 x DI / 4 x DO with Relay 5V / 100mA
- IP65 Level for Water and Dust Proof

Software
- Operating System: Win 10, Ubuntu 16.04 64bit

Power Requirement
- 9V - 48V DC Power Input

All specifications are subject to change without notice.
VBOX-3611-POEX

**Intel Gen6 Core i7-6600U CPU with 4 x POE Ports On-Board Computer**

**Features**
- Intel Core i7-6600U
- Wireless support LTE w/ SIM Card, WLAN, GPS Dead Reckoning, BT (Option)
- 4 x Power Over Ethernet (POE)
- Smarter Vehicle Power Ignition for Variety Vehicle
- Dual Hot Swappable SATA Storage, RAID 0, 1, 5
- 1 x CAN Bus 2.0B (Optional)

**Specifications**

<table>
<thead>
<tr>
<th><strong>System</strong></th>
<th><strong>Software</strong></th>
<th><strong>Graphics</strong></th>
<th><strong>Storage</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel Gen 6 Core i7-6600U 2.6GHz up to 3.4GHz</td>
<td>Intel HD Graphics 520</td>
<td>1 x mSATA</td>
</tr>
<tr>
<td>Memory</td>
<td>Intel Gen 6 Core 8GB DDR3 2133 MHz up to 32GB</td>
<td>DirectVX Video Acceleration (DXVA) for Accelerating Video Processing</td>
<td>2 x USB 3.0 Ports, 2 x USB 2.0 Ports</td>
</tr>
</tbody>
</table>
| Chipset    | Intel QM67 Generation Core SoC Processor | AMD Radeon™ graphics | 1 x SIM Card Slot Supported Onboard |}

**Environmental**

- Operating Temp: 40°C ~ 70°C, ambient w/ 0/6/8/9 airflow
- Storage Temp: 40°C ~ 85°C
- Relative Humidity: 10% RH - 90% RH (non-condensing)
- Vibration (random): IEC60068-2-64, random, 2.5G±500Hz, 1hr w/ axis
- LAN: 10/100/1000Base-TX, Auto MDI/MDIX
- LAN Operating: MIL-STD-810G, Method 514.6, Procedure I, Category 4
- Shock: Operating: MIL-STD-810G, Method 516.4, Procedure I, Category 4
- Expansion Bus: 3 x mini-card slots, 1 x M.2 A-E key (only for RX series)
- Antenna: 6 x SMA-type External Antenna Connectors
- SIM Card Slot: 2 x SIM Card (Sockets Supported Onboard w/ optional)
- Certifications: CE, FCC Class A, E13

**Mechanical**

- Construction: Aluminum Alloy
- Mounting: Wall-mount, Din Rail Mounting Kit (Optional Internal Battery backup Kit)
- Dimensions: 240 x 161 x 65 mm

**Ordering Information**

- Part Number: VBOX-3611-4L-IT
- Description: Intel Gen6 Core i7-6600U CPU with 4 x GbE LAN On-Board Computer
- State of Origin: Made in Taiwan

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VBOX-3210

**AMD Merlin Falcon Embedded Platform RX-421BD/RX-216GD APU with 2 x DP/ 2 x COM/ 5 x GbE/ 4 x POE/ 2 USB3.0/ DC Input 9-48V In-Vehicle Computer**

**Features**
- AMD Merlin Falcon RX-421BD/RX-216GD
- Wireless support LTE, WLAN, GPS, Bluetooth (Option)
- 5 x GbE w/opt 4 x POE 802.3at
- Input 9-48V with Ignition for Variety Vehicle
- 3 x Mini PCIe card & 1 x M.2 for extension
- 2 x DP, 1 x VGA

**Specifications**

<table>
<thead>
<tr>
<th><strong>System</strong></th>
<th><strong>Software</strong></th>
<th><strong>Graphics</strong></th>
<th><strong>Storage</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>AMD RX-421BD Quad Core 2.1GHz up to 3.4GHz*</td>
<td>*Config to 15W</td>
<td>2 x USB 3.0 ports and 2 x USB 2.0 Ports</td>
</tr>
<tr>
<td>Memory</td>
<td>AMD RX-216GD Dual Core 1.5GHz up to 3.3GHz (Optional DX-216L)</td>
<td>*Config to 15W</td>
<td>5 x RJ45 Ports GbE (Optional for 4 x POE 802.3at)**</td>
</tr>
<tr>
<td>Graphics</td>
<td>AMD Radeon™ graphics</td>
<td>AMD RX-216GD Dual Core 1.5GHz up to 3.3GHz (Optional DX-216L)</td>
<td>1 x Cfast slot</td>
</tr>
<tr>
<td>LAN Chipset</td>
<td>2 x Intel 210-AT, Ethernet Switch, 1 x Marvel 88E1178</td>
<td>AMD Radeon™ graphics</td>
<td>1 x SD Card Slot Supported Onboard (Optional)</td>
</tr>
<tr>
<td>Audio</td>
<td>Realtek ALC662 HD Codec Onboard</td>
<td>AMD Radeon™ graphics</td>
<td>1 x 4 In and 4 Out</td>
</tr>
<tr>
<td>USB Port</td>
<td>2 x USB 3.0 ports and 2 x USB 2.0 Ports</td>
<td>AMD Radeon™ graphics</td>
<td>5 x RJ45 Ports GbE (Optional for 4 x POE 802.3at)**</td>
</tr>
<tr>
<td>LAN</td>
<td>10/100/1000Base-TX, Auto MDI/MDIX</td>
<td>AMD Radeon™ graphics</td>
<td>1 x 4 In and 4 Out</td>
</tr>
<tr>
<td>Audio</td>
<td>Realtek ALC662 HD Codec Onboard</td>
<td>AMD Radeon™ graphics</td>
<td>1 x 4 In and 4 Out</td>
</tr>
<tr>
<td>USB Port</td>
<td>2 x USB 3.0 ports and 2 x USB 2.0 Ports</td>
<td>AMD Radeon™ graphics</td>
<td>5 x RJ45 Ports GbE (Optional for 4 x POE 802.3at)**</td>
</tr>
<tr>
<td>LAN</td>
<td>10/100/1000Base-TX, Auto MDI/MDIX</td>
<td>AMD Radeon™ graphics</td>
<td>1 x 4 In and 4 Out</td>
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<td>1 x 4 In and 4 Out</td>
</tr>
<tr>
<td>USB Port</td>
<td>2 x USB 3.0 ports and 2 x USB 2.0 Ports</td>
<td>AMD Radeon™ graphics</td>
<td>5 x RJ45 Ports GbE (Optional for 4 x POE 802.3at)**</td>
</tr>
<tr>
<td>LAN</td>
<td>10/100/1000Base-TX, Auto MDI/MDIX</td>
<td>AMD Radeon™ graphics</td>
<td>1 x 4 In and 4 Out</td>
</tr>
<tr>
<td>Audio</td>
<td>Realtek ALC662 HD Codec Onboard</td>
<td>AMD Radeon™ graphics</td>
<td>1 x 4 In and 4 Out</td>
</tr>
</tbody>
</table>
**VBOX-3120-3S**

Intel Haswell Dual Core 2980U 1.6GHz CPU with 3 x RS-232/ DC 9-36V Input In-Vehicle Computer

**Features**
- Intel® Core™ Dual Core 2980U 1.6GHz
- Wireless support LTE, WLAN, GPS, Bluetooth (Option)
- 9V - 36V DC Power Input
- Smarter Vehicle Power Ignition for Variety Vehicle
- 3 x RS-232 (COM1&COM2 with RS-232/422/485)
- 2 x DI / 2 x DO (12V / 100mA)

**Battery Backup**

**Power Requirement**
- Power Input: 9V - 36V DC Power Input
- Power Management: Vehicle Power Ignition for Variety Vehicle
- Power Off Control: Power off Delay Time Setting by BIOS and Software
- Battery (USB): External Battery Kit for 10 Min Operating (Optional)
  - Power Management: Vehicle Power Ignition for Variety Vehicle
  - Battery (USB): External Battery Kit for 10 Min Operating (Optional)

**Technical Specifications**

- **CPU**: Intel® Core™ Dual Core 2980U 1.6GHz
- **Memory**: 1 x DDR3L-1600 SO-DIMM up to 8GB
- **Graphics**: Intel® HD Graphics
- **ATA**: 2 x Serial ATA 2.0 Ports with 6Gbps SSD Transfer Rate
- **LAN**: 2 x Intel® 210-AT Gigabit Ethernet
- **Watchdog**: 1 ~ 255 Level Reset

**VBOX-3121**

Intel Gen6 i7-6600U with HD Graphic 520/ 2x LAN/ 2x HDMI/ 1x VGA/ 3x RS-232/ DC 9-36V Input In-Vehicle Computer

**Features**
- Intel® Core™ i7-6600U
- Wireless support LTE, WLAN, GPS, GSM/GPRS, Bluetooth (Option)
- 9V - 36V DC Power Input
- Smarter Vehicle Power Ignition for Variety Vehicle
- 4 x RS-232/422/485 (for i7 and i5)
- 2 x DI / 2 x DO (12V / 100mA)

**Battery Backup**

**Power Requirement**
- Power Input: 9V - 36V DC Power Input
- Power Management: Vehicle Power Ignition for Variety Vehicle
- Power Off Control: Power off Delay Time Setting by BIOS and Software
- Battery (USB): External Battery Kit for 10 Min Operating (Optional)
  - Power Management: Vehicle Power Ignition for Variety Vehicle
  - Battery (USB): External Battery Kit for 10 Min Operating (Optional)

**Technical Specifications**

- **CPU**: Intel® Core™ i7-6600U 2.6GHz up to 3.4GHz
- **Graphics**: Intel® HD Graphics
- **ATA**: 2 x Serial ATA 2.0 Ports with 6Gbps SSD Transfer Rate
- **LAN**: 1 x Intel® 211-AT Gigabit Ethernet
- **Watchdog**: 1 ~ 255 Level Reset

---

**System**

- **CPU**: Intel® Core™ i7-6600U 2.6GHz up to 3.4GHz
- **Software**: Windows 10, Ubuntu 16.04
- **Audio**: Intel® i219-LM Gigabit Ethernet (LAN 2)
- **Graphics**: Intel® HD Graphics
- **Power Requirement**: 9V - 36V DC Power Input
- **Power Management**: Vehicle Power Ignition for Variety Vehicle
- **Power Off Control**: Power off Delay Time Setting by BIOS and Software
- **Battery (USB)**: External Battery Kit for 10 Min Operating (Optional)

**Specifications**

- **Dimensions**: 182 x 167.6 x 40 mm (for i3 and C1)
- **Weight**: 1.49 kg
- **Operating Temp.**: -40 ~ 70ºC (SSD), ambient w/ 0.6m/s airflow
- **Relative Humidity**: 10% RH – 90% RH (non-condensing)

**Certifications**

- CE, FCC Class A, E-13
- IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis with SSD

**Parts Number**

- VBOX-3121-T7
- VBOX-3121-D
- VBOX-3121-C1

**State of Origin**

Made in Taiwan
**VBOX-3150**

**Intel Haswell Celeron 2980U/i3-4010U CPU with**
*2 x PoE/ 1 x GbE with vPro/
*4 x COM In-Vehicle Computer

### Features
- Intel Gen4 Celeron 2980U/i3-4010U
- Wireless support LTE, WLAN, GPS, Bluetooth (Option)
- 2 x PoE 802.3af & 1 x GbE with iAMT9.5
- Input 9-36V with Ignition for Vehicle
- 4 x RS-232 (COM1 & COM2 with RS-232/422/485)
- 1 x DVI, 1 x HDMI, 1 x VGA

### Power Ignition
- Vehicle Power Ignition for Variety Vehicle
- 9V - 36V DC Power Input

### Memory
- 1 x DDR3L-1600 SO-DIMM up to 8GB
- 1 x SATA DOM

### Environmental
- Operating Temp.: -40~70°C (SSD), ambient w/ 0.6mm/s airflow
- Storage Temp.: -40~85°C
- Relative Humidity: 95% RH – 95% RH (non-condensing)

### Operating System
- Win 7, Win 10, Ubuntu 16.04

### Software
- Taiwan Patent No. M447854

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**VBOX-3130**

**Intel Braswell N-Series Atom CPU In-Vehicle Computer with 9~36V DC Input In-Vehicle Computer**

### Features
- Intel N3710 Quad Core CPU up to 2.56GHz
- Wireless support LTE, WLAN, GPS, Bluetooth (Option)
- 9V - 36V DC Power Input
- Smarter Vehicle Power Ignition for Variety Vehicle
- 3 x RS-232 (COM1 & COM2 with 232/422/485)
- 2 x DI / 2 x DO (12V / 100mA)

### Power Ignition
- Vehicle Power Ignition for Variety Vehicle
- 9V - 36V DC Power Input

### Memory
- 1 x DDR3L-1866 SO-DIMM up to 8GB
- 1 x SATA DOM

### Environmental
- Operating Temp.: -40~70°C (SSD), ambient w/ 0.6mm/s airflow
- Storage Temp.: -40~85°C
- Relative Humidity: 95% RH – 95% RH (non-condensing)

### Operating System
- Win 7, Win 10, Ubuntu 16.04

### Software
- Taiwan Patent No. M447854

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**System**
- **Type**: 1 x 2.5" Drive Bay for SATA Type Hard Disk Drive / SSD 1 x SATA DOM

**Power Requirement**
- **Input**: 9~36V DC Power Input
- **Protection**: Vehicle Power Ignition for Variety Vehicle
- **Management**: Power of Delay Timing Setting by BIOS, and Software
- **Battery (USB)**: Internal Battery Kit for 10 Mins Operating (Optional) Patent No.: M447854 - Build-in Battery

**Software**
- **Operating System**: WES 7, Win 10, Ubuntu 16.04
- **Description**: Intel Braswell N-Series Atom CPU In-Vehicle Computer with 9~36V DC Input In-Vehicle Computer

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**Ordering Information**
- **Part Number**: VBOX-3150-000
- **Battery**: Internal Battery Kit for 10 Mins Operating (Optional) Patent No.: M447854 - Build-in Battery
**VDB-810 Series**

Embedded u-blox M8 GPS with (G-Sensor) Mini PCIe Card

**Features**
- Concurrent Reception of GPS/QZSS, GLONASS, BeiDou
- 72-channel u-blox M8 Engine w/ Over 2 Million Effective Correlators
- -167dBm SuperSense® Acquisition & Tracking Sensitivity
- 10 Hz Position Update Rate
- Standard Mini PCIe V1.2 Full-Mini Card (USB2.0 Interface)
- Time To First Fix (TTFF) : <1 sec
- Operating Temp. : -40°C to 85°C

**Output Message Format**
- GPS Protocol: NMEA 0183 V4.0, UBX, RTCM3.3

**Multi-path Suppression**
- Intelligent Multi-path Detection and Suppression

**G-Sensor (VDB-810G)**

- Data accelerometer
- Supports AssistNow® Online and Offline, OMA SUPL Compliant

**Environmental Characteristics**
- Operating Temp. : -40°C to +85°C
- Storage Temp. : -40°C to +85°C
- Peak Supply Current (Full Performance) : Max=150mA
- Power Supply Current (Eco Mode) : 3.3V ±10% VDC input
- Dimensions : 51 x 30 (mm)

**Ordering Information**
- Part Number : VDB-810-000
- Description : u-blox M8 with G-Sensor Mini PCIe Card

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**VDM-121-H**

Ultra-Grade 12.1” TFT LCD VGA Touch Screen Monitor with Metal Enclosure

**Features**
- High Resolution of Panel 1024 x 768 Pixels
- High Contrast 700:1
- Industrial Application Panel with Long Product Life Cycle
- One VGA Input
- Resistive Touch
- USB Interface
- VESA Mountable
- Detachable Stand for Wall-mounting Application
- Metal Enclosure

**System**
- Screen Size : 12.1 inch (Diagonal)
- Display Resolution : 1024x768
- Interface : Digital
- Driver System : TFT Active Matrix LCD
- Active Area (mm) : 245.76(H) x 184.32(V)
- Pixel Pitch (mm) : 0.3075 x 0.3075
- R.G.B. Stripe LED
- Brightness : 1000 nits
- Contrast Ratio : 700:1
- View Angle : 160°/160°
- Recommended Power Rating : DC 9-32V
- Power Rating : DC 9-32V
- Operating Temp. : -30 to +80, ambient w/ 0.6m/s airflow
- Storage Temp. : -30 to +80
- Dimensions : 303 x 223 x 40 mm
- Certificate : CE/FCC, RoHS
- Accessory : Metal stand x 1, Car Cigarette lighter adapter x 1, All-In-One cable x 1, Remote controller x 1, Touch driver x 1, Users manual x 1, Touch Stylus x 1, Headrest Shroud x 1

**Ordering Information**
- Part Number : VDM-121-H
- Description : Ultra-Grade 12.1” TFT LCD VGA Touch Screen Monitor with Metal Enclosure
- State of Origin : Made in Taiwan

*All specifications are subject to change without notice.*
VDM-102W
10.2" [16:9] Wide VGA Touch Screen

Features
- 16:9 Wide Screen
- Support Composite/Component/S-video Input
- One VGA Input
- Auto Reversing Function Among Composite/Component/S-video
- Touch Screen (USB Interface)
- Resolution Support: 640 x 480~1024 x 768 for VGA Mode
- Auto Power On/Off Function for VGA Mode
- NTSC/PAL/SECAM Auto Switching
- VESA Mounting

VDM-800W
Slim Design 8" [16:9] Wide Screen VGA Touch Function TFT LCD Monitor

Features
- 16:9 Wide Screen
- High Resolution 2400(H)x480(V) Pixels
- High Brightness 500cd/m2
- Auto Power On for VGA Mode
- Support Resolution 800x600 ~ 1024x768 Pixels
- OSD Function Control
- NTSC/PAL/SECAM Auto Switching
- Two A/V Inputs Plus One Auto Reversing Input
- One VGA Input
- Touch Screen (USB Interface)
- With Headrest Shroud & Stand
- All-In-1 Cable
- VESA Mounting

System
Display 10.2-inch TFT LCD
Number of Pixels 1,152,000 dots
Back Light LED
Drive System Active Matrix
Display Active Area 174.0(H) x 104.4(V) mm
Resolution 800(V) x 3(RGB) x 480(H)
Brightness Rating 400 cd/m2 (850 cd/m2 Optional)
Contrast Ratio 350:1
Viewing Angle 50°/70°/70° deg.
Video Input Systems NTSC/PAL, Auto Switching
Power Source DC 9V ~ 32V
Operating Temp. -30 to +85 °C, ambient w/ 0.6 m/s airflow
Storage Temp. -40 to +85 °C
Audio 1W x 1 Speaker
Power Consumption 1W x 1 Speaker

Ordering Information
Part Number 782010201010
Description 10.2" [16:9] Wide VGA Touch Screen
State of Origin Made in Taiwan

System
Display 8.0-inch TFT LCD
Number of Pixels 1,152,000 dots
Back Light LED
Drive System Active Matrix
Display Active Area 175.2(W) x 105.12(H) mm
Resolution 800(W) x (RGB) x 480(H)
Brightness Rating 500 cd/m2
Contrast Ratio 500:1
Viewing Angle 50°/70°/70° deg.
Video Input Systems NTSC/PAL/SECAM Auto Switching
Power Source DC 9-36V
Operating Temp. -30 to +85 °C, ambient w/ 0.6 m/s airflow
Storage Temp. -30 to +85 °C
Power Consumption 1000mA/10W (max)
Monitor Dimension 251.5(W) x 176(H) x 27.5(D) mm
Monitor with Shroud Dimension 220(W) x 135(H) x 29(D) mm

Ordering Information
Part Number 78201102010
Description Slim Design 8" [16:9] Wide Screen VGA Touch Function TFT LCD Monitor
State of Origin Made in Taiwan
### SBOX-2620

**Intel Gen4 Core i7-4650U with HD 5000 GPU / 2 x LAN/ HDMI/ DVI/ VGA/ DC 9-36V Fanless Box PC**

**Features**
- Intel Core i7-4650U / Core i5-4300U
- Triple Display Output (DVI / HDMI / VGA)
- Dual Gigabit Ethernet and 2 x RS-232
- Wide Range Operating Temp.: -30~60ºC
- Ultra Slim(54mm), Compact Size and Fanless
- DC 9-36V Power Input

**System**
- **CPU**: Intel Gen4 Core i7-4650U with HD 5000 GPU / Intel Gen4 Core i5-4300U
- **Memory**: 1 x DDR3L-1600 SO-DIMM up to 8GB
- **Chipset**: Intel HD Graphics
- **Graphics**: Intel HD Graphics
- **Power Input**: DC 9-36V Input w/ Reverse Polarity OCP and OVP Protection

**Software**
- Operating System: Windows 10, 7, Ubuntu 16.04
- Certification: CE, FCC Class A, UL

**I/O**
- **Serial Port**: 3 x RS-232/422/485, Option 4 x RS-232
- **USB Port**: 2 x USB 2.0 Ports and 2 x USB 3.0
- **LAN**: 2 x RJ45 Ports for GbE

**Storage**
- **Type**: 1 x 2.5" SATA DOM

**Dimensions**
- 182 x 167.6 x 54 mm

**Weight**
- 1200g (Barebone)

**Mounting**
- Wall-mount, VESA-mount, Din Rail Mounting Kit

**Construction**
- Aluminum Alloy

**Environmental**
- **Operating Temp.**: 0~60ºC, ambient w/ 0.6m/s airflow
- **Relative Humidity**: 10~90% RH (non-condensing)

**Ordering Information**
- **Part Number**: SBOX-2620-C1 System (C1 can be i3/i5/i7)

### SBOX-2600

**Intel Gen4 Core i7-4650U CPU with HD 5000 GPU / 2 x LAN/ HDMI/ DVI/ VGA/ DC 12V Fanless Box PC**

**Features**
- Intel Core i7-4650U / Core i5-4300U
- Triple Display Output (DVI / HDMI / VGA)
- Dual Gigabit Ethernet and 2 x RS-232
- Wide Range Operating Temp.: -30~60ºC
- Ultra Slim(40mm), Compact Size and Fanless
- DC 12V Power Input

**System**
- **CPU**: Intel Gen4 Core i7-4650U CPU with HD 5000 GPU / Intel Gen4 Core i5-4300U
- **Memory**: 1 x DDR3L-1600 SO-DIMM up to 8GB
- **Chipset**: Intel HD Graphics
- **Graphics**: Intel HD Graphics
- **Power Input**: DC 12V Input

**Software**
- Operating System: Windows 7, Win 10, Ubuntu 16.04
- Certification: CE, FCC Class A, UL

**I/O**
- **Serial Port**: 2 x RS-232 Ports (2 x RS-232/422/485), Optional Max. 4 x RS-232
- **USB Port**: 2 x USB 2.0 Ports and 2 x USB 3.0
- **LAN**: 2 x RJ45 Ports for GbE

**Storage**
- **Type**: 1 x 2.5" SATA Drive Bay for SATA Type Hard Drive / SSD

**Dimensions**
- 182 x 167.6 x 40 mm

**Weight**
- 1200g (Barebone)

**Mounting**
- Wall-mount, VESA-mount, DIN Rail Mounting Kit

**Construction**
- Aluminum Alloy

**Environmental**
- **Operating Temp.**: 0~60ºC, ambient w/ 0.6m/s airflow
- **Relative Humidity**: 10~90% RH (non-condensing)

**Ordering Information**
- **Part Number**: SBOX-2600-C1 System (C1 can be i3/i5/i7)

**State of Origin**
- Made in Taiwan
SBOX-2621

**Intel Gen6 i7-6600U with HD Graphic 520 / 2 x LAN/ 2 x HDMI/ VGA/ DC 9-36V Fanless Box PC**

**Features**
- Intel Gen 6 Core i7-6600U
- Triple Display Output (2 x HDMI / VGA)
- Dual Gigabit Ethernet
- Wide Range Operating Temp.: -30~60°C
- Ultra Slim(54mm), Compact Size and Fanless
- DC 9-36V Power Input

**Specifications**

- **CPU**
  - Intel Gen 6 Core i7-6600U 2.6GHz up to 3.4GHz
  - Intel Gen 6 Core i5-6300U 2.4GHz up to 3.0GHz
  - Intel Gen 6 Core i3-6100U 2.3GHz
  - Intel Gen 6 Dual Core 3955U 2.0GHz

- **Memory**
  - 1 x DDR4 SO-DIMM up to 16GB

- **Chipset**
  - Intel HD Graphics

- **ATA**
  - 2 x Serial ATA ports with 6Gb/s HDD Transfer Rate

- **LAN Chipset**
  - 1 x Intel i210-AT Gigabit Ethernet
  - 1 x Intel i219-LM Gigabit Ethernet (LAN 2), support iAMT for i5 & i7

- **Watchdog**
  - 1 ~ 255 Level Reset

- **Software**
  - Operating System: Win 10, Ubuntu 16.04 64bit
  - Certification: CE, FCC Class A
  - Operating Temp.: 30 ~ 60ºC, ambient w/ 0.6m/s airflow
  - Storage Temp.: -40 ~ 85ºC
  - Relative Humidity: 10% RH ~ 80% RH (non-condensing)
  - Power Input: DC 9-36V Input w/ Reverse Polarity OCP and OVP Protection

- **Mechanical**
  - Construction: Aluminum Alloy
  - Mounting: Rail-mount, VESA-mount, Din Rail Mounting Kit
  - Weight: 1200g (Barndoor)
  - Dimensions: 250 x 167.6 x 40 mm (for i7 and i5)
  - 182 x 167.6 x 40 mm (for i3 and C1)

- **Ordering Information**
  - Part Number: SBOX-2621-i7, SBOX-2621-i5, SBOX-2621-i3, SBOX-2621-C1
  - Description: Intel Gen6 i7-6600U with HD Graphic 520 / 2 x LAN/ 2 x HDMI/ VGA/ DC 9-36V Fanless Box PC
  - State of Origin: Made in Taiwan

**SBOX-2601**

**Intel Gen6 i7-6600U with HD Graphic 520 / 2 x LAN/ 2 x HDMI/ VGA/ DC 12V Fanless Box PC**

**Features**
- Intel Gen 6 Core i7-6600U
- Triple Display Output (2 x HDMI / VGA)
- Dual Gigabit Ethernet
- Wide Range Operating Temp.: -30~60°C
- Ultra Slim(40mm), Compact Size and Fanless

**Specifications**

- **CPU**
  - Intel Gen 6 Core i7-6600U 2.6GHz up to 3.4GHz
  - Intel Gen 6 Core i5-6300U 2.4GHz up to 3.0GHz
  - Intel Gen 6 Core i3-6100U 2.3GHz
  - Intel Gen 6 Dual Core 3955U 2.0GHz

- **Memory**
  - 1 x DDR4 SO-DIMM up to 16GB

- **Chipset**
  - Intel HD Graphics

- **ATA**
  - 2 x Serial ATA ports with 6Gb/s HDD Transfer Rate

- **LAN Chipset**
  - 1 x Intel i210-AT Gigabit Ethernet
  - 1 x Intel i219-LM Gigabit Ethernet (LAN 2), support iAMT for i5 & i7

- **Watchdog**
  - 1 ~ 255 Level Reset

- **Software**
  - Operating System: Win 10, Ubuntu 16.04 64bit
  - Certification: CE, FCC Class A, UL
  - Operating Temp.: 30 ~ 60ºC, ambient w/ 0.6m/s airflow
  - Storage Temp.: -40 ~ 85ºC
  - Relative Humidity: 10% RH ~ 80% RH (non-condensing)
  - Power Input: DC 12V Input

- **Mechanical**
  - Construction: Aluminum Alloy
  - Mounting: Rail-mount, VESA-mount, Din Rail Mounting Kit
  - Weight: 1200g (Barndoor)
  - Dimensions: 250 x 167.6 x 40 mm (for i7 and i5)
  - 182 x 167.6 x 40 mm (for i3 and C1)

- **Ordering Information**
  - Part Number: SBOX-2601-i7, SBOX-2601-i5, SBOX-2601-i3, SBOX-2601-C1
  - Description: Intel Gen6 i7-6600U with HD Graphic 520 / 2 x LAN/ 2 x HDMI/ VGA/ DC 12V Fanless Box PC
  - State of Origin: Made in Taiwan
SBOX-2320

Intel Braswell N-series Atom CPU / 2 x LAN / HDMI / DVI / VGA / DC 9-36V Fanless Box PC

Features
- Intel Braswell N3060 Atom CPU
- Triple Display Output (DVI / HDMI / VGA)
- Dual Gigabit Ethernet and 2 x RS-232
- Wide Range Operating Temp.: -30~60°C
- Ultra Slim (54mm), Compact Size and Fanless
- DC 9-36V Power Input

Features
- Intel Braswell N3060 Atom CPU
- Triple Display Output (DVI / HDMI / VGA)
- Dual Gigabit Ethernet and 2 x RS-232
- Wide Range Operating Temp.: -30~60°C
- Ultra Slim (54mm), Compact Size and Fanless
- DC 9-36V Power Input

VDB-310/320

4/8 ch Mini-PCIe Video Capture Card Support 4/8 CCTV Cameras Input and 4/8 MIC Input at the Same Time

Features
- Mini-PCIe (Mini Card) Interface
- Up to 4-channel Video Inputs (VDB-310)
- Up to 8-channel Video Inputs (VDB-320)
- D1, Half-D1, CIF Resolution
- Windows Driver & SDK Provide

Specifications

**SBOX-2320**

**CPU**
- Intel N3710 Quad Core CPU up to 2.6GHz

**Memory**
- 1 x DDR3L-1700 SO-DIMM up to 8GB

**Chipset**
- N/A

**Graphics**
- Intel HD Graphics

**ATA**
- 2 x Serial ATA ports with 6Gb/s HDD Transfer Rate

**LAN Chipset**
- 2 x Intel I210-AT Gigabit Ethernet

**Watchdog**
- 1~255 Level Reset

**Dimensions**
- 182 x 167.6 x 54 mm

**Weight**
- 900g (Barebone)

**Construction**
- Aluminum Alloy

**Mounting**
- Wall-mount, VESA-mount, Din Rail Mounting Kit

**Expansion Bus**
- 1 x Mini card Slots (1 with SIM for LTE/3G Only)

**Storage**
- 1 x 2.5" Drive Bay for SATA Type Hard Disk Drive/SDD

**Ordering Information**
- SBOX-2320-000

**Part Number**
- 1 x SATA DIO

**Operating System**
- Windows XP / Vista / 7 / 10, Linux 2.6.20 or Higher

**Power Supply**
- DC 9-36V Input with Reverse Polarity OCP and OVP Protection

**Operating Temp.**
- -30 ~ 60ºC, ambient with 0.6m/s airflow

**Environmental**
- DC 9-36V Power Input with Reverse Polarity OCP and OVP Protection

**Display Video**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>720x576 @25FPS</td>
<td>NTSC</td>
</tr>
<tr>
<td>720x480 @30FPS</td>
<td>PAL</td>
</tr>
<tr>
<td>720x576 @30FPS</td>
<td>NTSC</td>
</tr>
<tr>
<td>720x480 @30FPS</td>
<td>PAL</td>
</tr>
</tbody>
</table>

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<td>PAL</td>
</tr>
<tr>
<td>720x576 @30FPS</td>
<td>NTSC</td>
</tr>
<tr>
<td>720x480 @30FPS</td>
<td>PAL</td>
</tr>
</tbody>
</table>

**All specifications are subject to change without notice.**
## ABOX-5000-V8

Intel 6th-Gen Skylake Core i7/i5/i3 CPU w/ 4 x GbE/4 x 4 ISO COM/2 x DVI/VGA/4 USB3.0/4 x RS-232/422/485 with 1.5KVrms isolated

### Features
- Intel® 6th-Gen Core™ i7/i5/i3 LGA1151 CPU
- 9-36V DC input and operating Temp.: -40 ~ 70°C
- Dual Hot Swappable SATA Storage
- Fast Expandable Slot support PCI-E, USB, SMBus, GPIO and SATA

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel® 6th-Gen Core™ i7/i5/i3</td>
</tr>
<tr>
<td>Memory</td>
<td>32GB DDR4 2133 MHz SO-DIMM up</td>
</tr>
<tr>
<td>Chipset</td>
<td>3 x Intel® AT and 1 x 127EM (Matt 8 w/ 6.7 only) Intel Controls Onboard Support PCI-E and WOL</td>
</tr>
<tr>
<td>LAN Chipset</td>
<td>Intel® 82584EI + Intel® I219LM</td>
</tr>
<tr>
<td>Watchdog</td>
<td>1 ~ 255 Level Reset</td>
</tr>
<tr>
<td>IO</td>
<td>USB 4 x 3.5 Ports</td>
</tr>
<tr>
<td>USB</td>
<td>2 x Display Port with x VGA Port (Triple Independent Display)</td>
</tr>
<tr>
<td>SATA</td>
<td>2 x 2.5” Drive Bay for SATA Type HDD/SSD, RAID 0, 1, 5 x SATADOM</td>
</tr>
<tr>
<td>Audio</td>
<td>8 x GPI and 4 x GPIO connector w/ 1.5KVrms isolation</td>
</tr>
<tr>
<td>Expansion Bus</td>
<td>2 Full and 1 Half Mini-PCIe Slot (2 x Lm Card Slot for 3G/LTE)</td>
</tr>
<tr>
<td>FES Expansion</td>
<td>Support PCI-E, USB, SMBus, GPIO and SATA</td>
</tr>
</tbody>
</table>

### Software
- Operating System: Win 10 64bit, Ubuntu 16.04 64bit
- Storage Type: 2 x 2.5” Drive Bay for SATA Type HDD/SSD, RAID 0, 1, 5 x SATADOM
- Power Requirement: 35 - 36V DC Power Input
- Power Protection: Automatics Recovery Short-Circuit Protection
- Power Management: Vehicle Power Ignition for Variety Vehicle
- Power Off Control: Power-off Delay Time Setting by BIOS and Software
- Battery (UPS): Internal Battery Kit for 10 Mins Operating (Optional)

### Environmental
- Operating Temp: -40°C ~ 70°C (Default CPU 35Watt), ambient w/ 0.6m/s airflow
- Storage Temp: -40°C
- Relative Humidity: 10% RH ~ 90% RH (non-condensing)
- Vibration (Random): 1.5G (Baraboi)
- Vibration (Operating): 5G (Baraboi)

### Mobile DVR Specification
- Video Input: 8 CH x 8 BNC Connectors
- Video Recording: Total 240FPS (NTSC), 200FPS (PAL) @ D1 Real-Time
- Video Display: Total 240FPS (NTSC), 200FPS (PAL) @ D1
- Resolution: 720x480@30FPS, 720x576@25FPS
- Audio Input: 8CH
- Audio Format: MONO 1.8 – 16BIT@8000 – 48000Hz

### Power Protection
- Automatics Recovery Short Circuit Protection
- Power Management: Vehicle Power Ignition for Variety Vehicle
- Power Off Control: Power-off Delay Time Setting by BIOS and Software

### Certifications
- CE, FCC Class A

### Dimensions
- 240(L) x 226(W) x 79(H) mm

### Weight
- 2400g (Baraboi)

### State of Origin
- Made in Taiwan

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## VBOX-3611-V4

Intel Gen6 Core i7-6600U Hybrid Mobile DVR Surveillance with 4 Channel Camera

### Features
- Intel Core i7-6600U
- Wireless Support LTE w/ Dual SIM Cards, WLAN, GPS DR & G-Sensor, BT(Option)
- 8V - 36V DC Power Input
- 4 Channel D1 Resolution@120fps for 2 IP Digital Cameras
- Smarter Vehicle Power Ignition for
- Dual Hot Swappable SATA Storage, RAID 0, 1, 5
- 1 x CAN Bus 2.0B (Optional)

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel Gen6 Core i7-6600U 2.6GHz up to 3.4GHz</td>
</tr>
<tr>
<td>Memory</td>
<td>2 x DDR4 2133 MHz SO-DIMM up to 32GB</td>
</tr>
<tr>
<td>Watchdog</td>
<td>Watching Timer Support, 0.1 ~ 1 – 355 Step</td>
</tr>
<tr>
<td>USB Port</td>
<td>2 x USB 3.0 Ports, 2 x USB 2.0 Ports</td>
</tr>
<tr>
<td>LAN</td>
<td>2 x RJ45 Ports for GbE</td>
</tr>
<tr>
<td>Video Port</td>
<td>2 x DVI-D, 1 x VGA and 1 x DP (support Triple Independent Display)</td>
</tr>
<tr>
<td>Audio</td>
<td>1 x Line-out and 1 x Mic-in (Line-in Optional)</td>
</tr>
<tr>
<td>SIM Card Socket</td>
<td>2 x SIM Card Sockets Supported Onboard with ops</td>
</tr>
</tbody>
</table>

### Mobile DVR Specification
- Video Input: 4 Channels (4 x BNC Connectors)
- Video Recording: Total 120fps (NTSC), 100fps (PAL) @ D1 Real-Time
- Video Display: Total 120fps (NTSC), 100fps (PAL) @ D1
- Resolution (5W/MPE4 or H.264): 720x480@30FPS, 720x576@25FPS
- Audio Input: 1 Channel
- Audio Format: MONO 1.8 – 16BIT@8000 – 48000Hz
- Software: SDK for Windows XP, 7, Linux Ubuntu 14.04 above

### Environmental & Mechanical
- Operating Temp: 40 ~ 70°C (SIL), ambient w/ 0.6m/s airflow
- Storage Temp: -40 ~ 85°C
- Relative Humidity: 10% RH ~ 90% RH (non-condensing)
- Vibration (Random): 1.5G (Baraboi)
- Vibration (Operating): 5G (Baraboi)

### Construction
- Aluminum Alloy
- Mounting: Wall-mount, VESA-mount, Din Rail Mounting Kit
- Weight: 1760g (Baraboi)

### Certifications
- CE, FCC Class A
- Made in Taiwan

### Ordering Information
- Part Number: VBOX-3611-V4.000
- Description: Intel Gen6 Core i7-6600U Hybrid Mobile DVR Surveillance with 4 Channel Camera On-Board Computer

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All specifications are subject to change without notice.
**SBOX-2620-V4/V8**

**Intel Gen4 Core i7-4650U with HD 5000 GPU** / 2 x LAN/ HDMI/ DVI/ VGA/ 4/8 x D1 Video Input/ DC 9-36V Fanless Box PC

**Features**
- Intel Core i7-4650U / Core i5-4300U
- Triple Display Output (DVI / HDMI / VGA)
- 4(V4) / 8(V8) x D1 Video Input Camera
- Dual Gigabit Ethernet and 2 x RS-232
- Wide Range Operating Temp. : -30~60°C
- Ultra Slim(54mm), Compact Size and Fanless
- DC 9-36V Power Input

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### System

**CPU**
- Intel Gen 4 Core i7-4650U 1.7GHz up to 3.3GHz
- Intel Gen 4 Core i5-4300U 1.9GHz up to 2.9GHz
- Intel Gen 4 Core i3-4010U 1.7GHz
- Intel Gen 4 Dual Core Celeron 2980U 1.6GHz

**Memory**
- 1 x DDR3L-1600 SO-DIMM up to 8GB

**Chipset**
- Intel HD Graphics

**Graphics**
- Intel HD Graphics

**ATA**
- 2 x Serial ATA ports with 6Gb/s HDD Transfer Rate

**LAN Chipset**
- Intel i210-AT Gigabit Ethernet

**Watchdog**
- 1 ~ 255 Level Reset

### DVR Specification

**Video Input**
- 4CH (V4) / 8CH (V8)  (8 x BNC Connectors)
- Total 120FPS (NTSC), 100FPS (PAL) @ D1 Real-Time (V4)
- Total 240FPS (NTSC), 200FPS (PAL) @ D1 Real-Time (V8)

**Video Display**
- 4CH (V4) / 8CH (V8)
- MONO / 8 ~ 16BITS / 8000 ~ 48000HZ

**Audio Input**
- 1 x 2.5" Drive Bay for SATA Type Hard Disk Drive/SSD
- 1 x SATA DOM

**Audio Format**
- 16BIT / 8000 ~ 48000HZ

**Software**
- SDK for Windows XP, 7, Linux 2.6.20 or Higher

**Operating System**
- Win 7, Win 10, Ubuntu 16.04

**Certifications**
- CE, FCC Class A, UL

**Environmental & Mechanical**
- Operating Temp. : 30 ~ 60°C ambient w/ 0.9m/s airflow
- Storage Temp. : -40 ~ 85°C
- Relative Humidity : 10% RH ~ 90% RH (non-condensing)
- Power Input : DC 9-36V Input w/ Reverse Polarity OCP and OVP Protection
- Construction : Aluminum Alloy
- Mounting : Wall-mount, VESA-mount, Din Rail Mounting Kit
- Weight : 1200g (Barrelone)
- Dimensions : 182(L) x 167.6(W) x 54(H) mm

**Part Number**
- SBOX-2620-V4-000, SBOX-2620-V8-000

**Description**
- Intel Gen4 Core i7-4650U with HD 5000 GPU / 2xLAN/ VGA/ HDMI DVI 48 D1 Video Input DC 9-36V Fanless Box PC

**State of Origin**
- Made in Taiwan

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All specifications are subject to change without notice.