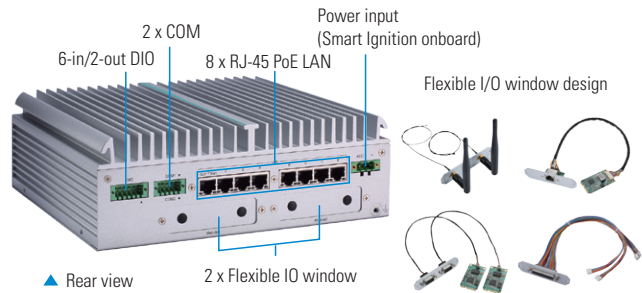
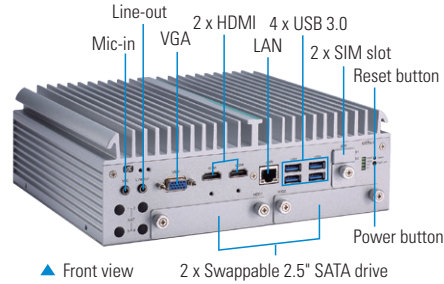


# UST510-52B-FL NEW

Fanless Embedded System with LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® Processor for Vehicle PC

## Features

- CE, FCC and E-Mark certified
- LGA1151 9th/8th Gen Intel® Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® processor (up to 65W) with Intel® C246 (Coffee Lake)
- Fanless and wide operating temperatures from -40°C to +70°C
- Up to 8 GbE PoE port by RJ-45 connector type
- Supports M.2 Key B and M.2 Key E for wireless communication module
- Intelligent solution of Smart Ignition for power on/off schedule, vehicle battery protection and different power mode
- Convenient 2 hot-swappable HDD/SSD slots and flexible I/O windows



## Specifications

Standard Color	Silver														
Construction	Aluminum extrusion and heavy-duty steel, supports up to IP40														
CPU	LGA1151 9th/8th gen Intel® Core™ i7/i5/i3, Celeron®, Pentium®, and Xeon® processor (CPU TDP max. up to 65W)														
Chipset	Intel® C246														
System Memory	2 x 260-pin DDR4-2666 ECC/non-ECC SO-DIMM, up to 64GB														
BIOS	AMI														
TPM	TPM 2.0														
System I/O Outlet	<table border="0"> <tr> <td>Serial</td> <td>2 x terminal block RS-232/422/485 (4-wire)</td> </tr> <tr> <td>Display</td> <td>1 x VGA (supports up to 1920 x 1200 @60Hz) 2 x HDMI (supports up to 4K/2K @60Hz)</td> </tr> <tr> <td>Audio</td> <td>1 x Mic-in, 1 x Line-out</td> </tr> <tr> <td>Ethernet</td> <td>Front side: • 1 x RJ-45 GbE LAN (Intel® i211-AT) Rear side (flexible LAN selection) : • 8 x RJ-45 GbE LAN (Intel® i211-AT)</td> </tr> <tr> <td>USB</td> <td>4 x USB 3.0</td> </tr> <tr> <td>DIO</td> <td>1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)</td> </tr> <tr> <td>Others</td> <td>1 x Reset button 4 x Antenna opening 2 x External accessible SIM card socket 2 x Flexible I/O window</td> </tr> </table>	Serial	2 x terminal block RS-232/422/485 (4-wire)	Display	1 x VGA (supports up to 1920 x 1200 @60Hz) 2 x HDMI (supports up to 4K/2K @60Hz)	Audio	1 x Mic-in, 1 x Line-out	Ethernet	Front side: • 1 x RJ-45 GbE LAN (Intel® i211-AT) Rear side (flexible LAN selection) : • 8 x RJ-45 GbE LAN (Intel® i211-AT)	USB	4 x USB 3.0	DIO	1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)	Others	1 x Reset button 4 x Antenna opening 2 x External accessible SIM card socket 2 x Flexible I/O window
Serial	2 x terminal block RS-232/422/485 (4-wire)														
Display	1 x VGA (supports up to 1920 x 1200 @60Hz) 2 x HDMI (supports up to 4K/2K @60Hz)														
Audio	1 x Mic-in, 1 x Line-out														
Ethernet	Front side: • 1 x RJ-45 GbE LAN (Intel® i211-AT) Rear side (flexible LAN selection) : • 8 x RJ-45 GbE LAN (Intel® i211-AT)														
USB	4 x USB 3.0														
DIO	1 x Terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)														
Others	1 x Reset button 4 x Antenna opening 2 x External accessible SIM card socket 2 x Flexible I/O window														
Expansion Interface	<table border="0"> <tr> <td>1 x Full-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB/PCIe)</td> </tr> <tr> <td>1 x Half-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB)</td> </tr> <tr> <td>1 x M.2 3050/3042 B-key</td> </tr> <tr> <td>1 x M.2 2230 A &amp; E-key</td> </tr> </table>	1 x Full-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB/PCIe)	1 x Half-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB)	1 x M.2 3050/3042 B-key	1 x M.2 2230 A & E-key										
1 x Full-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB/PCIe)															
1 x Half-size Rev.1.2 PCI Express Mini Card slot (1 x mSATA/USB)															
1 x M.2 3050/3042 B-key															
1 x M.2 2230 A & E-key															
Storage	<table border="0"> <tr> <td>SATA Drive</td> <td>2 x 2.5" 9.5 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1 supported</td> </tr> <tr> <td>mSATA</td> <td>2 x mSATA (occupied 2 x PCI Express Mini Card slot)</td> </tr> </table>	SATA Drive	2 x 2.5" 9.5 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1 supported	mSATA	2 x mSATA (occupied 2 x PCI Express Mini Card slot)										
SATA Drive	2 x 2.5" 9.5 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1 supported														
mSATA	2 x mSATA (occupied 2 x PCI Express Mini Card slot)														
Watchdog Timer	255 levels, 1 to 255 sec.														

Power in	Power Supply	General use: 1 x Terminal block, 9 to 36 VDC Vehicle: 1 x Terminal block, 12/24 VDC with smart ignition
	Power Consumption	DC 24V@6.91A
PoE (PSE, Power Sourcing Equipment)	PoE Performance	Up to 8 x RJ-45 output max. 90W supports PoE & PoE+ • PoE (802.3af 15.4W/port) • PoE+ (802.3at 30W/port)
System Indicator		1 x LED indicator for SATA drive activity 1 x LED indicator for power 2 x Programmable
Operating Temperature		-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*
Humidity		0% to 95%, non-condensing
Dimensions		240 mm (9.45") (W) x 210.5 mm (8.28") (D) x 82.2 mm (3.23") (H) *Without wall mount
Mounting		Wall mount
Weight (net/gross)		4.16 kg (9.17 lb)/4.82 kg (10.62 lb)
Certifications		CE (Class A), FCC (Class A), E-Mark (E13) certified
EMC	CE/FCC	EN 55032 (Class A), EN 55035, FCC part 15 B (Class A)
	E-Mark	ECE-R10
Vibration Endurance		3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1 Grms w/ HDD (5 to 500Hz, X/Y/Z direction; random, operating) 2.5 Grms w/ HDD & Anti-Vibration Kit (5 to 500Hz, X/Y/Z direction; random, operating) MIL-STD-810G, Method 514.6C-VI Category 4 compliant
EOS Support		Windows® 10 64-bit, Linux
Software Support		AMS.AXView

\*Wide Temperature. All W.T. supported products have to be sorted by Axiomtek.

## Ordering Information

### Standard

UST510-52B-FL-A (P/N: E274510100)	Fanless embedded system with 9th/8th gen Intel® desktop processor (LGA1151), C246, VGA, 2 HDMI, 6-in/2-out DIO, 2 COM, 4 USB 3.0, 8 RJ-45 PoE GbE LAN, 2 SATA drive and ACC ignition, and TDC*
--------------------------------------	--

\*TDC: terminal block DC-in connector, DC voltage input

### Optional

Anti-Vibration Kit (P/N: 8816N5008A0E)	For in-vehicle/rolling stock which improves HDD stability in NVR applications
Communication Modules	8816N5003A0E AP12356 w/WT Wi-Fi kit for tBOX/UST SFP (E)
	8816N810DA0E GPS kit M8U w/UDR for tBOX SFP(E)
	88160620BA0E LTE SIMCOM SIM7100 (EU) for tBOX/UST SFP(E)
	8816N5000A0E LTE SIM7100JC kit for tBOX500, JPN SFP (E)
E9C6300014	Wi-Fi M.2 2230 QCNFA364A 802.11AC+BT5/WT

\*Specifications and certifications may vary based on different requirements.

## Power Protection

OCP (over current protection)

OVP (over voltage protection)

UVP (under voltage protection)

RPP (reverse polarity protection)

ISO 7637-2 pulse 1, 2a, 2b, 3a, 3b, 4 (vehicle version)

Setting for in-vehicle battery protection: system will be automatically turned down at low voltage level

Setting for ignition control: system will activate a counter while in-vehicle battery at low voltage, ACC-ON delay and shut down delay

## Dimensions

