UST520 Preliminary

Fanless Embedded System with LGA1700 14th/13th/12th Gen Intel® Core™ i9/i7/i5/i3 or Celeron® Processor, Intel® R680E, 9 to 60 VDC for In-vehicle Intelligent Surveillance Application

Flexible I/O window design

Fanless	Wide Temp.	DDR5	E-Mark	TPM 2.0	Smart Ignition	EAPI	2.5GbE

Features

- CE, FCC, E-Mark and R118 certified
- LGA1700 14th/13th/12th Gen Intel® Core™ i9/i7/i5/i3 or Celeron® processor (up to 65W) with Intel® R680E
- Fanless and wide operating temperatures from -40°C to +70°C
- Up to 8/16 GbE PoE port by M12/RJ-45 connector type
- Supports M.2 Key B and M.2 Key E for wireless communication module
- Intelligent solution of vehicle power management (smart ignition)
- Convenient 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		LGA1700 14th/13th/12th Gen Intel® Core™ i9/i7/i5/i3 or Celeron® processor (CPU TDP max. up to 65W)
Chipset		Intel® R680E
System Memory		2 x 262-pin DDR5-4800 SO-DIMM, up to 64GB
BIOS		AMI
TPM		TPM 2.0
System I/O Outlet	Serial	1 x DB9 serial console or RS-232 with 5V/1A (on 9th pin)
	Display	1 x VGA (supports up to 1920 x 1200 @ 60Hz) 2 x HDMI (supports up to 4K/2K @ 50Hz)
	Ethernet	Flexible LAN selection: • 8 x PoE RJ-45 2.5GbE LAN with 2 SATA (Intel® I226-IT) • 8 x PoE M12 X-code 2.5GbE LAN with 4 SATA (Intel® I226-IT) • 16 x PoE RJ-45 2.5GbE LAN with 4 SATA (Intel® I226-IT)
	USB	4 x USB 3.2 Type A
	DIO	2 x terminal block isolated 6-in/2-out DIO (isolation voltage: 2 kV)
	CANBus	2 x DB9 with 2 x CANBus 2.0 A/B, SocketCAN supported (J1939 optional)
	Others	1 x reset button 5 x antenna opening 2 x external accessible SIM card socket 1 x flexible I/O window

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Specifications

Expansion Interface	1 x full-size mPCIe (PCIe/USB) for LTE/GPS/Wi-Fi/IO expansion 1 x half-size mPCIe (USB) for GPS 1 x M.2 2280/2242 Key M (PCIe x4/SATA) for NVMe 1 x M.2 3052 Key B (USB 3.0/2.0) for 5G/LTE 1 x M.2 2230 Key E (PCIe/USB) for Wi-Fi/BT	
Storage	SATA Drive	2 x 2.5" 15 mm swappable SATA drive with 2 SATA, Intel® RAID 0/1 supported 4 x 2.5" 15 mm swappable SATA drive with 4 SATA, Intel® RAID 0/1/5/10 supported
Watchdog Timer	255 levels, 1 to 255 sec.	
Power	Power Supply	1 x terminal block, 12/24/48 VDC with smart ignition**
PoE (PSE, Power Sourcing Equipment)	PoE Performance	Up to 8 x RJ-45 & 8 x M12/ 16 x RJ-45 PoE output max. 120W 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*	
Relative Humidity	10% to 95% relative humidity, non-condensing	
Dimensions (W x D x H)	8RJ 2SATA SKU: 280 x 210.5 x 89 mm (11.02" x 8.29" x 3.5")* 8M12 4SATA SKU: 280 x 210.5 x 117 mm (11.02" x 8.29" x 4.6")* 16RJ 4SATA SKU: 280 x 210.5 x 117 mm (11.02" x 8.29" x 4.6")* *Without wall mount	
Mounting	Wall mount	
Weight (net/gross)	8RJ 2SATA SKU: 5.8 kg (12.8lb)/8.2kg (18.1b) 8M12 4SATA SKU: 7.3 kg (16.1lb)/9.5kg (20.9b) 16RJ 4SATA SKU: 7.3 kg (16.1lb)/9.5kg (20.9b)	
Certifications	CE (Class A), FCC (Class A), E-Mark and R118 certified	
EMC	CE/FCC	EN 55032 (Class A), EN 55035, and 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 Grms w/ HDD & Anti-Vibration Kit (5 to 500Hz, X/Y/Z direction; random, operating)	
EOS Support	Windows® 11 64-bit, Linux	
Software Support	DigiHub Embedded (Axiomtek EAPI) Smart ignition PoE management Digital I/O control Hardware monitoring	

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

**UST520 also supports 9 to 60VDC for general purpose. Please refer to the user manual for configuration settings.

Ordering Information

System

UST520-RLS-A (P/N: TBD)	Fanless embedded system with 14th/13th/12th Gen Intel® desktop processor (LGA1700), R680E, VGA, 2 HDMI, 2 6-in/2-out DIO, 2 CAN, COM, 4 USB 3.2, 8 RJ-45 PoE 2.5 GbE LAN, 2 SATA drive, smart ignition, and TDC*
UST520-RLS-B (P/N: TBD)	Fanless embedded system with 14th/13th/12th Gen Intel® desktop processor (LGA1700), R680E, VGA, 2 HDMI, 2 6-in/2-out DIO, 2 CAN, COM, 4 USB 3.2, 16 RJ-45 PoE 2.5 GbE LAN, 4 SATA drive, smart ignition, and TDC*
UST520-RLS-C (P/N: TBD)	Fanless embedded system with 14th/13th/12th Gen Intel® desktop processor (LGA1700), R680E, VGA, 2 HDMI, 2 6-in/2-out DIO, 2 CAN, COM, 4 USB 3.2, 8 M12 X-code PoE 2.5 GbE LAN, 4 SATA drive, smart 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	TBD	
AC DC Adapter	50906A24000E	Adapter 24V230W FSP230-AAAN3 WIRE FSP (only for office testing purpose)
Cable/Power Cord	594B8152710E	LAN cable, M12 X-CODE / RJ-45 plug, CAT6, 180 cm
	599000001100	P Cord YP12/YC12_CY-U0032 YUNG_LI 1830 mm
	59906000010E	Power Cord YP-12/YC-12 (Japan)
	59903000000E	Power Cord YP-22/YC-12 (Europe)
	59905000000E	Power Cord YP-35/YC-12 (Australia)
	59904010000E	Power Cord/UK YP-61A/YC-12 L=1830 mm

*Specifications and certifications may vary based on different requirements.

Packing List

1 x CPU thermal paste
4 x memory thermal pads
1 x HDD screws x 8/16
1 x power input 3-pin terminal block
2 x DIO 12-pin terminal block
1 x wall mount kit
1 x screw Pack

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, and 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 at low battery voltage, with IGN ON and IGN OFF delay.

Dimensions

A
Rate: 2.000

315.4 (W)
280 (W)
11.5   210.5 (D)   10
89 (H)
95 (H)
E2XXXXXXXX

315.4
302.4
100
140

302.4
100
140

A
Rate: 2.000

10   210.5 (D)   11.5
315.4 (W)
280 (W)
117 (H)
123 (H)

UST520-RLS-B

UST520-RLS-C