VT-MITX-TGL Single Board Computer
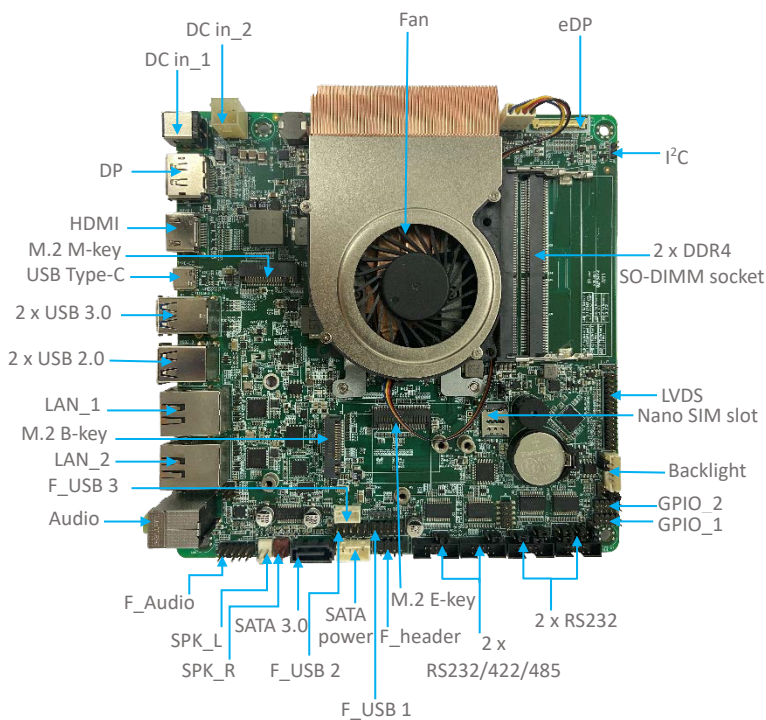

Product Brief

VT-MITX-TGL single board computer adheres to the international industry size standards with a 170mm x 170mm form factor. It is powered by the latest 11th Gen Intel® Core™ U series processor that combines best-in-class technologies to offer the best user experience. It supports high-definition audio encoding and decoding to provide outstanding clarity and fidelity. Better yet, it provides rich interfaces and customer expansion options to meet varying application scenarios including smart retail, self-service terminals, industrial automation, intelligent medical health, and digital media.

Featuring high flexibility and high performance, the board could work under extreme environments with extended temperatures ranging from -40℃ to +85℃, making it a reliable solution for industrial applications.

Exterior and Features

VT-MITX-TGL
11th Gen Intel® Core™ U-Series processor
Windows 10/Linux operating system
2 x DDR4 SO-DIMM, up to 64 GB
Rich interfaces, flexible expansion
High-definition audio CODEC
PoE optional
RTC + Watchdog
USB 3.0 & USB 2.0
Wide temperature range supported

VT-MITX-TGL Single Board Computer Datasheet

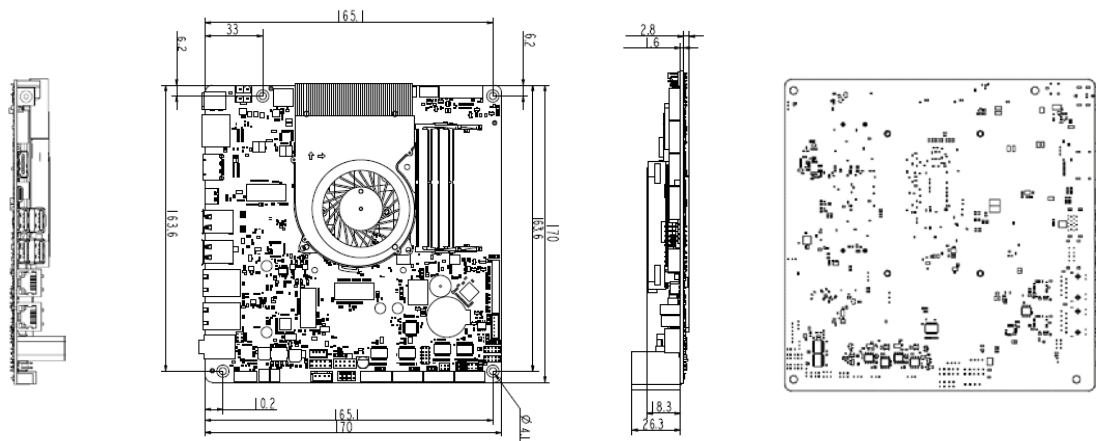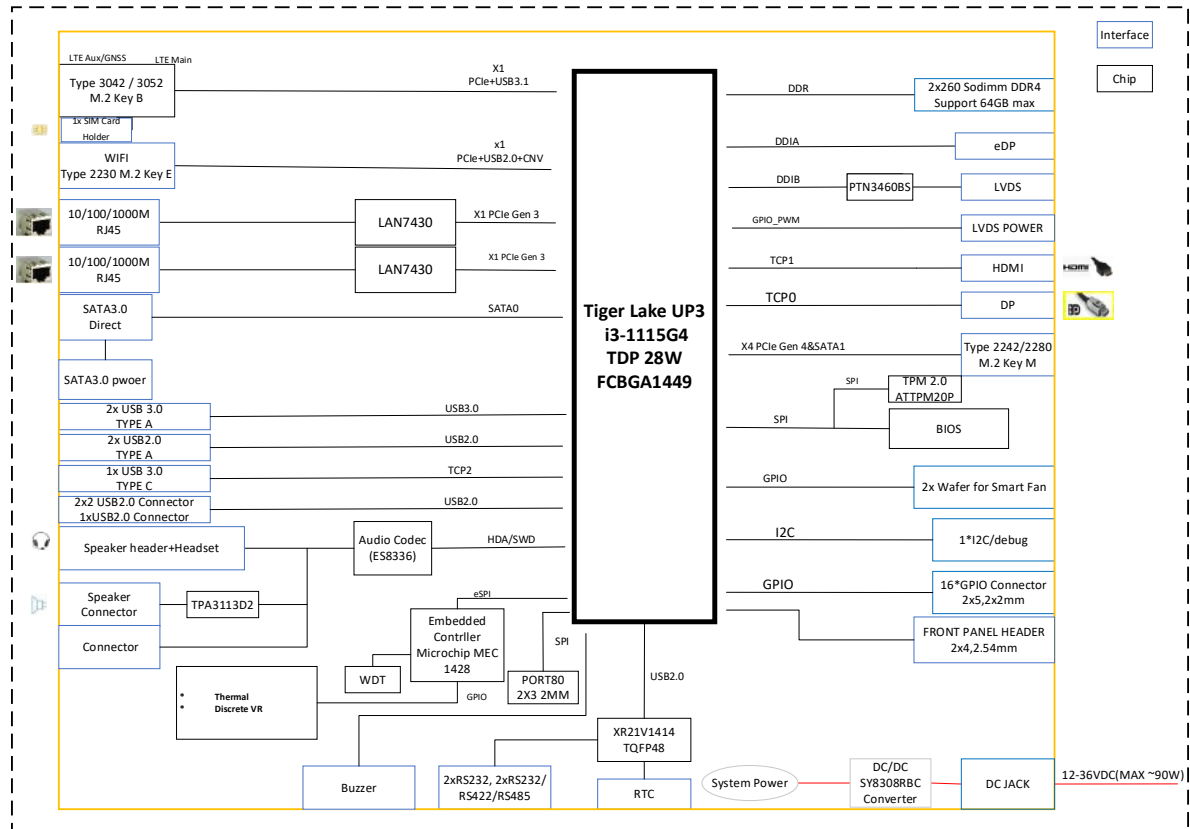| VT-MITX-TGL			
System	CPU	11th Gen Intel® Core™ U-Series i3-1115G4/ i5-1155G7/ i7-1195G7 processor	
	Memory	2 x DDR4 SO-DIMM socket, 3200MHz, up to 64GB	
	Storage	1 x SATA 3.0 (Expandable via M.2 M-Key)	
Communication	Ethernet	2 x RJ45, 10M/100M/1000M Base-T (2 x Microchip® 1Gbps PCIe controller)	
Media	Graphics	Intel® Iris® Xe Graphics	
	Display	1 x HDMI: Resolution up to 4096 x 2160 @24Hz 1 x DP: Resolution up to 4096 x 2160 @24Hz 1 x eDP: Resolution up to 4096 x 2160 @60Hz	1 x LVDS/eDP with backlight control: LVDS, resolution up to 1920 x 1200 @60Hz eDP, resolution up to 4096 x 2160 @60Hz
	Audio CODEC	Realtek® 5.1 channel HDA Codec	
	Audio interface	1 x Mic/Line-out 2 x Speaker connector	1 x Headphone jack 1 x Microphone jack
I/Os	Serial	2 x RS232	2 x RS232/RS422/RS485
	USB	2 x USB 2.0 Type-A 2 x USB 3.0 Type-A	1 x USB 3.1 Type-C 3 x Built-in USB 2.0
	GPIO	16 x GPIO	1 x GPIO power
	I²C	1 x I²C	
	SIM card holder	1 x Nano SIM card holder (connected to M.2 B-Key)	
Expansion	M.2	1 x M.2 B-Key (3042/3052, PCIe x1 / USB 3.1 for 4G/5G expansion) 1 x M.2 M-Key (2242/2280, PCIe x4 / SATA for SSD expansion) 1 x M.2 E-Key (2230, PCIe x1 / USB 2.0/CNVi for Wi-Fi & BT expansion)	
Firmware	BIOS	BYOSOFT (Optional: AMI, Insyde, Phoenix)	
	H/W monitor	Voltages & temperatures	
	RTC	Processor integrated RTC	
	Watchdog	Programmable WDT to generate system reset events	
	Security (optional)	TPM 2.0 supported (Infineon SLB 9670)	
System Control	FP header	1 x Front panel header (power button, reset button, LED power)	
Mechanical	Dimensions	170mm x 170mm	
	Heat dissipation	1 x System fan	1 x CPU fan connector
Power	Input	12V DC (1 x 4-pin power header, 1 x Power jack)	
Software	Operating system	Windows 10, Linux	
	OTA tool	BlueSphere OTA (Optional)	
Environment Condition	Temperature	Operating: 0℃~+60℃ (Optional: -40℃~+85℃)	Storage: -20℃~+75℃ (Optional: -55℃~+85℃)
	Certification	CCC, UL, FCC (Part 15 class B), ESD (contact: ±8KV and air: ±12KV)	

Product Outlines

Block Diagram

LTE Aux/GNSS   LTE Main
Type 3042 / 3052 M.2 Key B
1x SIM Card Holder
WIFI Type 2230 M.2 Key E
10/100/1000M RJ45
10/100/1000M RJ45
SATA3.0 Direct
SATA3.0 pwoer
2x USB 3.0 TYPE A
2x USB2.0 TYPE A
1x USB 3.0 TYPE C
2x2 USB2.0 Connector 1xUSB2.0 Connector
Speaker header+Headset
Speaker Connector
Connector
Buzzer

LAN7430
LAN7430
Audio Codec (ES8336)
TPA3113D2
Embedded Contrller Microchip MEC 1428
WDT
Thermal Discrete VR
PORT80 2X3 2MM
XR21V1414 TQFP48
2xRS232, 2xRS232/ RS422/RS485
RTC

X1 PCIe+USB3.1
x1 PCIe+USB2.0+CNV
X1 PCIe Gen 3
X1 PCIe Gen 3
SATA0
USB3.0
USB2.0
TCP2
USB2.0
HDA/SWD
eSPI
SPI
GPIO
USB2.0

Tiger Lake UP3 i3-1115G4 TDP 28W FCBGA1449

DDR → 2x260 Sodimm DDR4 Support 64GB max
DDIA → eDP
DDIB → PTN3460BS → LVDS
GPIO_PWM → LVDS POWER
TCP1 → HDMI
TCP0 → DP
X4 PCIe Gen 4&SATA1 → Type 2242/2280 M.2 Key M
SPI → TPM 2.0 ATTPM20P
SPI → BIOS
GPIO → 2x Wafer for Smart Fan
I2C → 1*I2C/debug
GPIO → 16*GPIO Connector 2x5,2x2mm
→ FRONT PANEL HEADER 2x4,2.54mm

System Power → DC/DC SY8308RBC Converter → DC JACK → 12-36VDC(MAX ~90W)

Interface
Chip

Company Profile

Since 2002 established by two Silicon Valley entrepreneurs, Vantron Technology has been a pioneer in connected IoT devices and IoT platform solutions. Today, Vantron serves countless customers all over the world, some of them are Fortune 500 companies. Products lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud device management platform.

Vantron has 20 years of experience in R&D of embedded edge intelligent hardware like SOM board and motherboard, and provided users with various embedded solutions with ARM and X86 architecture. From Linux to Windows, from embedded to desktop level, from gateway to server. At the same time, we provide our users with system clipping, driver transplantation and other services.

Vantron IoT communication devices support multi-protocol connection of industrial equipment, edge computing of local data. Abundant wired and wireless connectivity make remote operations and maintenance possible. From electricity and transportation to smart retail, medical and warehousing, Vantron IoT communication device can be deployed anywhere in any business section. Vantron believes its IoT solution to help many companies finish their digital transformation, efficiency of manufacturing and productivities have been improved significantly.

Vantron industrial display systems, ARM and X86 series, are equipped with Rockchip, NXP, MediaTek, Intel and other high-performance processors. It supports various operating systems such as Windows, Linux, and Android. Diverse wireless communications keep your device online all the time. Multiple installation methods make it suitable for a variety of application scenarios. Features like waterproof, dustproof, shatter resistant guarantee the best performance in any environment.

Vantron BlueSphere device management platform, a software product, is playing a big role in Vantron overall IoT solution. Today, Vantron puts more focus on offering complete cost effective, leading-edge yet reliable solutions to help customers carry out their visions.