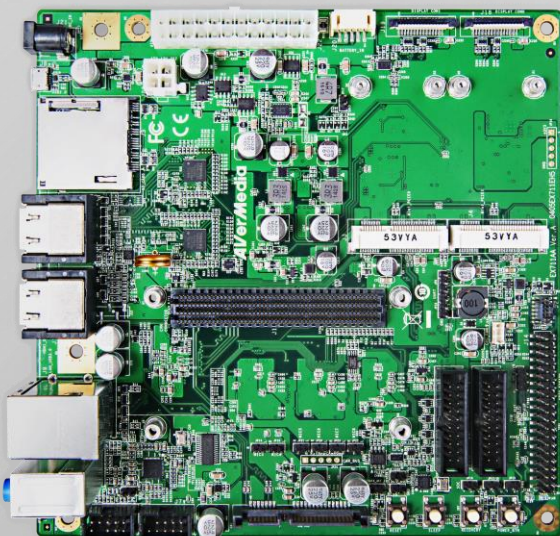# AVerMedia

EX713-AA
Mini-ITX Carrier Board with Dual Mini PCIe Support for NVIDIA Jetson TX1 and Jetson TX2
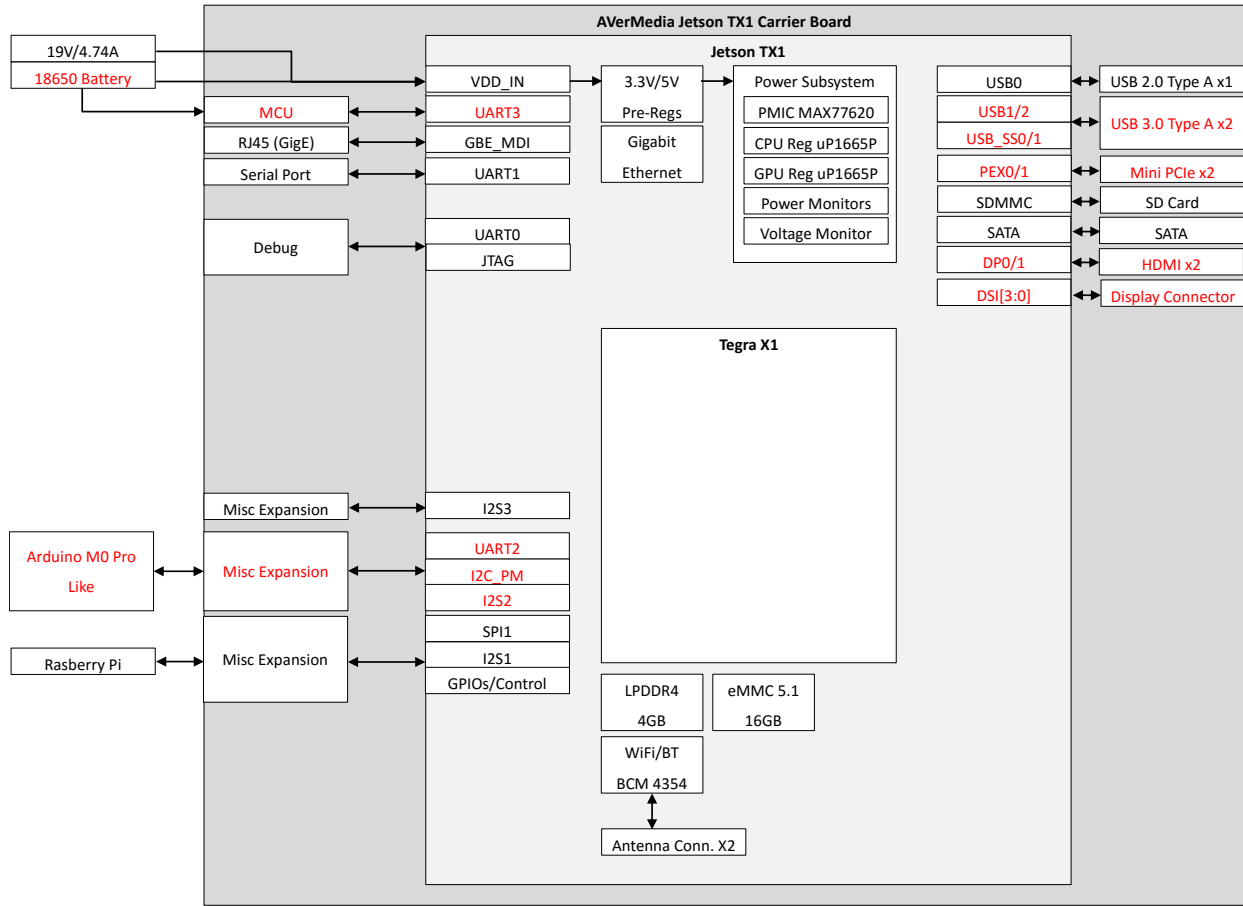
Features

- Operate with NVIDIA Tegra X1/X2 module to build up a high performance Tegra X1/X2 system

- On-board 2 full-height Mini PCIe slots to provide the expandability of connecting AVerMedia Mini-PCIe frame grabbers C353, CM313B, and C351 for audio/video capturing, encoding, and post processing

- 2 USB 3.0 for Tegra X1/X2

- Battery power

- Design with Mini-ITX (170 mm x 170mm X 41mm) form factors for flexible system configuration

- Suitable for applications of robotics, UAV, UGV, AOI, medical image, and other video-enabled equipment for automation, AI, and deep learning
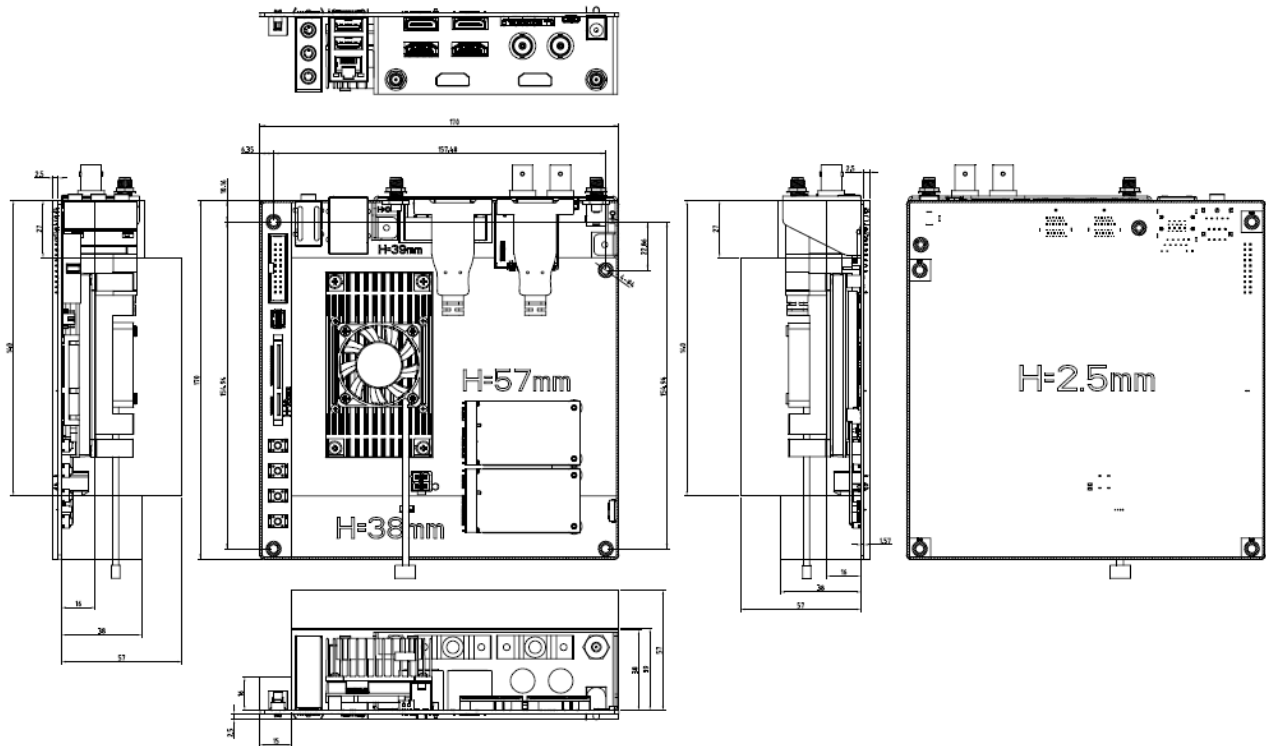
Specifications

Support Module	NVIDIA Tegra X1/X2 Module
Video Interface	1x HDMI Out Type A, 4096 x 2160 p60
Storage	1x SATA 3Gb/s and SATA Power, 1x SD card
LAN Port	1x RJ-45 for Gigabyte Ethernet
Buttons	Power on/off, Reset, Recovery
Multiple PCI Express and USB3.0	2x Full-height Mini-PCI Express 2x USB3.0 Type A
USB2.0	1x USB2.0 Micro-B
Camera Connection Supported by AVerMedia frame grabber	HDMI, VGA, 3G-SDI, and Composite
Other Interface	UART 0 (3.3V TTL) - debug port 6 pin (with RTS and CTS) UART 2 (3.3V TTL) - 4 pin 1x SPI (3.3V) - 9 pin (one SPI bus plus two select lines) 1x I2C (3.3V) - 4 pin 1x 4-pin FAN connector JTAG header - 9 pin extra 40 pin connector
Power Supply	+12VDC/5A
Battery Power	Support with power management
Audio	3.5mm Line-in/Line-out/Mic-in
Operating Temperature	0°C ~ +55°C (standard version); -10°C ~ +70°C (with fan module)
Operating Humidity	10% ~ 90% (RH)
Storage Temperature	-10°C ~ +85°C
Dimension	Mini-ITX, 170mm x 170mm (6.7" x 6.7")

Block Diagram

AVerMedia Jetson TX1 Carrier Board

Block diagram showing connections between external interfaces and the Jetson TX1 module:

- 19V/4.74A, 18650 Battery → VDD_IN
- MCU → UART3
- RJ45 (GigE) → GBE_MDI
- Serial Port → UART1
- Debug → UART0, JTAG
- 3.3V/5V Pre-Regs, Gigabit Ethernet
- Power Subsystem: PMIC MAX77620, CPU Reg uP1665P, GPU Reg uP1665P, Power Monitors, Voltage Monitor
- USB0 → USB 2.0 Type A x1
- USB1/2, USB_SS0/1 → USB 3.0 Type A x2
- PEX0/1 → Mini PCIe x2
- SDMMC → SD Card
- SATA → SATA
- DP0/1 → HDMI x2
- DSI[3:0] → Display Connector
- Tegra X1
- Misc Expansion → I2S3
- Arduino M0 Pro Like ↔ Misc Expansion → UART2, I2C_PM, I2S2
- Rasberry Pi ↔ Misc Expansion → SPI1, I2S1, GPIOs/Control
- LPDDR4 4GB, eMMC 5.1 16GB
- WiFi/BT BCM 4354 → Antenna Conn. X2

Dimensions

H=39mm, H=57mm, H=38mm, H=2.5mm

Perspective View

AVerMedia