



Overview

The **VFC Controller** is a highly integrated and high-performance quad-core Cortex-A17 core board, running at a frequency of up to 1.8GHz, and comes standard with 2G memory and 16GB EMMC high-speed flash memory, supports synchronous HDMI input and output signals. It is more suitable for commercial display fields, such as mirror screen, advertising machine, lamp post sign and other applications.

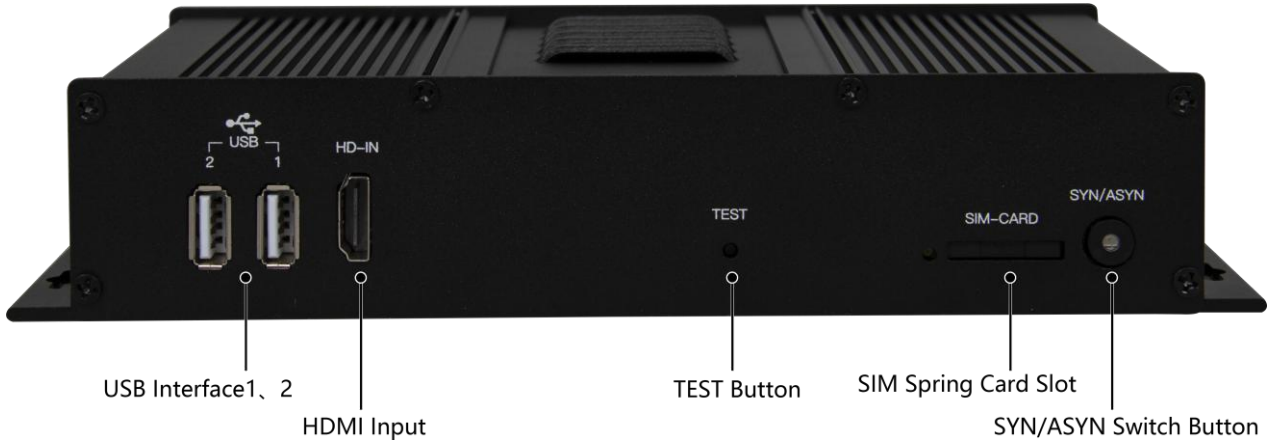
VFC Controller supports synchronous HDMI input and asynchronous playback without additional parts like video processors and various cables., supports 4G/Wi-Fi wireless remote control by smart phone or laptop.

Feature

- Support synchronous and asynchronous dual mode playback.
- Support HDMI input and output.
- Support Lora modem to realize programs synchronization via wireless.
- Integrate auto-light sensor interface, plug sensor probe in directly.
- Onboard dual WiFi module, support AP mode and Station mode.
- Web server built in, support local webpage produce; support editing offline programs via computer, iphone, android smart phone, laptop and so on.
- Support video hard decoding, support 1080p video and most of formats of video, image and text.
- 1.3 million dual network ports loaded, the maximum width of asynchronous is 1920 pixels, the maximum of height is 1080 pixels, and the synchronization is 1.3 million custom width and height.
- Support full color static, 1-32 scan modes modules, standard driver IC.
- Can pair with NTCIP device for ITS application, supported TCP/IP and NTCIP protocol for control and data transmission to the operation central.
- Industrial level Flash: 16GB.
- Support plug in camera by USB.
- Support storage configuration parameters in receiver cards (The Generation receiver card).
- Use Easyboard software.

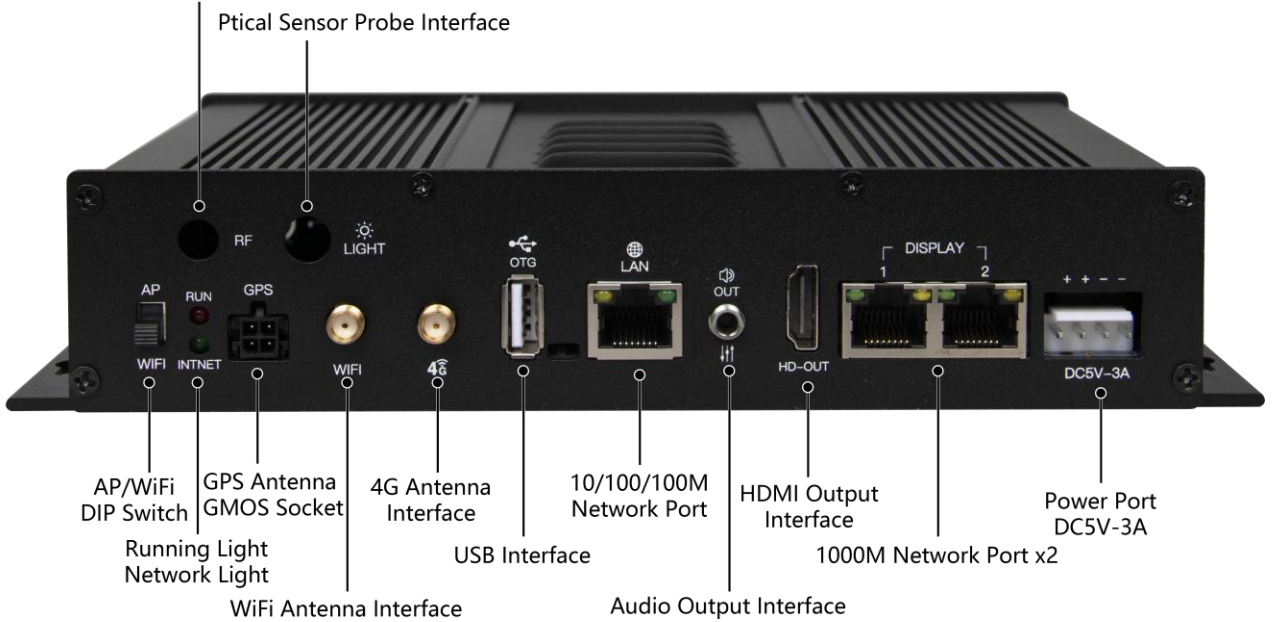
Appearance

Front Panel



Rear Panel

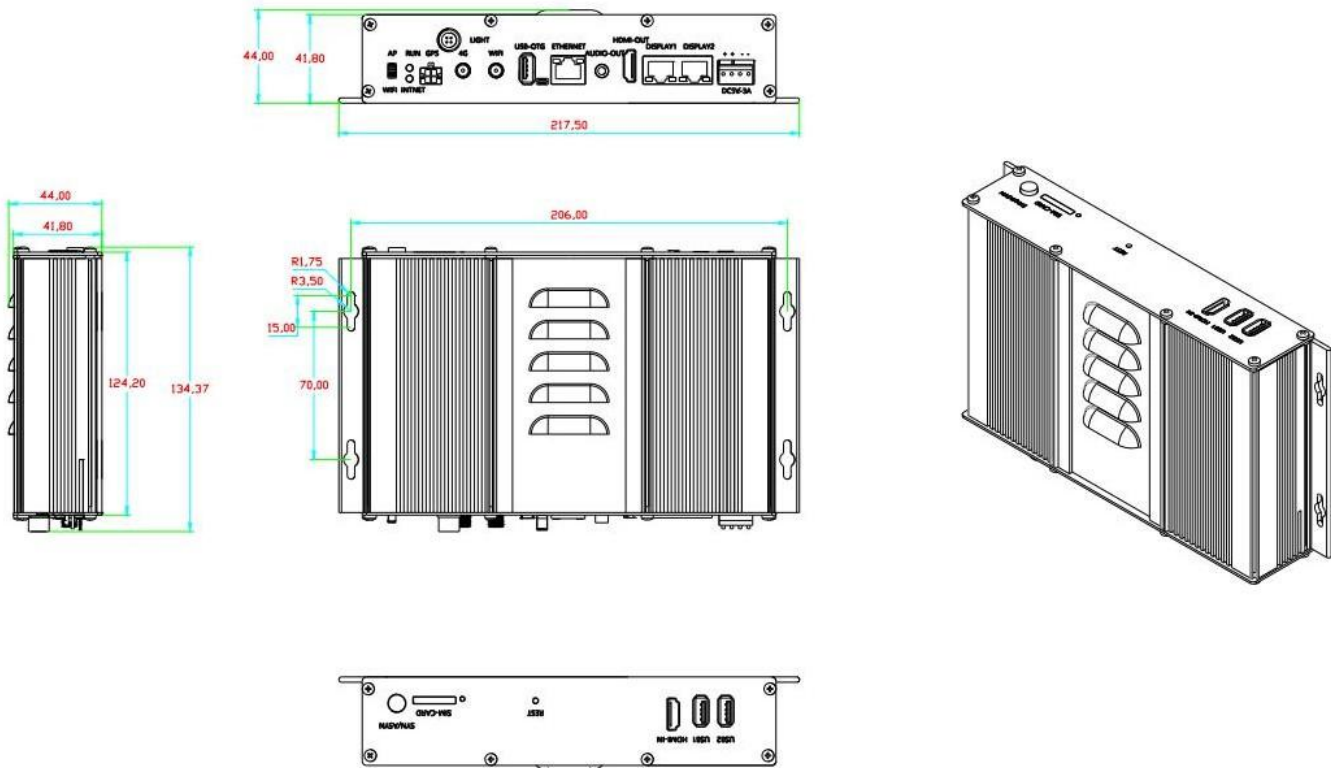
Loar Synchronous Module Antenna Interface



Specifications

Specification	
CPU	RK3288 strongest quad-core 1.8GHz Cortex-A17
GPU	Quad-core GPU Mail-T764
RAM	2G
Internal memory	EMMC 16G
Built-in ROM	2KB EEPROM
Decoding Resolutions	Maximum support 3840*2160
Operating System	Android 7.1
Play Mode	Support multiple playback modes such as loop, timing, insertion, etc.
Network	4G, Ethernet, support WiFi/Bluetooth 4.0, wireless peripheral expansion
Video	Support MP4 (.H.264, MPEG, DIVX, XVID) format
USB2.0 Interface	2 USB HOST, 1 USB OTG
Serial Port	IIC / TTL / 485
GPS	External GPS (optional)
WIFI, BT	Built-in WIFI, BT4.0 (optional)
4G	Built-in 4G module communication (optional)
Ethernet	1, 10M/100M/1000M adaptive Ethernet
HDMI Output	Support
Audio Output	3.5mm audio port
Power input (V)	DC 5V3A
Working Temperature (°C)	-30~75°C
Working Humidity (%)	0%~80% RH
Stock Temperature (°C)	-40~80°C recommend 5~35°C
Dimension (mm)	217 (L) x135 (W) x44 (H)
Weight (g)	1300g

Dimensions



Cautions

1. Strictly prohibited to disassemble product by yourself
2. Strictly prohibited to plug in or off Antenna with power on

NTCIP Device

NTCIP, short for *The National Transportation Communications for Intelligent Transportation System Protocol*, is a family of standards designed to achieve interoperability and interchangeability between computers and electronic traffic control equipment from different manufacturers. It has been identified as the best transportation communication protocol with well-defined functionalities since release. Its most prominent feature is its compatibility in connecting field devices and systems from different channels with less integration efforts and lower costs. As of now, developed countries like United States, Canada, Singapore and Netherlands have already invested a lot in pushing NTCIP to the market to support their plans to build smart cities. As a large number of field devices and centers developed by different manufacturers still exist in the market, NTCIP can be used as a standardized and scalable tunnel for different systems to connect. It can be applied to different situations where a safe and stable network is required for device control. With increasing number of governments/transportation departments starting to adopt best practice for transportation communication, we foresee a fast-growing demand in NTCIP implementation around the world. According to our research, this market in the future is going to be tremendous.

Product Details

NTCIP device is the core support node to help implement the standard protocol. In general, NTCIP handles the communications between different protocols through these devices, e.g. the control over different traffic guidance boards. By installing the NTCIP devices, you are able to control and manage different communication channels for a wide range in a more unified and standardized way.



Hardware Specification

Specification	
Module Size	74mm x 67mm x 26mm
Operating Temperature	-40°C to +105°C
Humidity	5-95% non-condensing
Power Requirement	5 V DC
Communication Ports	1 - 10/100 Base Ethernet
Processor Speed	528 MHz
SRAM	256M/512M/
NAND Flash	256M/512M/
Expand I/O	GPIO x 46 (optional)
Watchdog Supervisor	Yes
Time/date Clock	Yes
Battery Back up	Yes
Temperature Sensor	No

Software Specification

◆ Standards Supported

- 1201 – Global Objects
- 1203 – Dynamic Message Signs
- 1204 – Environmental Sensor Systems
- 1205 – CCTV Camera Control
- 1209 – Transportation System Sensors

Note: Custom Conformance Group Configuration is also available

◆ Secondary Development Environment

- Use NTCIP extension package for configuration, e.g. change IP address for source and target locations, change mapping relations, etc.
- Use NTCIP extension package to deploy .Net application to NTCIP device for any application developed through .Net included third party vendor (e.g. MS Visual Studio)
- Use SmartAgent IDE for application development and deployment (*Recommended*)

◆ Application Scenarios

(Exchange information through NTCIP application layer to intelligentize transportation)

- Collect exchanged information and control traffic signals
- Control and interconnect LED traffic guidance boards
- Control CCTV cameras
- Collect and display transportation-related environment information (e.g. PM2.5, PM10, traffic noise index)
- Upgrade transportation routers to be NTCIP embedded

NTCIP Center

NTCIP Center is the upper computer software that is developed to control and manage all NTCIP devices. With SmartAgent IDE developed and maintained by our company, you can develop any customized application not only on NTCIP device but also on NTCIP center. For development and deployment in NTCIP center, 3 solutions are currently available:

• NTCIP SmartConfig Tool

SmartConfig Tool is a full-stack toolkit used to manage and test every installed NTCIP device. It is compatible for different operation systems (e.g. Windows, Linux and MacOS) and embedded AMR device

• SmartAgent IDE

SmartAgent IDE is a flexible development and deployment platform for you to create all different applications. Its default programming language is Javascript. It is compatible for different operation systems (e.g. Windows, Linux and MacOS) and embedded AMR device

• .NET library

.NET library is embedded to make it easy for you to use IDE from third party vendor (e.g. MS Visual Studio)