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RK3588 GMSL Video Recording Box

The YYTECH-RK-GMSL-03 GMSL video acquisition host is a GMSL data acquisition and processing all-in-one machine based on the domestic high-performance ARM processor RK3588. It uses up to two MAX96712 chips (which can be replaced with MAX96722/ MAX9296, MAX96724/F), and supports up to 8-channel video acquisition. Thanks to the powerful encoding and decoding capabilities of RK3588, the all-in-one machine supports simultaneous display, encoding, and streaming of multiple GMSL data channels.

The YYTECH GMSL video recorder features a CNC full-aluminum housing with a fanless design and is installed via a standard rail for easy mounting and disassembly.

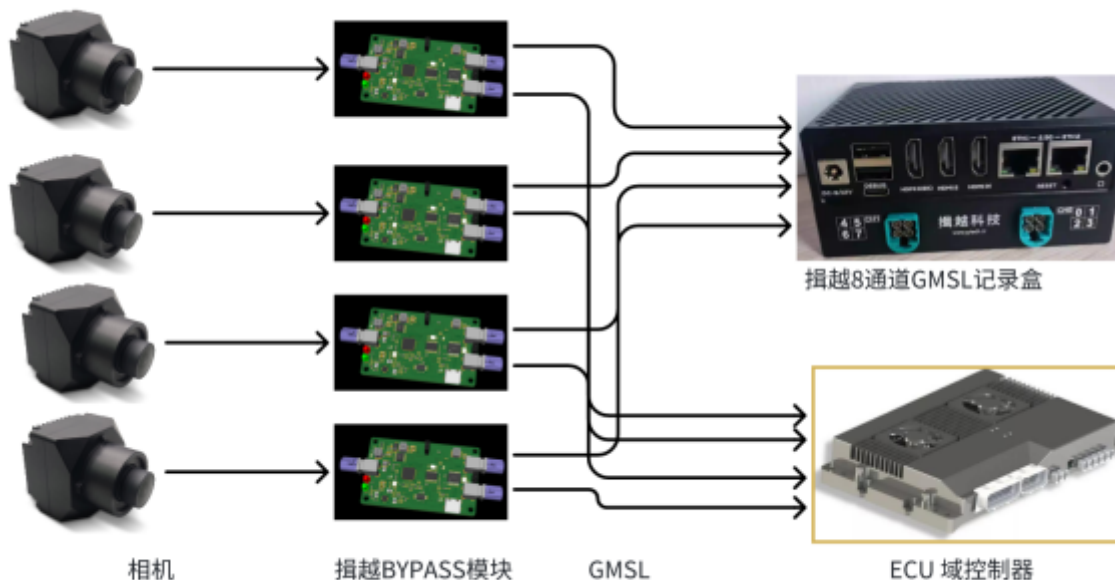
It provides reference video processing scripts that can be used to quickly build a personalized data acquisition system.

Main Features

- CPU: RK3588, quad-core A76, quad-core A55
- GPU: Mali-G610, compatible with OpenGL ES 1.1, 2.0, 3.2, OPENCL 2.2, Vulkan 1.2
- VPU: Supports 8K@60fps H.265 and VP9 decoding, 8K@30fps H.264 decoding, 4K@60fps AV1 decoding, 8K@30fps H.264 and H.265 encoding
- NPU: 6TOPs, supports INT4/INT8/INT16/FP16
- RAM: 64-bit 4GB/8GB/16GB LPDDR4X with a frequency up to 2133MHz
- eMMC Flash: 32GB/64GB/256GB eMMC, supports up to HS400 mode
- Nor Flash: 32MB SPI Nor Flash
- microSD: Supports up to SDR104 mode
- Ethernet: Two 2.5G Ethernet ports expanded via PCIe
- USB Ports:
 - One USB 3.0 Type-A
 - One full-function USB Type-C™ interface, supports USB3.0 data transfer and DP display output with a resolution up to 4Kp60
 - Two USB 2.0 Type-A
- Video Input: GMSL1/GMSL2, MAX 8 channels, max96712*2
- Video Output:
 - Two standard-size HDMI output interfaces
 - USB Type-C™ DP display output with a resolution up to 4Kp60
- M.2 Connectors:
 - One M.2 M-Key connector with PCIe 3.0 x4 for NVMe SSDs up to 2,500 MB/s
 - One M.2 E-key connector with PCIe 2.1 x1 and USB2.0 Host
- GMSL: Two 4-in-1 GMSL inputs, supports connection to 8 GMSL cameras, supports 3/6Gbps
 - Deserializer modules available:
MAX96712/MAX96722/MAX96724/MAX96724F/MAX9296/MAX96716
- [Optional] CANFD: Two CANFD interfaces, isolated, high-speed
- [Optional] 4G-LTE: 4G network module
- Power Supply: 5.5*2.1mm DC socket and 2-pin 3.5mm plug-in terminal, 12VDC input
- Power Supply Capability: Recommended 12V, 3A or above

Appearance

Structural diagram for multi-channel data acquisition and bypass applications.



Mechanical Dimensions

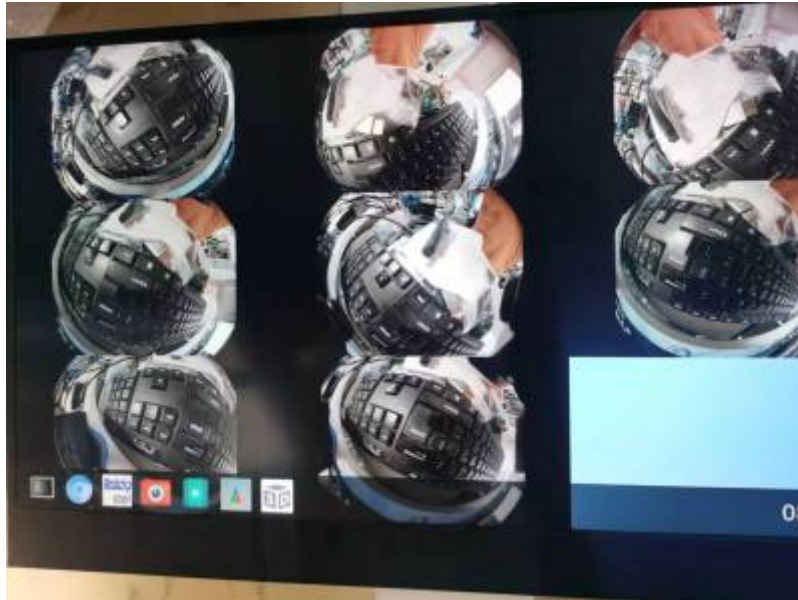
- Dimensions: 112mm * 55mm * 48mm (length*width*height),
- Weight: 680 grams (excluding cables, cameras, etc.)

Installation

Can be placed flat or installed using a standard rail. The installation hole dimensions are shown in the figure below.

Usage Demonstration

Simultaneous acquisition and preview of 8 cameras.



Electrical Parameters

- DC 12V, 3.5W (without cameras/display connected).
- The recommended voltage is 9-14V and should not exceed the camera POC voltage. Exceeding the voltage may permanently damage the camera.
- Operating temperature range: 0-70 degrees Celsius.

Software Compatibility

- The GMSL driver is compiled into the kernel by default, and the supported camera model is Senyun GW5200-IMX390.
- For support of other models and custom-developed cameras, please consult technical support.
- Gstreamer script support: (Some are provided for free, while others require payment. Please confirm with technical support.)
- Video Preview
 - Encoding and saving
 - Simultaneous video preview and encoding
 - Video streaming
 - Demo application support

User Manual

Other documents (not publicly available)

- YYTECH GMSL Video Recorder - User Manual
- Q&A: How to obtain camera images
- Q&A: YYTECH RK3588 Acquisition Box Camera Driver Usage Guide
- Q&A: How to run RKNN samples
- Q&A: System firmware and flashing guide
- Q&A: Viewing YUV images
- Q&A: Gstreamer command reference

- Please contact YYTECH technical support for more information.

Contact US: [Technical Support](#)

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