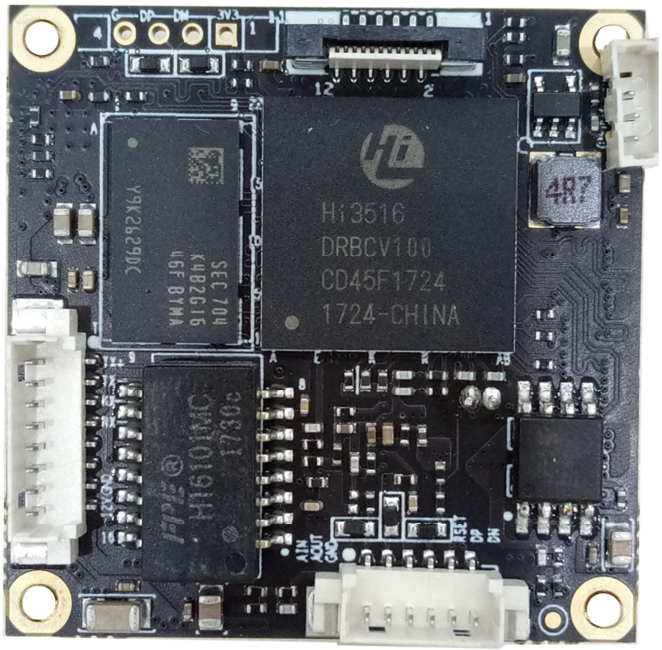
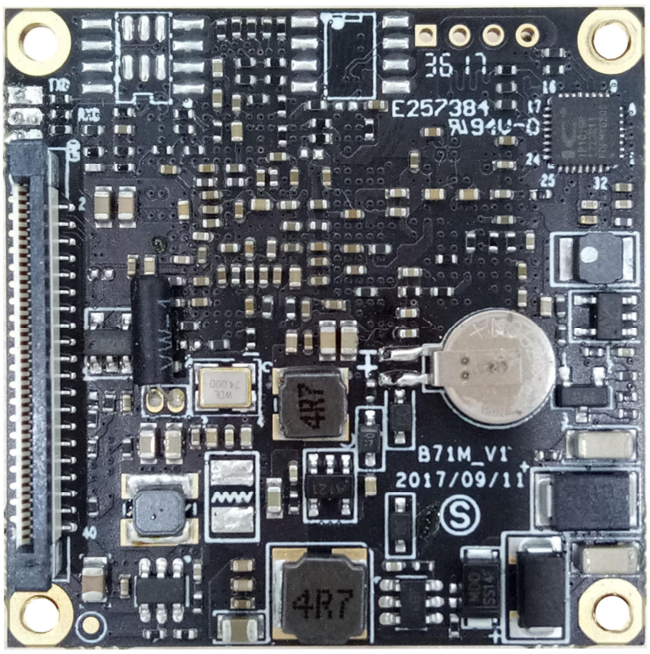
HW16DV1MB

Introduction

HIVIEW offers a video network encoding board designed with Huawei Hisilicon chip HI3516DV100.

You can use this board to develop HD network cameras. We will provide software services and hardware services.



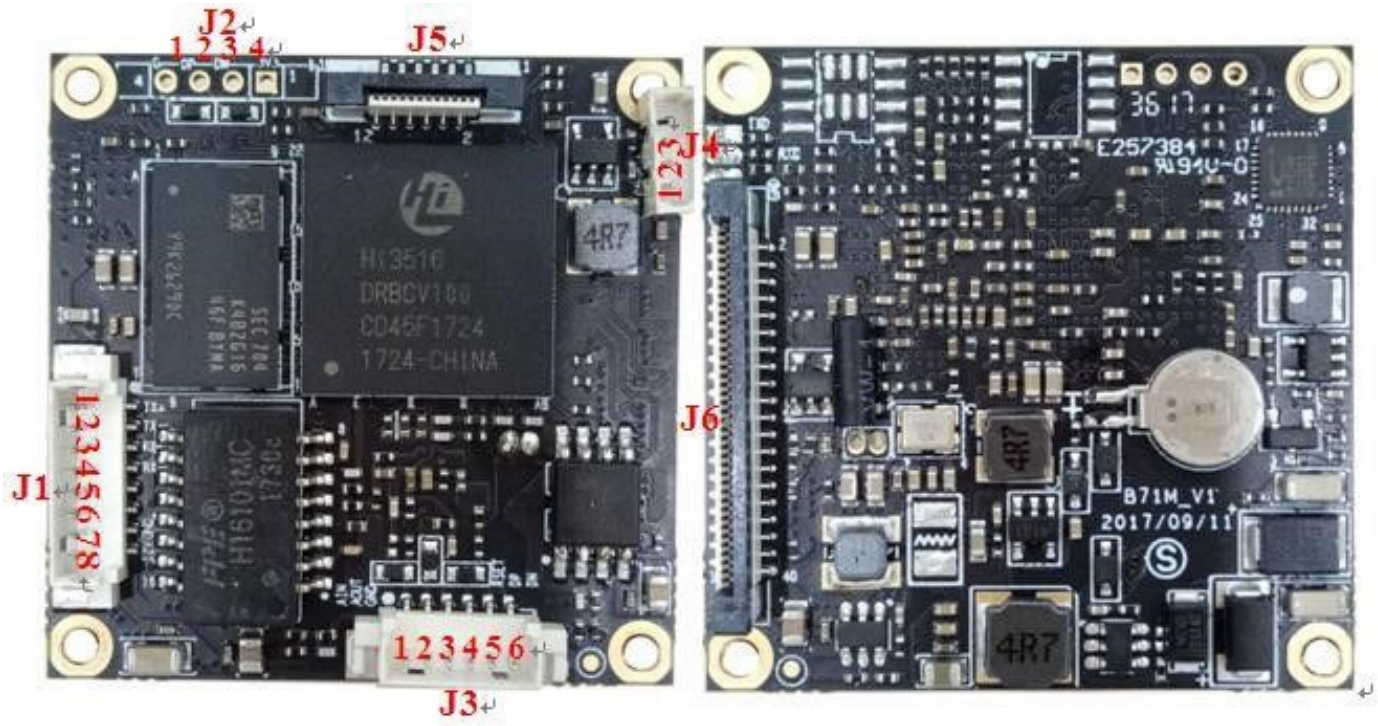


General specifications

- Secondary development customization (PCBA structure, SDK development kit, software platform docking)
- Adopting industry-leading low-power process and internal low-power architecture design, the module continues to lead the industry in low bit rate, high image quality and low power consumption;
- Full-featured interface: Audio, Alarm, USB (wireless WIFI), TF card local storage, RTC time synchronization, hardware reset, etc.
- 25 frames full real-time monitoring, H.265 video compression technology, low bit rate, high definition image
- Support sensor board with AR0230, IMX291, IMX290,IMX385, IMX123, IMX335, OV4689, OS05A10, IMX274 and OS08A10 and expansion board.
- The size of the board is 38*38。

Interface description

J2 (USB interface)			J5
No.	Name		Extended board of the FPC , SD card, Alarm
1	+3.3V		
2	USB-DM		
3	USB-DP		
4	GND		



J1(Ethernet interface and power)		J3		J4(debug)		J6
No.	Name	NO	Name	NO	Name	TO Sensor Board
1	TX+	1	AUDIO-IN	1	GND	
2	TX-	2	AUDIO-OUT	2	RX	
3	RX+	3	GND	3	TX	
4	RX-	4	RESET			
5	LED-LINK	5	485-DP			
6	LED-ACT	6	485-DN			
7	GND					
8	DC12V					

HIVIEW

Hi3516D

Hi3516D Professional HD IP Camera SoC

Key Specifications

Processor Core

- A7@600 MHz, 32 KB I-cache, 32 KB D-cache/128 KB L2 cache
- Neon acceleration, integrated FPU

Video Encoding

- H.264 BP/MP/HP
- H.265 main profile
- MJPEG/JPEG baseline encoding

Video Encoding Performance

- A maximum of 5-megapixel resolution for H.264/H.265 encoding
- Real-time H.264/H.265 encoding of multiple streams:
  - 1080p@30 fps+720p@30 fps+VGA@30 fps
  - 3-megapixel@30 fps+VGA@30 fps
  - 5-megapixel@15 fps
- JPEG snapshot at 5-megapixel@8 fps
- Supporting the CBR/VBR bit rate control mode, ranging from 16 kbit/s to 40 Mbit/s
- Encoding frame rate ranging from 1/16 fps to 240 fps
- Encoding of eight ROIs

Intelligent Video Analysis

- Integrated IVE, supporting various intelligent analysis applications such as motion detection, boundary security and video diagnosis

Video and Graphics Processing

- 3D denoising, image enhancement, and dynamic contrast enhancement
- Anti-flicker for output videos and graphics
- 1/15.99x to 16x video scaling
- 1/2x to 2x graphics scaling
- OSD overlay pre-processing for eight regions
- Video graphics overlaying of two layers (video layer and graphics layer)

ISP

- Adjustable 3A functions (AE, AWB, and AF)
- Noise reduction in FPN mode
- Highlight compensation, backlight compensation, gamma correction, and color enhancement
- Defect pixel correction, denoising, and digital image stabilizer
- Anti-fog
- Lens distortion correction
- Picture rotation by 90° or 270°
- Mirroring and flipping
- Digital WDR, frame base/line base WDR, and tone mapping
- ISP tuning tools for the PC

Audio Encoding/Decoding

- Voice encoding/decoding in compliance with multiple protocols by using software
- G.711, ADPCM, and G.726 protocols
- AEC, ANR, and ALC

Security Engine

- Various encryption and decryption algorithms using hardware, such as AES, DES, and 3DES
- Digital watermark

Video Interfaces

- Input
  - 8-/10-/12-/14-bit RGB Bayer DC timing VI, a maximum of 150 MHz clock frequency
  - BT.601, BT.656 or BT.1120 VI interface
  - MIPI, LVDS/sub-LVDS, and HiSPI
  - Compatibility with mainstream HD CMOS sensors provided by Sony, Aptina, OmniVision, and Panasonic
  - Compatibility with the electrical specifications of parallel and differential interfaces of various sensors
  - Programmable sensor clock output
  - Maximum input resolution of 5 megapixels
- Output
  - One PAL/NTSC output for automatic load detection
  - One BT.1120/BT.656 VO interface for connecting to an external HDMI or SDI, up to 1080p@60 fps output

Audio Interfaces

- Integrated audio CODEC, supporting 16-bit audio inputs and outputs
- I^2S interface for connecting to an external audio CODEC

Peripheral Interfaces

- POR
- One integrated high-precision RTC
- One dual-channel SAR ADC
- Four UART interfaces
- One IR interface, three I^2C interfaces, four SPI master interfaces, 14 x 8 + 3 GPIO interfaces
- Eight PWM interfaces (four independent interfaces and four multiplexed with other pins)
- Two SDIO 3.0 interfaces, supporting SDXC
- One USB 2.0 host/device port
- RGMII/RMII/MII in 100/1000 Mbit/s full-duplex or half-duplex mode, PHY clock output, and TSO network acceleration

External Memory Interfaces

- DDR3/3L SDRAM interface
  - One 16-bit DDR3/3L interface with the maximum frequency of 600 MHz (1.2 Gbit/s)
  - Maximum capacity of 4 Gbits for a 16-bit DDR

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Hi3516D

Hi3516D Professional HD IP Camera SoC

- SPI NOR flash interface
  - 1-, 2-, or 4-wire mode
  - Maximum capacity of 32 MB
- SPI NAND flash interface
  - Maximum capacity of 4 Gbits
- NAND flash interface
  - 8-bit data width
  - SLC or MLC
  - 4-, 8-, or 24-bit ECC
  - Components with 8 GB capacity or larger
- Booting from the SPI NOR flash, SPI Nand Flash or NAND flash

SDK

- Linux-3.4-based SDK
- High-performance H.264/H.265 PC decoding library

Physical Specifications

- Power consumption
  - 900 mW typical power consumption
  - Multi-level power-saving mode
- Operating voltages
  - 1.1 V core voltage
  - 3.3 V I/O voltage and 3.8 V margin voltage
  - 1.35 V or 1.5 V DDR3/3L SDRAM interface voltage
- Package
  - Body size of 15 mm x 15 mm (0.59 in. x 0.59 in.), 0.65 mm (0.03 in.) ball pitch, TFBGA RoHS

Hi3516D HD IP Camera Solution