

S6105 IP Camera RDK

The Stretch S6105 IP Camera Reference Design Kit (RDK) is a production-ready design based on the revolutionary S6105 Software Configurable Processor. Optimized for low material costs and high performance, the reference design provides a breakthrough feature set and price point while retaining sufficient processor bandwidth for video analytics and proprietary image processing.

The camera application software is built upon the Stretch Intelligent Encoder Software Development Kit (SDK), and is capable of performing true H.264 compression at 30fps on video streams up to 1.3 megapixels (MP) with simultaneous G.711 audio encode. Leveraging the power of the analytics algorithms embedded within the Intelligent Encoder, the RDK is able to automatically adjust its compression parameters, frame rate, and resolution to optimize the bit rate of the encoded stream. In this way, as the degree of motion in a scene changes, the bit rate is automatically adjusted to consume only the bandwidth needed to represent the scene at that particular point. The result is a dramatic drop in network bandwidth consumption. Furthermore, the S6105 IP Camera RDK leverages the Constant Quality encoding of Stretch's Intelligent Encoder to encode video with only the bit rate required to achieve the desired quality level.

The Intelligent Encoder delivers unprecedented flexibility through a rich API library that can be used to configure the reso-

lution, frame rate, and CODEC standard. The same API is used to configure privacy regions, blind, night, and video loss detection, as well as to set regions of interest on which analytics are to be focused. On-screen display and captioning can also be configured through the API. The RDK also runs application code that exposes an HTML interface through a Web browser.

The reference design is supplied with an Aptina 2 megapixel CMOS sensor, and can connect gluelessly to all other sensors from Aptina, Pixim, Sony, and other sensor vendors. Electronic pan, tilt, and zoom (ePTZ) is supported within the supplied sensor's 2MP field of view.

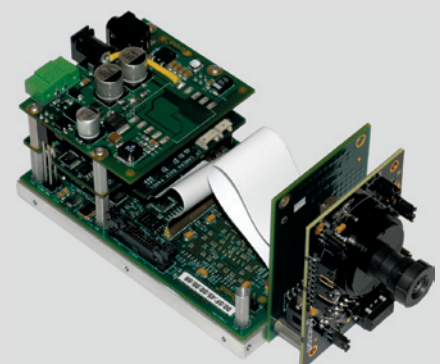
Key Features

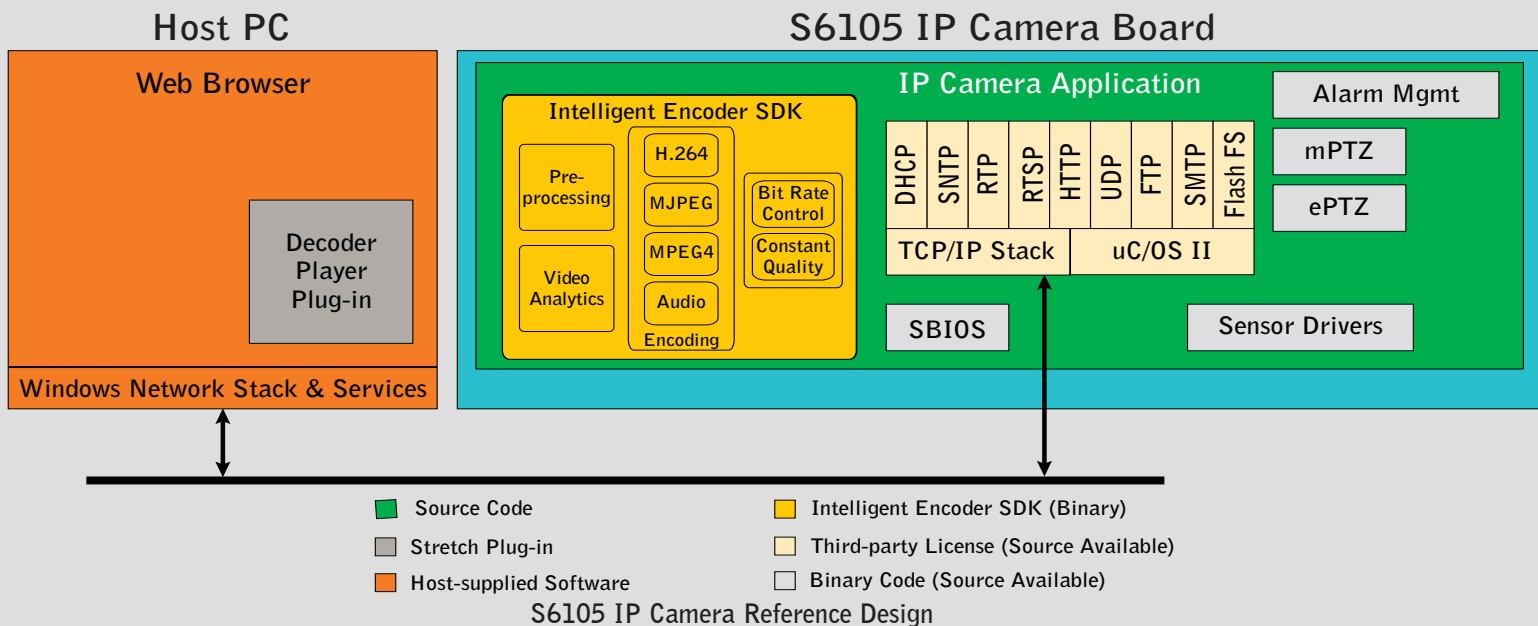
- Stretch Intelligent Encoder
 - > 1.3MP true H.264 encode at 30fps
 - > Automatic bit rate management using embedded analytics
 - > Simultaneous encode of H.264, MPEG4, and MJPEG
 - > Constant Quality encoding modes
 - > Selectable output resolution and frame rate
- 10/100 Ethernet with UDP, RTP, and HTTP
- Flexible and modular development platform

STRETCH ADVANTAGES

- > High performance multi-stream, multi-CODEC design
- > High definition, low bandwidth H.264, MPEG4, or MJPEG encoding
- > Embedded analytics for optimum bit rate selection
- > Flexible software architecture for future-proof design
- > Processing power for analytics and wireless communication

S6105 IP Camera





The RDK hardware comprises three main modules: the main board containing the S6105 processor and power supply card, the imager module containing the sensor, and the back panel containing the I/Os. Connectors on the main board allow for the addition of custom hardware such as radio cards for WiMAX connectivity. The modular nature of the design allows it to be easily customized to meet system requirements.

The S6105 IP Camera RDK is supplied as either an Evaluation Kit (EVK) or in its full RDK form. An object code version of the Intelligent Encoder SDK is supplied with both kits, along with the source code for the camera application running on the S6105 processor. The camera application can be modified using the Stretch development tools. Both kits contain a complete set of hardware, documentation, and all the cabling needed to use and evaluate the camera.

The full version of the RDK includes all the design files needed to either manufacture the design or to use it as the basis for a customer-specific design. A distribution license for the Stretch Intelligent Encoder SDK is also included.

S6105CAM Kit Contents

- Main board, 2MP sensor, and back panel
- Debug module with JTAG interface
- SD memory card
- Power adapter
- Distribution license for Intelligent Encoder (full RDK only)
- Design files (full RDK only): Gerber files, schematics, and bill of material
- CD containing
 - > Technical reference and user's guide
 - > Camera application source files
 - > S6105 IP camera main board program image
 - > µC/OS II and network stack evaluation version
 - > Intelligent Encoder SDK and user's guide

Ordering Codes

- Evaluation Kit – HW-EVK-S6105CAM
- Reference Kit – HW-RDK-S6105CAM
- Software Design Tools – SW-LIC-IDE

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Specifications

Sensor	
Resolution	2MP CMOS
Audio/Video	
CODECs	MPEG4, MJPEG, H.264, and G.711
Resolution	CIF, D1, VGA, 1.3MP, and 2MP
Frame Rate	30fps 1.3MP H.264 compression 30fps 2MP MJPEG at 30% processor loading
Consecutive Streams	Two Ethernet, one analog, and one Flash
Network	
Protocol	TCP/IP, UDP, RTP, RTSP, HTTP, DHCP, SNTP, FTP, and SMTP
Real Time Clock (RTC)	
RTC	Battery-backed RTC on board
Memory	
DDR2	64MB
Storage	
Card Socket	SD Flash card
Power	
Supply	Power over Ethernet, 12V DC or 24V AC
Rear Panel	
Network	10/100 Ethernet RJ-45
Alarm/Trigger	Three triggers and two alarms with screwless terminals
Audio	Analog audio jack in/out (one each)
Switches	Reset
Status	Bi-color status LEDs
PTZ	Screwless terminal for RS-485 PTZ control

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