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S1S65010

Network Camera Controller with JPEG Encoder

ARM POWERED

■ DESCRIPTION

S1S65010 is an optimum network camera controller IC for configuring Internet cameras. In addition to network/protocol process function, it also has camera interface and JPEG encoder function. Connecting a Flash ROM stored with a camera module, PHY for Ethernet and firmware to the S1S65010 enables simple configuration of the Internet camera.

Image capturing from cameras and JPEG encoding is executed at the receipt of shutter command from a client. When the S1S65010 is operated as an HTTP server on the LAN, it sends image files to the client upon request. Capturing images and sending them to the designated client can be done full time, or at a constant frequency using internal timer, or at a trigger on an interrupt pin using external sensors or other device. Images can be sent as an attachment to the e-mail.

S1S65010, equipped with GPIO and I^2C bus, can configure cameras and control external devices such as a motor via these ports through the network. A sample software is supplied with this product.

■ FEATURES

- Enables the function of the internet camera without PC
- Compatible with S1S65000 pins. Software upper compatible with S1S65000.
- Realizes 30fps@VGA frame rate as a network camera.
- Works with a variety of camera modules up to 2 mega pixels (approx. 2 million pixels).
- Supports I^2S for voice/audio data.
- Compresses images in JPEG format with hardware JPEG encoder (complies with ISO 10918)
- Can configure various control settings via the network
- Can send Images via e-mail
- Can save power consumption by using wake-up mode that changes status of start, shoot and pause on a regular cycle.
- Has a Compact Flash interface for a CF memory card or a wireless LAN interface (802.11b/g).
- One-chip solution, which can reduce system cost.
- ARM720T Rev 4.3 is built-in (with 8KB cache) 50MHz

■ SPECIFICATIONS

Network

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Supporting protocols	ARP, ICMP, IP, TCP, UDP, HTTPd, SMTP, DHCP, FTP, DNS resolver, telnet Necessary protocols can be added or updated by rewriting Flash ROM. Addition or update by the customer is also possible. Protocols are prepared as EPSON's sample software or partner's products.
Physical layer interface	Complies with Media Independent Interface (IEEE 802.3 Clause 22) Supports 10/100 Base half-duplex and full-duplex.

Camera/JPEG Encoder

Camera interface	8-bit parallel interface Pixel clock frequency for inputting camera data is less than 2/3 of CPU clock frequency.
Resolution	Up to 1600×1200 approx. (UXGA, SXGA, XGA, VGA, QVGA, CIF, QCIF)
JPEG encoder	Hardware encoder with processing capacity of 30 fps@VGA or more
Camera input data format	Complies with YUV4:2:2 progressive camera (ITU-R BT656 Non Interlace)
Frame rate	Up to 30fps (VGA)
Built-in memory	For CPU Work and JPEG/Ethernet: processing: Up to 78KB

Others

general-purpose I/O	57 pcs (at max.)
Serial EEPROM interface	Clock synchronous
I^2C bus	Master (for camera control or general-purpose)
I^2S bus	For input/output of voice/audio
External Flash ROM	Up to 16MB
Compact Flash Card interface	Complies with CF+spec. Rev.1.4. Also support True IDE mode.
Expandable memory	SDRAM 2 - 128MB (Static memory available: up to 16MB)
Supply voltage	1.8V (core), 3.3V (I/O), 2.4-3.6V (Camera I/O)
Package	TQFP24-144pin ($16 \times 16 \times 1$ mm, 0.4mm pin pitch)

S1S65010

■ APPLICATION EXAMPLE
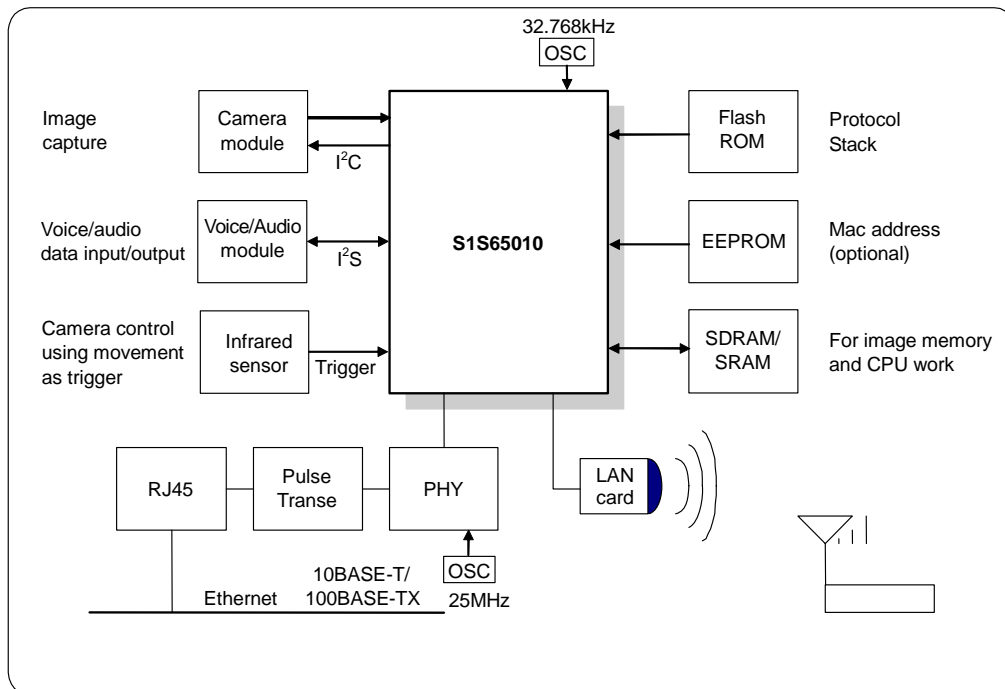
■ I/P CONVERSION IC (S2S65P10) FOR MULTIMEDIA VIDEO INPUT

S1S65010, combining as a chipset with the conversion IC (S2S65P10) that is used for the input of multimedia video, can connect with four camera sets (each consisting of camera module + NTSC/PAL decoder) at the maximum.

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