

## 9 Megapixel Capture at 7.2 fps with Exceptional Image Quality



(Lens not included)

- 3488 x 2616 8-bit capture @ 7.2 fps
- 1280 x 1024 @ 39.4 fps
- 640 x 480 @ 93.5 fps
- 8 or 12 bits per pixel
- Compact Camera Head
- PIXCI® SI Digital Frame Grabber
- 7 Foot Interface Cable (default)
- Infrared Cut Filter
- XCAP-Lite Imaging Program
- Camera Integration and Reset Control
- Sequence Capture
- Sequence Save (XCAP-Ltd or Std)
- Triggered Sequence Capture
- 132 MB/s Burst Transfers
- PCI Bus: 32 or 64 bit, 3.3 or 5 volt
- Compatibility: Windows VISTA, XP, 2000, NT; ME, 98, 95; 32-bit DOS & LINUX
- RoHS Compliant
- \$1195.00 w/XCAP-Lite Imaging Program (XCAP-Ltd or Std Optional)

The **SILICON VIDEO® 9C10** color camera system offers 9 Megapixel progressive scan capture in an active programmable array resolution of 3488H x 2616V pixels. The Aptina MT9N001 sensor offers windowing, column and row skip modes, snapshot mode, and 12 bit dynamic range. The Electronic Rolling Shutter (ERS) provides maximum frame rates. Switching to the Global Reset Release Shutter (GRRS) offers improved sharpness. See "Specifications" for frame rates at different example resolutions and pixel clock frequencies.

Additional camera features include low noise digital signaling, small size, several interface cable options, the availability of extensive processing, measurement and analysis capabilities, and low cost. XCAP software provides convenient control of all camera operations.

**CAPTURE & ADJUST DIALOG** – The XCAP Imaging Application provides a Capture & Adjust Dialog for selecting pixel clock frequency, integration/exposure time, capture resolution, gain, offset, trigger control, and more. It offers automatic white balance as well as manual adjustment of red, green, and blue gain.

The **SILICON VIDEO® 9C10** camera system includes:

- 9 Megapixel Color Camera Head w Tripod Mount
- Adjustable Lens Mount w. Infrared Cut Filter
- Shielded Interface Cable (various options)
- PIXCI SI PCI Frame Grabber for PCI bus
- XCAP-Lite Imaging Program (XCAP-Ltd or Std Optional)

**ONLY ONE CABLE** – A single cable connects to the small camera head making head placement quick and easy. This single cable provides power, sends and receives camera control signals, and provides the data path to the PIXCI SI frame grabber. Minimal power is pulled from the PCI bus eliminating the need for a dedicated power supply. If trigger input or strobe output is needed, such connections are made through the PIXCI SI board.

**ASYNCHRONOUS CAPTURE with STROBE OUTPUT** –

The SV9C10 camera offers Asynchronous Capture: the recording of an image (or images) in response to a trigger signal. The camera also provides a strobe output signal to synchronize an electronic flash (strobe), for bright, uniform, short duration illumination. Use strobe illumination with the Global Reset Release Mode to eliminate the shading (exposure gradient) that may otherwise be evident. The optional use of strobe illumination allows minimum exposure time with maximum image sharpness.

This camera can be triggered to capture an image (or images) as might be required in product inspection, laser beam profiling, medical imaging, or any application that requires image capture at a specific time (there is a delay of one frame time between trigger and start of frame capture).

To complete the system add high resolution lens, analysis software, lighting, and computer – all available from EPIX, Inc., or from your authorized EPIX, Inc. distributor.

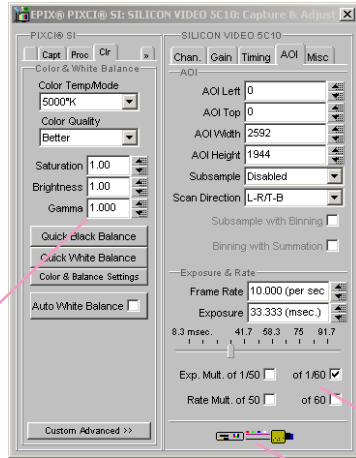
# SV9C10 Color Digital Camera for PCI Bus

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## CAMERA CONTROL FROM SOFTWARE

### Capture & Adjust Dialogs

The XCAP Imaging Program simplifies camera operation with a dedicated Capture & Adjust Dialog. The Capture & Adjust Dialog provides one convenient location for camera controls such as exposure, resolution, triggering, color balance and frame rate. In addition, the SV9C10 Dialog provides a camera-to-computer communication indicator, a programmable pixel clock, and exposure synchronized to AC power frequencies.



SV9C10 offers 3488H x 2616V pixel resolution. SV5C10 Dialog pictured.

The Color & White Balance menu offers simple color balance settings for common sunlight, fluorescent light, and incandescent light conditions. In addition, for greater color precision, or for unusual light sources, XCAP offers advanced options for building custom color settings. The camera's pixel clock frequency is user-selectable over a range of 25 MHz to

70 MHz. The programmable pixel clock provides a wider range of frame rates and exposure times.

The intensity of AC lighting fluctuates with the phase of the AC voltage that powers it. Capturing sequences of images using arbitrary frame rates with AC lighting will result in images with differing brightness. The SV9C10 Capture & Adjust Dialog offers a convenient fix for this problem — exposure times can be easily set to multiples of the local AC line frequency, either 1/50<sup>th</sup> or 1/60<sup>th</sup> second.

Synchronizing exposure times to the line voltage provides images with consistent illumination from a varying-intensity AC light source. The presence or absence of the 2 lines between the camera and computer icons indicate whether or not the computer and camera are properly connected and capable of communicating.

### Video-To-Disk Capture

The optional XCAP-Std imaging program enables video-to-disk capture, potentially for several hours. Requires a host computer with two 7200 rpm hard drives configured as RAID 0. EPIX® offers complete imaging systems, designed to

your specifications, guaranteed to capture uncompressed video to disk without dropping frames. Contact EPIX, Inc., or your authorized EPIX, Inc. distributor, with your system requirements.

## CONFIGURATIONS

- |                         |   |                  |
|-------------------------|---|------------------|
| <b>SI-SV9C10-7FT</b>    | 9 Megapixel Color camera w. IR cut filter, 7-foot cable, PIXCI SI imaging board, tripod mount, and XCAP-Lite Imaging Program. | <b>\$1195.00</b> |
| <b>TTL-MOD-A-SI-OPT</b> | Allows TTL level trigger input signal and produces TTL level strobe output signal.  | <b>\$ 130.00</b> |

**Infrared (IR) Cut Filter:** The CMOS sensor is more sensitive to infrared wavelengths than a CCD sensor. Infrared sensitivity skews color fidelity. An IR cut filter attenuates (reduces) the CMOS sensor's response to infrared light while improving color fidelity. The SV9C10 CMOS color camera includes an IR cut filter. The optional SV9C10-OPT-MNTNOF allows operation *without* an IR cut filter.

**Interface Cables:** Shielded CAT-5 or CAT-6, solid conductor or stranded. Solid-core cables allow longer cable lengths. Stranded cables offer more flexibility. Standard lengths: 7', 10', 14', 25' & 30' (2.1, 3, 4.2, 7.6 & 9.2 meters).

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## SPECIFICATIONS

### CAMERA HEAD:

**Sensor:** Aptina MT9N001 CMOS

### Frame Resolution:

3488 (H) x 2616 (V) Maximum  
 4 (H) x 4 (V) Minimum

**Pixel Size:** 1.75µm x 1.75µm

**Sensor Size:** 6.1mm(H) x 4.6mm(V) (4:3)

**Responsivity:** 0.44 V/lux-sec (550nm)

**Format:** Bayer Pattern Color

**Pixel Clock Range:** 25 MHz - 70 MHz

### Dimensions:

4.85 cm (H) x 3.84 cm (W) x 1.88 cm (D)  
 1.91" (H) x 1.51" (W) x 0.74" (D)

**Weight:** 73 Grams (2.6 Ounces)

### Minimum Lens Requirement:

1/2-inch C-mount Lens  
 (Don't expect 9 Megapixel resolution.)

### Lens Recommendation:

35mm SLR lens with manual focus and aperture. Requires C-mount adapter. (For 9 Megapixel capture resolution.)

### Shutters:

Electronic Rolling Shutter (ERS)  
 Global Reset Release Shutter (GRRS)

### FRAME RATE EXAMPLES

Free-Run 8-Bit Mode w. ERS

Frame Resolution	Pixel Clock Frequency		
	25 MHz	48 MHz	70 MHz
3488 x 2616	2.6 fps	4.9 fps	7.2 fps
2592 x 1944	4.5 fps	8.7 fps	12.7 fps
2048 x 1536	7.1 fps	13.6 fps	19.9 fps
1920 x 1080	10.4 fps	20.0 fps	29.1 fps
1280 x 1024	14.1 fps	27.0 fps	39.4 fps
1280 x 720	19.0 fps	36.5 fps	53.3 fps
800 x 600	26.2 fps	50.4 fps	73.5 fps
320 x 240	56.3 fps	108.0 fps	157.6 fps

### PIXCI® SI Frame Grabber Dimensions:

12.7 cm (L) x 7.4 cm (H)  
 5.0" (L) x 2.875" (H) [short slot]

### Bus Requirements:

3.3 volt or 5 volt PCI slot.

### More Details on Web Page:

<http://www.epixinc.com/products/sv9c10.htm>



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