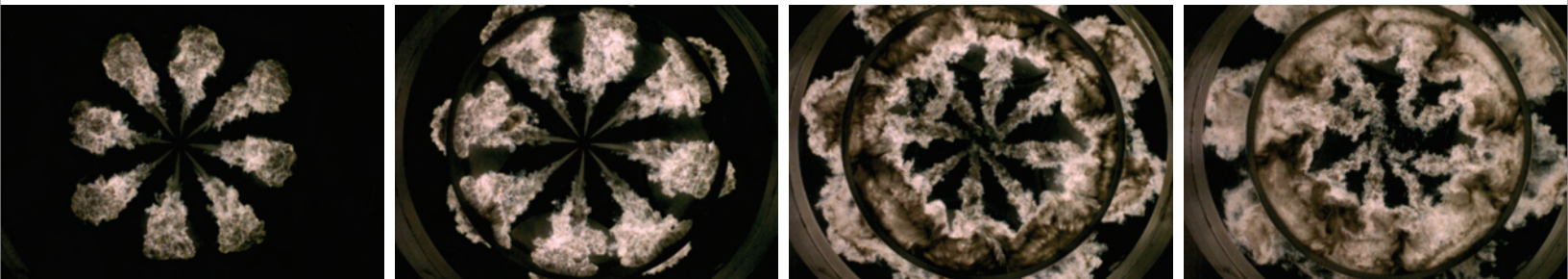
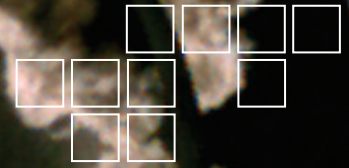


# FASTCAM SA5

ULTRA HIGH-SPEED VIDEO SYSTEM



## High-Speed Video System

Next generation CMOS sensor technology providing 7,500 fps, 1K x 1K pixels

The Photron FASTCAM SA5 will meet the requirements of the most demanding applications in research and development due to its unrivaled sensitivity, frame rate and resolution.

This high performance will permit the SA5 to be applied to areas of research once dismissed as unsuitable for digital high-speed imaging.

Building on the success of Photron's Emmy award winning high speed cameras our sensor design improves sensitivity, image quality and color reproduction.

The FASTCAM SA5 delivers mega-pixel resolution at 7,500 fps, an impressive maximum frame rate of 775,000 fps and a 1 microsecond exposure time. Optional one million fps and 368 ns shutter capabilities are available subject to export restrictions.

### Target applications include:

- Materials research
- Ballistics
- Aerospace
- PIV
- Combustion
- Cavitation
- Fluid dynamics

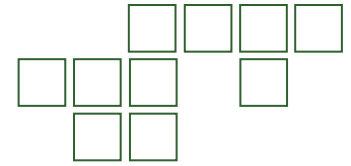
## Benefits

- Performance examples:
  - 1,024 x 1,000 pixels @ 7,500 fps
  - 512 x 512 pixels @ 25,000 fps
  - 256 x 256 pixels @ 87,500 fps
  - 128 x 128 pixels @ 262,500 fps
  - 128 x 24 pixels @ 775,000 fps
- Variable Region of Interest (ROI)
- Capture 12-bit uncompressed data
- 20µm pixels ensure best light sensitivity for demanding high-speed or low light applications
- Equivalent ISO light sensitivity 6,400 (monochrome), 1,600 (color) measured to ISO 12232
- Phase lock to IRIG/GPS
- Composite and SDI video output for real time monitoring during set up, recording and playback
- Optional remote keypad control with integrated viewfinder
- 8GB, 16GB or 32GB memory options
- Gigabit Ethernet interface



# FASTCAM SA5

## ULTRA HIGH-SPEED VIDEO SYSTEM



### Specifications: Partial Frame Rate / Recording Duration Table

FRAME RATE (fps)	MAXIMUM RESOLUTION Horizontal      Vertical		MAXIMUM SHUTTER SPEED	RECORD DURATION (12-BIT)						
				TIME (Sec.)			FRAMES			
				8GB	16GB	32GB	8GB	16GB	32GB	
1,000	1,024	1,024	1 $\mu$ s 1/1,000,000 sec	5.46	10.92	21.84	5,457	10,918	21,841	
2,000	1,024	1,024		2.73	5.46	10.92	5,457	10,918	21,841	
4,000	1,024	1,024		1.36	2.73	5.46	5,457	10,918	21,841	
5,000	1,024	1,024		1.09	2.18	4.37	5,457	10,918	21,841	
7,000	1,024	1,024		0.78	1.56	3.12	5,457	10,918	21,841	
7,500	1,024	1,000		0.75	1.49	2.98	5,588	11,180	22,365	
9,300	1,024	800		0.75	1.50	3.01	6,985	13,975	27,956	
10,000	1,024	744		0.75	1.50	3.01	7,511	15,027	30,061	
15,000	960	528		0.75	1.51	3.01	11,289	22,587	45,182	
20,000	832	448		0.77	1.54	3.07	15,352	30,716	61,443	
30,000	768	320		0.78	1.55	3.11	23,284	46,586	93,189	
50,000	512	272		0.82	1.64	3.29	41,090	82,211	164,452	
75,000	320	264		0.90	1.81	3.61	67,737	135,523	271,097	
100,000	320	192		0.93	1.86	3.73	93,138	186,345	372,758	
150,000	256	144		1.03	2.07	4.14	155,230	310,575	621,264	
300,000	256	64		1.16	2.33	4.66	349,269	698,794	1,397,845	
420,000	128	64		1.66	3.33	6.66	698,538	1,397,589	2,795,690	
525,000	128	48		1.77	3.55	7.10	931,384	1,863,452	3,727,587	
775,000	128	24		2.40	4.81	9.62	1,862,769	3,726,904	7,455,175	
930,000	128	16		368 ns	3.00	6.01	12.02	2,794,154	5,590,357	11,182,762
1,000,000	64	16		1/2,712,000 sec	5.59	11.18	22.37	5,588,309	11,180,714	22,365,525

OPTION SUBJECT TO EXPORT LICENSE CONTROL RESTRICTIONS WHERE APPLICABLE

<b>Sensor</b>	12-bit ADC (Bayer system color, single sensor) with 20 $\mu$ m pixel	<b>Event Markers</b>	Ten user entered event markers mark specific events within the image sequence in real time. Immediately accessible through software
<b>Shutter</b>	Global electronic shutter from 16.7ms to 1 $\mu$ s independent of frame rate	<b>Dual Speed Recording</b>	Enables the recording speed to be changed up or down by a factor of 2, 4 or 8 during a recording
<b>Lens Mount</b>	Interchangeable F-mount and C-mount using supplied adapters	<b>Trigger Modes</b>	Start, End, Center, Manual, Random, Random Reset, Random Center, Random Manual and Duals Speed Recording
<b>Extended Dynamic Range</b>	Selectable in twenty steps (0 to 95% in 5% increments) to prevent pixel over-exposure	<b>Saved Image Formats</b>	JPEG, AVI, TIFF, BMP, RAW, PNG, MOV and FTIF. Images can be saved with or without image or comment data
<b>Memory</b>	8GB (standard: 5,457 frames @ maximum resolution) 16GB (option: 10,913 frames @ maximum resolution) 32GB (option: 21,841 frames @ maximum resolution)	<b>Data Display</b>	Frame Rate, Shutter Speed, Trigger Mode, Date or Time, Status (Playback/Record), Real Time, Frame Count and Resolution
<b>Video Output 1</b>	NTSC/PAL composite VBS (BNC). Ability to zoom, pan and tilt within image via keypad. Live video during recording	<b>Partitioning</b>	Up to 64 memory segments for multiple recording in memory
<b>Video Output 2</b>	SDI: D1 digital component 1 channel (BNC) industry standard digital output NTSC and PAL	<b>Data Acquisition</b>	Supports Photron MCDL and DAQ
<b>Camera Control</b>	Through optional keypad with integrated viewfinder and Gigabit Ethernet or RS-422	<b>Cooling</b>	Actively cooled
<b>User Preset Switches</b>	Four user selectable camera function controls mounted on the camera's rear panel	<b>Operating Temperature</b>	0 - 40 degrees C (32 - 104 degree F)
<b>Low Light Mode</b>	Low light mode drops the frame rate and shutter time to their maximum values, while maintaining other set parameters, to enable users to position and focus the camera	<b>Mounting</b>	1 x 1/4 - 20 UNC, 1 x 3/8 - 16 UNC, 6 x M6
<b>Triggering</b>	Selectable positive or negative TTL 5Vp-p or switch closure	<b>Dimensions</b>	165mm (6.50")H x 153mm (6.02")W x 242.5mm (9.55")D *excluding protrusions
<b>Trigger Delay</b>	Programmable delay on selected input and output triggers, 100ns resolution	<b>Weight</b>	6.2 kg (13.67 lbs)
<b>Timing</b>	Internal clock or external source	<b>Power Requirements</b>	100V-240V AC ~ 1.5A, 50-60Hz DC operation 18-36 V DC, 100VA
<b>Phase Lock</b>	Enables cameras to be synchronized precisely together to a master camera or external source, such as IRIG/GPS time codes		

Specifications subject to change without notice

**PHOTRON USA, INC.**  
9520 Padgett Street, Suite 110  
San Diego, CA 92126-4446  
USA  
Tel: 858.684.3555 or 800.585.2129  
Fax: 858.684.3558  
Email: [image@photron.com](mailto:image@photron.com)  
[www.photron.com](http://www.photron.com)

**PHOTRON (EUROPE) LIMITED**  
The Barn, Bottom Road  
West Wycombe, Bucks, HP14 4BS  
United Kingdom  
Tel: +44 (0) 1494 481011  
Fax: +44 (0) 1494 487011  
Email: [image@photron.com](mailto:image@photron.com)  
[www.photron.com](http://www.photron.com)

**PHOTRON LIMITED**  
Fujimi 1-1-8  
Chiyoda-Ku, Tokyo 102-0071  
Japan  
Tel: +81 (0) 3 3238 2107  
Fax: +81 (0) 3 3238 2109  
Email: [image@photron.co.jp](mailto:image@photron.co.jp)  
[www.photron.co.jp](http://www.photron.co.jp)

**Photron**

SLOW MOTION IMAGING SOLUTIONS