FASTCAM SA6
HIGH-DEFINIFION HIGH-SPEED CAMERA SYSTEM

The FASTCAM SA6 has been developed to permit high definition recording and detailed high speed analysis of large spatial areas in applications such as automotive safety testing, fluid dynamics and solid mechanics. The system provides 1920x1440 pixel image resolution at all frame rates up to 1,125fps, 1920x1080 full HD resolution at frame rates up to 1,500fps and recording rates up to 75,000fps at reduced resolution.

The system utilizes a high performance CMOS image sensor to provide excellent light sensitivity allowing high speed recordings to be made with the minimum of additional lighting. The utilization of 12bit dynamic range output yields exceptional image quality and superior color fidelity. Photron's experience in the field of high quality broadcast imaging provides a stable camera operation and superior imaging performance.

The camera may be controlled via the optional remote local keypad or over a Gigabit Ethernet network, and is fully compatible with the Photron J-BOX for multiple camera installations. Integrated capping shutter to facilitate automated calibration and automated lens control options further extend the ease of system operation. The system is supplied with intuitive Photron FASTCAM Viewer (PFV) software and Photron Device Control SDK (software development kit) allowing integration with user specific software.
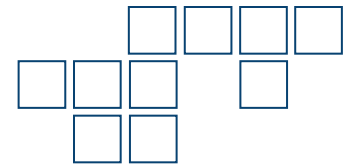
Benefits

- Performance examples:

    - 1,125 fps at 1920x1440 pixel resolution
    - 1,500 fps at 1920x1080 pixel resolution
    - 2,000 fps at 1280x1024 pixel resolution
    - 3,000 fps at 1024x768 pixel resolution
    - 5,000 fps at 768x512 pixel resolution

- Low noise, high quality imaging and superior color fidelity

- Composite and HD SDI video output for real time monitoring during set-up, recording and playback

- Options to enhance system operation include remote keypad with integrated viewfinder, integrated calibration shutter and automated lens control options and Nikon G type lenses

- GigaBit Ethernet interface and compatibility with Photron J-BOX for multiple camera installations

Target applications include:

- Automotive safety testing
- Solid Mechanics (DIC)
- Fluid dynamics (PIV)
- Defense and aerospace research

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Specifications: Partial Frame Rate / Recording Duration Table

FRAME RATE (fps)	MAXIMUM RESOLUTION Horizontal	Vertical	MAXIMUM SHUTTER SPEED	RECORD DURATION (12-BIT) TIME (Sec.) 8GB	16GB	32GB	FRAMES 8GB	16GB	32GB
50	1,920	1,440		38.72	77.54	155.22	1,936	3,877	7,761
60	1,920	1,440		32.26	64.61	129.35	1,936	3,877	7,761
125	1,920	1,440		15.48	31.01	62.08	1,936	3,877	7,761
250	1,920	1,440		7.74	15.50	31.04	1,936	3,877	7,761
500	1,920	1,440		3.87	7.75	15.52	1,936	3,877	7,761
1,125	1,920	1,440		1.72	3.44	6.89	1,936	3,877	7,761
1,500	1,920	1,080	2.76 μs	1.72	3.44	6.89	2,581	5,170	10,348
2,000	1,280	1,024		2.17	4.36	8.73	4,356	8,725	17,463
3,000	1,024	768	1/367,000 sec	2.42	4.84	9.70	7,260	14,542	29,105
4,000	1,280	512		2.17	4.36	8.73	8,712	17,450	34,926
4,500	1,024	512		2.42	4.84	9.70	10,890	21,813	43,658
5,000	768	512		2.90	5.81	11.64	14,520	29,084	58,211
8,000	512	384		3.63	7.27	14.55	29,041	58,168	116,423
12,000	512	256		3.63	7.27	14.55	43,562	87,253	174,634
25,000	256	128		6.97	13.96	27.94	174,250	349,013	698,538
45,000	256	64		7.74	15.51	31.04	348,501	698,026	1,397,077
75,000	256	32		9.29	18.61	37.25	697,002	1,396,053	2,794,154

Sensor — 10 μm pixels, temperature stabilized, 12-bit ADC (Bayer system color, single sensor) with micro lenses

Shutter — Global electronic shutter from 16.7ms to 2.76 μs independent of frame rate

Lens Mount — Interchangeable F-mount, C-mount using supplied adapters, Nikon G lens mount (optional), PL lens mount (optional), B4 lens mount (optional)

Extended Dynamic Range — Selectable in twenty steps (0 to 95% in 5% increments) to prevent pixel over-exposure

Memory — 8GB (standard: 1,936 frames @ maximum resolution) 16GB (option: 3,877 frames @ maximum resolution) 32GB (option: 7,761 frames @ maximum resolution)

Video Output — Live and playback video through Dual HD-SDI or Single RS-170 (NTSC/PAL) outputs. Ability to zoom, pan and tilt within image via keypad

Camera Control — Through Optional keypad with integrated viewfinder and Gigabit Ethernet or RS-422

User Preset Switches — Four user schedulable camera function controls mounted on the camera's rear panel

Low Light Mode — 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

Triggering — Selectable positive or negative TTL 5Vp-p or switch closure

Trigger Delay — Programmable delay on selected input and output triggers, 100ns resolution

Timing — Internal clock or external source

Phase Lock — Enable cameras to synchronized precisely together to a master camera or external source

Event Markers — Ten user entered event markers mark specific events within the image sequence in real time. Immediately accessible through software

Dual Speed Recording — Enables the recording speed to be changed up or down by a factor of 2, 4 or 8 during a recording

Trigger Modes — Start, End, Center, Manual, Random, Random Reset, Random Center, Random Manual and Dual Speed Recording

Saved Image Formats — JPEG, AVI, TIFF, BMP, RAW, PNG, MOV and FTIF. Images can be saved with or without image or comment data

Data Display — Frame Rate, Shutter Speed, Trigger Mode, Date or Time, Status (Playback/Record), Real Time, Frame Count and Resolution

Partitioning — Up to 64 memory segments for multiple recording in memory

Data Acquisition — Supports Photron MCDL and DAQ

Cooling — Actively cooled

Operating Temperature — 0 - 40 degrees (32 - 104 degree F)

Mounting — 1 x 1/4 - 20 UNC, 1 x 3/8 - 16 UNC, 6 x M6

Dimensions — 165mm (6.5")H×153mm (6.02")W×250mm (9.84")D

Weight — 15.21 lbs (6.9 kg)

Power Requirements — 100V-240V AC ∼ 1.5A, 50-60Hz DC operation 18-36 VDC, 100VA

Specifications subject to change without notice

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SLOW MOTION IMAGING SOLUTIONS