Specifications

	DAVIS 346 Simultaneous events and frames	DAVIS 346 AER Direct interface to FPGA and custom neuromorphic hardware	DVXplorer High resolution	DVXplorer Lite Discover event-based vision	DXVplorer Micro Lightweight and compact
					
Event output					
Spatial resolution	346 x 260	346 x 260	640 x 480	320 x 240	640 x 480
Time resolution [1]	1 µs (output precision, single event)		65 - 200 µs (effective accuracy, full event frame)		
Latency [2]	< 1 ms	< 1 ms	< 1 ms	< 1 ms	< 1 ms
Dynamic range	Approx. 120 dB (0.1 - 100k lux with 50% pixel response to 80% contrast)		Approx. 90 dB (3 - 100k lux with 99.9% pixel response to 27.5% contrast) Approx. 110 dB (0.3 - 100k lux with 50% pixel response to 80% contrast)		
Contrast sensitivity	14.3% (on), 22.5% (off) (with 50% pixel response)		13% (with 50% pixel response), 27.5% (with 99.9% pixel response)		
Pixel pitch	18.5 µm	18.5 µm	9 µm	18 µm	9 µm
Max. event rate	12M events/s	12M events/s	165M events/s	165M events/s	450M events/s
Frame output					
Pixel resolution	346 x 260	346 x 260	The camera does not output frames of intensity images. However, similar intensity images can be reconstructed from the event output by our DV software. [3]		
Frame rate	Up to 40 fps	Up to 40 fps			
Dynamic range	55 dB	55 dB			
FPN	4.2%	4.2%			
Dark signal	1800 e^- / s	1800 e^- / s			
Readout noise	55 e^-	55 e^-			
Pixel pitch	18.5 µm	18.5 µm			

Specifications

	DAVIS 346	DAVIS 346 AER	DVXplorer	DVXplorer Lite	DXVplorer Micro
	Simultaneous events and frames	Direct interface to FPGS and custom neuromorphic hardware	High resolution	Discover event-based vision	Lightweight and compact
					
Other features					
IMU	6 - axis (Gyro + Accelerometer), up to 8 kHz sampling rate				
Multi-cam sync	Yes	No	Yes	Yes	No
Other attributes					
Dimensions [mm]	H 40 x W 60 x D 25	H 40 x W 78.8 x D 25	H 40 x W 60 x D 25	H 40 x W 60 x D 25	H 24 x W 27.5 x D 29.7
Lens mount	CS-mount				S-mount (M12) with locking ring
Mounting options	4-side Whitworth 1/4‘-20 female and M3 mounting plates				4 x M2 mounting points
Connectors	USB 3.0 micro B port with locking screws		USB 3.0 micro B port with locking screws, fully isolated sync input and output connectors		USB 3.1 C port with locking screws
Case material	Anodized aluminum	Anodized aluminum	Anodized aluminum	Engineering plastic (POM)	Engineering plastic (POM)
Weight (without lens)	100 g	120 g	100 g	75 g	16 g
Power consumption	< 180 mA @ 5 VDC (USB)		< 140 mA @ 5 VDC (USB)		
Sensor technology	0.18 µm 1P6M MIM CIS		90nm BSI CIS		
Sensor supply voltage	1.8 V and 3.3 V		1.2 V, 1.8 V and 2.8 V		
Certifications	CE certified	In progress	CE certified	CE certified	In progress

Specifications

[1] The temporal resolution is characterized by the timestamp unit, which is the minimum time between timestamps. In practice, a timestamp unit of 1 µs offers a minimal real-world gain over timestamp units of 63-200 µs. For further explanation, please refer to our white paper.

[2] Nominal figure; can be improved with strong lighting/optimized biases.

[3] Please view our FAQ for further details.

DVS: https://ieeexplore.ieee.org/document/4444573 P. Lichtsteiner, C. Posch and T. Delbruck, "A 128×128 120dB 15us Latency Asynchronous Temporal Contrast Vision Sensor", IEEE Journal of Solid State Circuits, 43(2) 566-576, 2008

DAVIS: https://ieeexplore.ieee.org/document/6889103 C. Brandli, R. Berner, M. Yang, S.-C. Liu, and T. Delbruck, “A 240x180 130dB 3us Latency Global Shutter Spatiotemporal Vision Sensor”, IEEE Journal of Solid State Circuits, 49(10) 2333-2341, 2014.

DAVIS346 Limitations

- In APS GlobalShutter mode, bursts of DSV events can be caused by the capture of an APS frame.
- Due to bandwidth limitations, the DVS event output tends to follow a scanning pattern when under high load.
- The frame output has below average performance in terms of image quality compared to conventional image sensors.
- Color frames are not calibrated, and thus do not faithfully reproduce the real observed color.
- Event output can be destabilized if very strong light impacts a sensitive spot outside the photosensitive pixel array.
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DAVIS346 AER Limitations

- The AER connector can only transmit events, not frames or IMU data.
- No Multi-camera timestamp synchronization is present, nor triggers.