

IFF SDK benchmarks for AGX Orin

Streaming images from the camera to the remote computer

Transmitting side:

NVIDIA Jetson AGX Orin 32GB

- Jetpack 5.1.2 [L4T 35.4.1]

- Image processing: [IFF SDK v1.6](#)
[SDK `farsight` sample *](#)

XIMEA CB120-CM-X8G3 camera

12 MP 4096 x 3072 pixel

Receiving side:

MSI Raider GE77HX

- NVIDIA GeForce RTX 3070 Ti

- Windows 11 OS

- DragonNest demo application



input image	demosaic algorithm	enc. bitrate, Mbps	processing latency, ms	avg. Orin CPU load,%	avg. Orin GPU load,%	Orin power, W	render latency, ms	G2G latency, ms
4K UHD (3840 x 2160) @ 60 FPS								
RAW8 @ 60 FPS	HQLI	30	21,9	4%	15%	21,6	8,4	~100
RAW8 @ 60 FPS	DFPD	30	22,4	4%	18%	22,0	8,4	
RAW16 @ 60 FPS	HQLI	30	23,5	4%	22%	24,7	8,4	
RAW16 @ 60 FPS	L7	30	23,6	4%	24%	25,1	8,4	
RAW16 @ 60 FPS	DFPD	30	24,0	4%	25%	25,8	8,4	
RAW16 @ 60 FPS	MG	30	25,8	5%	36%	30,4	8,4	~100
4K UHD (3840 x 2160) @ 100 FPS								
RAW8 @ 100 FPS	HQLI	83	17,6	5%	20%	26,3	8,8	40-50
RAW8 @ 100 FPS	DFPD	83	18,1	5%	27%	27,6	8,8	
RAW16 @ 100 FPS	HQLI	83	19,2	6%	31%	31,4	8,8	
RAW16 @ 100 FPS	L7	83	19,4	6%	33%	31,9	8,8	
RAW16 @ 100 FPS	DFPD	83	19,8	6%	38%	33,6	8,8	
RAW16 @ 100 FPS	MG	83	21,4	7%	57%	40,7	8,8	50-60
4K DCI (4096 x 2160) @ 60 FPS								
RAW8 @ 60 FPS	HQLI	50	22,7	4%	15%	22,6	8,8	
RAW8 @ 60 FPS	DFPD	50	23,4	4%	18%	23,0	8,8	
RAW16 @ 60 FPS	HQLI	50	24,3	4%	24%	25,4	8,8	
RAW16 @ 60 FPS	L7	50	24,5	4%	25%	26,2	8,8	
RAW16 @ 60 FPS	DFPD	50	24,9	5%	28%	27,3	8,8	
RAW16 @ 60 FPS	MG	50	26,6	5%	38%	31,5	8,8	
4K DCI (4096 x 2160) @ 100 FPS								
RAW8 @ 100 FPS	HQLI	100	18,7	6%	23%	27,3	9,0	40-50
RAW8 @ 100 FPS	DFPD	100	19,1	6%	26%	28,3	9,0	
RAW16 @ 100 FPS	HQLI	100	20,2	6%	35%	31,7	9,0	
RAW16 @ 100 FPS	MG	100	22,8	7%	60%	42,7	9,0	50-60
Full frame (4096 x 3072) @ 60 FPS								
RAW8 @ 60 FPS	HQLI	100	27,5	4%	21%	25,6	11,1	
RAW8 @ 60 FPS	DFPD	100	28,2	4%	25%	26,4	11,1	
RAW16 @ 60 FPS	HQLI	100	29,9	4%	33%	30,5	11,1	
RAW16 @ 60 FPS	L7	100	30,3	4%	36%	31,0	11,1	
RAW16 @ 60 FPS	DFPD	100	30,9	5%	37%	32,2	11,1	
RAW16 @ 60 FPS	MG	100	33,2	5%	54%	38,8	11,1	
Full frame (4096 x 3072) @ 80 FPS								
RAW8 @ 80 FPS	HQLI	133	25,8	6%	34%	28,8	11,2	~60
RAW8 @ 80 FPS	DFPD	133	26,5	6%	37%	30,4	11,2	
RAW16 @ 80 FPS	HQLI	133	28,7	7%	45%	34,6	11,2	
RAW16 @ 80 FPS	MG	133	32,6	7%	72%	45,4	11,2	60-70
Full HD (1920 x 1080) @ 60 FPS								
RAW8 @ 60 FPS	HQLI	10	8,1	3%	6%	17,0	6,3	
RAW8 @ 60 FPS	DFPD	10	8,2	3%	8%	17,0	6,3	
RAW16 @ 60 FPS	HQLI	10	8,4	3%	9%	17,7	6,3	
RAW16 @ 60 FPS	L7	10	8,5	3%	9%	17,7	6,3	
RAW16 @ 60 FPS	DFPD	20	8,8	3%	11%	17,8	6,3	
RAW16 @ 60 FPS	MG	20	9,2	3%	13%	19,1	6,3	
Full HD (1920 x 1080) @ 250 FPS								
RAW8 @ 250 FPS	HQLI	104	6,4	5%	30%	23,0	2,9	20-30
RAW8 @ 250 FPS	DFPD	104	6,6	6%	31%	24,2	2,9	
RAW16 @ 250 FPS	HQLI	104	6,8	6%	36%	26,5	2,9	
RAW16 @ 250 FPS	MG	104	7,4	7%	45%	32,7	2,9	20-30

IFF SDK benchmarks for AGX Orin

Streaming images from the camera to the remote computer

Transmitting side:**NVIDIA Jetson AGX Orin 32GB**

- Jetpack 5.1.2 [L4T 35.4.1]

- Image processing: [IFF SDK v1.6](#)
[SDK `farsight` sample *](#)

XIMEA MX245CG-SY-X4G3-FF-HDR camera

24.5 MP 5320 x 4600

Receiving side:**MSI Raider GE77HX**

- NVIDIA GeForce RTX 3070 Ti
- Windows 11 OS
- DragonNest demo application



input image	demosaic algorithm	enc. bitrate, Mbps	processing latency, ms	avg. Orin CPU load,%	avg. Orin GPU load,%	Orin power, W	render latency, ms	G2G latency, ms
4K true (4096 x 4096) @ 60 FPS								
RAW8 @ 60 FPS	HQLI	40	32,2	4%	32%	28,6	11,8	~ 100
RAW8 @ 60 FPS	DFPD	40	34,0	4%	35%	30,4	11,8	
RAW16 @ 60 FPS	HQLI	40	36,1	7%	45%	34,5	11,8	
RAW16 @ 60 FPS	L7	40	23,5	7%	50%	34,8	11,8	
RAW16 @ 60 FPS	DFPD	40	36,6	7%	52%	36,2	11,8	
RAW16 @ 60 FPS	MG	40	40,0	7%	76%	45,3	11,8	~ 100
4K UHD (3840 x 2160) @ 120 FPS								
RAW8 @ 120 FPS	HQLI	100	17,3	5%	30%	28,6	8,8	40-50
RAW8 @ 120 FPS	DFPD	100	18,2	5%	38%	31,0	8,8	
RAW16 @ 120 FPS	HQLI	100	19,0	5%	48%	34,9	8,8	
RAW16 @ 120 FPS	L7	100	19,1	6%	50%	35,0	8,8	
RAW16 @ 120 FPS	DFPD	100	19,3	6%	52%	36,6	8,8	
RAW16 @ 120 FPS	MG	100	21,2	7%	70%	45,5	8,8	50-60
4K true (4096 x 4096) HDR @ 42.6 FPS (maximum FPS for Dual ADC Non-Combined camera mode)								
RAW16 @ 42.6 FPS	DFPD	30	42,3	38%	40%	38,0	11,9	
RAW16 @ 42.6 FPS	MG	30	45,5	38%	60%	44,2	11,9	~110
Full frame with 2x2 decimation (2664 x 2304)								
RAW8 @ 149 FPS	HQLI	75	12,9	5%	30%	28,3	7,3	
RAW16 @ 147.8 FPS	MG	75	15,8	6%	65%	42,5	7,3	40-50

*** `farsight` is a sample IFF SDK application with the following functionality:**

- acquisition from XIMEA camera
- writing of raw data to DNG files
- color pre-processing on GPU:
 - black level subtraction
 - histogram calculation
 - white balance
 - demosaicing
 - color correction
 - gamma
 - image format conversion
- automatic control of exposure time and white balance
- H.264/H.265 encoding
- RTSP streaming
- HTTP control interface

IFF SDK benchmarks for Orin NX Streaming images from the camera to the remote computer

Transmitting side:

NVIDIA Jetson Orin NX 16GB
(emulation using AGX Orin devkit)
 - Jetpack 5.1.2 [L4T 35.4.1]
 - Image processing: [IFF SDK v1.6](#)
[SDK `farsight` sample *](#)

Receiving side:

MSI Raider GE77HX
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RAW8 @ 60 FPS	HQLI	50	27,5	5%	28%	17,5	8,8	50-60
RAW8 @ 60 FPS	DFPD	50	28,5	5%	38%	17,9	8,8	
RAW16 @ 60 FPS	HQLI	50	29,9	6%	45%	19,7	8,8	
RAW16 @ 60 FPS	L7	50	30,4	7%	56%	20,1	8,8	
RAW16 @ 60 FPS	DFPD	50	31,6	7%	58%	20,8	8,8	
RAW16 @ 60 FPS	MG	50	36,2	7%	78%	24,3	8,8	60-70
Full frame (4096 x 3072) @ 40 FPS								
RAW8 @ 40 FPS	HQLI	50	40,8	6%	24%	17,5	11,0	
RAW8 @ 40 FPS	DFPD	50	42,5	6%	30%	17,9	11,0	
RAW16 @ 40 FPS	HQLI	50	45,0	6%	37%	19,7	11,0	
RAW16 @ 40 FPS	MG	50	54,5	6%	68%	23,9	11,0	
Full HD (1920 x 1080) @ 180 FPS								
RAW8 @ 180 FPS	HQLI	50	8,5	6%	33%	16,0	4,5	20-30
RAW8 @ 180 FPS	DFPD	50	8,9	7%	36%	16,6	4,5	
RAW16 @ 180 FPS	HQLI	50	9,2	7%	37%	18,1	4,5	
RAW16 @ 180 FPS	MG	50	10,8	7%	64%	21,1	4,5	30-40

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