

IFF SDK benchmarks for NVIDIA Jetson AGX Orin

High-performance image processing on Jetson and streaming to a receiving computer

Transmitting side

NVIDIA Jetson AGX Orin with FullHD/4K/8K PCIe camera

'IFF SDK `farsight` sample application:

- acquisition from XIMEA camera
- 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.265 encoding
- RTSP streaming

<https://github.com/mr-technologies/farsight>

Receiving side

MSI Raider GE77HX, NVIDIA GeForce RTX 3070Ti

'IFF SDK `imagebroker` application

- receiving of the RTSP stream
- H.265 decoding
- image export
- rendering images on the screen using OpenCV

<https://github.com/mr-technologies/imagebroker>

input image bitdepth	processing pipeline bitdepth	demosaic algorithm	FPS	encoder bitrate, Mbps	Jetson processing latency, ms	Jetson power, W	Glass-to-Glass latency, ms
MAXN power mode							
XIMEA CB120CG-CM-X8G3 camera with PCIe Gen 3 interface							
Full HD (1920 x 1080)							
1 ms exposure time							
8-bit	8-bit	HQLI	470	20	6	30	20
8-bit	8-bit	DFPD	470	20	6	31	20
12-bit	16-bit	HQLI	460	20	7	43	20
12-bit	16-bit	L7	450	20	7	43	20
12-bit	16-bit	DFPD	440	20	7	44	20
12-bit	16-bit	MG	360	15	8	46	20
XIMEA CB654CG-GP-X8G3 camera with PCIe Gen 3 interface							
4K UHDTV (3840 x 2160)							
3 ms exposure time							
8-bit	8-bit	HQLI	140	20	19	29	45
8-bit	8-bit	DFPD	140	20	18	30	45
12-bit	16-bit	HQLI	140	20	22	45	45
12-bit	16-bit	L7	140	20	22	46	45
12-bit	16-bit	DFPD	140	20	23	48	45
12-bit	16-bit	MG	120	20	24	52	45
XIMEA CB654CG-GP-X8G3 camera with PCIe Gen 3 interface							
8K UHD (7680 x 4320)							
3 ms exposure time							
8-bit	8-bit	HQLI	35	20	65	28	115
8-bit	8-bit	DFPD	35	20	67	29	115
12-bit	16-bit	HQLI	35	20	76	44	115
12-bit	16-bit	L7	35	20	77	44	115
12-bit	16-bit	DFPD	35	20	79	47	115
12-bit	16-bit	MG	30	20	86	51	130