IFF SDK benchmarks for NVIDIA Jetson platform

Streaming images from a remote transmitting computer to a receiving station using IFF SDK sample application
Benchmarks was performed on NVIDIA Jetson AGX Orin, AGX Xavier, and Orin NX modules with XIMEA PCIe cameras connected

Transmitting side

XIMEA PCIe camera
NVIDIA Jetson module

L4T 35.x.x.
MRTech IFF SDK v1.7
`farsight` sample application *

Receiving station

MSI Raider GE77HX laptop with NVIDIA GeForce RTX 3070 Ti
and 240 Hz screen

Windows 11
playback sample application

XIMEA CB120CG-CM-X8G3 camera
Exposure time: 3 ms

AGX Orin   MAXN mode

imput image resolution	image bitdepth	image framerate (FPS)	processing bitdepth	demosaic algorithm	frame processing time, ms	encoder bitrate, Mbps	Jetson CPU load	Jetson GPU load	Jetson EMC load	Jetson power, W	Glass-to-Glass latency, ms
4K UHD (3840x2160)	8-bit	120	8-bit	HQLI	17	45	6%	32%	26%	28	45
4K UHD (3840x2160)	8-bit	120	8-bit	DFPD	18	45	6%	36%	26%	29	45
4K UHD (3840x2160)	12-bit	120	16-bit	HQLI	19	45	7%	47%	40%	33	50
4K UHD (3840x2160)	12-bit	120	16-bit	L7	19	45	8%	48%	40%	34	50
4K UHD (3840x2160)	12-bit	120	16-bit	DFPD	20	45	8%	53%	42%	35	50
4K UHD (3840x2160)	12-bit	120	16-bit	MG	22	45	8%	70%	54%	44	55
Full HD (1920x1080)	8-bit	240	8-bit	HQLI	7	44	6%	27%	13%	23	25
Full HD (1920x1080)	8-bit	240	8-bit	DFPD	7	44	6%	28%	13%	23	25
Full HD (1920x1080)	12-bit	240	16-bit	HQLI	7	44	7%	34%	20%	25	30
Full HD (1920x1080)	12-bit	240	16-bit	L7	7	44	7%	36%	20%	25	30
Full HD (1920x1080)	12-bit	240	16-bit	DFPD	7	44	7%	37%	21%	27	30
Full HD (1920x1080)	12-bit	240	16-bit	MG	8	44	8%	48%	27%	31	30
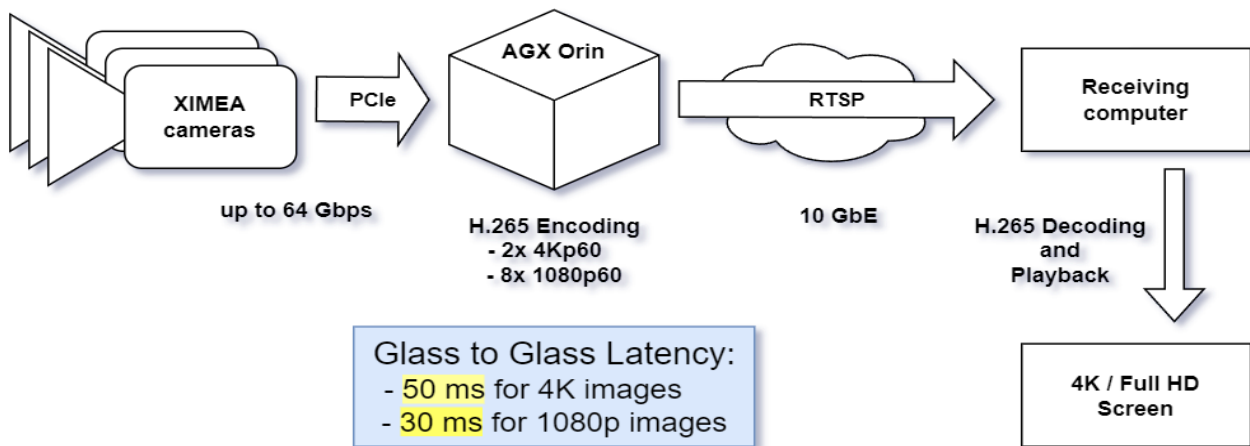
* `farsight` is the IFF SDK sample application with the following functionality:
- acquisition from XIMEA camera
- writing of raw data to DNG files
- color pre-processing on GPU:
  - black level subtraction
  - histogram calculation
  - white balance
  - demosaicing**
  - color correction
  - gamma
  - image format conversion
- automatic control of exposure time and white balance
- H.264/H.265 encoding
- RTSP streaming
- HTTP control interface

** available demosaic algorithms:
HQLI - fast and quality demosaic with 5x5 processing window
L7 - fast and quality demosaic (16-bit) with 7x7 processing window
DFPD - balanced, high-quality demosaic with 11x11 processing window
MG - superior quality demosaic (16-bit) with 23x23 processing window

find more information about `farsight` application on GitHub   https://github.com/mr-technologies/farsight

XIMEA CB120CG-CM-X8G3 camera
Exposure time: 3 ms
AGX Xavier   MAXN mode

imput image resolution	image bitdepth	image framerate (FPS)	processing bitdepth	demosaic algorithm	frame processing time, ms	encoder bitrate, Mbps	Jetson CPU load	Jetson GPU load	Jetson EMC load	Jetson power, W	Glass-to-Glass latency, ms
4K UHD (3840x2160)	8-bit	60	8-bit	HQLI	26	30	14%	25%	29%	21	55
4K UHD (3840x2160)	8-bit	60	8-bit	DFPD	27	30	14%	25%	29%	22	60
4K UHD (3840x2160)	12-bit	60	16-bit	HQLI	28	30	14%	35%	45%	25	65
4K UHD (3840x2160)	12-bit	60	16-bit	L7	28	30	15%	35%	45%	25	65
4K UHD (3840x2160)	12-bit	60	16-bit	DFPD	30	30	15%	40%	49%	27	65
4K UHD (3840x2160)	12-bit	60	16-bit	MG	33	30	15%	60%	63%	33	65
Full HD (1920x1080)	8-bit	180	8-bit	HQLI	9	30	18%	20%	22%	20	30
Full HD (1920x1080)	8-bit	180	8-bit	DFPD	9	30	18%	20%	22%	21	35
Full HD (1920x1080)	12-bit	180	16-bit	HQLI	10	30	18%	30%	34%	23	35
Full HD (1920x1080)	12-bit	180	16-bit	L7	10	30	22%	30%	34%	23	35
Full HD (1920x1080)	12-bit	180	16-bit	DFPD	11	30	22%	35%	36%	24	35
Full HD (1920x1080)	12-bit	180	16-bit	MG	12	30	22%	50%	47%	29	35

XIMEA MX124CG-SY-X2G2-FF camera
Exposure time: 3 ms
Orin NX   MAXN mode

imput image resolution	image bitdepth	image framerate (FPS)	processing bitdepth	demosaic algorithm	frame processing time, ms	encoder bitrate, Mbps	Jetson CPU load	Jetson GPU load	Jetson EMC load	Jetson power, W	Glass-to-Glass latency, ms
4K UHD (3840x2160)	8-bit	96	8-bit	HQLI	22	32	6%	40%	41%	16	55
4K UHD (3840x2160)	8-bit	96	8-bit	DFPD	25	32	7%	60%	41%	17	60
4K UHD (3840x2160)	12-bit	60	16-bit	HQLI	29	30	8%	45%	40%	15	75
4K UHD (3840x2160)	12-bit	60	16-bit	L7	29	30	8%	45%	40%	16	75
4K UHD (3840x2160)	12-bit	60	16-bit	DFPD	30	30	9%	50%	43%	16	80
4K UHD (3840x2160)	12-bit	60	16-bit	MG	35	30	9%	75%	55%	20	80

Use MRTech website and GitHub link for IFF SDK references   https://mr-technologies.com/iff-sdk
https://github.com/mr-technologies/IFF