THE BENEFITS OF MULTI-TAP SENSORS

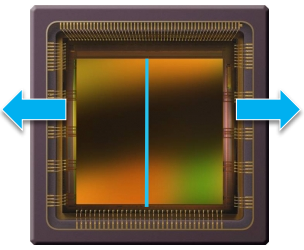
Lumenera corporation

What is a Multi-Tap Sensor?

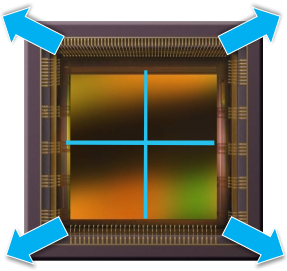
- Muti-tap sensors were created to enable faster frame rates from CCD sensors
- The multi-tap CCD structure splits the image frame into two or more areas that are clocked out in parallel
- Lumenera excels at creating cameras based on multi-tap sensors and enables all tap configurations

MULTI-TAP SENSOR ARCHITECTURE

- Each sensor tap requires and analog-to-digital converter (ADC)
- Each tap has its own dedicated amplifier
- The circuitry associated to each tap has different electronic performance characteristics which impacts the consistency of output between taps
- Tap matching/balancing algorithms are required to provide a uniform image



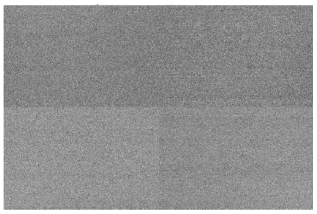
Dual Tap



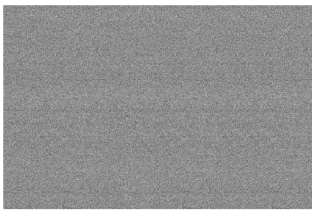
Quad Tap

TAP MATCHING

- Proper tap matching should result in uniformity across the entire image
- Lumenera's team of engineers have developed calibration tools that provide the best possible tap matching performance under a wide variety of conditions



Quad Tap Mismatch



Quad Tap Matched

ADVANTAGES

- Lumenera cameras with Sony EXview HAD II sensors support single, dual and quad tap modes
- Multi-tap modes also permit a faster readout of the image off the sensor which reduces blur for high speed targets
- Permits higher resolution sensors to operate at commercially viable frame rates

SUMMARY

- Multi-tap sensors enable faster frame rates for CCD cameras
- Tap matching is critical to avoid visible seams between taps that can impact image analysis
- Lumenera offers a portfolio of cameras designed to maximize the output of multi-tap sensors
- Lumenera's tap matching calibration techniques ensure seamless tap matching under a wide variety of conditions

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