Sensor metadata

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SMIA++

- Defined by Nokia

- Standardises sensor features and register interface

  - Optional features enumerable by host

  - Queryable pixel array size

- Standardises frame metadata

  - For every frame, the sensor may be programmed to provide register settings used to expose a given frame

Type of information available per-frame basis

- Register address - values pairs

- Varies between sensors

- Examples

  - Image format related registers

  - Flash strobe status

  - Gain

  - Exposure time

Interpretation of the metadata

- The metadata is received by the bridge so the bridge driver has control over it
    - Must be interpreted by the sensor driver since its format is dependent on the sensor

Typical reasons for changes in metadata

- Status information from the sensor

  - Flash used / not

- Changed settings from user space

  - It's important to know which values have been used to expose a frame

  - Exposure and gain (analog and digital)

Frequency or changes to metadata

- Changes to metadata are user initiated, in a way or anoter
  - Sensor metadata changes rarely, or at least not more often than user changes sensor settings

API?

- Register values are typically offered as V4L2 controls

- The user space is interested in the changes

  - The other values it could have obtained by reading the appropriate controls

- V4L2 control events