The IMX676-AAMR1 is a diagonal 10.04 mm (Type 1/1.6) CMOS active pixel type solid-state image sensor with a square pixel array and 12.63 M effective pixels. This chip operates with analog 3.3 V, digital 1.1 V, and interface 1.8 V triple power supply, and has low power consumption. High sensitivity, low dark current and no smear are achieved. This chip features an electronic shutter with variable charge-integration time.

(Application: Security cameras)

Features

◆ CMOS active pixel type dots
◆ Built-in timing adjustment circuit, H/V driver and serial communication circuit
◆ Input frequency: 24 MHz / 27 MHz / 37.125 MHz / 72 MHz / 74.25 MHz
◆ Number of recommended recording pixels: 3536 (H) × 3536 (V) approx. 12.50M pixel
◆ Readout mode
  All-pixel scan mode
  Window cropping mode
  Horizontal / Vertical direction - Normal / Inverted readout mode
◆ Readout rate
  Maximum frame rate in All-pixel scan mode: 12 bit: 30 frame/s, 10 bit: 60 frame/s
◆ Dual Speed Streaming (DSS) function
◆ High dynamic range (HDR) function
  Digital overlap HDR
  Clear HDR
◆ Synchronizing sensors function
◆ Variable-speed shutter function (resolution 2H unit)
◆ CDS / PGA function
  0 dB to 30 dB: Analog Gain 30 dB (step pitch 0.3 dB)
  30.3 dB to 72 dB: Analog Gain 30 dB + Digital Gain 0.3 dB to 42 dB (step pitch 0.3 dB)
◆ Supports I/O
  CSI-2 serial data output (2-Lane / 4-Lane / 8-Lane / 4-Lane × 2ch)
  RAW10 / RAW12 output
◆ AR coating on cover glass (Both sides)

* STARVIS 2 and its logo are registered trademarks or trademarks of Sony Group Corporation or its affiliates. The STARVIS 2 is back-illuminated pixel technology used in CMOS image sensors for security camera applications. It features a sensitivity of 2000 mV or more per 1 µm² (color product, when imaging with a 706 cd/m² light source, F5.6 in 1 s accumulation equivalent). It also has a wide dynamic range (AD 12 bit) of more than 8 dB compared to STARVIS for the same pixel size in a single exposure, and achieves high picture quality in the visible-light and near infrared light regions.

Sony reserves the right to change products and specifications without prior notice.
"Sony", "SONY" logo are registered trademarks or trademarks of Sony Group Corporation or its affiliates.
Device Structure

- CMOS image sensor
- Image size: Diagonal 10.04 mm (Type 1/1.6) approx. 12.63 M pixels, All pixels
- Total number of pixels: 3552 (H) × 3576 (V) approx. 12.70 M pixels
- Number of effective pixels: 3552 (H) × 3556 (V) approx. 12.63 M pixels
- Number of active pixels: 3552 (H) × 3552 (V) approx. 12.61 M pixels
- Number of recommended recording pixels: 3536 (H) × 3536 (V) approx. 12.50 M pixels
- Unit cell size: 2.0 μm (H) × 2.0 μm (V)
- Optical black:
  - Horizontal (H) direction: Front 0 pixels, rear 0 pixels
  - Vertical (V) direction: Front 20 pixels, rear 0 pixels
- Package: 132 pin LGA

Image Sensor Characteristics

(\(T_j = 60 \ ^\circ C\))

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>Typ. 26094 Digit/lx/s</td>
<td>12 bit converted value</td>
</tr>
<tr>
<td>Saturation signal</td>
<td>Min. 3895 Digit</td>
<td>12 bit converted value</td>
</tr>
</tbody>
</table>

Basic Drive Mode

<table>
<thead>
<tr>
<th>Drive mode</th>
<th>Recommended number of recording pixels</th>
<th>Maximum frame rate [frame/s]</th>
<th>Output interface</th>
<th>ADC [bit]</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-pixel</td>
<td>3536 (H) × 3536 (V) approx. 12.50 M pixels</td>
<td>60</td>
<td>CSI-2</td>
<td>10</td>
</tr>
</tbody>
</table>

Image Sensors for Security Cameras: https://www.sony.net/cis-security/