Milbeaut® Image Signal Processor

Overview

Socionext’s Milbeaut® IP offers the latest image processing functions and algorithms to deliver exceptional picture quality under difficult environmental conditions. This makes it an ideal solution for a wide range of camera systems including high-quality digital SLRs, digital cameras, surveillance cameras, smartphones, drive recorders and video-image-based industrial equipment.

The IP and algorithms, which are already in their ninth generation, are always a step ahead of the market and have a proven track record in various applications since its development started in 2000.

The advanced image processing capabilities of Socionext’s Milbeaut® IP are also used in high-end DSLR cameras of premium manufacturers to help differentiate their products with outstanding image quality.

Milbeaut® ISP Solution

Socionext’s Milbeaut® IP is designed to easily integrate into any SoC System. The IP is composed of core IP functions and optional functions.

The core functions contain basics like bayer preprocessing, demosaic, RGB input to YUV output and various noise filters.

Optional functions for example include lens distortion, local tone mapping and many others.

All these functions are designed as building blocks to ease selection and integration for our customers and to meet the desired requirements within area and power budget.
**Key features include**

- Support for 4K and beyond
- Bayer Noise Reduction (NR)
- Auto Exposure (AE)
- Auto White Balance (AWB)
- Defect Pixel Correction (DPC)
- Edge Enhance
- Low Power Consumption

---

### Feature Specification

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISP Process</td>
<td>Silicon proven on multiple state of the art process nodes</td>
</tr>
<tr>
<td>Demosaic Capability</td>
<td>300Mpix/sec (reference implementation at 55nm)</td>
</tr>
<tr>
<td>Sensor IF</td>
<td>MIPI 4/2/1lane (1.5Gbps/lane)</td>
</tr>
<tr>
<td></td>
<td>MIPI 4/2/1lane (1.5Gbps/lane)</td>
</tr>
<tr>
<td>Internal Memory</td>
<td>512K Byte (High Speed SRAM)</td>
</tr>
<tr>
<td>Adaptive WDR for still</td>
<td>o</td>
</tr>
<tr>
<td>Chroma NR(still / video)</td>
<td>o</td>
</tr>
<tr>
<td>Shading / Defect Pixel Correct</td>
<td>o</td>
</tr>
<tr>
<td>Lens distortion correction</td>
<td>o</td>
</tr>
</tbody>
</table>

---

### Background blur

- All Focus
- Macro Focus
- Inf Focus

### Wide aperture refocus

- All Focus
- Macro Focus
- Inf Focus

### Roadmap

- 2000
- 2005
- 2010
- 2015
- 2020

---

**Socionext Europe GmbH**

Pittlerstrasse 47
63225 Langen, Germany
Tel: +49-6103-3745-0
Fax: +49-6103-3745-122
http://eu.socionext.com