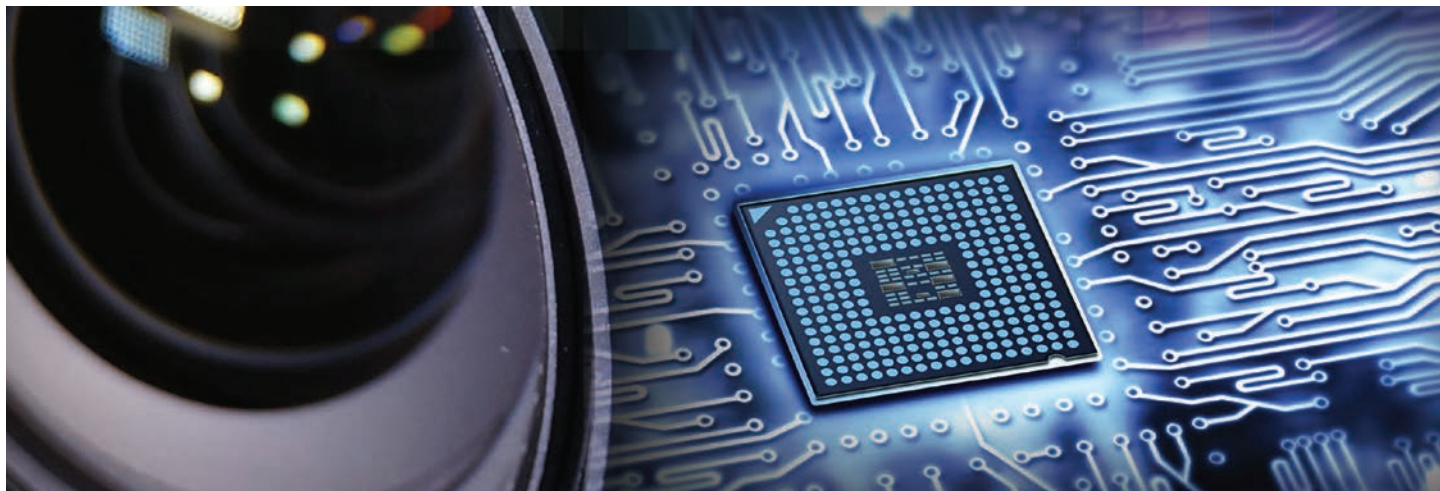


Milbeaut® Image Signal Processor



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, smart phones, 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 manufactures 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.

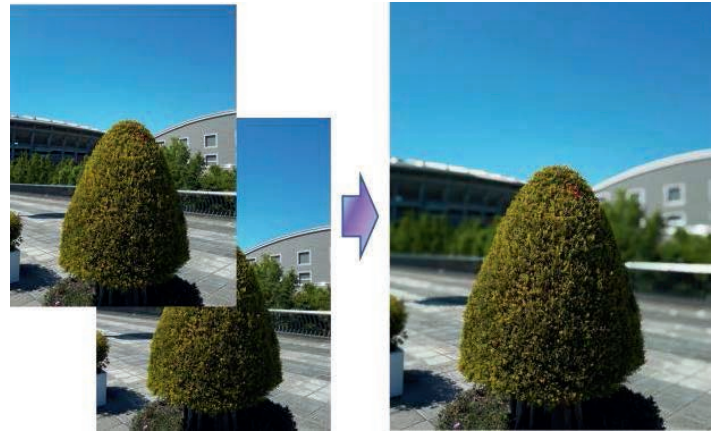
All these functions are designed as building blocks to ease selection and integration for our customers and to meet the desired requirements within area and power budget.



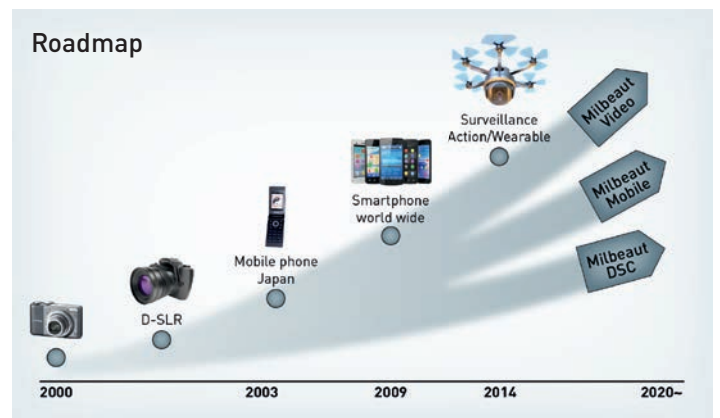
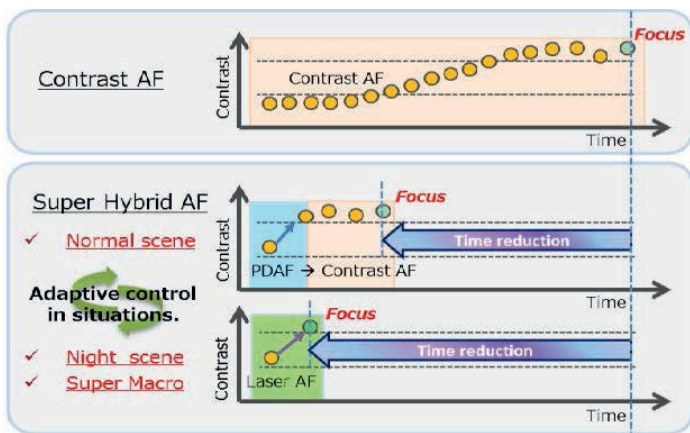
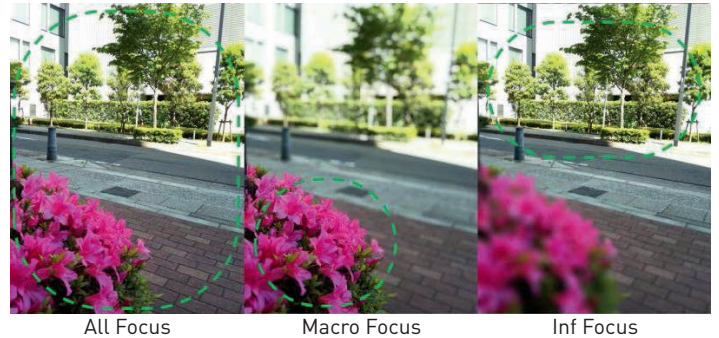
Key features include

- 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

Background blur



Wide aperture refocus



Specification

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

Feature	Specification
ZSL(Zero Shutter Lag)	16M 30fps/21M 24fps (reference implementation at 55nm)
Continuous Shoot (without video)	16M 15fps (reference implementation at 55nm)
Instant Capture	385msec (reference implementation at 55nm)
AF/Continuous AF	10point Vertical horizontal statistics
Video capability (depend on sensor input size)	1080p 60fps / 2Kx4K 30fps (reference implementation at 55nm)
Digital Zoom	x4 (or over)
Still EIS	High ISO Approach

The Products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements. All company names, brand names and trademarks herein are property of their respective owners.

Socionext Europe GmbH

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