**Description**

“Milbeaut,” Fujitsu’s superior image processor, is well-suited for all kinds of cameras, including digital single-lens reflex cell phones and other compact cameras. The technology also operates as an imaging solution for other devices.

Since its introduction in 2000, Fujitsu’s Milbeaut series has been widely adopted in many different digital-imaging systems. By using a proven technology geared for the needs of special high-quality cameras, Milbeaut Mobile has successfully penetrated the mobile camera market. Today, Milbeaut Mobile is used in more than 80 models of mobile phones worldwide, and has earned an excellent reputation and a good track record for its image quality.

In the last eight years, Fujitsu has upgraded the core color-processing engines, improved the overall efficiency, increased the operating frequency, and improved image-quality functions such as noise reduction and edge enhancement. These improvements satisfy the need for more pixels, faster processing speed, better image quality, high function development, reduced power consumption, and lower costs.

**Applications**

- DSLR cameras
- Cameras for cell phones and smart phones
- Tablet cameras

**Key Features**

Milbeaut is usually mounted either beside the baseband on the main board of the mobile phone or inside the camera module as shown in the Sample System Configuration diagram.

**Image Processing**

- Equivalent to the D-SLR products on the market
- Clear color and resolution
- Multi-axis color-space converter for flexible color representation
- Advanced Noise Reduction (NR), which strongly reduces luminance noise and chromatic noise

**Functionality**

- Advanced Automatic White Balance (AWB) and Automatic Exposure (AE) support for both photo and video modes
- Flexible deforming can be supported by the affine-transformation functionality
- Applications such as face detection, lens correction, image stabilization, and wide dynamic range technology can be processed.
Quick Camera Activation technology offers near-instant camera readiness

No shutter time lag

Connectivity

- Support for advanced CMOS/CCD sensor via MIPI (CSI-2)
- Support for MIPI (CSI-2) or YUV parallel (8/16bit) for host (baseband/application processor) I/F
- Two I²C (master/slave) for both sensor and host

Product Lineup for Cell Phones

- Frame buffer type
  - With a frame buffer, flexible processors and CPU, enhanced applications can be run
  - Single in-chip package includes ISP, SDRAM and flash memory
  - ~20Mpixel (Max)
- Line buffer type
  - With on-chip buffers, color processing and the 3A (AWB/AE/AF) function are supported
  - ~8Mpix

Sample System Configurations

Noise Reduction

Wide Dynamic Range

Evaluation Board

Affine Transformation