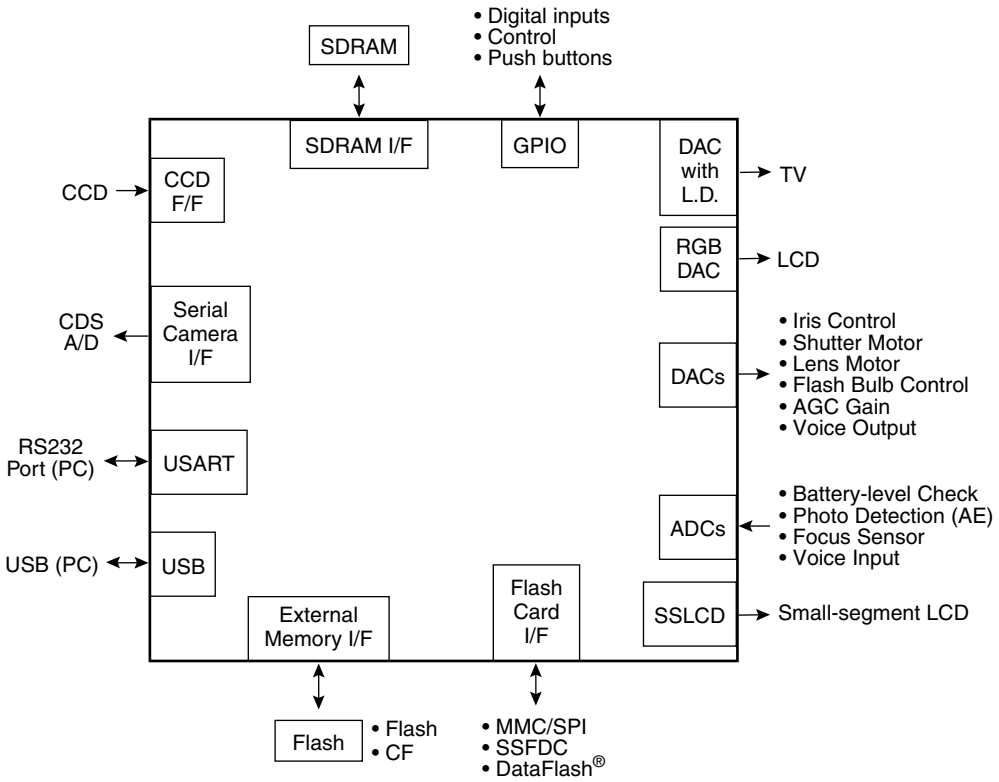
Features

- DSP Functions for CCD/CMOS Image Processing
- Video Encoder, Including Line Driver for NTSC/PAL TV Signal
- Baseline JPEG Compression/Decompression
- SDRAM Interface
- Support for All Flash Card Interfaces (Atmel DataFlash®, MMC, SSFDC, Compact Flash)
- Integrated DACs for LCD
- USB and USART Interfaces for PC Camera Applications
- Small-Segment LCD Driver
- 32 Pins for General-purpose I/O
- 5 External Interrupts, Timer Clock Input and Wake-up Pin
- DACs for Camera Control Functions and Audio Output
- ADCs for Monitoring Camera Analog Inputs, Audio Input and Switch Input, Like Window Comparator
- Serial Interface for Controlling Camera Components
- Up to 2M Bytes Program Space
- Support for RTOS
- All Low-level Software, Application Samples are Provided
- Built-in Outputs Include a CVBS Output with a Line Driver, YC16-bit Digital Output, RGB 565 Digital Output, Digital Composite Output and RGB Analog Output
- Compatible with Various Types of Display Devices
- SDRAM Support from 16M Bits to 256M Bits
- Direct Interface to Epson and UNIPAC LCDs
- 280-pin FlexBGA Package
- 3.3-volt Core and I/O Operation

Figure 1. Typical DSC Application Using AT76C110



High-Performance Digital Camera Processor

AT76C110

Summary

Rev. 1475AS–IMAGE–06/02

Note: This is a summary document. A complete document is available under NDA. For more information, please contact your local Atmel sales office.

Description

The AT76C110 is a highly integrated solution for digital cameras. It combines a number of functions that are required in implementing digital cameras:

- Image data acquisition and capturing from either CCD or CMOS imagers
- Image display
- Image processing and image storing
- Overall camera management
- Control of general-purpose I/O functions
- Data communication
- Control of user functions
- On-screen display

It also provides a large number of interfaces that allow camera manufacturers to directly access a variety of devices that may be present in a digital camera.

- Communication with PCs
- Communication with Flash cards
- Serial communication ports for controlling other devices in the camera

The design is based on an ARM® microprocessor that controls the entire chip. A number of hardware resources, controlled by ARM, perform digital camera functions such as image DSP processing, JPEG coding/decoding, DMA access to SDRAM and video encoding. All these computation-intensive functions are implemented in hardware which can be programmed according to user specifications, thus allowing ARM to be free for other user-defined functions.

Capabilities

- Supports up to 16 megapixel CCDs/CMOS (10 - 30 MHz CCDs)
- CCD colors are limited to the Bayer arrangements of the RGB primary colors
- Interfaces to 16 - 256-Mbit SDRAM, one or two pieces
- 30 frames/sec video display mode (NTSC)
- 15 frames/sec capture mode (VGA resolution)
- Up to 1.5M bytes/sec read/write from/to Flash cards
- 2M bytes external Flash ROM for program space
- 2M bytes external SRAM for program/working space (optional)
- Full-speed USB interface (mass storage, and image class)
- 100 - 150 mA current
- 1 - 5 mA in standby mode
- 50 µA current in sleep mode

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