

Low Cost Digital Camera Controller

Description

S&Q dual mode DSC Solution designed as an easy-pocket, mini-sized dual mode (PC/Digital) camera to take great pictures for web or email and is exceptionally affordable. SQ905 is a CMOS sensor dual mode camera controller that can be used as a PC camera when linked with PC interface and as a digital camera stand-alone as for PC peripheral. SQ905 can provide easy controllable SDRAM interface to enlarge picture storage buffer and suspend mode to protect itself and save power when it is used under DSC mode. SQ905 also can be linked with PC interface works as PC camera to show related applications.

Because of SQ905 provides a total solution to the main stream manufactures, it makes the process to product faster and easier. Even if the manufacture is not familiar with this field, it also can be support to product its own brand at the right time. SQ905 makes balance both for performance & price issues under limited resource. S&Q always can provide competitive price to our customers runs for S&Q DSC SOC solutions ASIC.

Key Features

- VGA Resolution CMOS Sensor
- Support multi-sensor interface(Hynix and so on) CMOS Sensor
- Support 4Mx16, 8Mx8 SDRAM
- Support USB interface
- Support 16x3 LCD
- Using 64 MB memory, picture storage capacity in camera 26(VGA)/104(QVGA) without Compression
- Storage Compression Mode Supported; 52 (VGA) / 208(QVGA) pictures under compression
- PC_Camera frame rate: with VGA sensor 3 fps for VGA/ 10 fps for QVGA
- Power consumption: Operation 0.7W, sleep mode 3mW
- Provide Self-timer (10 sec)
- Support Dual mode (PC/ Digital) camera
- Support Automatic Exposure
- Controllable Image Performance for 24-bit Color (RGB) & 8-bit Gray
- High-speed picture download with USB
- USB tethered video mode gives a QCIF resolution video conferencing camera with WDM support
- Support SDRAM refresh function
- Fixed Focus from 40cm to infinity
- Support TWAIN / WDM Software Driver
- Compatible with Windows 95/98/2000/ME
- Low power consumption for complete camera and low system cost per pixel
- 31 GPIO
- Optional OSC/Crystal clock drive
- Operation clock : 48Mhz (12Mhz Crystal)
- Operation voltage : 5V and 3.3V
- Package : QFP-100

Applications:

- Video conference
- Image recognition
- Video phone
- Video mail
- Web production

(Preliminary 1.0 version)

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1. Introduction

1.1 Digital camera chipset

This document describes the features and functionality of a CMOS chipset, comprising an VGA resolution sensor and an SQ905 companion processor, as well as outlining what peripheral components are required / supported in order to complete a camera using the chipset. Such a camera is particularly suited to dual-mode digital still image or toy applications.

In stills mode, the camera stores raw image data in memory. The camera carries out no color processing, ensuring its simplicity and low cost. Subsequent download of raw data to a PC for processing is done through an USB interface, through demo software, a TWAIN driver.

A video option is provided, when plug in USB, which can allow for WDM applications, and 'video clips' can be recorded while untethered by continuously capturing images while in 'Continuous' (d8 mode be showed by LCD) mode, then downloaded to the PC automatically create an AVI file.

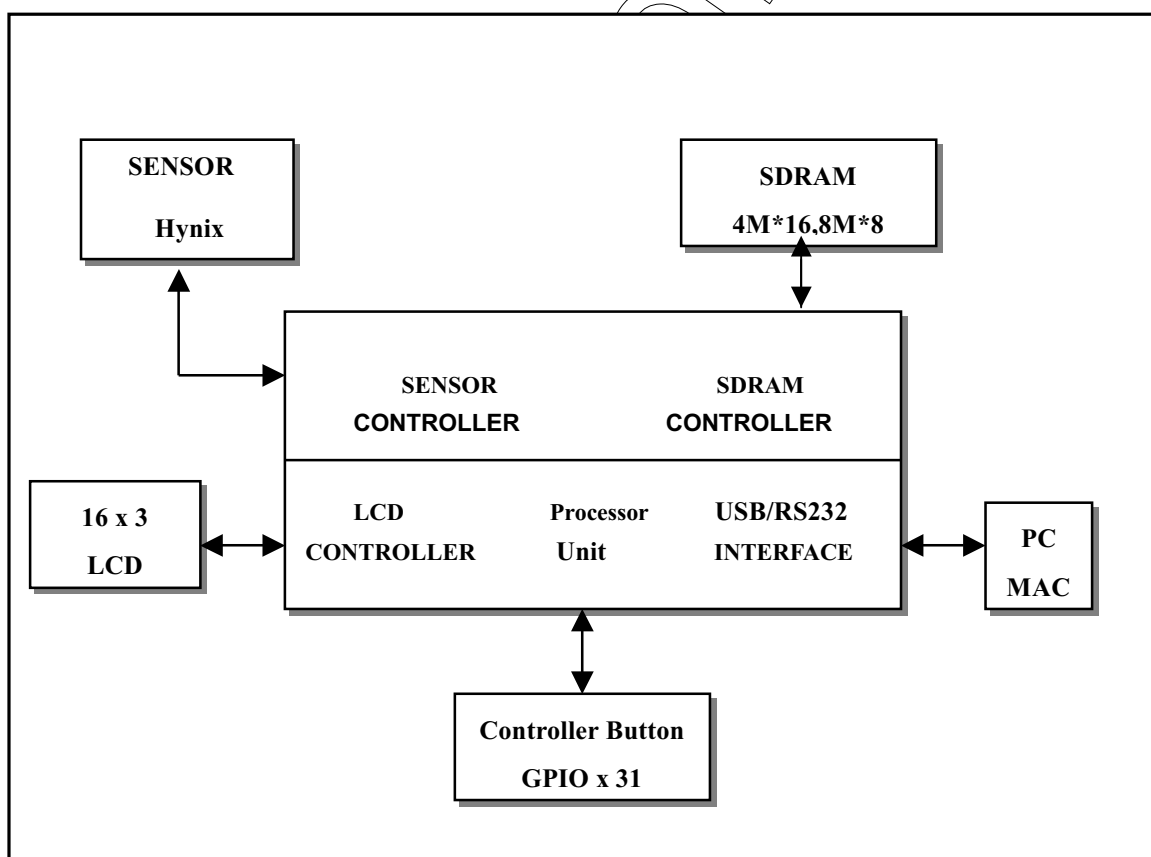


Figure 1. SQ905 System block diagram