



DEMO2: From Raw Video to Your PC Via USB2

A System Overview

Micron® Imaging's demonstration system family supports the full line of Micron's CMOS image sensor products. The current demonstration system is called the DEMO2, which uses the USB 2 interface to transport raw digital video data from the sensor to the host PC. Several software applications are provided with the demonstration system, which allow the user to display the data from the sensor on the host computer, and to change some basic settings of the sensor for evaluation purposes. A software development kit (SDK) is also provided to customers who wish to write their own software applications to access the sensor on the demo system.

The front board contains the lens and the imaging sensor. The back board contains the USB 2 controller and is called the DEMO2 board (shown in the figure to the right).



Hardware Requirements

- Pentium III 450 MHz or higher (a faster processor will improve the displayed frame rate on the PC)
- 128 MB RAM
- USB 2.0 Host controller (we recommend Adaptec's "USB 2 CONNECT" PCI USB2 adapter and their part number is AUA-3100LP and AUA-1420A for notebook PCs)

Software Requirements

- Windows 2000 with a minimum of Service Pack 2 or
- Windows XP with a minimum of Service Pack 1
- The latest drivers for the USB 2.0 host controller—
We do not recommend Windows 2000 with built-in USB2 controllers

Demonstration System Contents

- Micron Imaging demo camera board
- Micron sensor head with lens
- USB 2.0 cable
- Software CD
- Demo user manual
- Camera tripod

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Demo board and sensor head board

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Product Matrix

Below is a list of our products with their available lens type. Note that the DEMO2 board is able to run at the full clock speed for each sensor, although it is also possible to run

at slower clock speeds. Refer to the ordering info for part numbers and ordering information.

Sensor	Lens Type		
	C-Mount	S-Mount	Mini Lens with a Lens Evaluation Adapter
MT9V111	●		
MT9V131	●		
MT9V112	●		●
MT9V125		●	
MT9V135		●	
MT9M111*	●		●
MT9M131	●		●
MT9M112			●
MT9D111			●
MT9D131			●
MT9D112			●
Non-SOC			
MT9V011	●		
MT9V022	●		
MT9V032	●		
MT9M001	●		
MT9M011	●		
MT9D011	●		●
MT9T001	●		
MT9T031	●		
MT9T012			●
MT9P001	●		●
MT9P031	●		●

*DEMO2 can only support a maximum of 47 MHz oscillators even though the nominal clock for the MT9M111 is 54 MHz.



C-Mount

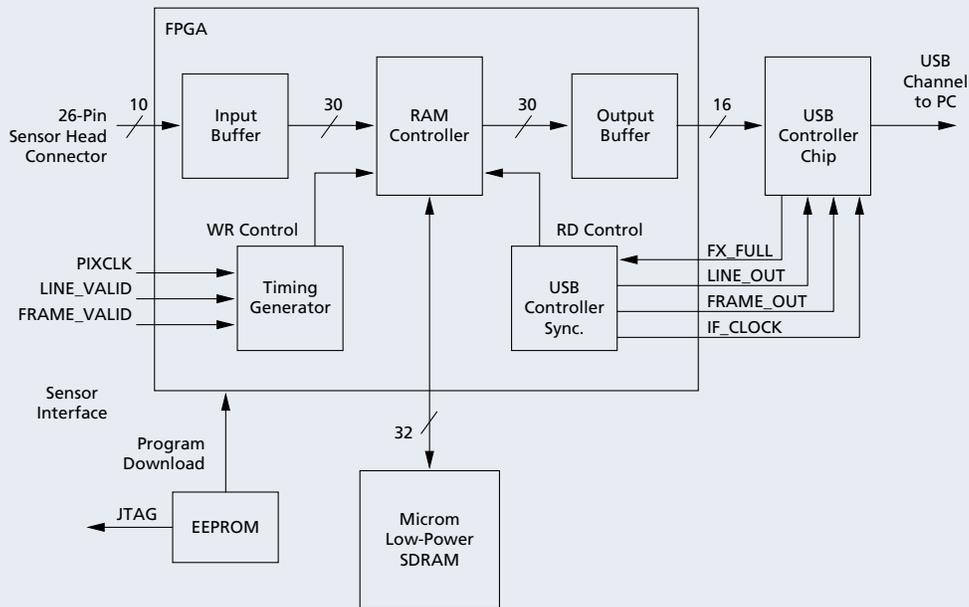


S-Mount



Mini Lens with a Lens Eval. Adapter

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DEMO2 Board Block Diagram

Operational Description

Board Functionality

The USB board provides centralized communication between the image sensor and the host PC. The system receives firmware programming from a serial EEPROM which configures the board into a synchronous slave FIFO mode. The sensor data fills up an internal FIFO with data when handshaking is taking place. The firmware automatically sends data through the USB 2.0 interface whenever the FIFO becomes full and the FRAME_VALID is polled to determine when a frame is complete. When the FRAME_VALID drops, the host computer is signaled through the USB interface with a frame end packet. The firmware also supplies the necessary code to implement USB vendor commands that allow the host computer to query and modify the system configuration data.

Vendor commands are used to communicate with the image sensor through the serial host interface protocol built into the sensor head interface.

DEMO2

Micron's DEMO2 board comes equipped with the addition of an FPGA and memory controller. This allows the hardware to store up to 3 entire frames of data on the board prior to USB 2 transport, which is important for large resolution sensors to avoid dropping frames. The DEMO2 baseboards are common to all sensor configurations. The FPGA optimizes the data flow through the USB, such that the FIFOs never overflow, and complete frames are guaranteed even for large sensors.

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Ordering Information

For ordering information, please contact your local sales representative. This information can be found at <http://www.micron.com/sales>.

SOC	Part Numbers	Description
MT9V111	MT9V111P11STCD ES MT9V111M01STCD ES MT9V111P11STCH ES MT9V111M01STCH ES	MT9V111 color VGA complete demo kit MT9V111 color VGA module demo board MT9V111 color VGA demo head board MT9V111 color VGA module head board
MT9V112	MT9V112I2ASTCD ES MT9V112I2ASTCH ES	MT9V112 color VGA complete demo kit MT9V112 color VGA head board
MT9V125	MT9V125IA7ATCD ES MT9V125IA7ATCR ES MT9V125IA7ATCH ES	MT9V125 color VGA complete demo kit (auto) MT9V125 color VGA reference camera (auto) MT9V125 color VGA demo head board (auto)
MT9M111*	MT9M111P12STCD ES MT9M111M01STCD ES MT9M111P12STCH ES MT9M111M01STCH ES	MT9M111 color 1.3Mp color complete demo kit MT9M111 color 1.3Mp module demo board MT9M111 color 1.3Mp demo head board MT9M111 color 1.3Mp module head board
MT9M112	MT9M112PA3STCD ES MT9M112PA3STCH ES	MT9M112 color 1.3Mp complete demo kit MT9M112 color 1.3Mp head board
MT9D111	MT9D111I93STCD ES MT9D111I93STCH ES	MT9D111 color 2Mp complete demo kit MT9D111 color 2Mp head board
MT9D131	MT9D131L12STCD ES MT9D131L12STCH ES	MT9D131 color 2Mp complete demo kit MT9D131 color 2Mp demo head board
MT9M131	MT9M131L12STCD ES MT9M131L12STCH ES	MT9M131 color 1.3Mp complete demo kit MT9M131 color 1.3Mp demo head board
MT9V135	MT9V135L12STCD ES MT9V135L12STCH ES	MT9V135 VGA complete demo kit MT9V135 VGA demo head board
MT9V131	MT9V131L12STCD ES MT9V131L12STCH ES	MT9V131 VGA complete demo kit MT9V131 VGA demo head board
Non-SOC		
MT9V011	MT9V011P11STCD ES:B MT9V011P11STCH ES:B	MT9V011 color VGA complete demo kit MT9V011 color VGA demo head board
MT9V022	MT9V022I77ATMD ES MT9V022I77ATMH ES	MT9V022 monochrome VGA complete demo kit (auto) MT9V022 monochrome VGA demo head board (auto)
MT9M001	MT9M001C12STMH ES MT9M001C12STMD ES	MT9M001 mono head board MT9M001 mono complete demo kit
MT9M011	MT9M011P12STCD ES MT9M011P12STCH ES	MT9M011 color 1.3Mp complete demo kit MT9M011 color 1.3Mp demo head board
MT9D011	MT9D011I29STCD ES MT9D011I29STCH ES	MT9D011 color 2Mp complete demo kit MT9D011 color 2Mp demo head board
MT9T001	MT9T001P12STCD ES MT9T001P12STCH ES	MT9T001 color 3Mp complete demo kit MT9T001 color 3Mp head board

*DEMO2 can only support a maximum of 47 MHz oscillators even though the nominal clock for the MT9M111 is 54 MHz.

Ordering Information (continued)

Non-SOC	Part Numbers	Description
MT9T012	MT9T012IA3STCD MS MT9T012IA3STCH MS	MT9T012 color 3.1MP complete demo kit MT9T012 color 3.1MP demo head board
MT9P001	MT9P001I12STCD MS MT9P001I12STCH MS	MT9P001 color 5MP complete demo kit MT9P001 color 5MP demo head board
MT9P031	MT9P031I12STCD ES MT9P031I12STCH ES	MT9P031 color 5MP complete demo kit MT9P031 color 5MP demo head board
MT9T031	MT9T031P12STCD ES MT9T031P12STCH ES	MT9T031 color 3MP complete demo kit MT9T031 color 3MP demo head board
MT9V032	MT9V032L12STCH ES MT9V032L12STCH ES	MT9V032 W-VGA complete demo kit MT9V032 W-VGA demo head board

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