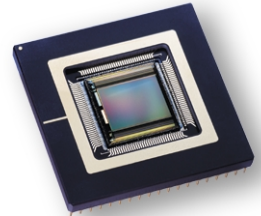




200-fps, 4-Megapixel CMOS Image Sensor

For Machine Vision and High-Speed Imaging



Features

- 2,352H x 1,728V image resolution
- 200 frames per second (fps)
- Monochrome or color digital output
- On-chip, 10-bit analog-to-digital converters (ADCs)
- Simple digital interface
- Micron TrueColor® image fidelity
- On-chip TrueBit® noise cancellation

Description

Micron's MI-MV40 is by far the world's fastest four-megapixel image sensor. It delivers full resolution images at an astonishing rate of 200 fps, making it ideal for advanced machine vision and high-speed imaging applications. With integrated, on-chip, 10-bit ADCs, the MI-MV40 is capable of a digital output of 975 megabytes per second. A digital responsiveness of 2,500 bits per lux-second and Micron's exclusive TrueBit noise cancellation ensure high image quality. The simple digital interface allows the flexibility to control frame rate, integration time, windowing functionality, and other parameters. Cameras based on the MI-MV40 enjoy a much faster time-to-market than charged-coupled device (CCD)-based cameras, due to the simplicity of the integrated CMOS design and interface.

Applications

The MI-MV40 CMOS image sensor captures and interprets complex high-speed events for the machine vision and high-speed imaging industries. It is ideal for assembly line process control, printed circuit board (PCB) inspection, flaw detection, and other machine vision applications. The MI-MV40 is also well suited to microscopy, astronomy, and biometrics (fingerprint recognition).

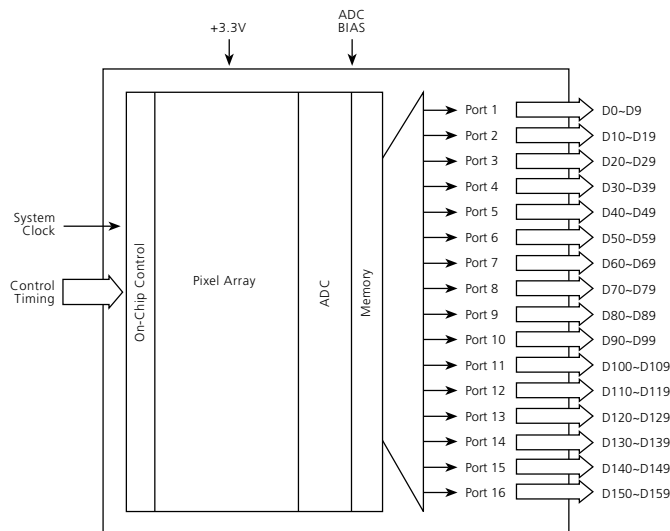
The sensor can analyze motion by recording an event with a series of images taken at a high frame rate, enabling them to be viewed at lower speeds. High-speed, high-resolution imaging includes such diverse applications as motion picture or video game special effects, high-definition television (HDTV) broadcasting, sports performance, automobile crash tests, and military research. The sensor's capabilities enable camera performance that exceeds today's CCD-based systems, creating an unprecedented number of possibilities for future applications.



Specifications

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|---|---|
| <ul style="list-style-type: none"> ■ Array Format: 2,352H x 1,728V (4,064,256 pixels) ■ Aspect Ratio: 4:3 ■ Pixel Size and Type: 7.0µm x 7.0µm active-pixel photodiode ■ Sensor Imaging Area: H: 16.46mm V: 12.10mm Diagonal: 20.43mm ■ Frame Rate: 0–200 fps @ (2,352 x 1,728) >1,000 fps with partial scan [e.g., 0–1,920 fps @ (2,352 x 216)] ■ Output Data Rate: 975 MB/s (@ 200 fps) ■ Power Consumption: < 700mW (@ 200 fps) (data-dependent) ■ Digital Responsivity: 2,500 bits/lux-sec ■ Internal Intra-Scene Dynamic Range: 59dB ■ Supply Voltage: +3.3V | <ul style="list-style-type: none"> ■ Operating Temperature: -5°C to +60°C ■ Output: 10-bit digital video through 16 parallel ports ■ Color: Monochrome or color (Bayer RGB) ■ Shutter: Electronic rolling shutter (ERS) ■ ADC: On-chip, 10-bit column parallel ■ Package: 280-pin ceramic PGA ■ Controls: <ul style="list-style-type: none"> ■ On-Chip: <ul style="list-style-type: none"> ■ ADC controls ■ Output multiplexing ■ ADC calibration (integration time) ■ Off-Chip: <ul style="list-style-type: none"> ■ Window size and location ■ Frame rate and data rate ■ Shutter exposure time ■ ADC reference |
|---|---|

Block Diagram



To learn more about Micron's imaging products, visit our Web site at www.micron.com/imaging or call us at 208.368.3900.

www.micron.com

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