

FCS20 / CMOS Image Sensor: Evaluation and Development System

The FCS20 / CMOS Image Sensor Evaluation and Development System includes hardware and software that allow flight control and image processing applications to be developed, tested and integrated. The baseline hardware system includes an Adaptive Flight FCS20 embedded processor, sensor board and an Omnivision OV5610 5.17 Megapixel color CMOS image sensor array. FCS20 embedded software will vary depending on the configuration chosen which may include flight control, image processing or both. Windows-based evaluation, simulation, debug and development software will vary based upon the FCS20 configuration chosen. The entire system is designed and documented for easy integration with third-party applications.



FCS20 Processing with 5.17 Megapixel CMOS Image Sensor

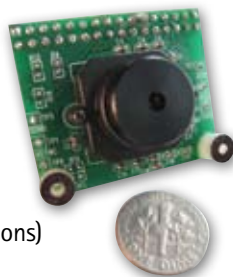
IMAGE PROCESSING CONFIGURATION

The FCS20 image processing configuration includes FCS20 embedded processor, sensor board, Omnivision OV5610 5.17 Megapixel color CMOS image sensor array. The image processing API software for the FCS20 allows a user to immediately begin capturing and processing images from the Omnivision CMOS image sensor. The image processing API is configured to allow read/write access to all OV5610 registers and is setup to use the OV5610 special product feature for windowing, zooming and panning within the 5.17 Megapixel sensor array. A Windows-based demo application, ApplImage is included to allow users to immediately capture regions of interest from the high-resolution image and display them on a Windows-based PC. Image output is available via serial or Ethernet output. Jtag emulator connections are provided for direct access to the TI DSP and the Altera Stratix II FPGA for advanced development.

Specifications

OV5610

Resolutions: QSXGA (2592x1944) @ 4 fps;
SXGA (1280x960) @ 15 fps; VGA (640x480) @ 30 fps;
HF (320x200) @ 70 fps
Pixel size: 2.775 x 2.775 Microns
Output format: Raw RGB Data
Optical format: 1/1.8"
Lens chief ray angle: 15 degrees
Sensitivity: 1.2 V/Lux-sec
S/N Ratio: 42 dB
Dynamic range: 60 dB (ADC limitations)
Scan mode: Progressive
Image area: 7.33 mm x 5.44 mm



FCS20

Processors: TI 300 Mhz Floating Point DSP and Altera Stratix II FPGA
Memory: 256 Mb SDRAM, 1Gb Flash (optional)
Rate gyros: +/-300 Degrees Per Second
Accelerometers: +/- 5g Programmable
GPS: uBlox Differential @ 4 Hz Update Rate
Air data/Altimetry: -1000 to 50K (+/-0.5 ft at S.L)
Digital interface: 4 x RS232, Ethernet, 80 General Purpose IO
Power: 7-20 Vdc @ 1-3 W
Size: 55mm x 85mm x 28mm
Weight: 65 grams



About Adaptive Flight Headquartered in Atlanta, Adaptive Flight, Inc., designs and manufactures the world's smallest and most advanced helicopter surveillance systems. The Hornet Unmanned Aircraft System (UAS) is ideal for short-range, tactical military and civilian reconnaissance and surveillance operations. Small, quiet and highly maneuverable, the Hornet delivers superior visual intelligence with real-time video, high-resolution images and other advanced operations. For more information, visit www.adaptiveflight.com.