



# ADAPTIVE FLIGHT

## FCS20 / CMOS Image Sensor Evaluation and Development System

The **FCS20 / CMOS Image Sensor Evaluation and Development System** consist of hardware and software that allows flight control and image processing applications to be developed, tested and integrated. The baseline hardware system consists of 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 and is dependent upon 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.



**FCS20 Processing with 5.17 Megapixel CMOS Image Sensor!**

### CONFIGURATION – IMAGE PROCESSING

The FCS20 image processing configuration comes with a FCS20 embedded processor, sensor board, Omnivision OV5610 5.17 megapixel color CMOS image sensor array and an Analog Devices NTSC driver card. 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 of the OV5610 registers and is setup to use the OV5610 special product feature for windowing, zooming and panning images within the 5.17 megapixel sensor array. A windows based demo application, AppImage is included that allows a user to immediately window, zoom, pan and capture images from the image sensor and display them on a windows based PC. Image output is available from serial, ethernet or NTSC output. Jtag emulator connections are provided for direct access to the TI DSP and the Altera Stratix II FPGA for advanced development.

#### OV5610 Specifications:

**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 Specifications:

**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 RS2323, Ethernet, 80 General Purpose IO

**Power:** 7-20 Vdc @ 1-3 W

**Size:** 55mm x 85mm x 28mm

**Weight:** 65 grams

