

Product Brief:

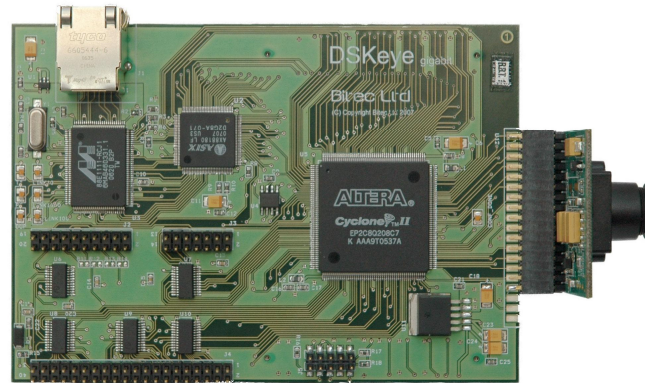
## DSKey gigabit

### Features

- 5.2 Mega pixel Omnivision camera
- Cyclone II FPGA
- Santa Cruz expansion interface
- 10/100/10000 Gigabit Ethernet interface

### Applications

- Machine vision
- Video phone
- Remote image sensing
- Surveillance systems
- Biometrics
- Image recognition, filtering and compression
- Video streaming
- Stand-alone vision systems
- Net connected smart camera
- VoIP projects



The DSKey from BiTEC Ltd is a TI DSK daughterboard gathering the latest FPGA technology, a 5.2 mega pixel camera and user configurable interface options to deliver a Smart Camera system for development and research at a fraction of the cost normally associated with such technology.

The latest evolution of the DSKey introduces gigabit Ethernet interfacing. Based on the latest **ASIX™** high-performance 32/16-bit, tri-mode (10/100/1000) gigabit Ethernet MAC, the DSKey now permits users to transfer image data using the latest networking technology.

A DSP/BIOS optimised port of the popular open source **lwIP** stack is included with the DSKey. This software TCP/IP implementation allows high performance TCP/IP networking using standard Berkley Sockets or alternative low-level access.

The DSKey still maintains the Santa Cruz interface headers for flexible interfacing. There is a growing range of standard daughter modules available via the ALTERA™ website. Developers can load peripheral devices such as UARTS, PIO etc and access them over the DSP bus.

For more information [www.bitec.ltd.uk](http://www.bitec.ltd.uk)



## Specifications

### Camera

- 5.2 Mega pixel Omnivision CMOS sensor (ov5610 or ov5620)
- Array size
  - QSXGA: 2592x1944
  - SXGA: 1280x960
  - VGA: 640x480; 1280x480
  - HF: 320x200; 1280x200
- Electronic exposure
  - QSXGA: Up to 1998:1
  - SXGA: Up to 978:1
  - VGA: Up to 488:1
  - HF: Up to 208:1
- Output format: 10-bit digital RGB Bayer
- Lens size 1/1.8"
- Lens Chief Ray Angle 15 deg
- Max image transfer rate
  - QSXGA: 8 fps
  - SXGA: 30 fps
  - VGA: 60 fps
  - HF: 140 fps
- Sensitivity: 1.2 V/Lux/sec
- S/N ratio: 42dB
- Dynamic Range: 60 dB
- Pixel size: 2.775 um x 2.775 um
- Dark current: 10mV/sec @ 60 deg
- Fixed pattern noise: 0.05% of Vpeak-to-peak
- Image area: 14.22mmx14.22mm
- 10 bit ADC output
- Bayer pattern output

### Lens

- Focal length: 9.4mm
- F No: 3.0
- Distortion: <3.0%
- Focus: "M to infinity
- FOV: 49 deg diagonal
- IR cut-off filter: 650nm
- Will accept user lenses with matching characteristics
- Mechanical shutter version available

### Gigabit Interface

- ASIX™ AX88180 + Marvell 88E1111
- Compatible with IEEE802.3, 802.3u, and 802.3ab standards
- Support 10/100/1000Mbps data rate
- Support full duplex operation with 1000Mbps data rate
- Support full and half duplex operations with 10/100Mbps
- Support Wake-on-LAN function by following events
  - Detection of network link-up state
  - Receipt of a Magic Packet
- Standard Ethernet LED indication

### Santa Cruz Expansion interface

- 40 user configurable buffered I/O signals connected to FPGA. All 5V tolerant
- 1 PLL connected clocked pins

- Range of third party interface boards available

### ALTERA™, Cyclone II FPGA

- Cyclone II EP2C8
- 8256 logic elements
- 165888 RAM bits
- Large capacity for user defined signal processing logic
- Can be programmed using free, ALTERA Quartus II design suit.

### Compatibility

The DSKey gigabit is designed to run on TI DSKs including the C6x and C5x ranges. The supplied software is compatible with CCS version 2.1 and later.

### Kit Contains

- DSKey gigabit daughtercard
- ov5610 or ov5620 camera module
- Byteblaster download cable
- CD ROM containing sample and source code.
  - FPGA source
  - H263 video streaming
  - Image view over web browser example