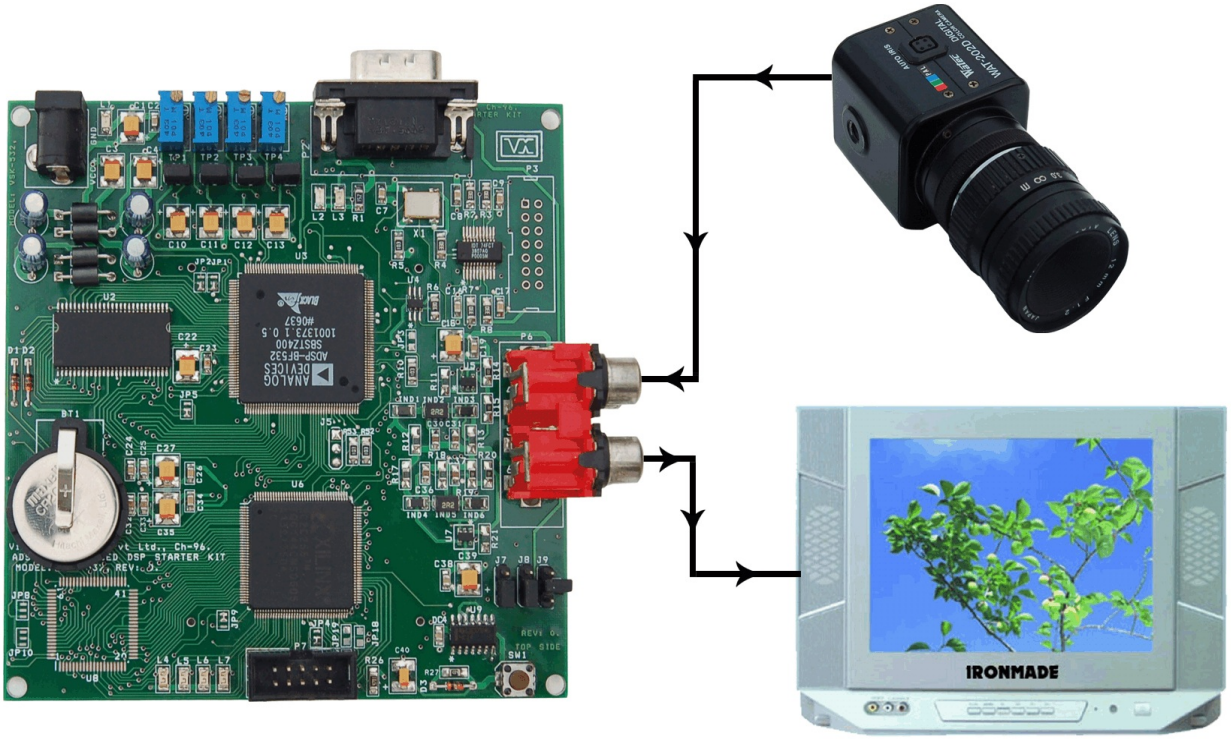
IMAGE PROCESSING DEVELOPMENT KIT

The VSK-532 TRAINER KIT provides developers with a cost-effective implementation using the ADSP-BF532 Black fin Processor for a wide range of image processing applications, including video processing.



FEATURES

* Based on ADSP-BF532 Black fin processor
* Up to 148K bytes of on-chip memory:
* 32 MBytes of onboard SDRAM.
* 512 Kbytes of onboard Flash Memory.
* Video Encoder
* Video Decoder

THE BOARD FEATURES:

* Up to 400MHz high performance Black fin ADSP-BF532 processor. Two 16-bit MACs, two 40-bit ALUs, four 8-bit video ALUs, 40-bit Shifter.
* Parallel Peripheral Interface (PPI)/GPIO, supporting ITU-R 656 video data formats.
* DMA Support for Peripheral devices such as Video Encoder, Decoder and On-chip L1 Instruction SRAM.

MEMORY

* Up to 148K bytes of On-chip memory:
* External Onboard SDRAM : 32 Mbytes @ 133 MHz with Ni-Cd battery backup
* External Onboard Flash Memory : 512 KBytes

ANALOG VIDEO INTERFACE

Video Decoder

* Multi format SDTV video decoder supports NTSC,PAL,SECAM with 2 input RCA phono jacks.
* Integrates three 54 MHz, 10-bit ADCs
* Clocked from a single 27 MHz crystal
* 12 analog video input channels
* Automatic NTSC/PAL/SECAM identification
* Digital output formats (8-bit or 16-bit).
* Any 14 inch or 15 inch color monitor can be interfaced through RCA jack in the upper 2 pins.

Video Encoder

* ITU-R BT601/656 YCrCb to PAL/NTSC Video Encoder with 2 output RCA phono jacks
* High Quality 10-Bit Video DACs
* Single 27 MHz Clock Required
* Multi standard Video Output Support
* Video Input Data Port Supports:
    i. CCIR-656 4:2:2 8-Bit Parallel Input Format
    ii. 4:2:2 16-Bit Parallel Input Format.
* NTSC & PAL) color camera can be interfaced through RCA jack

Color Camera

* Pick up Element : 1/3 inch Interline transfer CCD Sensor.
* Video output : Composite video IVp-p, 75 ohm unbalanced
* Dimensions : 43.5 (W) × 44.0 CH × 64.5 CD mm.
* Weight : Approx.160g
* Supply Voltage : 12 V DC
* Scanning System : 2:1 Interface.

OTHER FEATURES

* One Serial port lines are terminated in 9 pin ‘D’ Connector.
* 4 Digital output lines are terminated through SMD type LEDs for debugging at run time.
* 2 Numbers of SMD type LED for serial port transmission & reception identification.
* One Reset switch is provided to reset the processor and its peripherals.
* The JTAG Incircuit Emulator Lines are terminated in 14 pin standard JTAG ICE interface.

Future Expansion:

One number of FIFO is connected to processor data lines and the output of the same FIFO is terminated to 100 pin micro socket strip connector for interfacing with VVSM-09 (**Spartan-3**). Hence all the image pixel components can be transferred to a FPGA device for fast processing.

Applications with Source Code:

* Histogram of image
* Capturing the image form camera through decoder
* Reproduction of image to display device through encoder
* Edge detection of an image by canny method
* Conversion of negative image for the given input image
* Color space conversion from YCbCr to RGB etc.,

Development Tools

* Windows based powerful debugger with debugging Facility
* Visual DSP++ for Integrated development environment.

Documentation:

* VSK-532 Technical Reference
* VSK-532 User Manuel (With software and Hardware experiment).

Optional

i. NTSC, PAL Camera
ii. 14 inch or 15" color monitor

Note:

For Video applications camera & color monitor should be purchased compulsory.

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