Bitec

DSP Solutions for Industry & Research

HSMC DVI SDRAM Loop-through Reference Design

CIII Eval Kit

Version 1.0

Revision history 3

Introduction 4

Installation 6

Revision history

Version	Comment
V1.0	First release

Introduction

The DVI Loop-through demo is intended as a basis for developers to quickly implement video processing designs using the Cyclone III Eval Kit. A simple video pipeline is presented which takes a 1024x768 DVI video signal from the HSMC DVI Input port and passes it through a triple frame buffer before streaming the image to the DVI output port. The design demonstrates use of the Altera Video Processing Suit.

Image buffering is a fundamental requirement for many video processing pipelines in which the input and output images are unsynchronised. Such applications include up/down scaling or image combining/blending.

A block diagram of the reference design is shown in Figure 1. The input video stream is synchronised to the local pipeline video clock through the triple frame buffer. The output signal is then streamed to the output port via the Clocked Video Output component.

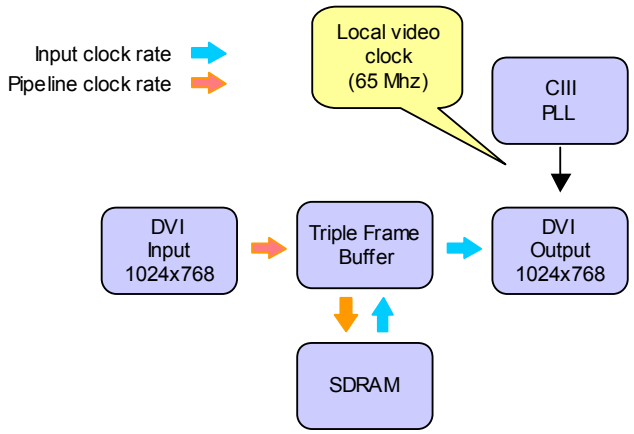

Figure 1

Users may use this reference design as the basis of video processing applications. Figure 2, shows how users can introduce video processing functions into the video pipeline.

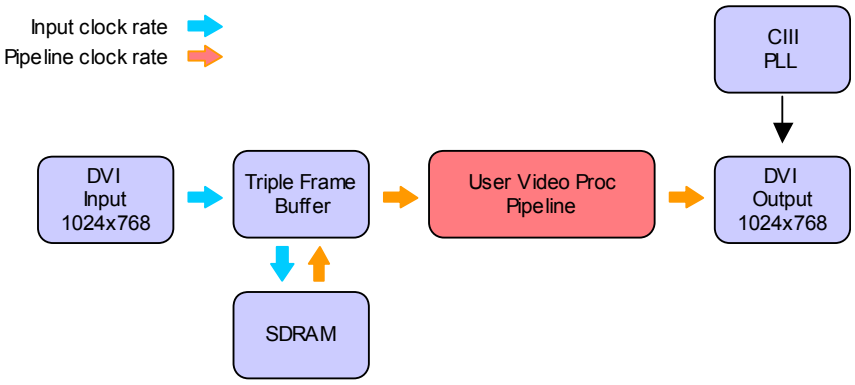

Figure 2 User video processing pipeline

The SoPC components are shown in Figure 3. The local pipeline clock is set to the DDR SDRAM sysclock to avoid the need for a clock crossing bridge. It is important to have the internal pipeline clock running faster than the input and output pixel clocks if FIFO under/over-flow is to be avoided.

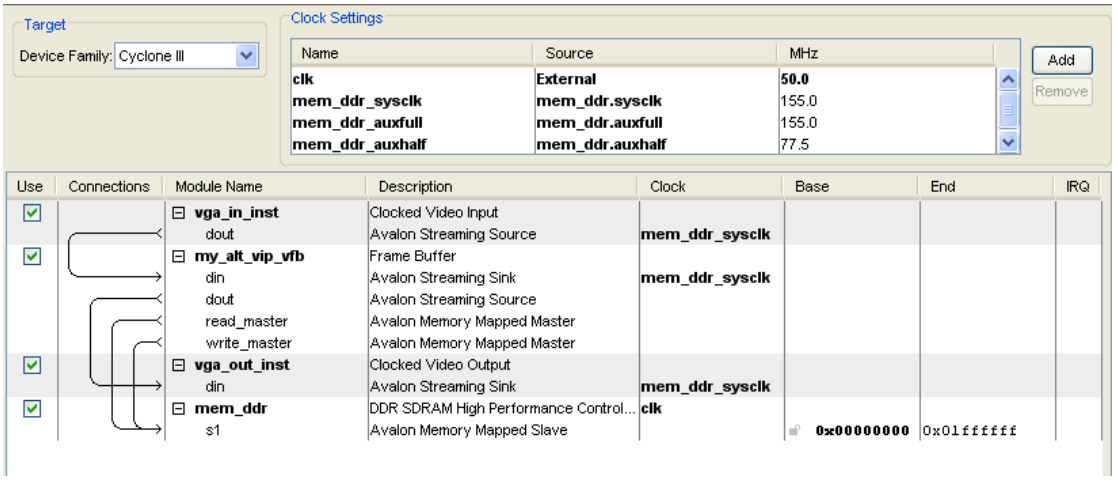

Figure 3 SoPC Component Layout

Installation

To run the design it is first necessary to obtain the source files and uncompress the zip-ball into a chosen directory. The top level diagram contains the video clock PLL and the SoPC builder component. In order to run the DVI ouput port without i2c there are various static signal requirements which can be seen on the right of the diagram.

The Bitec HSMC DVI board must be installed on the HSMC port of the Eval Kit and a DVI source running at 1024x768. The video source would normally be a PC DVI port.

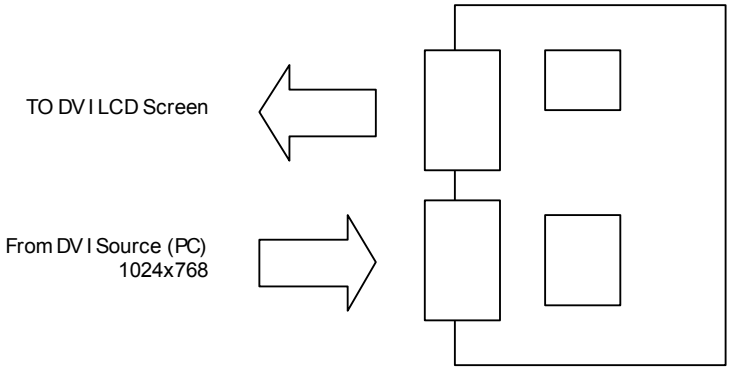

Figure 4 Hardware configuration

Bitec
1 Angelsea Mead
Chippenham, Wilts
United Kingdom
Tel. +44-(0) 797-964-5514
Fax +44-(0) 871-661-0229
E-mail: info@BiTEC.Ltd.uk
Internet: www.BiTEC.Ltd.uk