EVAL-AD7689EDZ

Revision history

Date	Rev	Description
20 AUG 2012	0.1	Document creation

Contents

1. AD7689 driver HDL code description

1.1 System overview

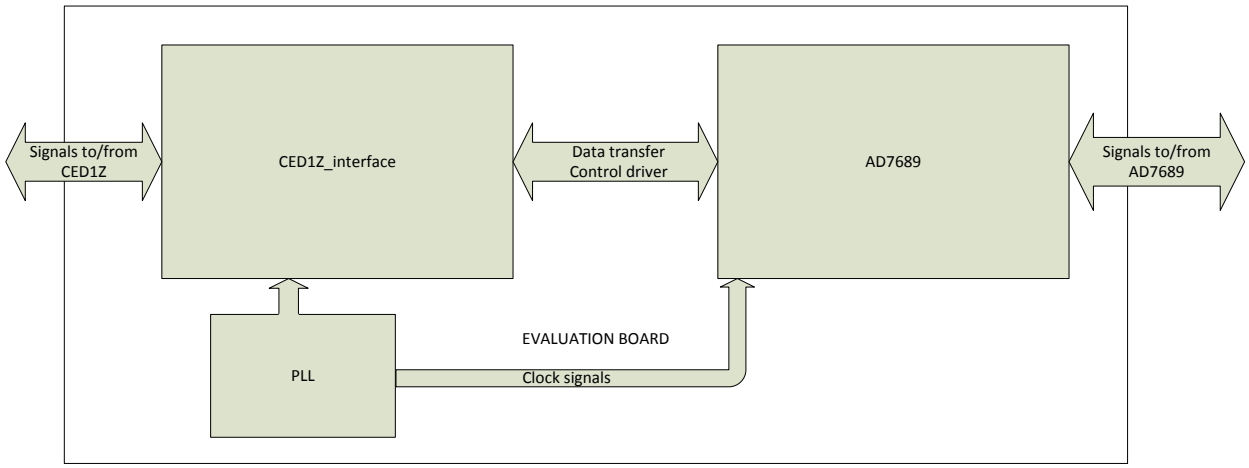

Figure 1 System overview

In order to acquire data from the AD7689, several modules are implemented on the Evaluation Board FPGA. Below is a short description of these modules.

1.2 AD7689

This module is the actual driver of the AD7689 data acquisition system.

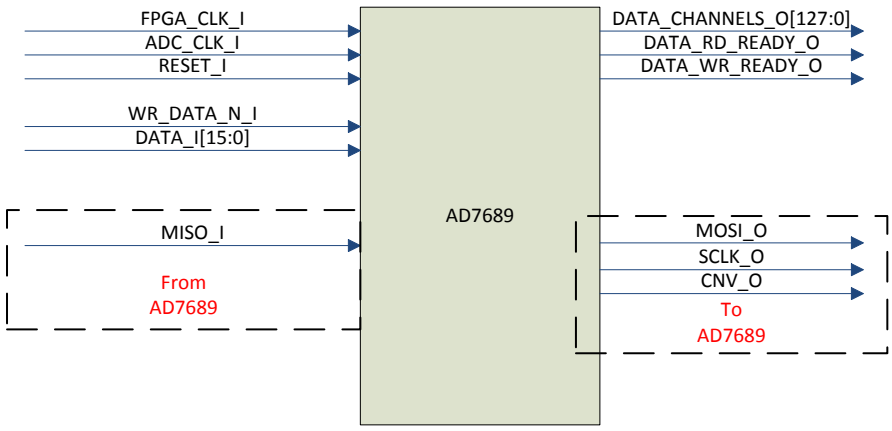

Figure 2 AD7689 module

Port	Direction	Width	Description
General connectors			
FPGA_CLK_I	IN	1	20MHz clock signal
ADC_CLK_I	IN	1	20 MHz clock signal
RESET_I	IN	1	Reset
CED1Z_interface connectors			
WR_DATA_N_I	IN	1	Signal used to write data in the driver's internal registers, data which will be sent to the AD7689
DATA_I	IN	16	Data bus, used to send new configuration words to the AD7689
DATA_CHANNELS_O	OUT	127	Parallel port to transfer the data to the CED1Z_interface module.
DATA_RD_READY_O	OUT	1	Signals that at port DATA_O there is new data available
DATA_WR_READY_O	OUT	1	Signals that the write from CED1Z_interface has been successfully performed
AD7689 connectors			
MISO_I	IN	1	Signal connected to the SDO pin of the AD7689
MOSI_O	OUT	1	Signal connected to the DIN pin of the AD7689
SCLK_O	OUT	1	Signal connected to the SCK pin of the AD7689. 20 MHz clock
CNV_O	OUT	1	Signal connected to the CNV pin of the AD7689

1.3 CED1Z_inteface

This module is used to communicate with the CED1Z board. It reads the data from the AD7689 module and forwards it to the CED1Z board. It also forwards write requests from the CED1Z board to the AD7689 module, in order to reconfigure the AD7689 data acquisition system. In case the acquisition is done on 8 channels, data is mapped at addresses starting from 0x10 (channel 0) to 0x17 (channel 8). In case a single channel is acquired, data is mapped sequentially on each of the eight addresses which must be read sequentially on the CED1Z.

1.4 PLL

This module is used to generate a 20 MHz clock signal from the 100MHz external clock signal that is available on the evaluation board.