

EXOSTIV

Using the AC701 Artix-7 evaluation kit

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References

Revision History

Revision	Modifications
1.0.0	<ul style="list-style-type: none">Initial revision
1.0.1	<ul style="list-style-type: none">Minor corrections

EXOSTIV – using the AC701 kit

Introduction

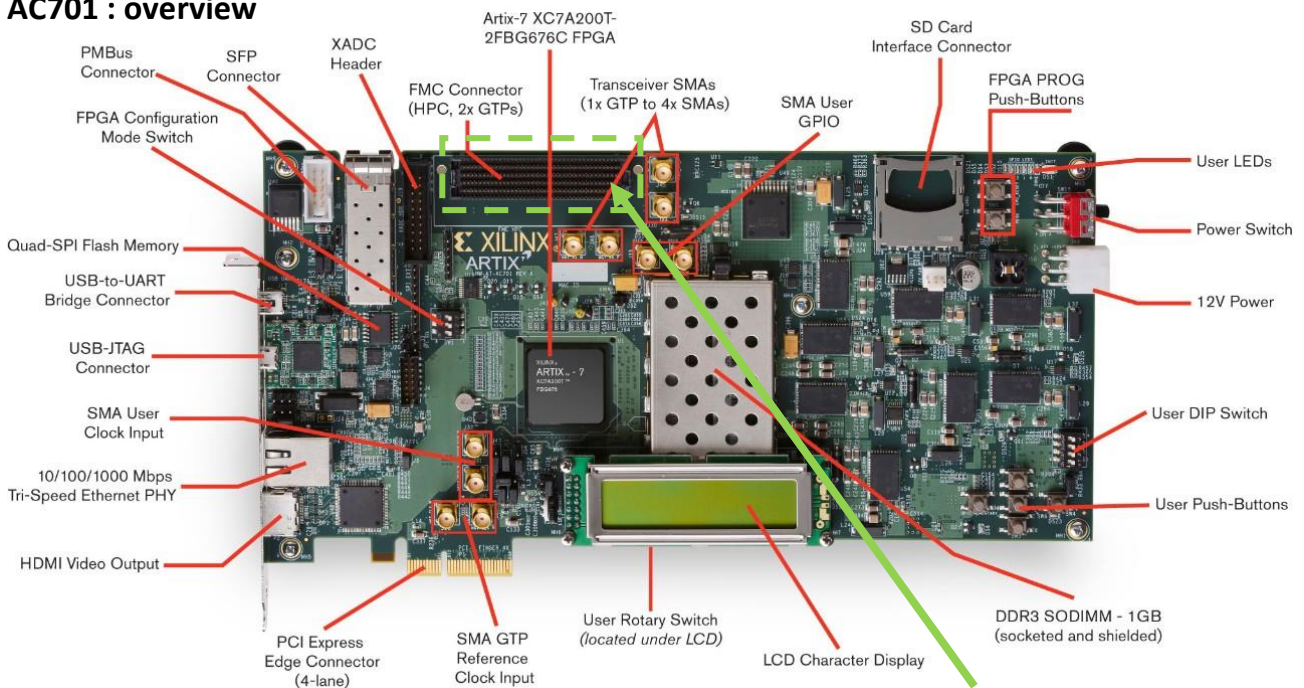
This document provides information about using EXOSTIV with the AC701 Artix-7 evaluation kit (<https://www.xilinx.com/products/boards-and-kits/ek-a7-ac701-g.html>).

Using EXOSTIV with the AC701 evaluation kit

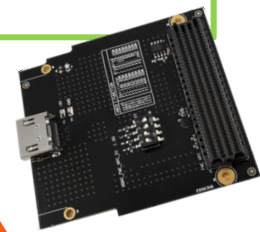
EXOSTIV can be connected to the AC701 evaluation kit through the SFP / SFP+ connector with direct SFP cables or through another connector (e.g. the FMC HPC or FMC LPC connectors), possibly with an adapter.

In this document, we'll describe how to use EXOSTIV with the AC701 FMC HPC connectors, (using the FMC to HDMI adapter of Exostiv Labs (<http://www.exostivlabs.com/exostiv/hdmi-to-fmc-module-adapter/>)). We provide one .epf file to be used with the EXOSTIV Dashboard, pre-configured for use with this port.

AC701 : overview



Location of the FMC HPC connector for connecting EXOSTIV with an adapter and the HDMI cable



FMC to HDMI adapter - EA-HDMI-FMC-01

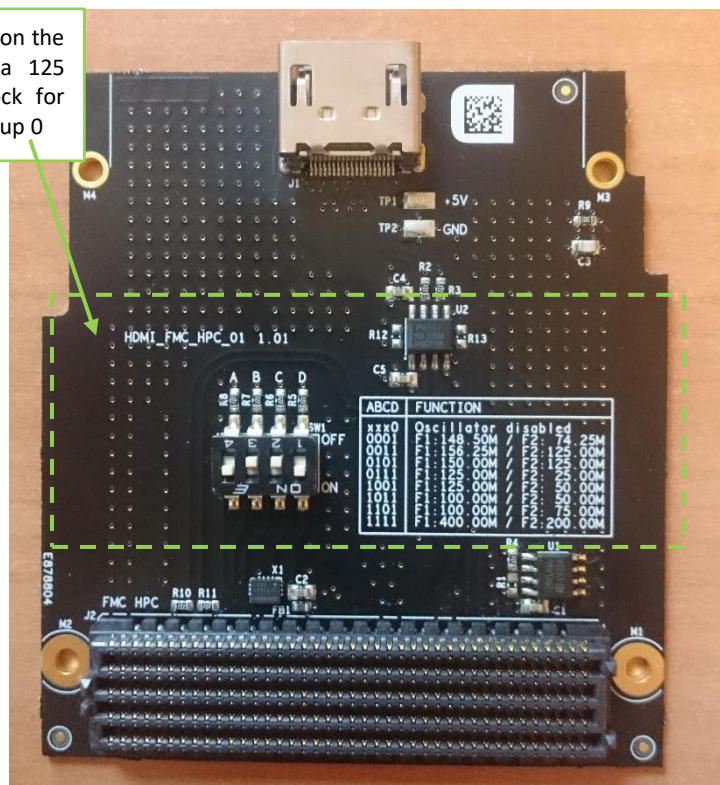


Connecting the AC701



Set the clock oscillator of the FMC to HDMI module to 125 MHz (see picture below) to match to provided example clock setting. Then, plug the FMC to HDMI module in the AC701 FMC HPC port. Finally plug the HDMI cable provided with the EXOSTIV Probe in the EXOSTIV Probe HDMI connector on one end and in the FMC module HDMI connector on the other end (see pictures below).

Set the switches as on the picture to select a 125 MHz reference clock for the transceivers group 0



Reviewing the .epf files settings for the link configuration

Using the FMC to HDMI module adapter and the HDMI cable.

'TestAC701-1.7.6-HDMI2ch.epf' or TestAC701-1.8.2-HDMI2ch.epf:

Artix-7 part mounted on the AC701 board

We use the HDMI connector type on the EXOSTIV Probe.

From the AC701 FMC HPC connector, we select the 2 transceivers connected to bank 213 of the FPGA (refer to the AC701 documentation to check this configuration).

When using the HDMI connector of EXOSTIV Probe, we need 2 extra pins for the downstream channel. These pins from the HDMI connector are mapped onto the LA00_P_CC and LA00_N_CC pins of the FMC connector (see: [FMC to HDMI module user's guide](#)). These pins are connected to the D18 and C18 pins of the FPGA on the AC701 – and are of LVCMOS25 standard.

A 125 MHz reference clock is generated from the FMC to HDMI module mounted oscillator. This clock source is provided to the FPGA through the FMC HPC connector and goes to pin AA13 the FPGA (refer to the AC701 documentation). From this clock at 125 MHz, we can select a line rate of 6.25 Gbps per transceiver. Provided that we use 2 transceivers, the total link rate is 12.5 Gbps.

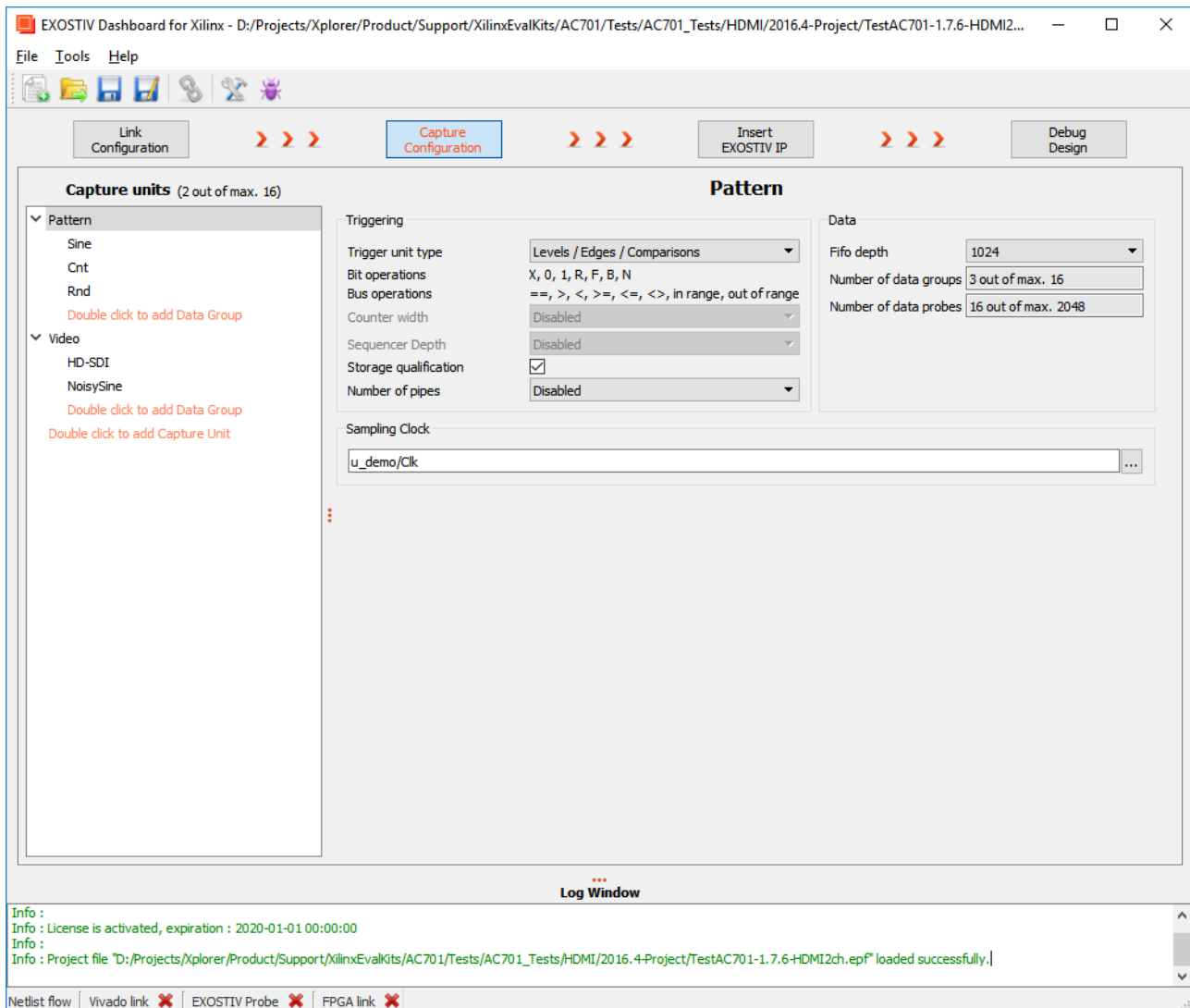
Info :
 Info : License is activated, expiration : 2020-01-01 00:00:00
 Info :
 Info : Project file 'D:/Projects/Xplorer/Product/Support/XilinxEvalKits/AC701/Tests/AC701_Tests/HDMI/2016.4-Project/TestAC701-1.7.6-HDMI2ch.epf' loaded successfully.

Netlist flow | Vivado link ❌ | EXOSTIV Probe ❌ | FPGA link ❌

Reviewing the .epf files settings for the capture configuration

Please open the .epf files and review them through the EXOSTIV Dashboard interface.
Here are the main characteristics of the example:

- There are 5 data generators in the example design. There are connected to 2 capture units:
 - o 'Pattern Capture Unit' (16 bits):
 - Digital sine wave: 'Sine' data group
 - A counter: 'Cnt' data group
 - A pseudo random number generator: 'Rnd' data group
 - o 'Video Capture Unit' (46 bits):
 - Video (SDI) stream : 'HD-SDI' data group
 - Sine wave with noise : 'NoisySine'.



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