

# APPLICATION NOTE 1

Application Note - SMT105\_SMT941 System.

**SMT105\_SMT941**

SUNDANCE MULTIPROCESSOR TECHNOLOGY LTD.

Date	Comments / Changes	Author	Revision
24/05/11	Original Document completed	PhSR	1

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## System Description.

This system is composed of an SMT105 (FX100T-1 FPGA) carrier board coupled with an SMT941.

The carrier board implements a PXIe core (1 Lanes) that is responsible for transferring samples between the host and the card. The core includes the Sundance DMA engine.

In this application note, all ADCs have got their sampling rates set to 245.76MHz. There are 4 ADC channels coded on 14 bits.

Transfer speed of each cycle is displayed in the host application. 2k Samples per channel are also displayed along with their respective FFT plot.

The firmware is based on Sundance Xlinks. They allow easy implementation and use to transfer data to and from the board.

Sundance software such as the SMT6300 is required to be installed. For Flash accesses (FPGA bitstream storage), the SMT6002 also needs to be installed.

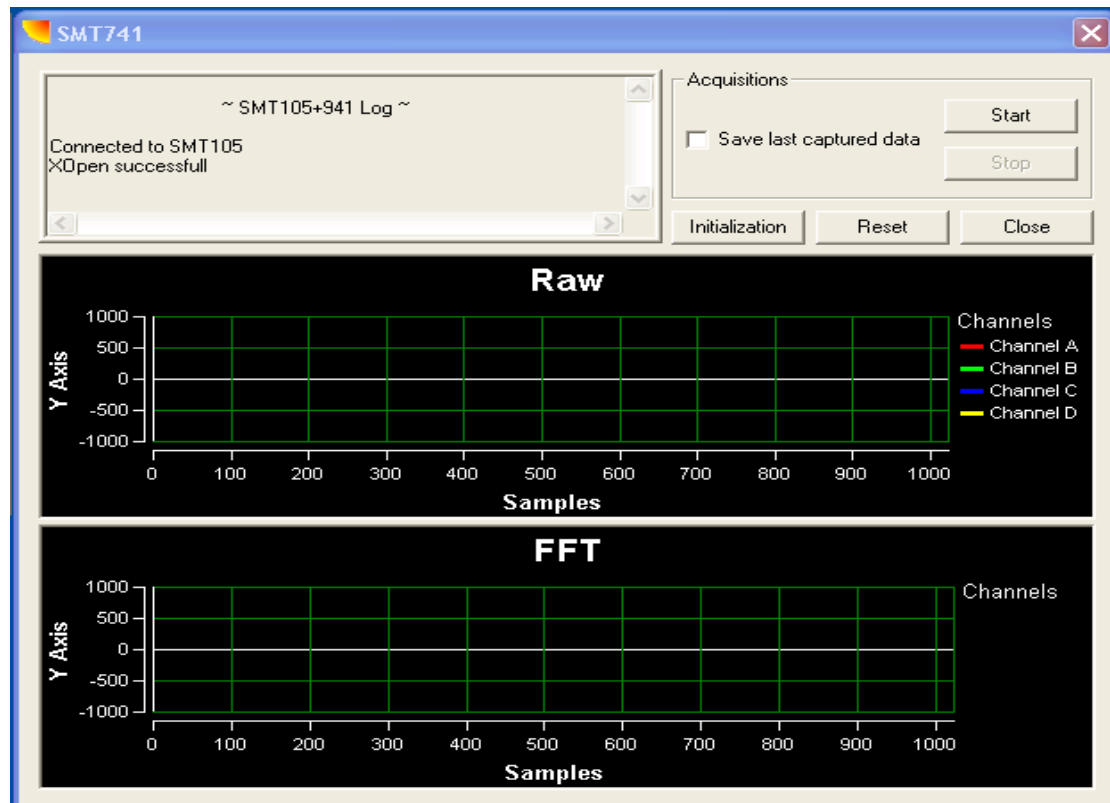
A compiled version of the host application can be found in the \Release folder. A double-click will start its execution.

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## Host Application.

### Overview.

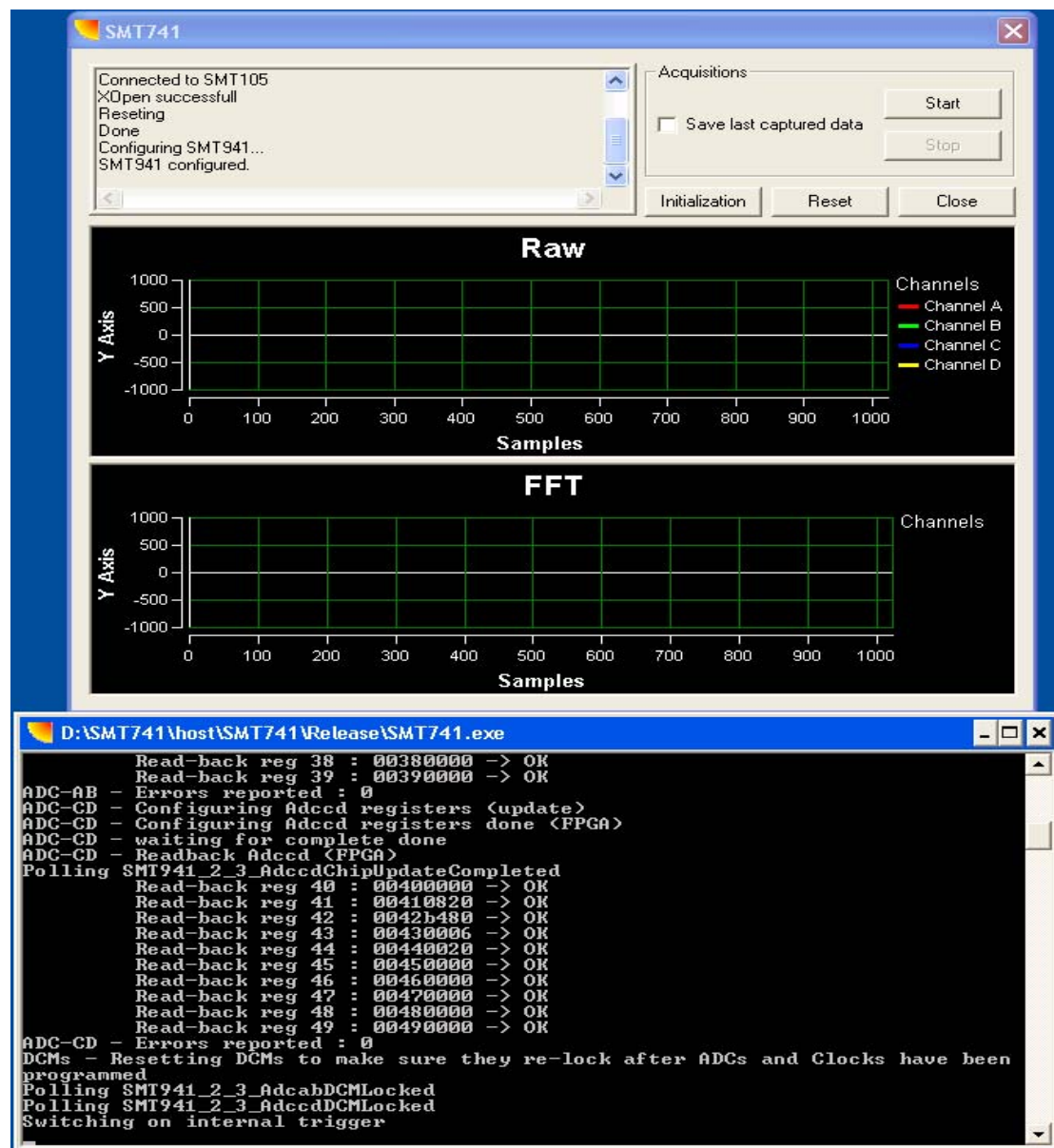
The Host application comes as a Microsoft C++ project for this system. The Graphical User Interface (GUI) looks like the capture below.



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## Reset and Initialisation.

Once the GUI open, a reset command is required. Press the **Reset** button to do so. The **Initialisation** button can then be pressed. Details of the initialisation is displayed on a side window. At this stage, all necessary registers are programmed and transfers of samples can be started.



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## Performing Acquisitions.

Cycles of acquisitions are started by pressing the **Start** button. While during acquisitions, the transfer speed is also displayed in the log file. It is to be noted that the speed figure also includes the process of setting up a DMA and the wait period until it is granted.

The raw window shows the first 2k samples captured and the FFT window shows the result of its FFT.



## Storing into files.

The box labelled **save last captured data** allows dumping into a file the last 16MByte buffer captured after pressing the **Stop** button.

Files have got the *txt* extension and can be found where the application is running from. They are ASCII files with one sample per line (unsigned integer),

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