



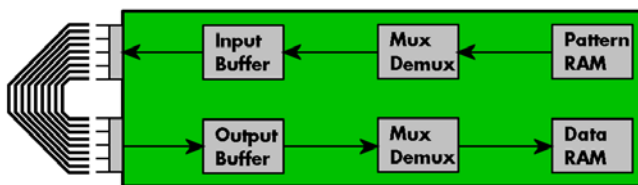
SPECTRUM

SYSTEMENTWICKLUNG MICROELECTRONIC GMBH

MI.70xx, MC.70xx, MX.70xx in/out delay

Overview

If the MI.70xx is used for component test, chip test or in any other setup where one or more boards are producing pattern and are also recording digital data it is helpful to know the delay between pattern output and recorded data. That delay is produced by the different pipelines on the board and could not be compensated in hardware.



The RAM itself operates in two different modes. The slow mode up to a sum samplerate of 5 MS/s and the fast mode for all sum samplerates above 5 MS/s. The delay differs depending on the used RAM mode.

Delay

The delay between output and input is depending on the actual setup, the selected channel width, the mode and the speed. These tables show the delay in samples between the output data and the input data for different setups. Combinations that are not possible are grayed.

Setup: one single board, slow samplerate

(16 bit: ≤ 5 MS/s, 32 bit ≤ 2.5 MS/s)

Output width	16 bit		Input width 32 bit		64 bit	
	Standard	Singleshot	Standard	Singleshot	Standard	Singleshot
16 bit	4 samples	10 samples				
32 bit			3 samples	7 samples		
64 bit						

Setup: one single board, fast samplerate

(16 bit: > 5 MS/s, 32 bit > 2.5 MS/s)

Output width	16 bit		Input width 32 bit		64 bit	
	Standard	Singleshot	Standard	Singleshot	Standard	Singleshot
16 bit	9 samples	8 samples				
32 bit			5 samples	6 samples		
64 bit						

Setup: two boards synchronized, slow samplerate, output board is master

(8 bit: ≤ 10 MS/s, 16 bit: ≤ 5 MS/s, 32 bit ≤ 2.5 MS/s, 64 bit ≤ 1.25 MS/s)

Output width	16 bit		Input width 32 bit		64 bit	
	Standard	Singleshot	Standard	Singleshot	Standard	Singleshot
16 bit	2 samples	7 samples	3 samples	8 samples	3 samples	8 samples
32 bit	1 sample	4 samples	2 samples	5 samples	2 samples	5 samples
64 bit	1 sample	4 samples	2 samples	5 samples	2 samples	5 samples

Setup: two boards synchronized, fast samplerate, output board is master

(8 bit: > 10 MS/s, 16 bit: > 5 MS/s, 32 bit > 2.5 MS/s, 64 bit > 1.25 MS/s)

Output width	16 bit		Input width 32 bit		64 bit	
	Standard	Singleshot	Standard	Singleshot	Standard	Singleshot
16 bit	7 samples	20 samples	9 samples	22 samples	9 samples	22 samples
32 bit	3 samples	10 samples	4 samples	11 samples	4 samples	11 samples
64 bit	3 samples	10 samples	4 samples	11 samples	4 samples	11 samples