Multiple Image Enable and Time Stamp Reset

PLC programming for multi pulses per Enable

This follows the same method as described in TN-0803. First, configure camera function to Async mode (57 00 23 00 00 00 01).

Then, set the PLC LUT as shown in the figures below. Q0 = I0 & I7

If Enable is low active, "I0" is replaced with "!I0". The internal trigger generator is programmed for Pulse Generator 0 in the Enhanced Function Block.

nfigura	ation - Advan	liced	
PEngine	Port Communication	on Grabber Pixel Image Grabber Extensions RGB F	ilter
15		GPIO Control Bit 0	-
16		Pulse Generator 1 Output	-
17		Pulse Generator 0 Output	_
Loc	kup Table	Q0 = I0 & I7 Q1 = I1	
🗆 Enh	nanced Functio	on Block	
ΞF	Pulse Generato	or O	
1	Nidth (high)	1000	_
C	Delay (low)	10	
(Granularit	333	
E	Emit perio		
-	Trigger mode	Triggered on rising edge	
F	Pulse peri	10130220	~
	1 11		

In this example, pulse generator 0 creates a 10ms interval of continuous pulses to trigger the camera and multiple images will be output when the external TTL input "Enable" is maintained high.

Strobe output pulse width control

Described here is a method of extending the pulse width of the strobe output. Strobe output is defined as TTL default output (I1). The signal goes to pulse generator 1 to extend the pulse width.

Input of pulse generator 1 is Q8 and output of pulse generator 1 is I6.

Therefore, LUT programming is;

Q8=I1 (internal strobe TTL signal to PG1 input) Q1=I6 (camera output is from PG1 output)

Pulse Generator 1 is also programmed in the same way as Pulse Generator 0.

🗉 Pulse Generator 1	
Width (high)	1000
Delay (low)	1
Granularity factor	3
Emit periodic pulse	
Trigger mode	Triggered on rising edge
	100010

In this example, camera trigger is 10ms interval and

strobe pulse is set at 0.1μ s granularity. 1000 counts generates a 100 μ s pulse width.

Engine	Port Communicatio	on Grabber Pixel Image Grabber Ex			
17		Pulse Generator 0 Output			
Lool	sup Table	Q0 = I0 & I7 Q8 = I1 Q1=I6			
🖃 Enh	anced Function Bloc	k			
Pulse Generator 0 Width (high)					
		1000			
	elay (low)	10			
0	Granularity factor	333			
E	mit periodic pulse				
1	rigger mode	Triggered on rising edge			
F	ulse period (ns)	10130220			
F	ulse frequenc	98.714539			
	ulse Generator 1				

String label for parameter #CY_GPIO_LUT_PARAM_GPIO_LUT_PROGRAM

Timestamp Reset and Clear

Let's include one more function:

Timestamp is programmable with Coyote PLC programming. The general "Clear" command is set to the default of Q3. Let's set Q3=I0. I0 rising edge will clear and reset the timestamp counter.

⁹ Engine	Port Communication	Grabber	Pixel	Image	Grabber Extensions	RGB Filter
Look	sup Table	20 = 10 & Q8 = 11 Q1=I6 Q3=I0	I7	acpue		
E Enh	anced Function Block					
F	Pulse Generator 0					
1	Width (high) 1	.000				
3		-				

The timestamp counter is also in the Enhanced Function Block.

The granularity selection can give an application specific

Timestamp Counter				
Counter coloct	Time			

Counter select	Timestamp Counter (default)
Granularity	100 microseconds
Set trigger mode	Disabled
Set input signal	Q3
Clear trigger mode	Rising edge input signal
Clear input signal	Q3
Broadcast	
Set counter value	0
Current counte	641

timestamp interval.