

FullColors_Transmitter HDL Module Documentation

FullColors_Transmitter module transmits the sequence of bytes, corresponding to each LED's red, green and blue state. Bytes follow the order: global or individual brightness, blue, green, and red. First transmitted three bits of brightness are always ones and the remaining value cannot exceed the max_brightness constant value. Color bytes can hold any values in range 0...255.

Parameters

Parameter	Default value	Type	Description
LED_number	8	Integer	Defines the number of LEDs in the chain
max_brightness	8	Integer	Default value and the maximum value of the global brightness
const_brightness	0	bool	If true, overrides any user global brightness value with the constant one

Signals

Signal	Direction	Width (bits)	Description
CLK	IN	1	Clock signal
NRST	IN	1	Synchronous reset. Active low
TX_COUNTER_MAX	IN	16	How many bytes to transmit. Assigned to LED_number / 16 + 1
TX_COUNTER	OUT	16	Not used
NEXT_BYTE	IN	8	The next byte to transmit. Assigned to 0
GBCR_GB	IN	5	Global brightness value, cannot exceed max_brightness
LEDs	IN	32 * LED_number	The least significant byte is individual brightness. The most significant byte is the red channel value.