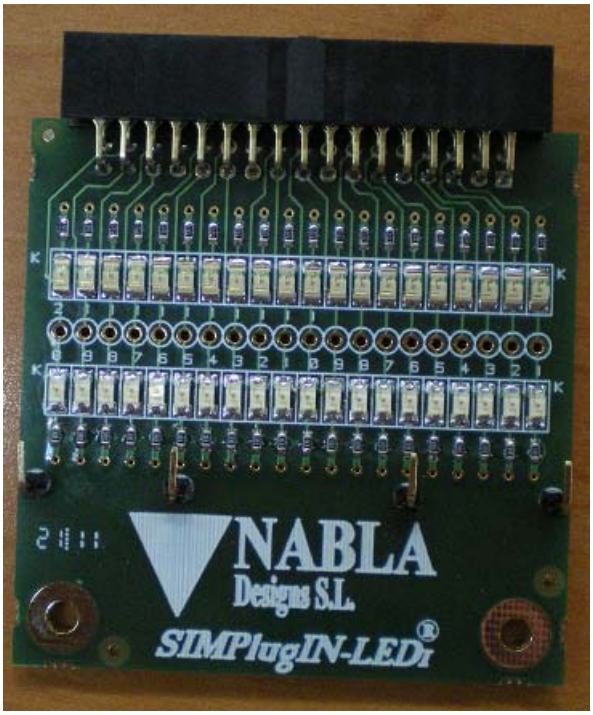
SIMPlugIN-LED User Manual

... a SIMPlugIN board® family member

Revision: see file name on page header
Date: August 25th 2011



REVISION HISTORY

0.1	First release

APENDICES

0) Introduction and references

This manual describes how to operate SIMPlugIN-LED board.

SIMPlugIN family boards are intended for engineers (engineering students too) that want to enjoy an easy to use and easy to expand FPGA development system.

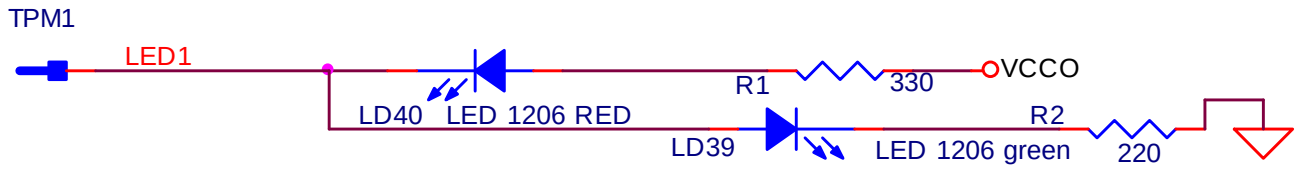
SIMPlugIN-LED is an add-on board that provides 20 test points plus 40 led's (two per test point, red for 0 and green for 1).

0.1) References

- SIMPlugIN- 6XL45 user manual and schematics

1) General description

All and each of the 20 active pins (that is, connected to FPGA pins in base board) of the add-on connector have the following circuit



A low level (logic 0) turns on red led. A high level (logic 1) turns on green led. A Hi-Z state turns on both led's but with noticeable less intensity.

Power voltage comment:
Typically you should configure SIMPlugIN main board to supply 3.3 volt to VCCO supply pins of add-on connector. Configuring with less voltage would mean losing brightness. The lowest supply voltage (e.g. 1.5 volt) could happen to be unable to turn on any led.

2) Connectors

Add-on connector

1	
2	
3	GND
4	VCCO
5	LED1
6	LED3
7	LED2
8	LED4
9	GND
10	VCCO
11	LED5
12	LED7
13	LED6
14	LED8
15	GND
16	VCCO
17	LED9
18	LED11
19	LED10
20	LED12
21	GND
22	VCCO
23	LED13
24	LED15
25	LED14
26	LED16
27	GND
28	VCCO
29	LED17
30	LED19
31	LED18
32	LED20
33	GND
34	VCCO

3) Configuration jumpers

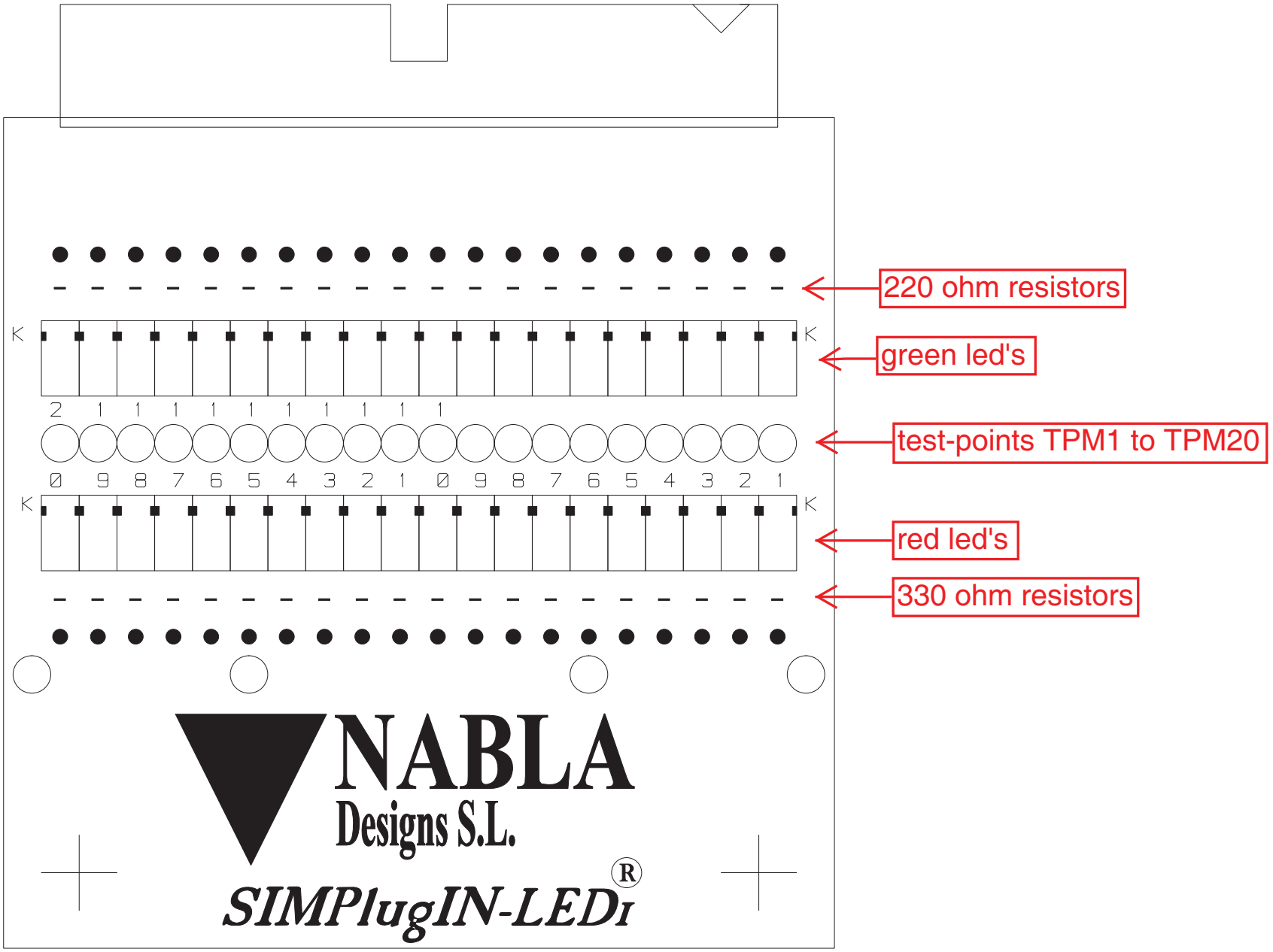
There are no configuration jumpers

4) Test points

test point	connector pin number	led
TPM1	5	LED1
TPM2	6	LED3
TPM3	7	LED2
TPM4	8	LED4
TPM5	11	LED5
TPM6	12	LED7
TPM7	13	LED6
TPM8	14	LED8
TPM9	17	LED9
TPM10	18	LED11
TPM11	19	LED10
TPM12	20	LED12
TPM13	23	LED13
TPM14	24	LED15
TPM15	25	LED14
TPM16	26	LED16
TPM17	29	LED17
TPM18	30	LED19
TPM19	31	LED18
TPM20	32	LED20
TPM21	-	GND
TPM22	-	GND
TPM23	-	GND
TPM24	-	GND

NOTE: the physical ordering on the board is set by test point number. NOTICE that it means not following led number ordering.

- So when, for instance, implementing a shift register with the leds please follow the testpoint order and so the visual efect wiil be ok. So activate first the conector pin number corresponding to TPM1, then the one corresponding toTPM2, etc.
- If you were to follow led numbers, that is you activate first the pin number correspondieng to LED1, then the one corresponding to LED2, etc. then you will get “jumping visual effect” since the corresponding leds will NOT light following the visual line (there will be “jumps”).


220 ohm resistors
green led's
test-points TPM1 to TPM20
red led's
330 ohm resistors
K
K
K
K
2 1 1 1 1 1 1 1 1 1 1
0 9 8 7 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1
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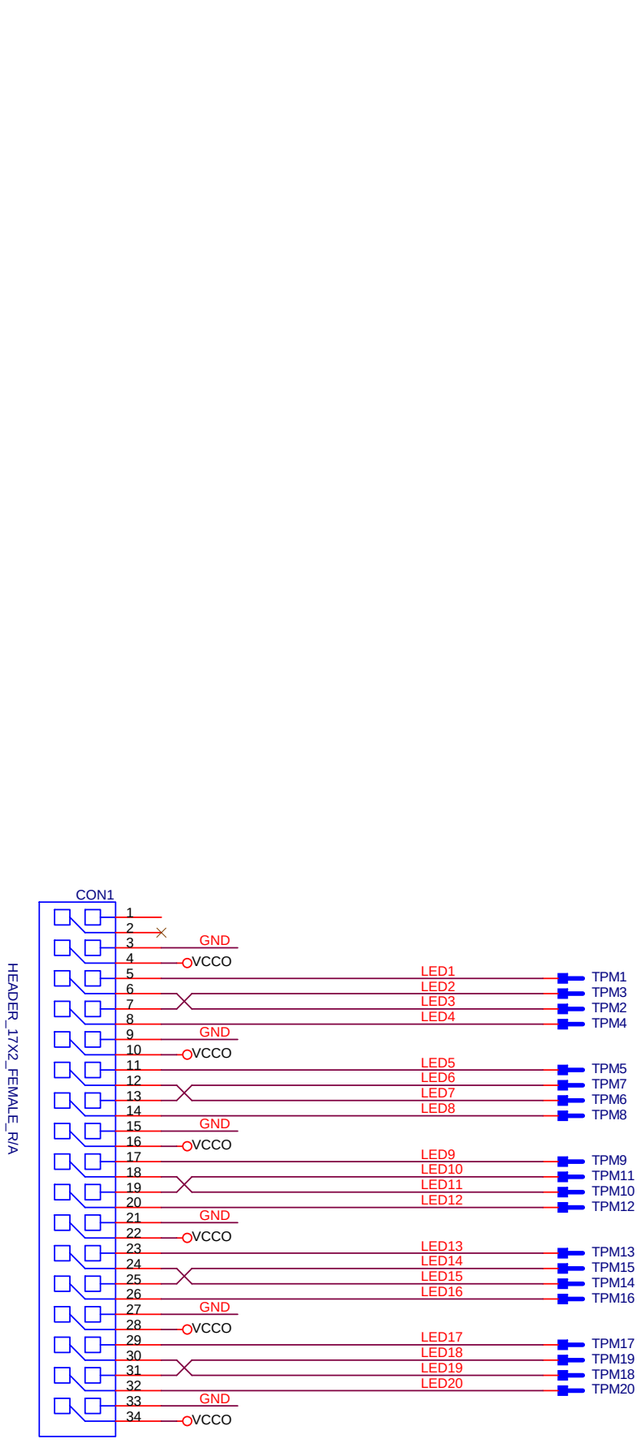

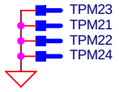

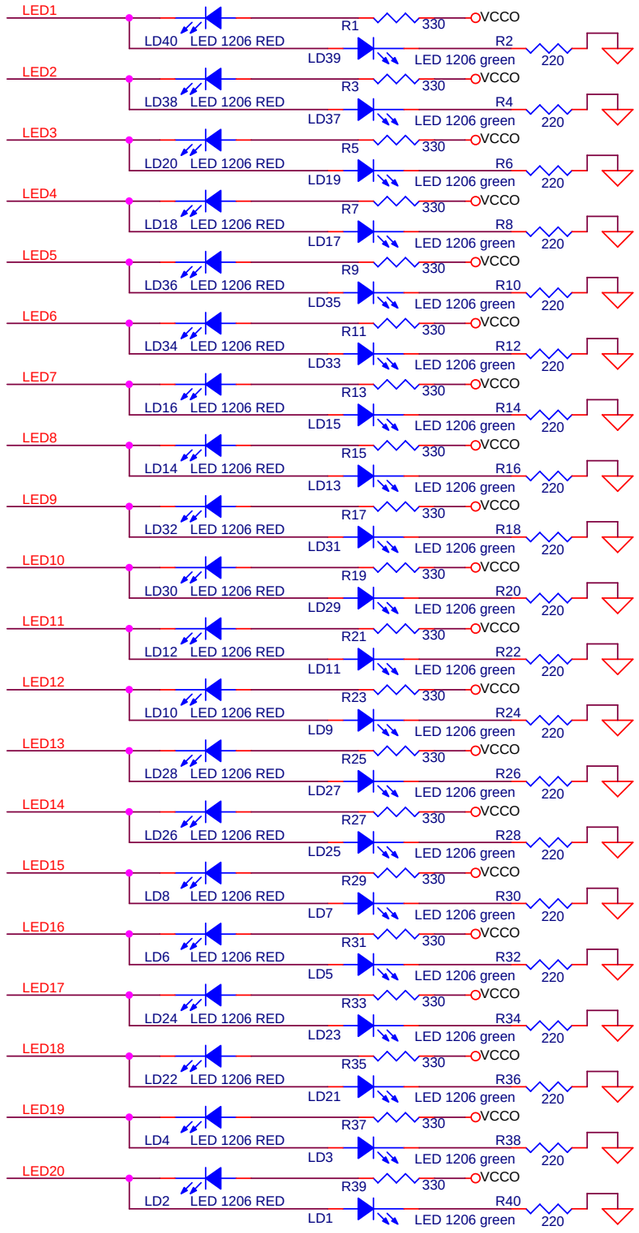

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Project: SIMPlugIN	Board: SIMPlugIN-LED1
Board description: Add-on board with test leds for every signal	
Size: A3	Page description:
Rev 1.1ac	
Last modified date: Wednesday, May 04, 2011	Page 1 of 1

Revised: Wednesday, May 04, 2011				
Item	**qty**	**Reference**	**Part**	**PCB Footprint**
1	1	CON1	HEADER_17X2_FEMALE_R/A	
2	20	LD1,LD3,LD5,LD7,LD9,LD11,	LED 1206 green	1206
		LD13,LD15,LD17,LD19,LD21,		
		LD23,LD25,LD27,LD29,LD31,		
		LD33,LD35,LD37,LD39		
3	20	LD2,LD4,LD6,LD8,LD10,	LED 1206 RED	1206
		LD12,LD14,LD16,LD18,LD20,		
		LD22,LD24,LD26,LD28,LD30,		
		LD32,LD34,LD36,LD38,LD40		
4	20	R1,R3,R5,R7,R9,R11,R13,	330	0603
		R15,R17,R19,R21,R23,R25,		
		R27,R29,R31,R33,R35,R37,		
		R39		
5	20	R2,R4,R6,R8,R10,R12,R14,	220	0603
		R16,R18,R20,R22,R24,R26,		
		R28,R30,R32,R34,R36,R38,		
		R40		
6	20	TPM1,TPM2,TPM3,TPM4,TPM5,	DNP header 1x1	header 1x1
		TPM6,TPM7,TPM8,TPM9,		
		TPM10,TPM11,TPM12,TPM13,		
		TPM14,TPM15,TPM16,TPM17,		
		TPM18,TPM19,TPM20		
7	4	TPM21,TPM22,TPM23,TPM24	header 1x1	header 1x1