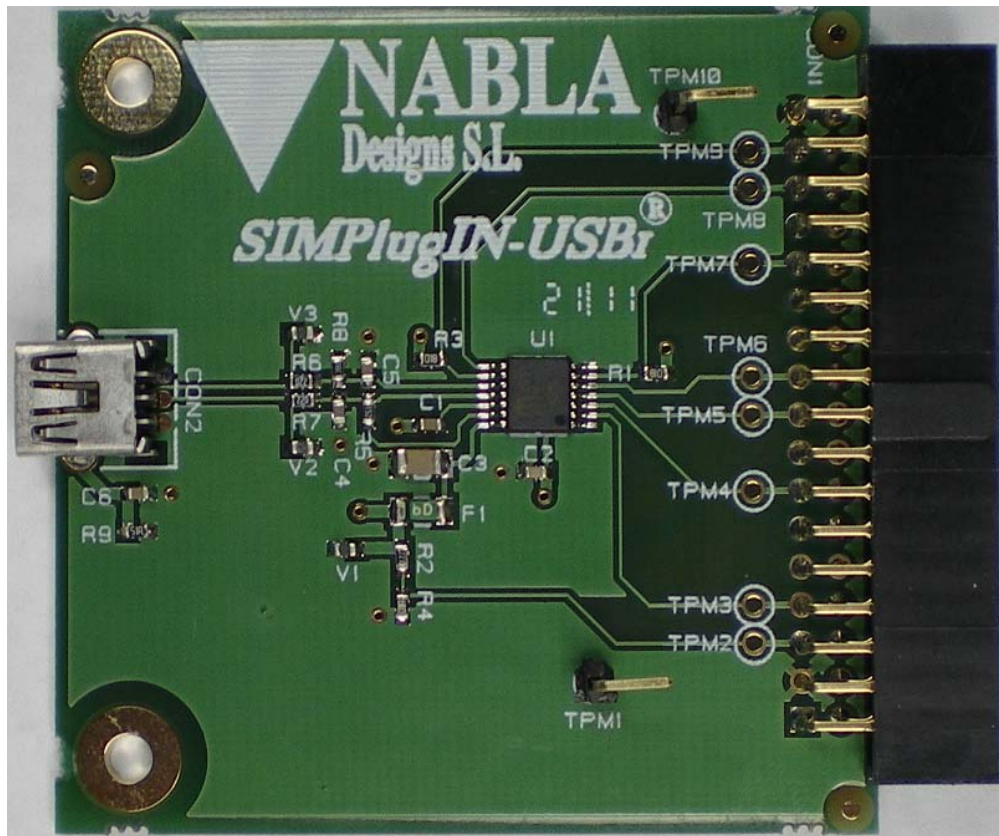


SIMPlugIN-USB User Manual

... a SIMPlugIN board® family member

Revision: see file name on page header
Date: August 26th 2011



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0) Introduction and references

This manual describes how to operate SIMPlugIN-USB 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-USB is an add-on board that provides one mini-USB (full speed, 12 Mbit) device connector to the main board by means of a Micrel USB PHY chip.

0.1) References

Note: from time to time companies modify their web pages. So, some of the detailed web link may be obsolete when you read the present document.

- SIMPlugIN- 6XL45 user manual and schematics.
- Micrel MIC2551AYTS datasheet in www.micrel.com
- In www.usb.org/developers there is much useful information about USB..

1) General description

All seven control signals of MIC2551AYTS chip are controlled by FPGA signals.

The power of the interface side of the chip is provided by VCCO supply pins of add-on connector. The chip can work down to 1.8 volts.

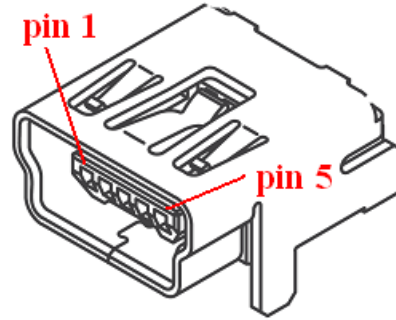
The USB side of the chip gets its power from USB connector (nominally 5 volt). A resettable fuse of 0,1 Amp protects the USB host from a defective (short circuited) chip.

Additionally a resistor divider (R2, R4) generates USB-HOST_PRESENT signal that allows the FPGA to sense when the USB is connected to a USB host (for instance a PC)

2) Connectors

Mini USB connector

1	+5.0
2	DAT-
3	DAT+
4	ID (NOT connected)
5	GND



Add-on connector

1	
2	
3	GND
4	VCCO
5	USB-HOST_PRESENT
6	
7	SPD
8	
9	GND
10	VCCO
11	
12	
13	RCV
14	
15	GND
16	VCCO
17	VP
18	
19	VM
20	
21	GND
22	VCCO
23	
24	
25	CON
26	
27	GND
28	VCCO
29	SUS
30	
31	OE#
32	
33	GND
34	VCCO

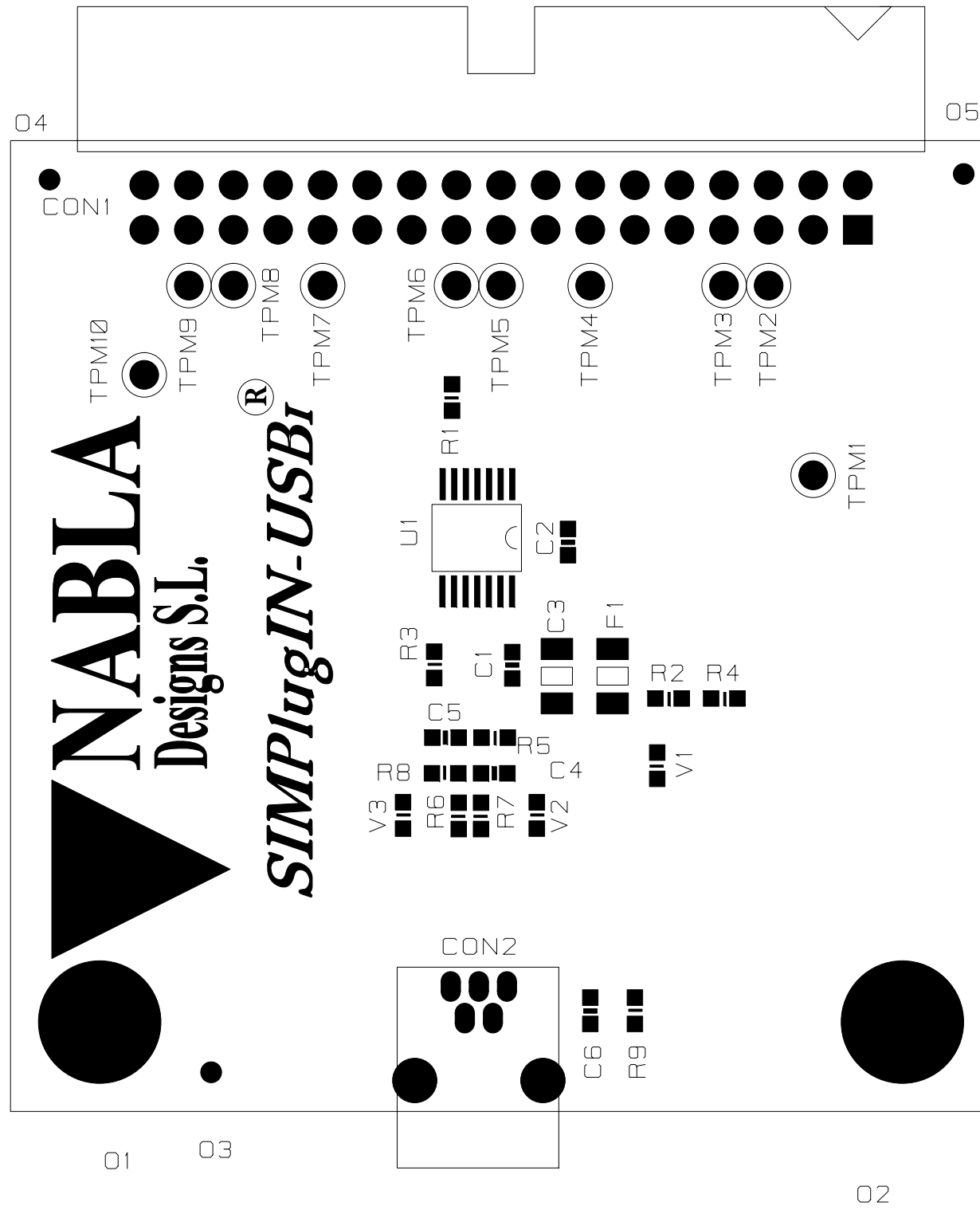
3) Configuration jumpers

There are no configuration jumpers

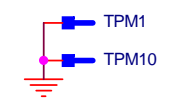
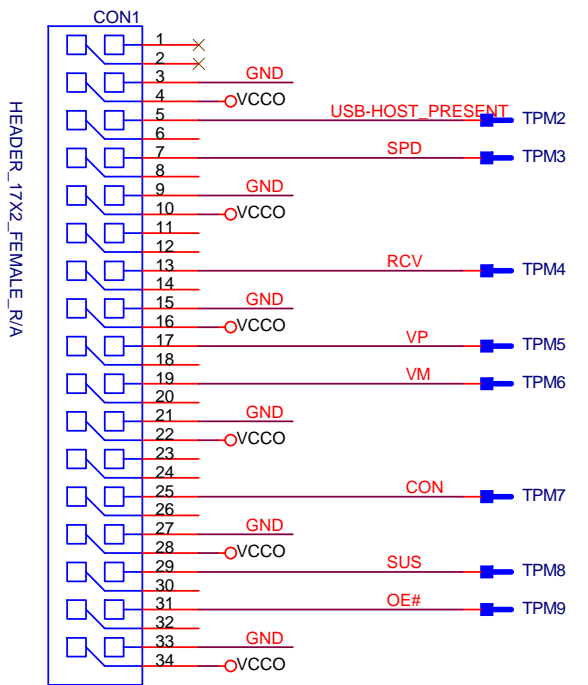
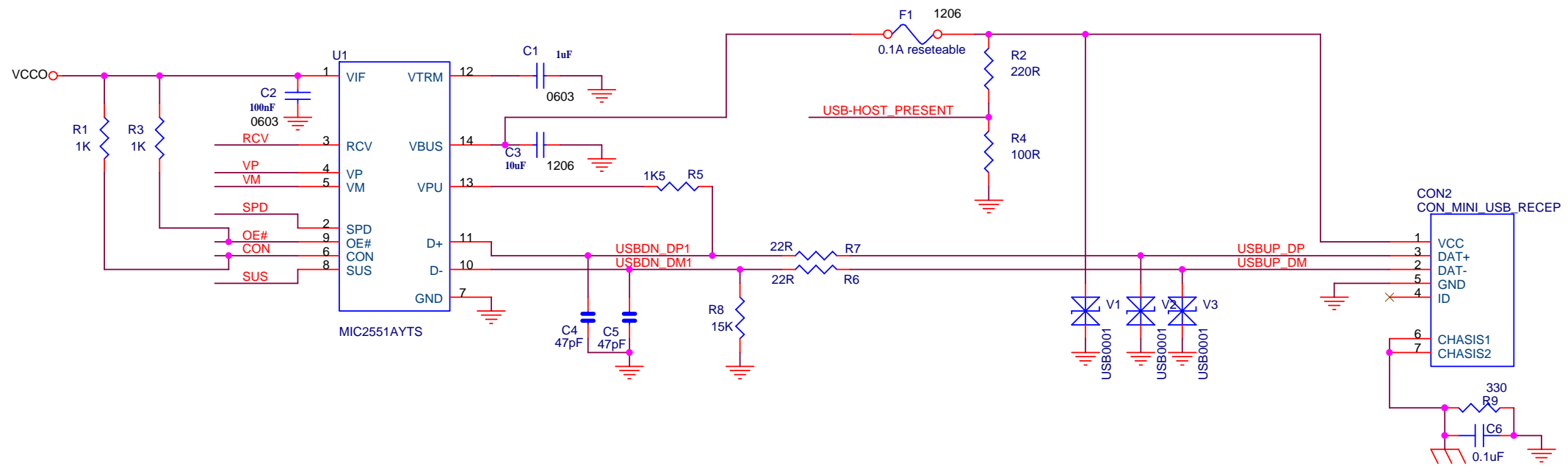
4) Test points


TPM1	GND
TPM2	USB-HOST_PRESENT
TPM3	SPD
TPM4	RCV
TPM5	VP
TPM6	VM
TPM7	CON
TPM8	SUS
TPM9	OE#
TPM10	GND

YNABLB



<i>SIMPlugIN-USB_I</i>			
LAYER:	SILK		
COD:	DN561B11	DATE:	04/05/11



		© Nabla Designs s.l.	
		Project: SIMPlugIN Board: SIMPlugIN-USB1	
Board description			
Add-on board with USB PHY device 12 Mbit			
Size: A3	Page description:		Rev 1.0p
Last modified date: Friday, April 29, 2011			Page 1 of 1

Revised: Friday, April 29, 2011

Item	qty	Reference	Part	PCB Footprint
1	1	CON1	HEADER_17X2_FEMALE_R/A	
2	1	CON2	CON_MINI_USB_RECEP	
3	1	C1	1uF	0603
4	1	C2	100nF	0603
5	1	C3	10uF	1206
6	2	C5,C4	47pF	0603
7	1	C6	0.1uF	0603
8	1	F1	0.1A reseteable	1206
9	2	R1,R3	1K	0603
10	1	R2	220R	0603
11	1	R4	100R	0603
12	1	R5	1K5	0603
13	2	R7,R6	22R	0603
14	1	R8	15K	0603
15	1	R9	330	0603
16	2	TPM1,TPM10	header 1x1	header 1x1
17	8	TPM2,TPM3,TPM4,TPM5,TPM6, TPM7,TPM8,TPM9	DNP header 1x1	header 1x1
18	1	U1	MIC2551AYTS	TSSOP14
19	3	V1,V2,V3	USB0001	0603