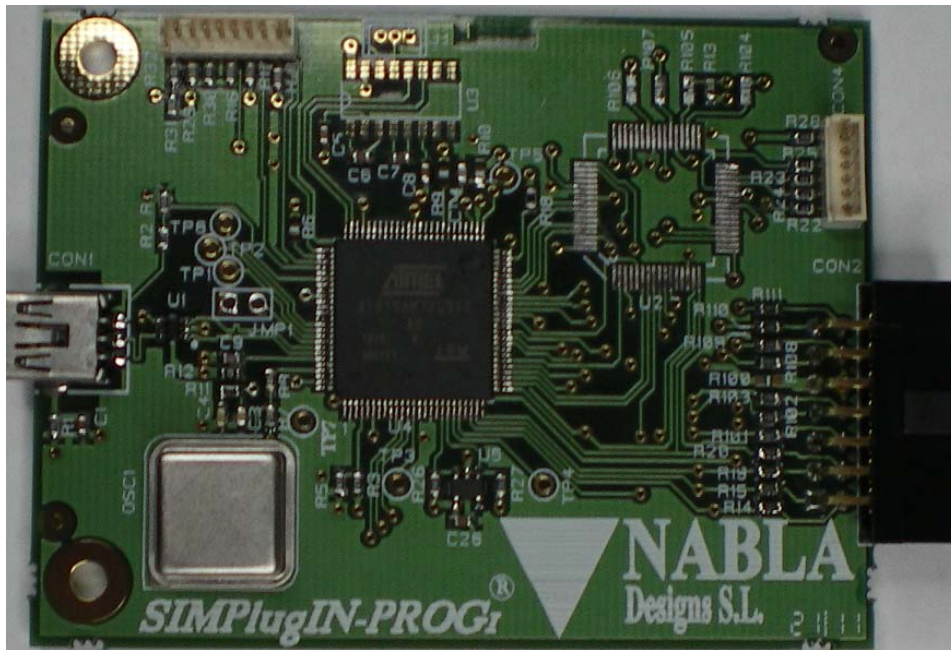


# SIMPlugIN-PROGRAMMER User Manual

... a SIMPlugIN board® family member

Revision: see file name on page header  
Date: August 26<sup>th</sup> 2011





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# 0) Introduction and references

This manual describes how to operate SIMPlugIN-PROGRAMMER 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-PROGRAMMER is an add-on board that allows, using a PC computer and the supplied software, programming of SIMPlugIN base boards (like SIMPlugIN- 6XL45). With just one connection SIMPlugIN-PROGRAMMER allows programming both JTAG (for the FPGA) and SPI (for the SPI flash memory). Besides, SIMPlugIN-PROGRAMMER gets its power supply from the base board.

## 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.
- In <http://www.xilinx.com/support/documentation/spartan-6.htm> there is the document that refers to FPGA programming (configuration): Spartan-6 FPGA Configuration User Guide
- In [www.atmel.com](http://www.atmel.com) within "Atmel ARM-based Solutions" select SAM7X/XC

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# 1) General description

SIMPlugIN-PROGRAMMER board connects to an external PC through a standard mini USB connector (CON1). In the PC computer SIMPlugIN-PROGRAMMER will be seen as an additional serial (COM) port.

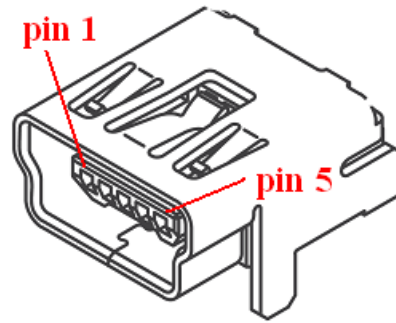
On the other hand one single connector (CON2) plugs into SIMPlugIN base board. Through this connector the programmer board gets its power and allows programming of both JTAG and SPI interfaces.

Note: the CPLD, U2, is not populated and is not used in this product.

## 2) Connectors

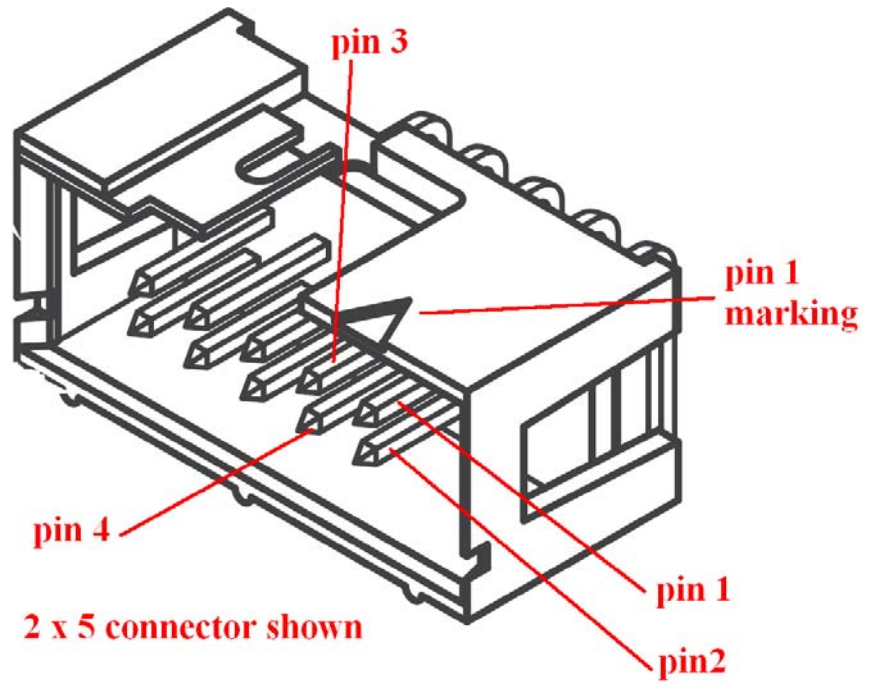
### CON1 mini USB connector

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



**CON2 programming connector**

JTDO	1
JTMS	2
JTDI	3
JTCK	4
+3.3V	5
FP-INIT	6
FP-DONE	7
FPPROG_N	8
+5V1	9
GND	10
SPI_MISO	11
SPI_SCLK	12
SPI_CS#	13
SPI_MOSI	14



Note: J1 and CON3 are only used for manufacturing test purpose. CON4 is not populated and is not used in this product.

## 3) Configuration jumpers

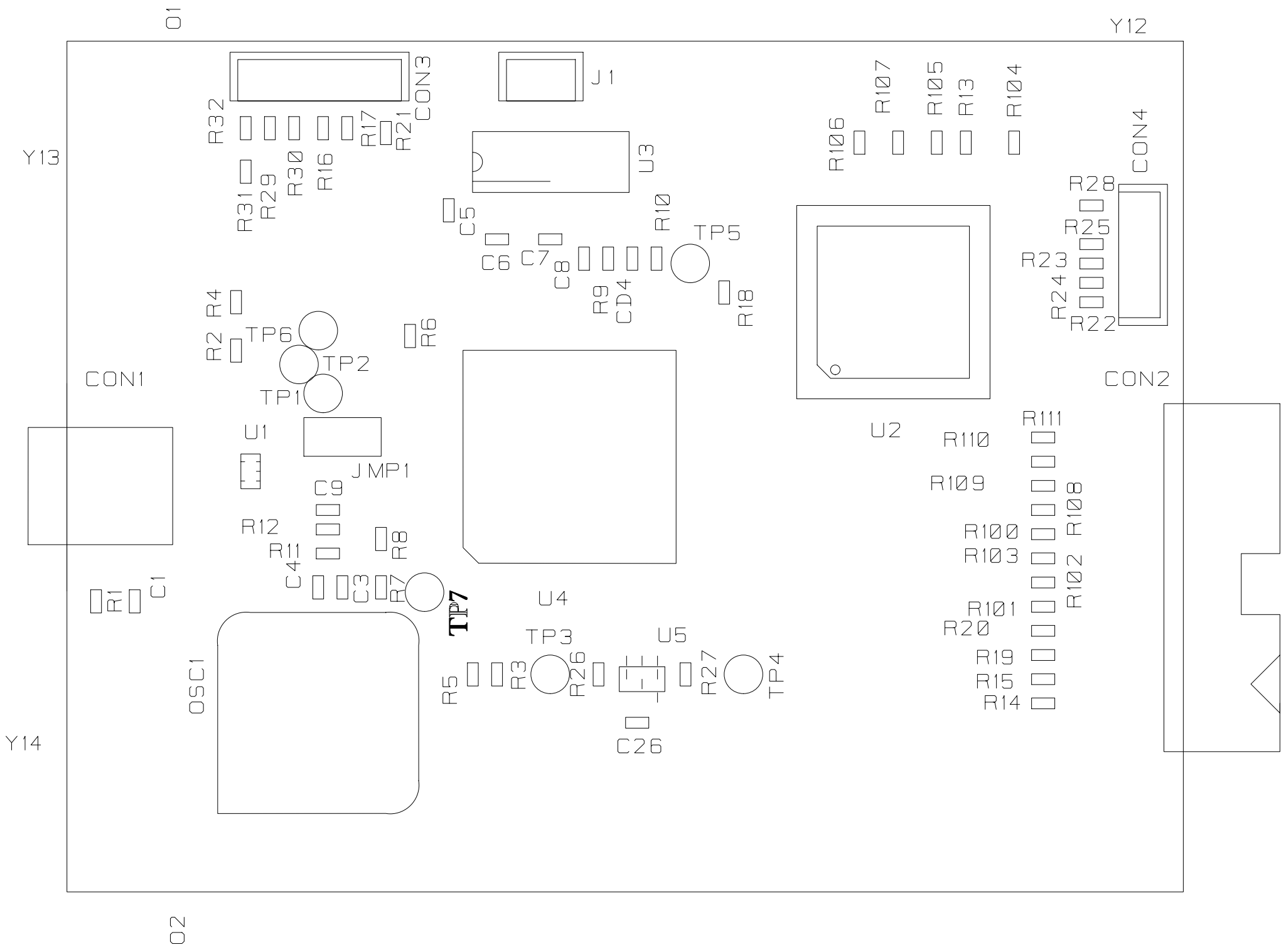
JMP1 is only used for manufacturing testing.

**NEVER install it. If you install and power the board then the firmware of the microprocessor will get completely erased.** To recover the board it would be necessary a programming probe of ATMEL processors.

## 4) Test points

All test points in the board are only used for manufacturing test purpose.





**SIMPLUG-IN-PROGi**

YNABLC

# SIMPLI<sup>®</sup>IN-PRO<sup>®</sup>G1

Y9

Q1

C12

C10

C13

C11

CD1

C21

C16

C15

C14

C14

C14

C25

C19

C19

C20

C17

C22

C22

CD3

C18

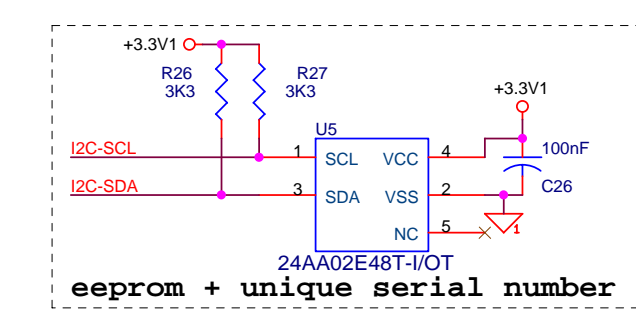
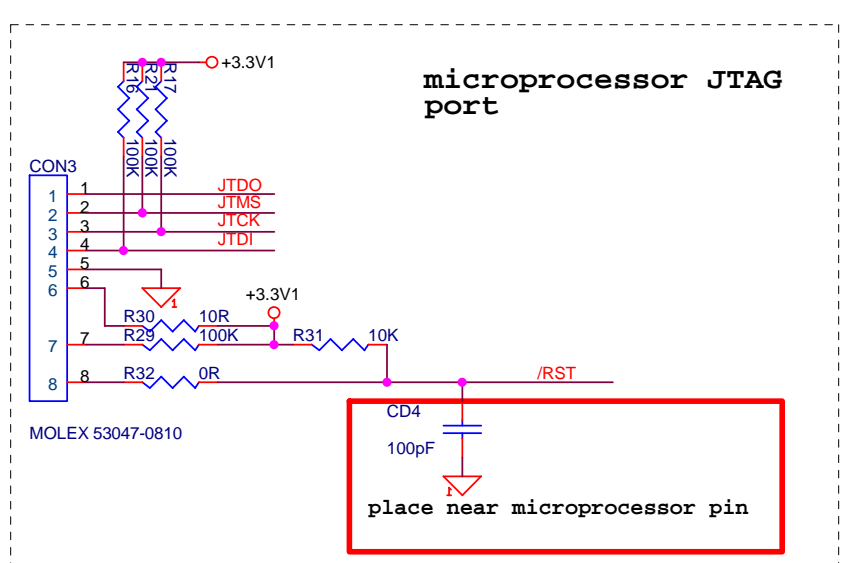
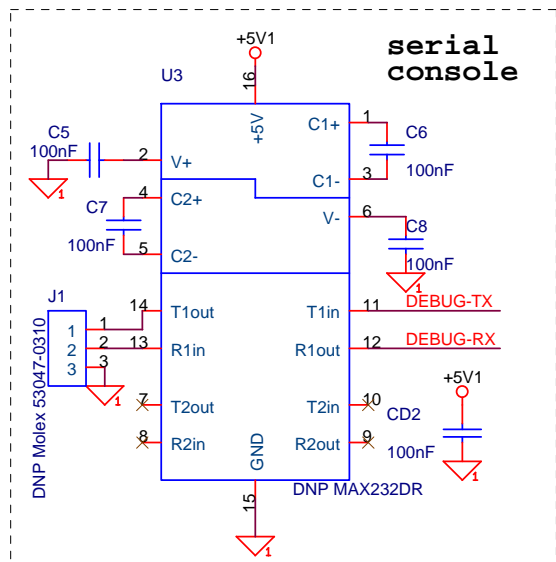
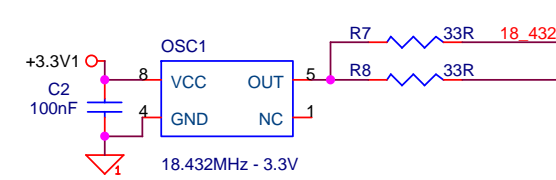
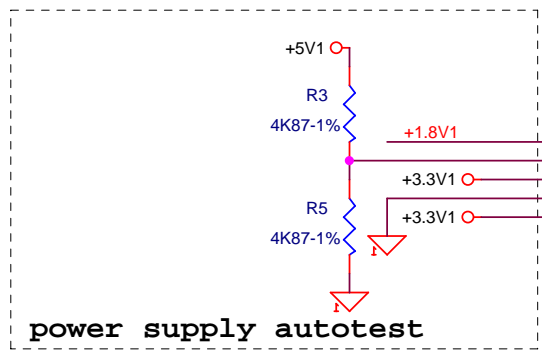
C23

C24

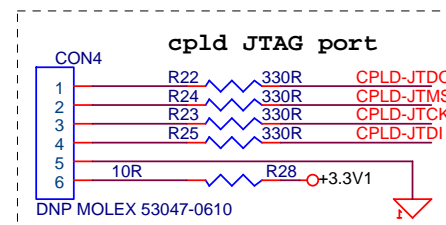
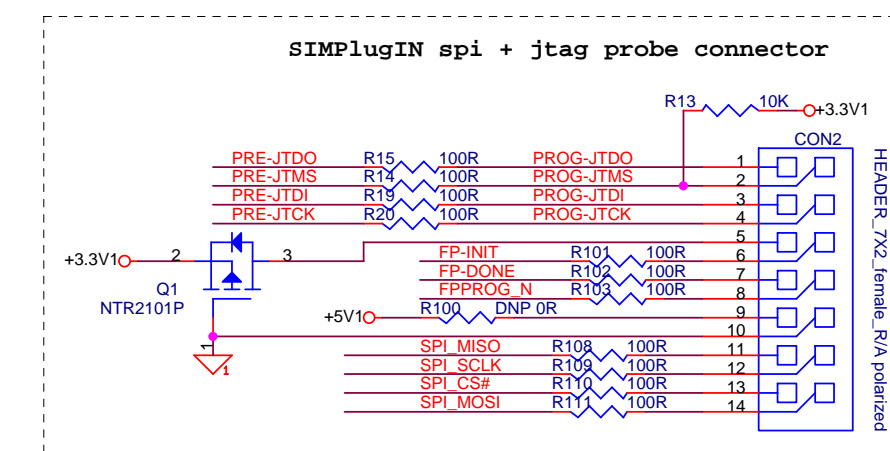
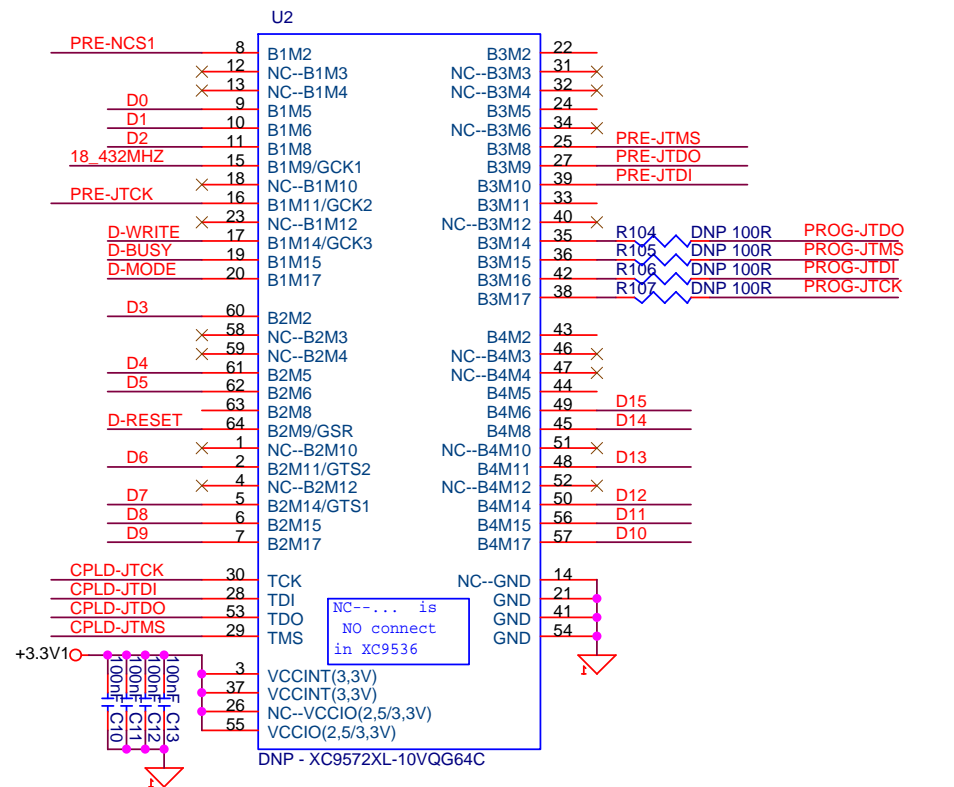
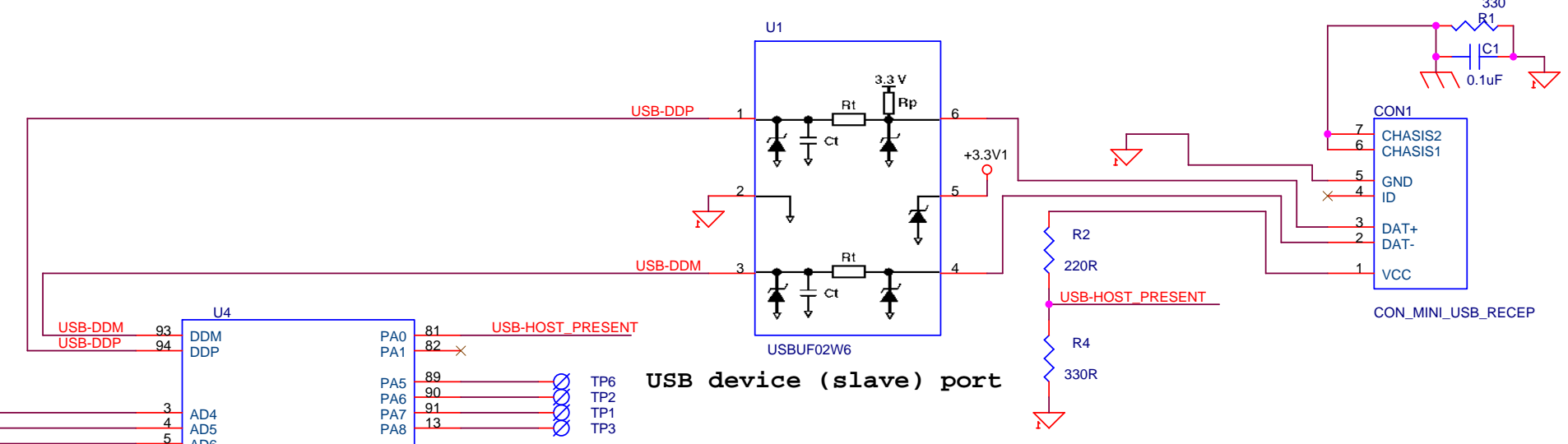
C2

CD2

Y10



**USB device (slave) port**



**NABLA Designs S.L.**

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Project: SIMPlugIN Board: SIMPlugIN-PROG1

Board description: JTAG and SPI programmer

Size: A3 Page description: Rev 0.4p

Last modified date: Friday, August 26, 2011 Page 1 of 1

Revised: Friday, August 26, 2011					
Item	Qty	Reference	Part	PCB footprint	comments
1	2	CD1,CD3	10uF-6.3V	1206	
2	24	CD2,C2,C5,C6,C7,C8,C9, C10,C11,C12,C13,C14,C15, C16,C17,C18,C19,C20,C21, C22,C23,C24,C25,C26	100nF	0603	
3	1	CD4	100pF	0603	
4	1	CON1	CON_MINI_USB_RECEP		
5	1	CON2	HEADER_7X2_female_R/A polarized		
6	1	CON3	MOLEX 53047-0810	CON8_125	
7	1	CON4	DNP MOLEX 53047-0610	CON6_125	reserved for future enhancements
8	1	C1	0.1uF	0603	
9	1	C3	1nF	0603	
10	1	C4	10nF	0603	
11	1	JMP1	do not populate JUMPER_2X1	JUMPER 2 X 1	only used for debugging ATMEL uP firmware
12	1	J1	DNP Molex 53047-0310	molex 1.25 recto 3 pin	only used for debugging ATMEL uP firmware
13	1	OSC1	18.432MHz - 3.3V	OSC8	
14	1	Q1	NTR2101P	SOT23	
15	1	R1	330	0603	
16	1	R2	220R	0603	
17	2	R3,R5	4K87-1%	0603	
18	5	R4,R22,R23,R24,R25	330R	0603	
19	2	R6,R9	0R - No montar	0603	
20	2	R7,R8	33R	0603	
21	3	R10,R26,R27	3K3	0603	
22	1	R11	1K5	0603	
23	2	R32,R12	0R	0603	
24	2	R31,R13	10K	0603	
25	11	R14,R15,R19,R20,R101, R102,R103,R108,R109,R110, R111	100R	0603	
26	4	R16,R17,R21,R29	100K	0603	
27	1	R18	4K7	0603	
28	2	R30,R28	10R	0603	
29	1	R100	DNP 0R	0603	
30	4	R104,R105,R106,R107	DNP 100R	0603	only used for debugging ATMEL uP firmware
31	7	TP1,TP2,TP3,TP4,TP5,TP6,	DNP - TP		

		TP7			
32	1	U1	USBUF02W6	SOT323-6L	
33	1	U2	DNP - XC9572XL-10VQG64C	VQ64	reserved for future enhancements only used for debugging ATMEL uP firmware
34	1	U3	DNP MAX232DR	SO16 narrow	
35	1	U4	ATMEL_AT91SAM7X512-AU	LQFP100	
36	1	U5	24AA02E48T-I/OT	SOT23_5	