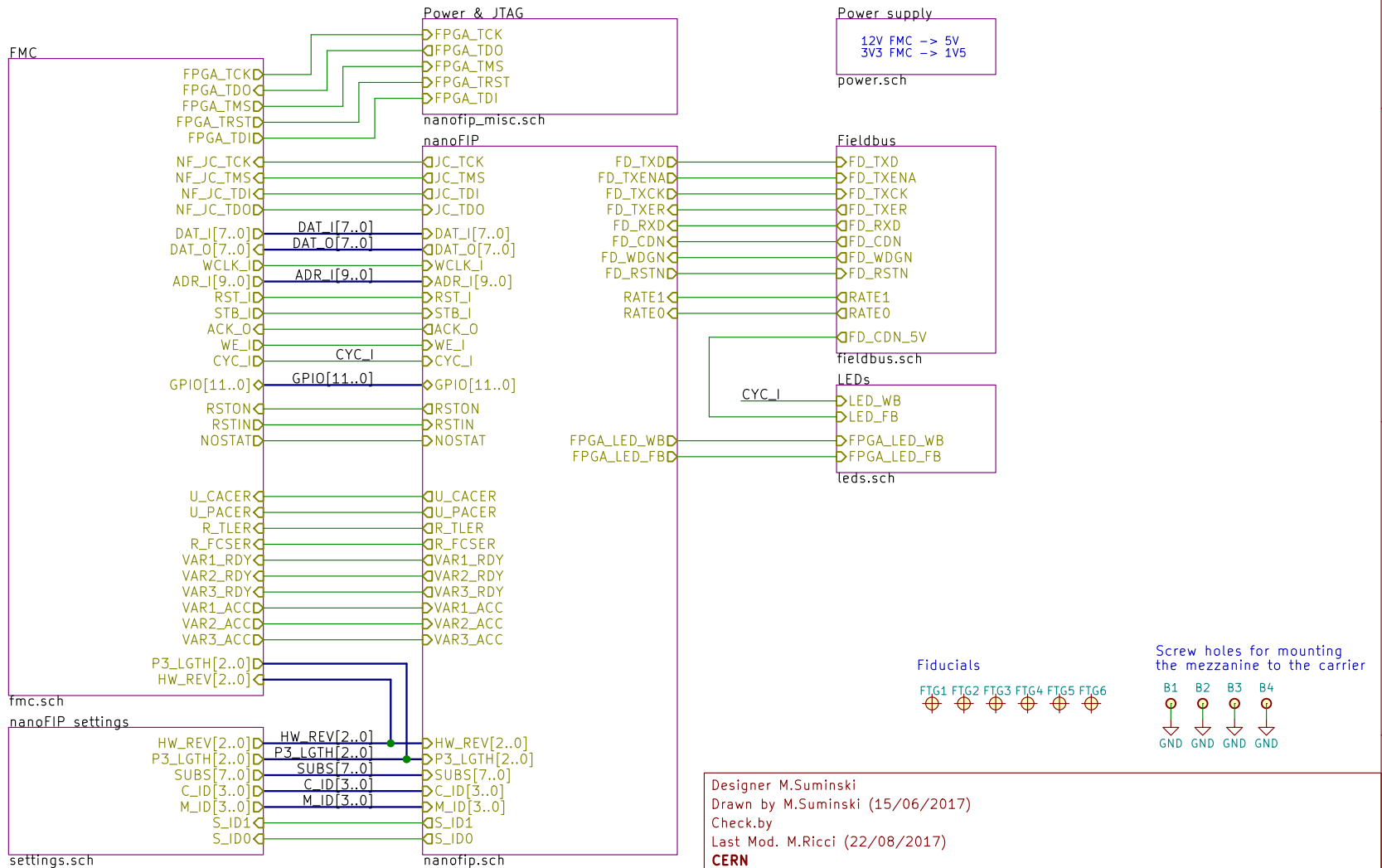


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<http://www.ohwr.org/projects/fmc-nanofip>



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 Drawn by M.Suminski (15/06/2017)  
 Check.by  
 Last Mod. M.Ricci (22/08/2017)

**CERN**  
 Sheet: /  
 File: fmc-nanofip.sch

**Title: FMC-nanoFIP**

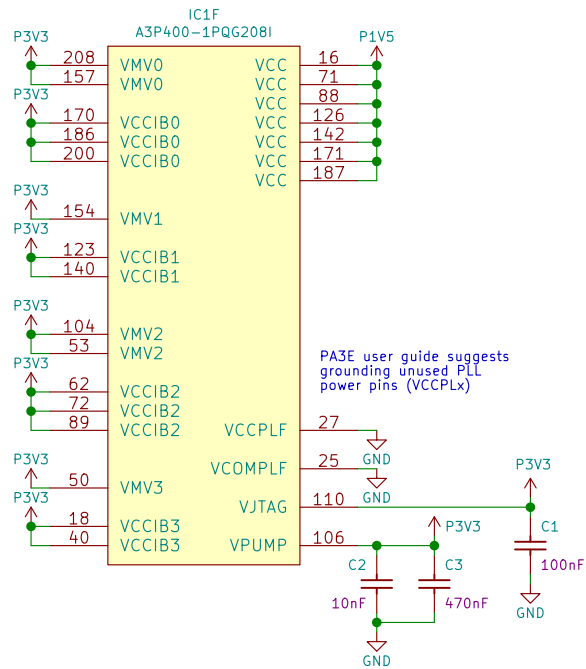
Size: A4 Date: 2017-08-22

KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master

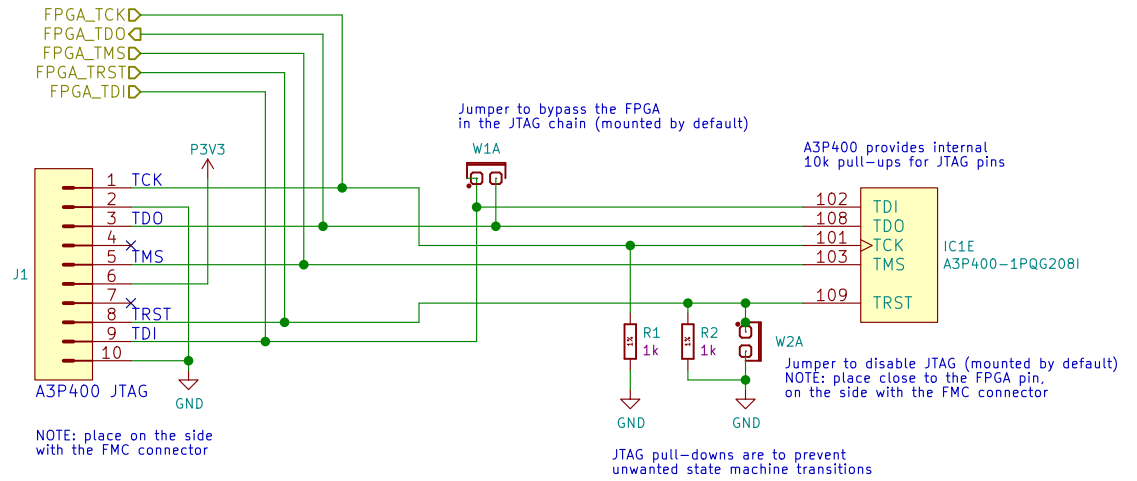
**Rev: 9**

Id: 1/8

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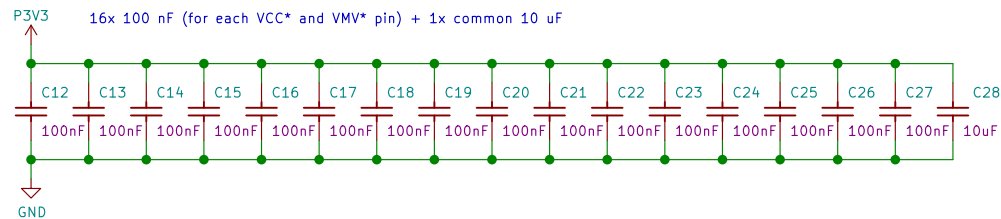
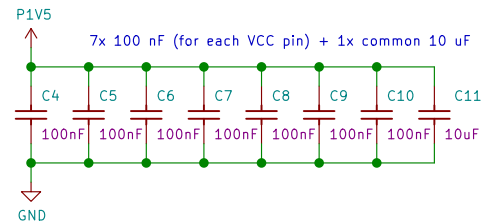
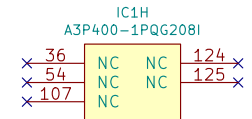
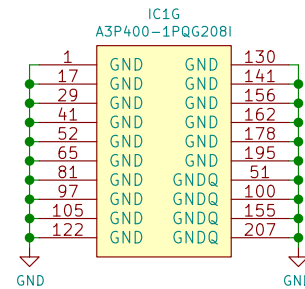


PA3E user guide suggests grounding unused PLL power pins (VCCPLx)



NOTE: place on the side with the FMC connector

JTAG pull-downs are to prevent unwanted state machine transitions



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Sheet: /Power & JTAG/  
 File: nanofip\_misc.sch

**Title: FMC-nanofIP JTAG & Power**

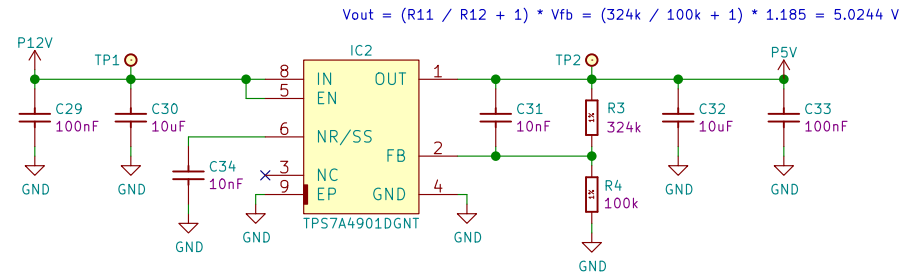
Size: A4 Date: 2017-08-22

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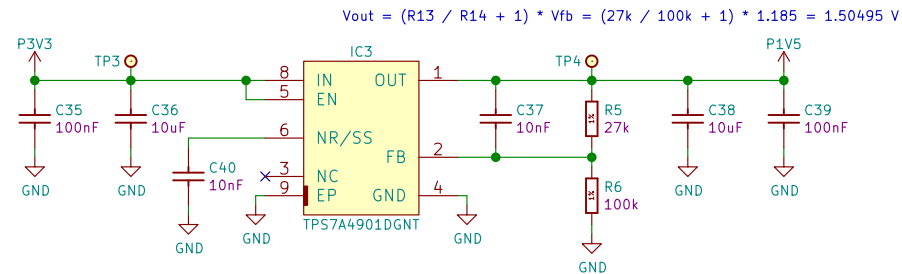
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place testpoints on the side without the FMC connector



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<b>CERN</b>	
Sheet: /Power supply/	
File: power.sch	
<b>Title: FMC-nanoFIP power supply</b>	
Size: A4	Date: 2017-08-22
KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master	Rev: 9
	Id: 3/8

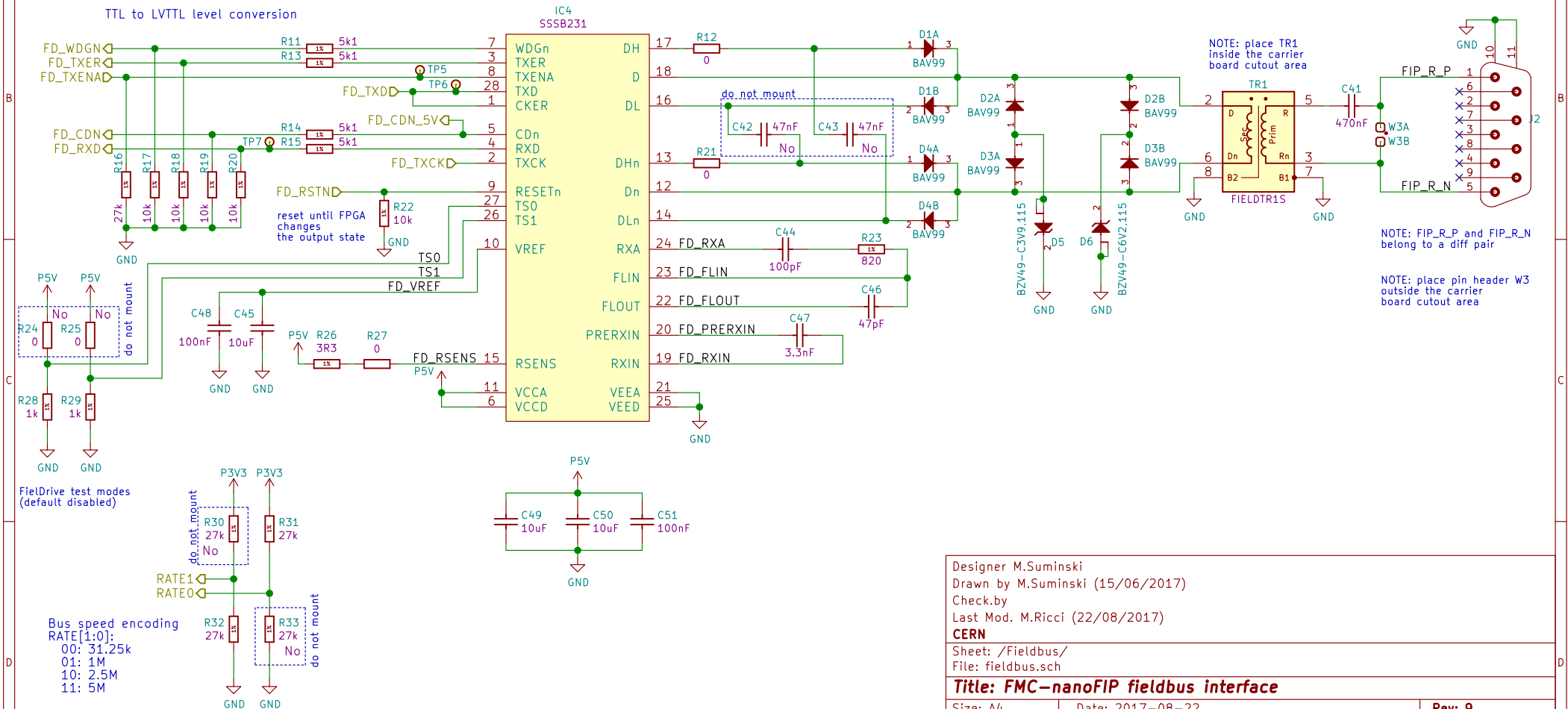
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### nanoFIP bus speed

marking resistor	31.25k <input type="checkbox"/> R7 <input type="checkbox"/> No	1M <input type="checkbox"/> R8 <input type="checkbox"/> No	2.5M <input type="checkbox"/> R9 <input type="checkbox"/> No	5M <input type="checkbox"/> R10 <input type="checkbox"/> No
C41	3.3uF	470nF	100nF	100nF
C47	100nF	3.3nF	1.5nF	1.5nF
C46	1nF	47pF	27pF	27pF
C44	15nF	100pF	33pF	33pF
C42, C43	47nF	not mounted	not mounted	not mounted
D6	BZV49-C8V2	BZV49-C6V2	BZV49-C6V2	BZV49-C6V2
D1, D4	BAT54S	BAV99	BAV99	BAV99
D5	BZV49-C4V7	BZV49-C3V9	BZV49-C3V9	BZV49-C3V9
R27	3R3	0R	0R	0R
R23	330R	820R	820R	820R
R30	not mounted	not mounted	27k	27k
R31	not mounted	27k	not mounted	27k
R32	27k	not mounted	not mounted	not mounted
R33	27k	not mounted	27k	not mounted
TR1	FIELDTR_31.25S	FIELDTR_1S	FIELDTR_2.5S	FIELDTR_2.5S

NOTE: place a label indicating bus speed next to the marking resistors

selected variant



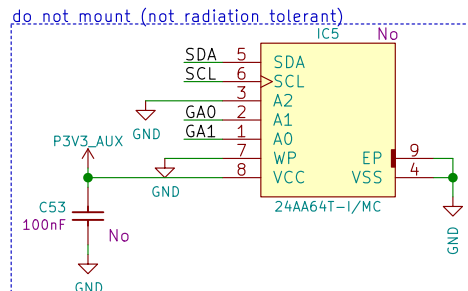
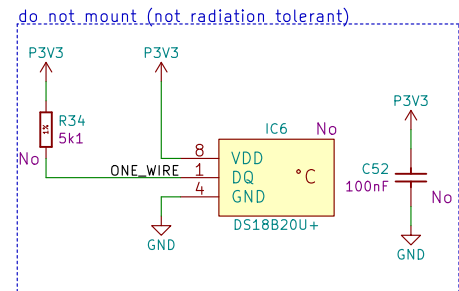
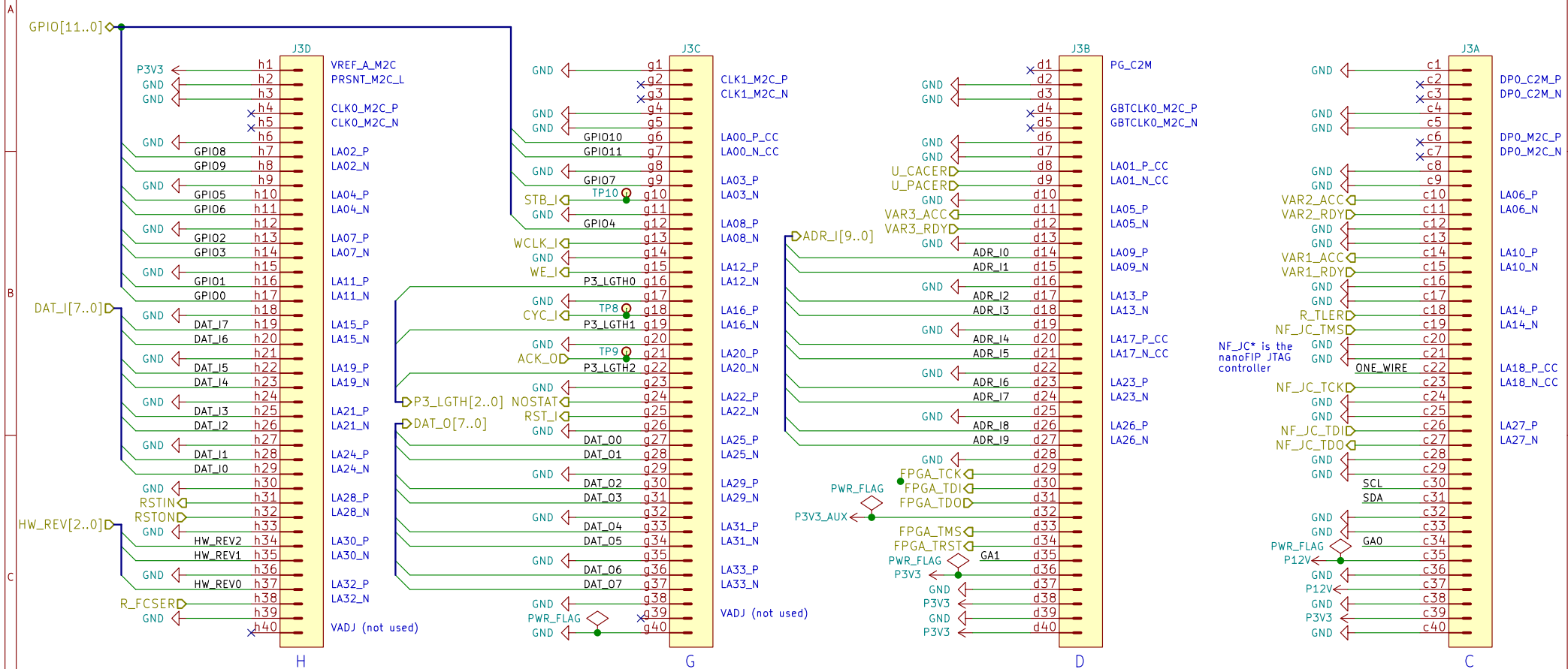
Designer M.Suminski  
 Drawn by M.Suminski (15/06/2017)  
 Check by  
 Last Mod. M.Ricci (22/08/2017)  
**CERN**

Sheet: /Fieldbus/  
 File: fieldbus.sch  
**Title: FMC-nanoFIP fieldbus interface**

Size: A4 Date: 2017-08-22 Rev: 9  
 KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master Id: 4/8

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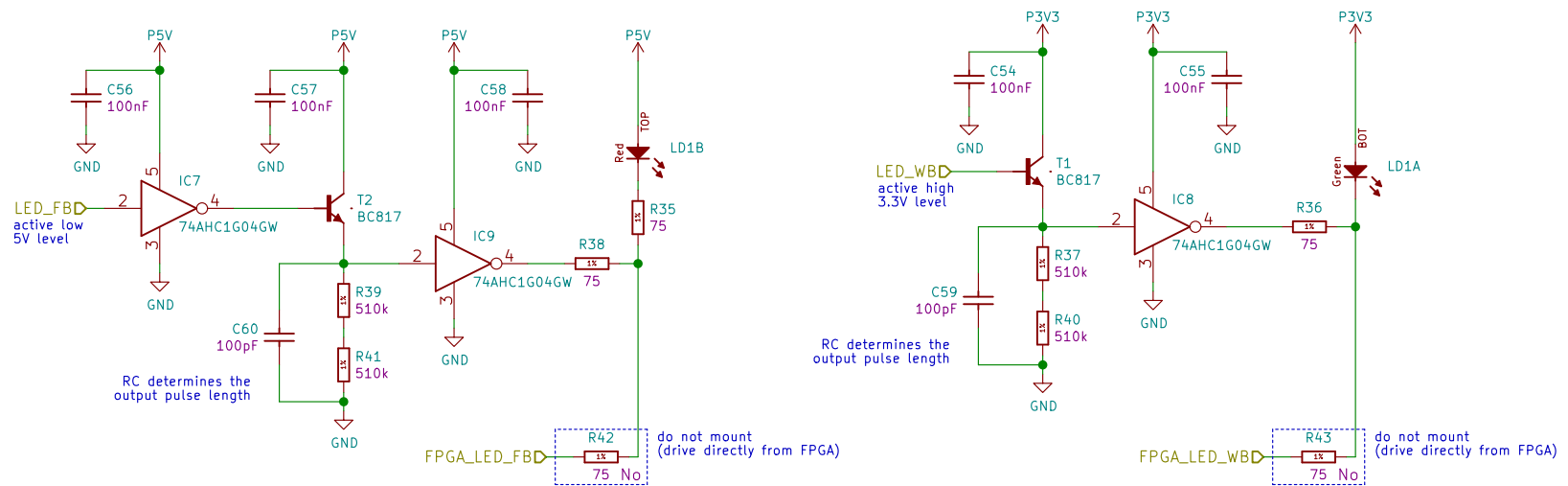
NOTE: pin swapping between LA\* pins possible  
 place test points on the side without the FMC connector



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 Drawn by M.Suminski (15/06/2017)  
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 Last Mod. M.Ricci (22/08/2017)  
**CERN**  
 Sheet: /FMC/  
 File: fmc.sch  
**Title: FMC-nanoFIP FMC connector (LPC)**  
 Size: A4 Date: 2017-08-22 Rev: 9  
 KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master Id: 5/8

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One-shot triggers to extend the LED pulse duration



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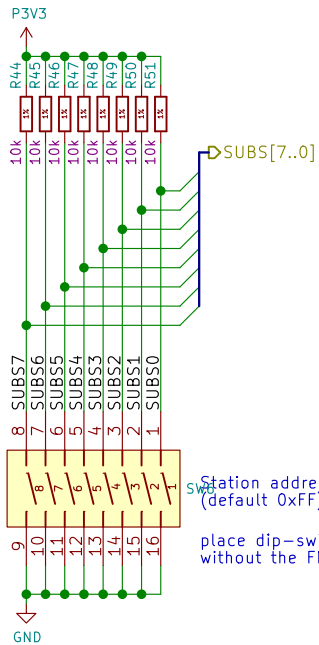
**CERN**

Sheet: /LEDs/  
 File: leds.sch

**Title: FMC-nanoFIP LEDs**

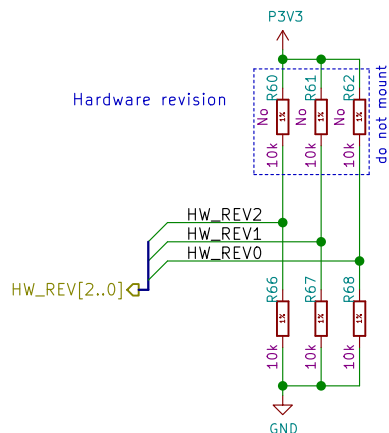
Size: A4	Date: 2017-08-22	Rev: 9
KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master		Id: 6/8

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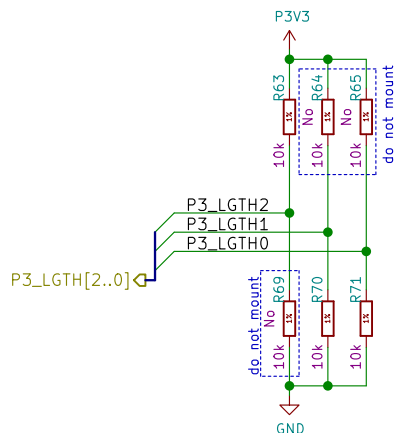


Station address  
(default 0xFF)

place dip-switches on the side  
without the FMC connector



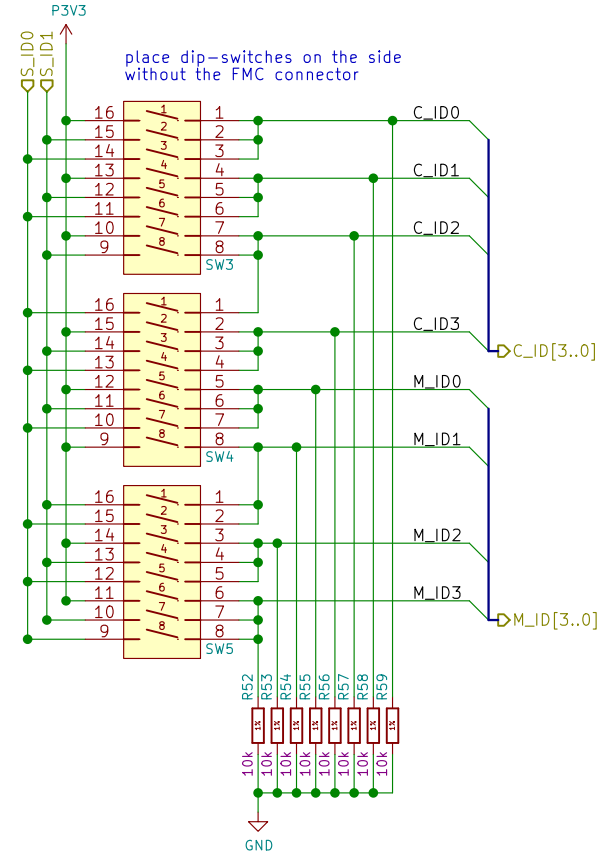
Hardware revision



Produced variable data length

P3\_LGTH[2:0]:  
 000: 2 bytes  
 001: 8 bytes  
 010: 16 bytes  
 011: 32 bytes  
 100: 64 bytes (default)  
 101: 124 bytes  
 other: reserved

(FMC signals can override the  
value set with resistors)



place dip-switches on the side  
without the FMC connector

Constructor & Model ID (default 0x00)

C\_ID[i]/M\_ID[i] connected to: Gnd S\_ID0 S\_ID1 Vcc  
 Constructor/Model[2\*i] 0 1 0 1  
 Constructor/Model[2\*i+1] 0 0 1 1

Designer M.Suminski  
 Drawn by M.Suminski (15/06/2017)  
 Check.by  
 Last Mod. M.Ricci (22/08/2017)  
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Sheet: /nanoFIP settings/  
 File: settings.sch

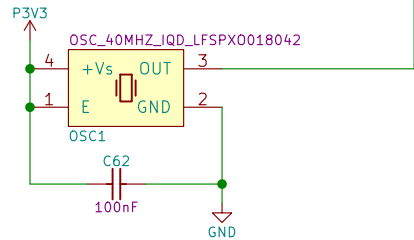
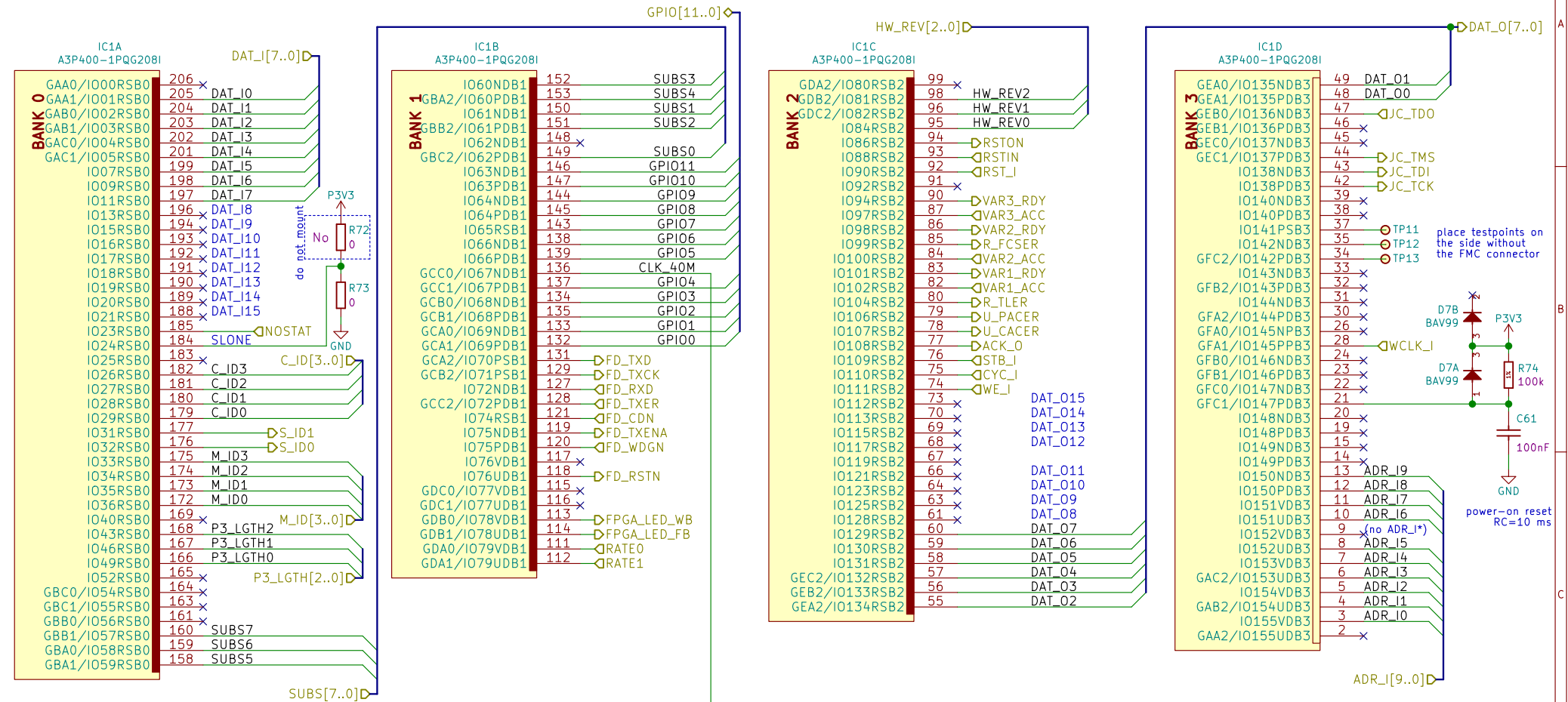
**Title: FMC-nanoFIP settings**

Size: A4 Date: 2017-08-22  
 KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master

Rev: 9  
 Id: 7/8

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NOTE: pin swapping not possible  
 (only GPIO pins can be moved)  
 nanoFIP FPGA (IC1) is preprogrammed



Designer M.Suminski  
 Drawn by M.Suminski (15/06/2017)  
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**CERN**

Sheet: /nanoFIP/  
 File: nanofip.sch

**Title: FMC-nanoFIP FPGA**

Size: A4 Date: 2017-08-22  
 KiCad E.D.A. kicad (2017-08-28 revision 758445e33)-master

Rev: 9  
 Id: 8/8