




LABEL1



Product number/revision
Serial number


Label PCBA

E1




RUBBER FEET
SJ-5076

E2




RUBBER FEET
SJ-5076

E3



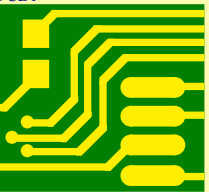
RUBBER FEET
SJ-5076

E4




RUBBER FEET
SJ-5076

PCB1




A08-1620

TEST1




A11-0182
FIXTURE1




A13-0086


FW1

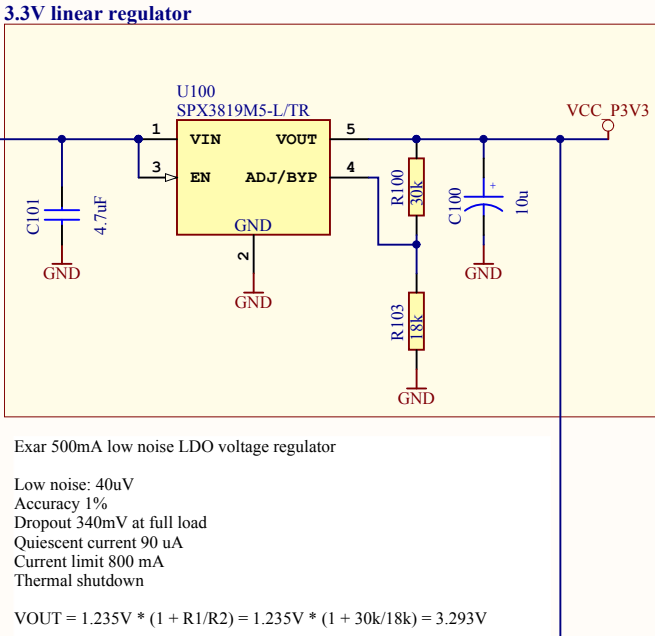
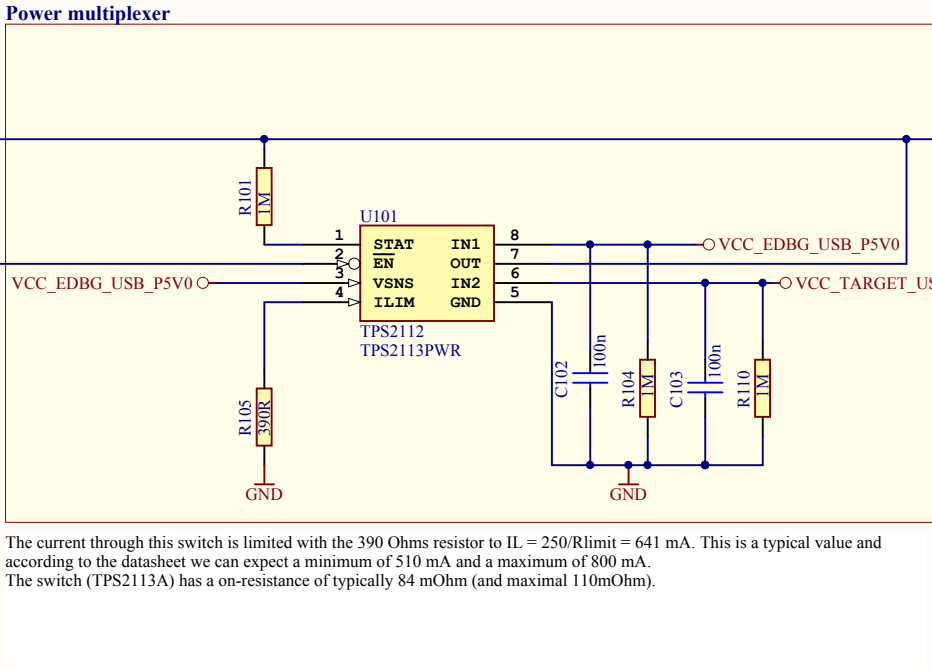
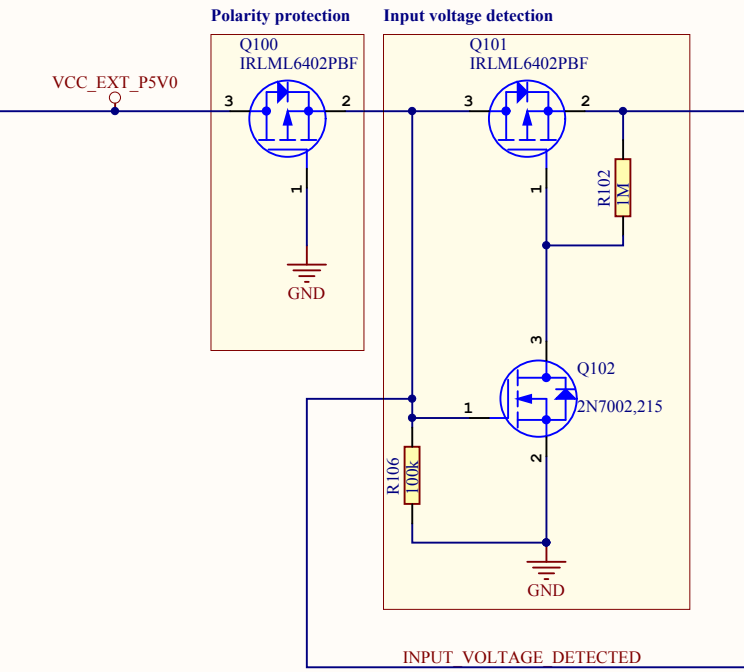


A11-0196
DOC1

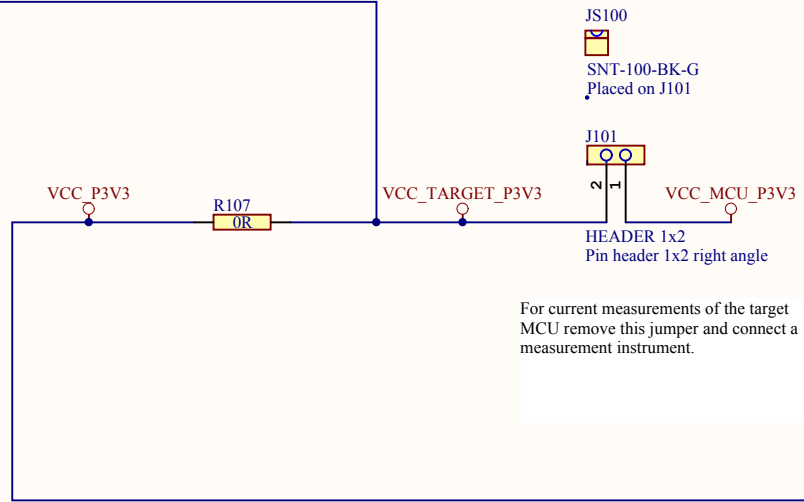
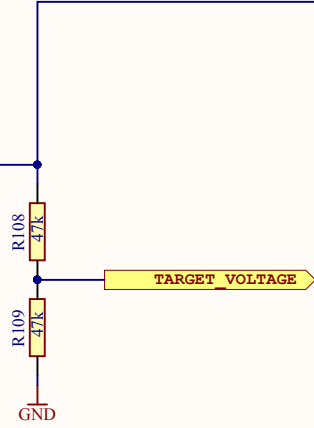
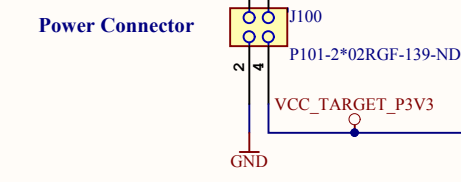


A12-0610

ATMEL Norway		*	 Enabling Unlimited Possibilities		
Vestre Rosten 79		*			
N-7075 TILLER		*			
NORWAY					
Date:	27.03.2015	11:07:38	PAGE:	1 of 8	
Document number:	1		Revision	5	
TITLE: Top Level Schematics					
SAM4S_Xplained_Pro_TopLevel.SchDoc					




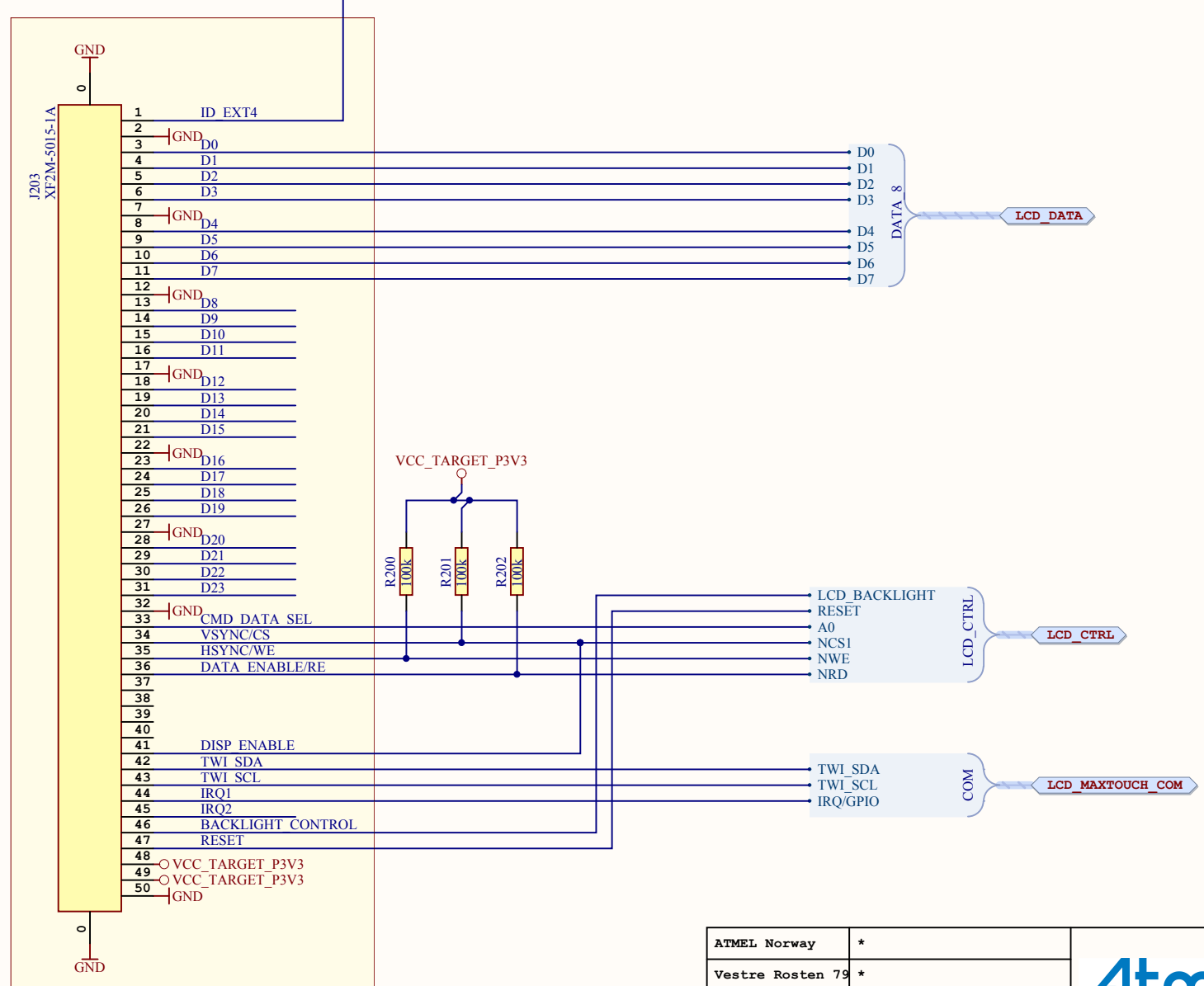
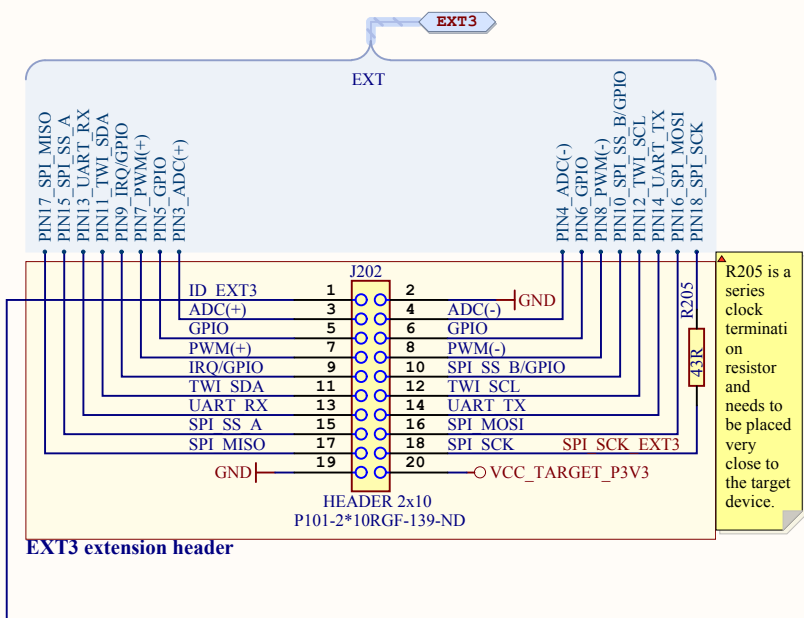
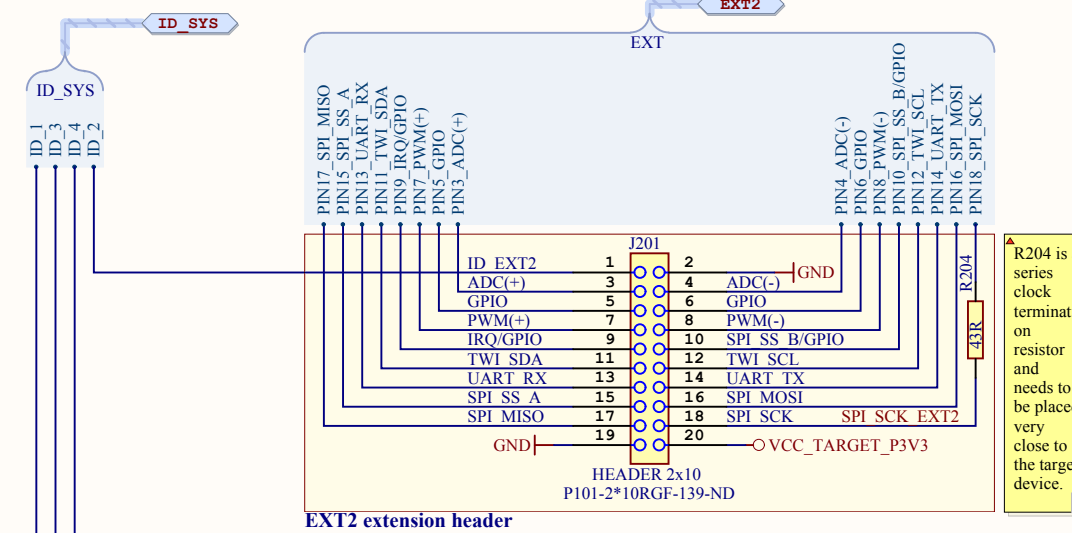
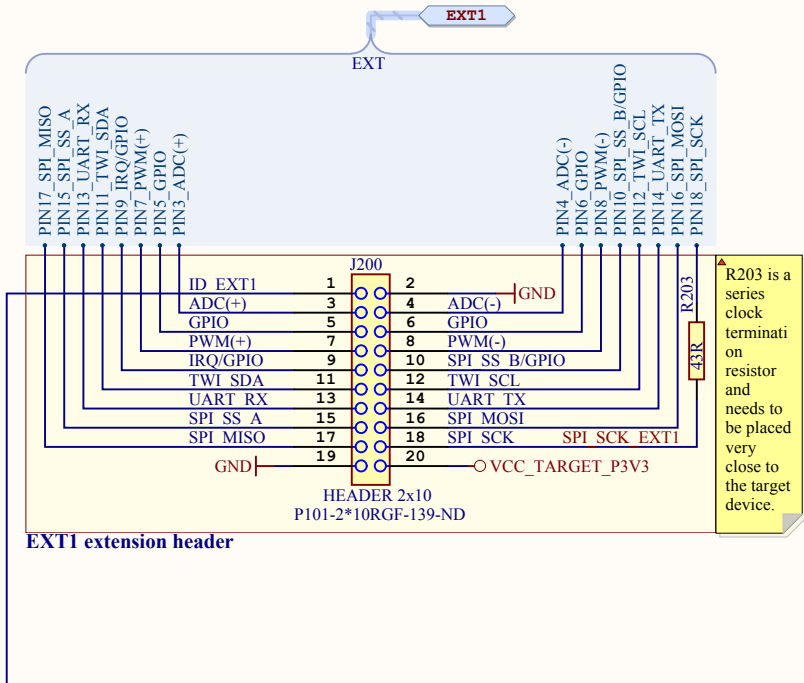
Each FET in the power path has a R_{DSon} of <50mOhm@ $V_{GS} = -5V$ with a current of up to 20A. That means we can expect a maximum voltage drop across the FETs of 50mV@500mA, 100mV@1A and 200mV@2A. For USB host mode we need a voltage between 4.4V to 5.25V so the drop that we have is ok and leaves some room for an OTG switch on-resistance.



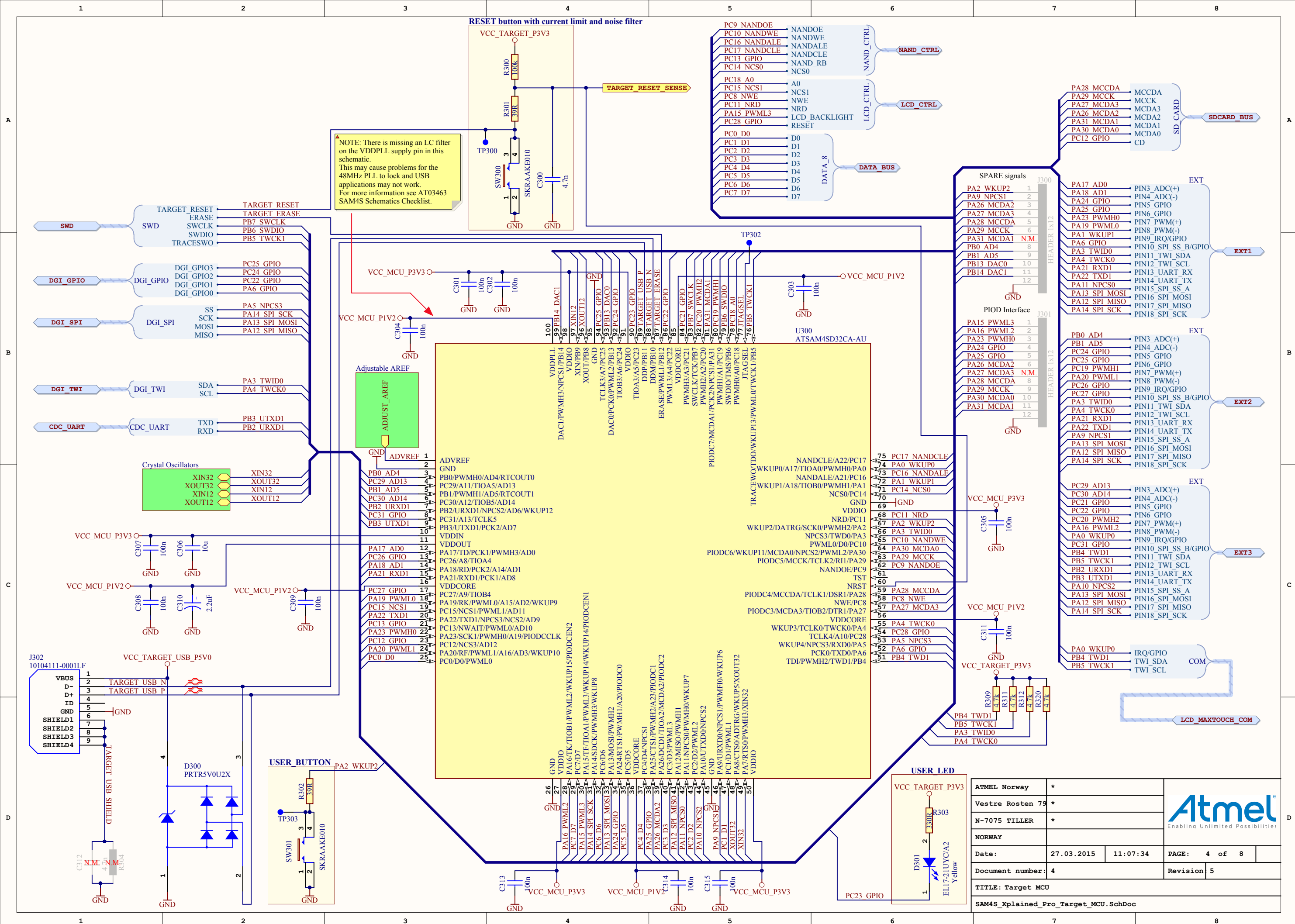
Power inputs to the Xplained PRO:
VCC_EXT_P5V0
This power input can be used to power the whole board and it has a higher priority as the USB power inputs. Connect a power supply if a target MCU with USB host is present and 4.3V to 5.5V is possible but for USB host operation it should be 5V +/-2%
VCC_EDBG_USB_P5V0
EDBG USB power input. This supply is used when VCC_EXT_P5V0 is not present.
VCC_TARGET_USB_P5V0
Target MCU USB power input. It is used to power the whole board when no other 5V power supply is present.

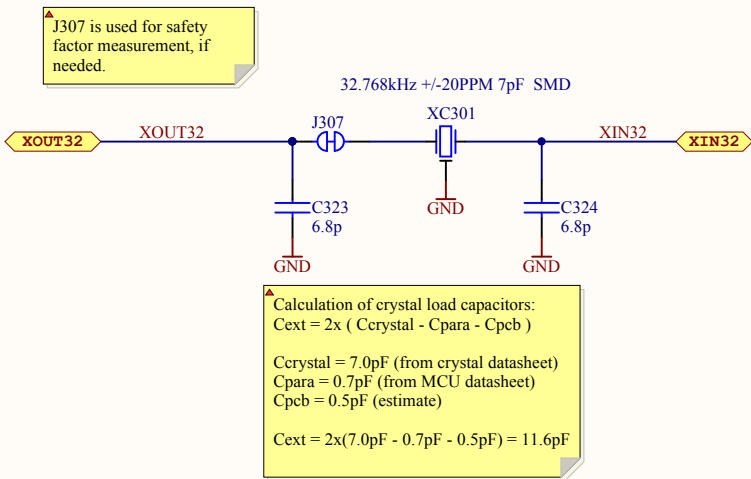
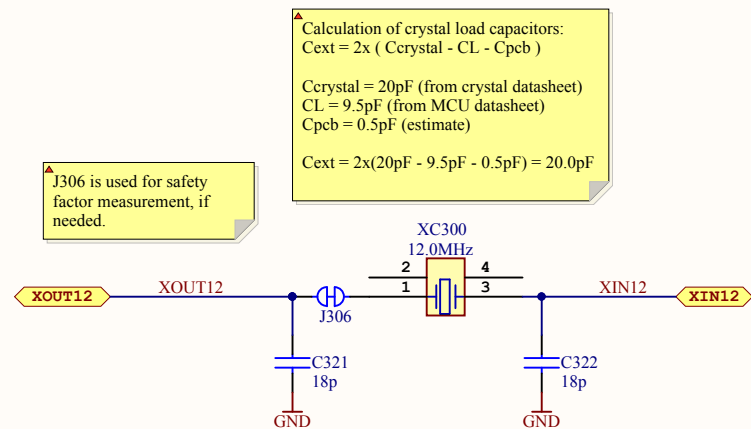
Other voltages:
VCC_P5V0
This supply is connected to either VCC_EXT_P5V0, VCC_EDBG_USB_P5V0 or VCC_TARGET_USB_P5V0, based on the availability and priority of these supplies.
VCC_P3V3
Regulated 3.3V from VCC_P5V0
VCC_TARGET
Target supply voltage (target MCU and peripherals)

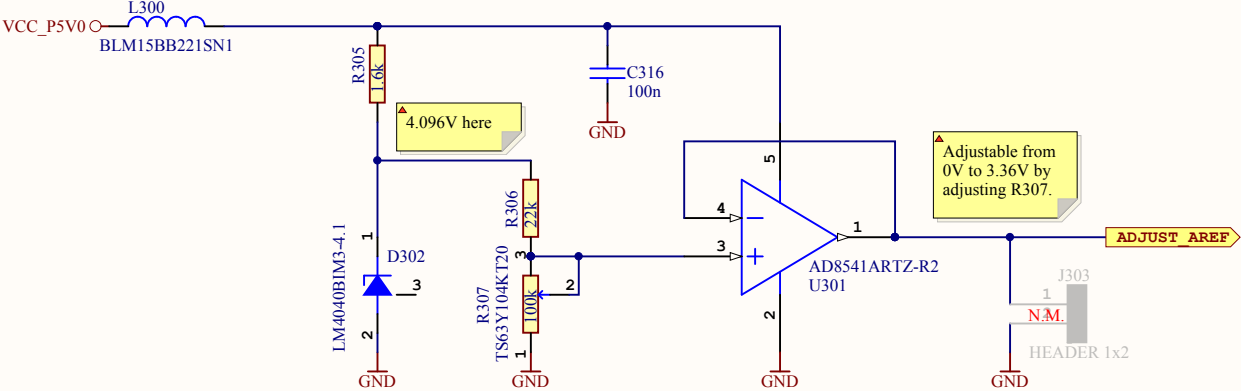
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Vestre Rosten 79		*			
N-7075 TILLER		*			
NORWAY					
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Document number:	2		Revision:	5	
TITLE: Power supply					
SAM4S_Xplained_Pro_triple_input_power_supply.SchDoc					




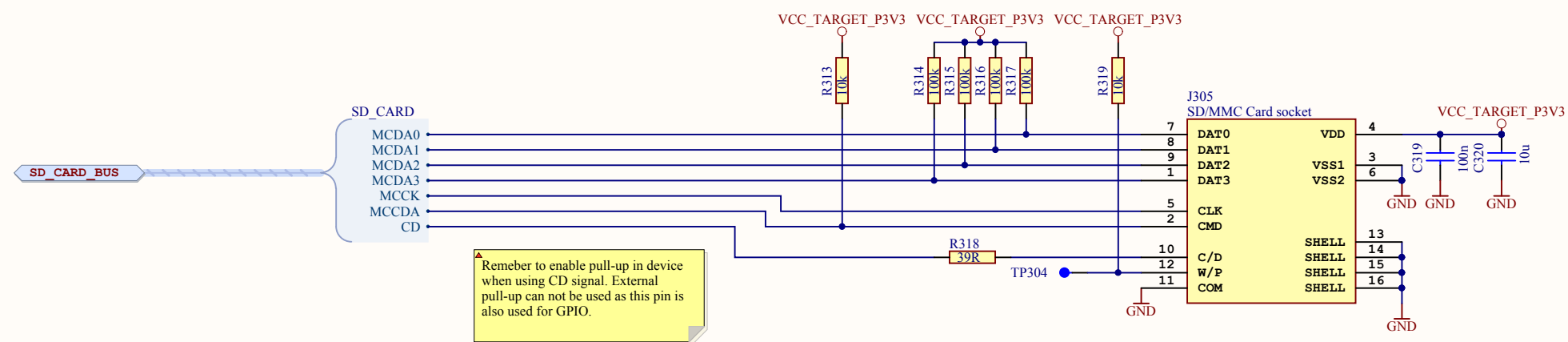
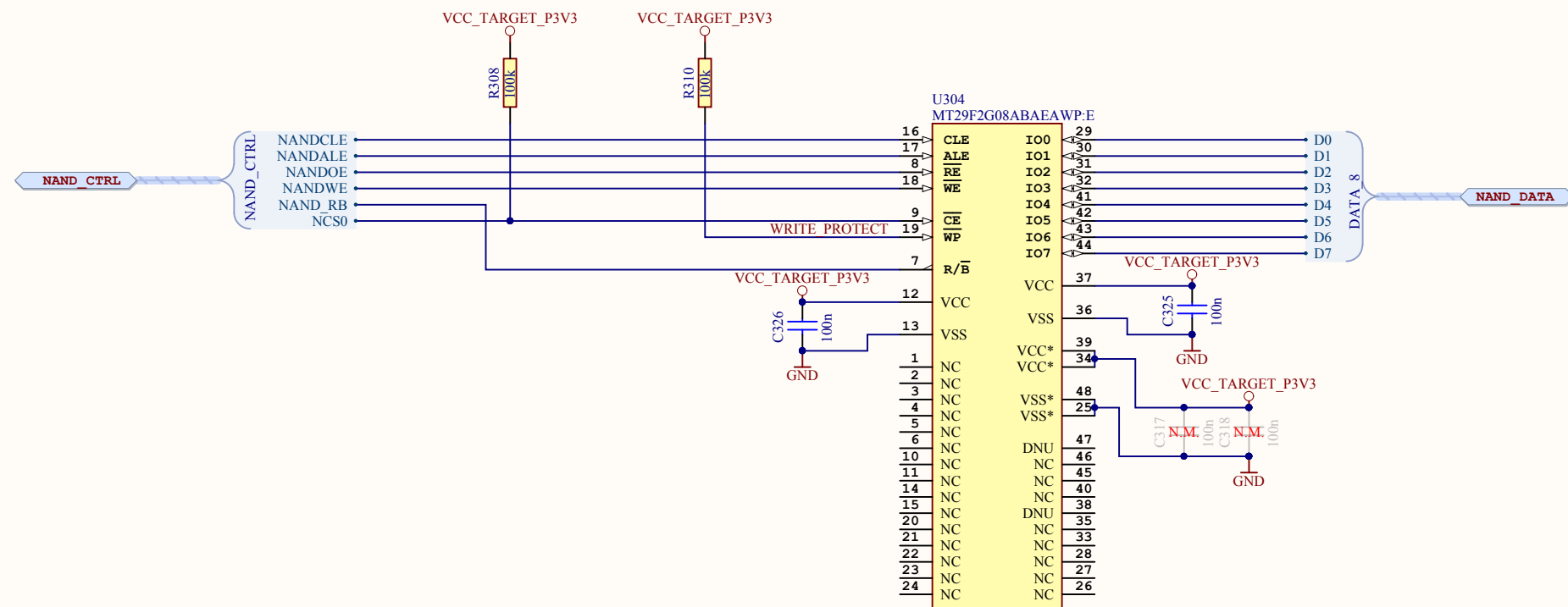
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Vestre Rosten 79	*				
N-7075 TILLER	*				
NORWAY					
Date:	27.03.2015	11:07:34	PAGE:	3 of 8	
Document number:	3		Revision	5	
TITLE: Extension connectors					
SAM4S_Xplained_Pro_Connectors.SchDoc					




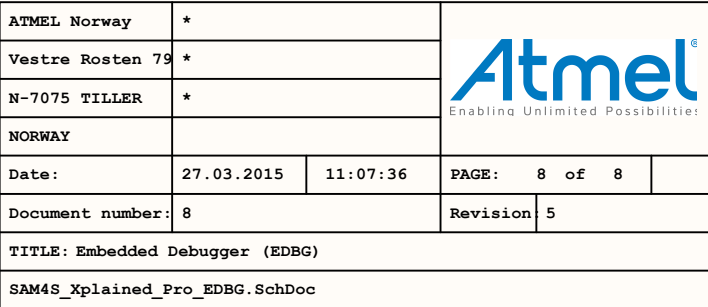




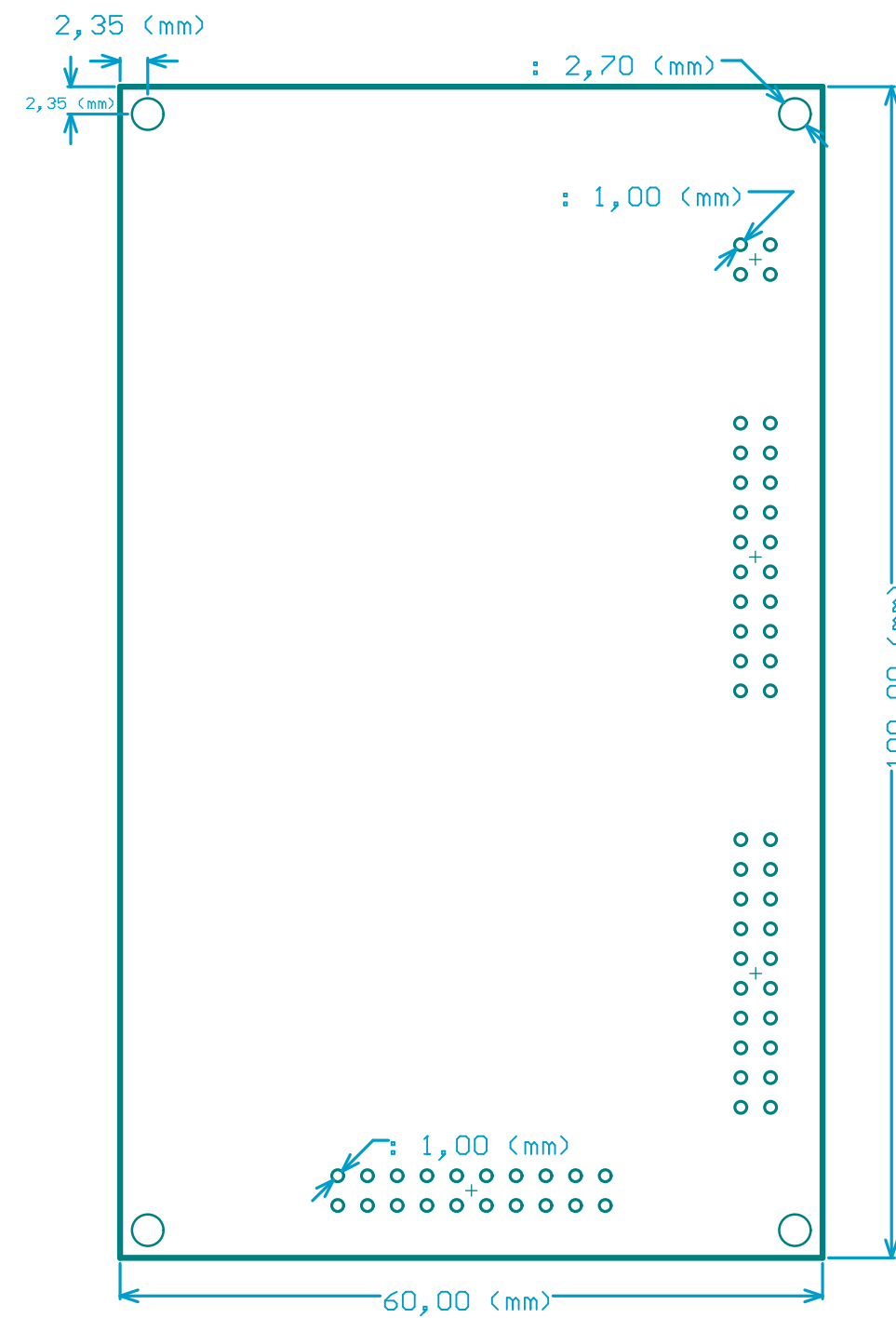
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Vestre Rosten 79		*			
N-7075 TILLER		*			
NORWAY					
Date:	27.03.2015	11:07:35	PAGE:	6 of 8	
Document number:	6		Revision:	5	
TITLE: Adjustable Analog Reference					
SAM4S_Xplained_Pro_Analog_REF.SchDoc					



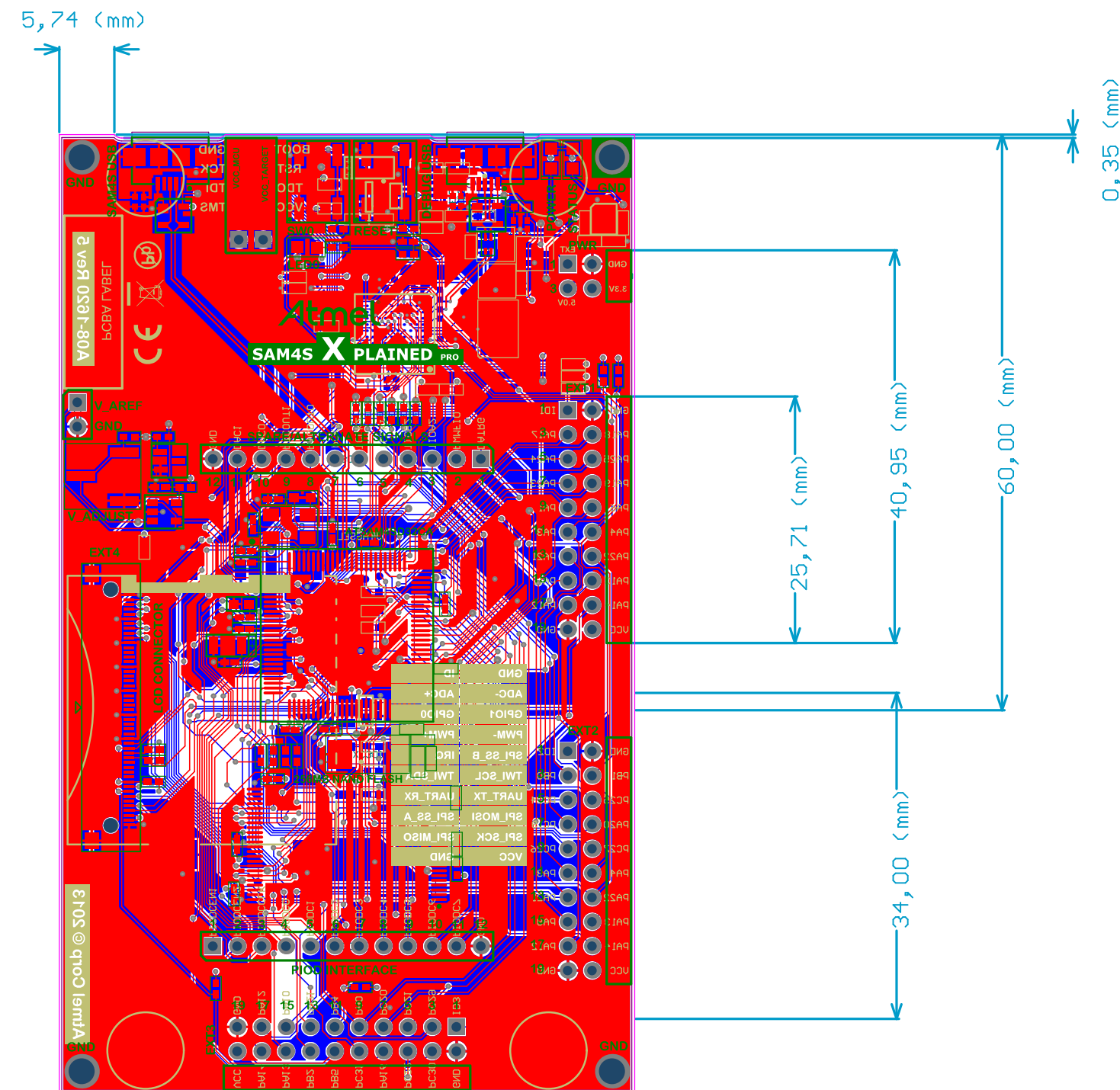
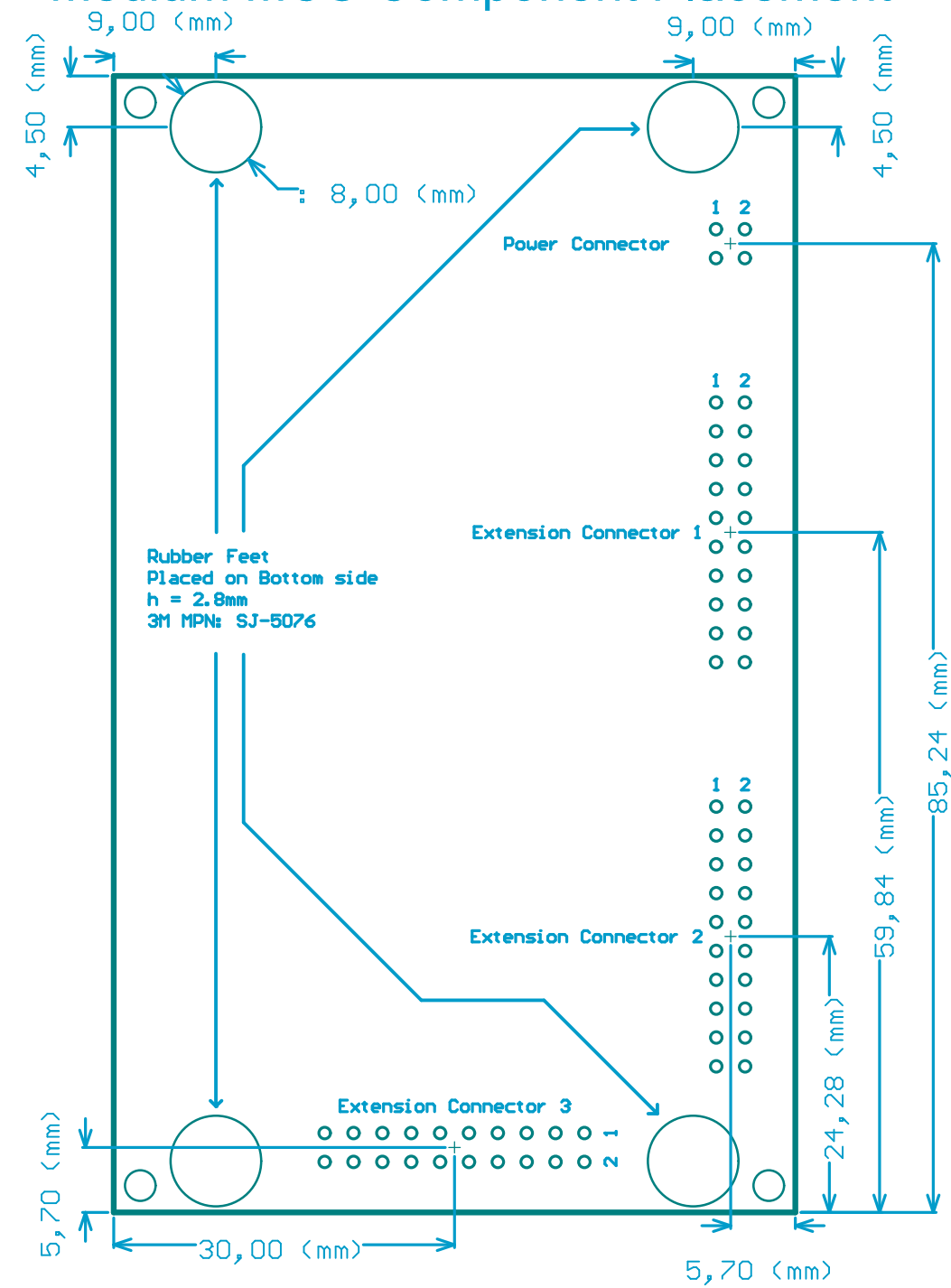
ATMEL Norway	*		 Enabling Unlimited Possibilities!	
Vestre Rosten 79	*			
N-7075 TILLER	*			
NORWAY				
Date:	27.03.2015	11:07:35	PAGE:	7 of 8
Document number:	7		Revision:	5
TITLE: Memory and LCD modules				
SAM4S_Xplained_Pro_Memory.SchDoc				



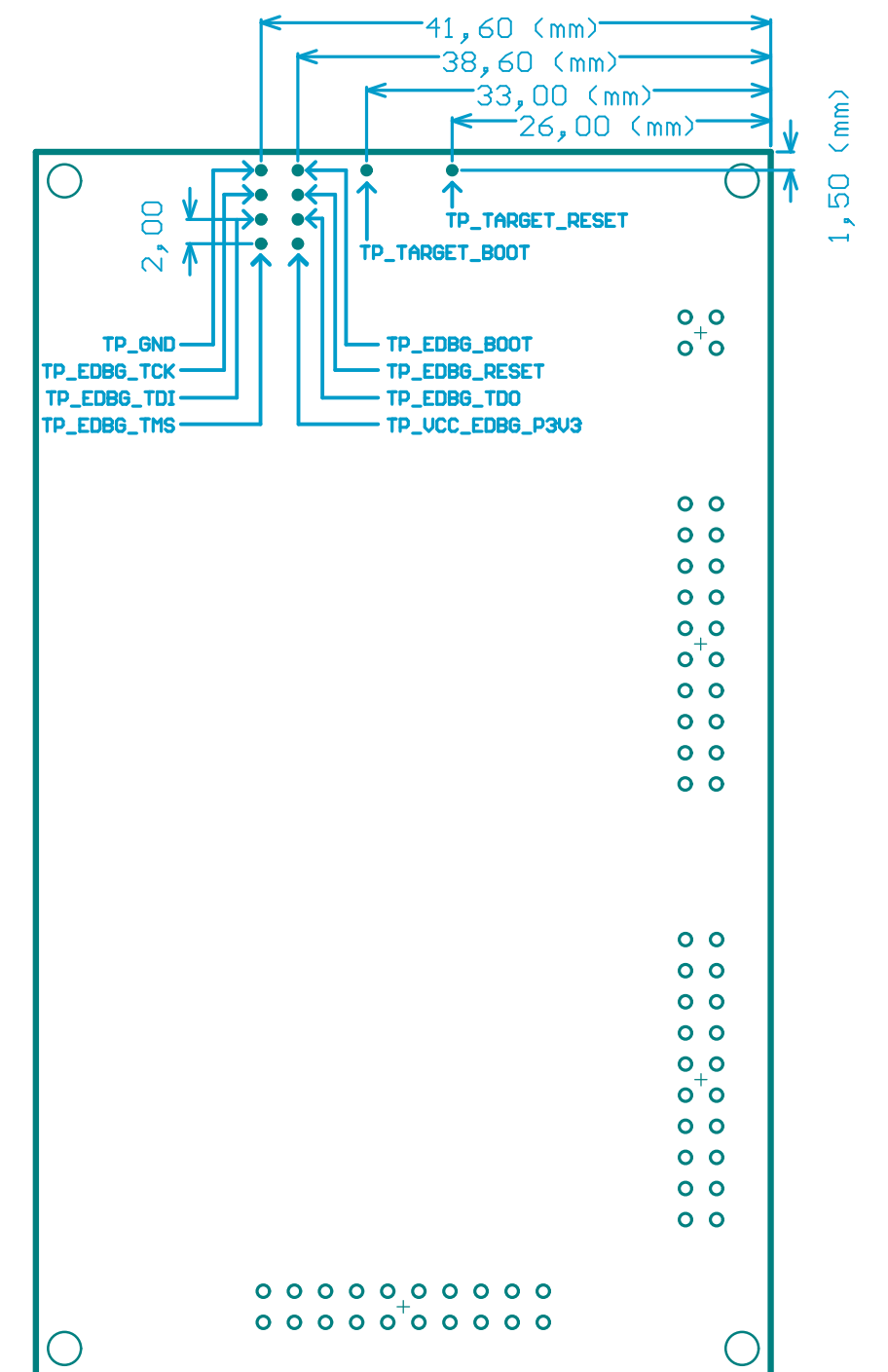
Medium MCU Mechanical Dimensions



Medium MCU Component Placement



Medium MCU Test Points



ATMEL NORWAY
Vestre Rosten 79
N-7075 Tiller

	ENGINEER:
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PCB DESIGNER

DATE:

FILE NAME:

SAM4S_Xplained_ProPcbDoc

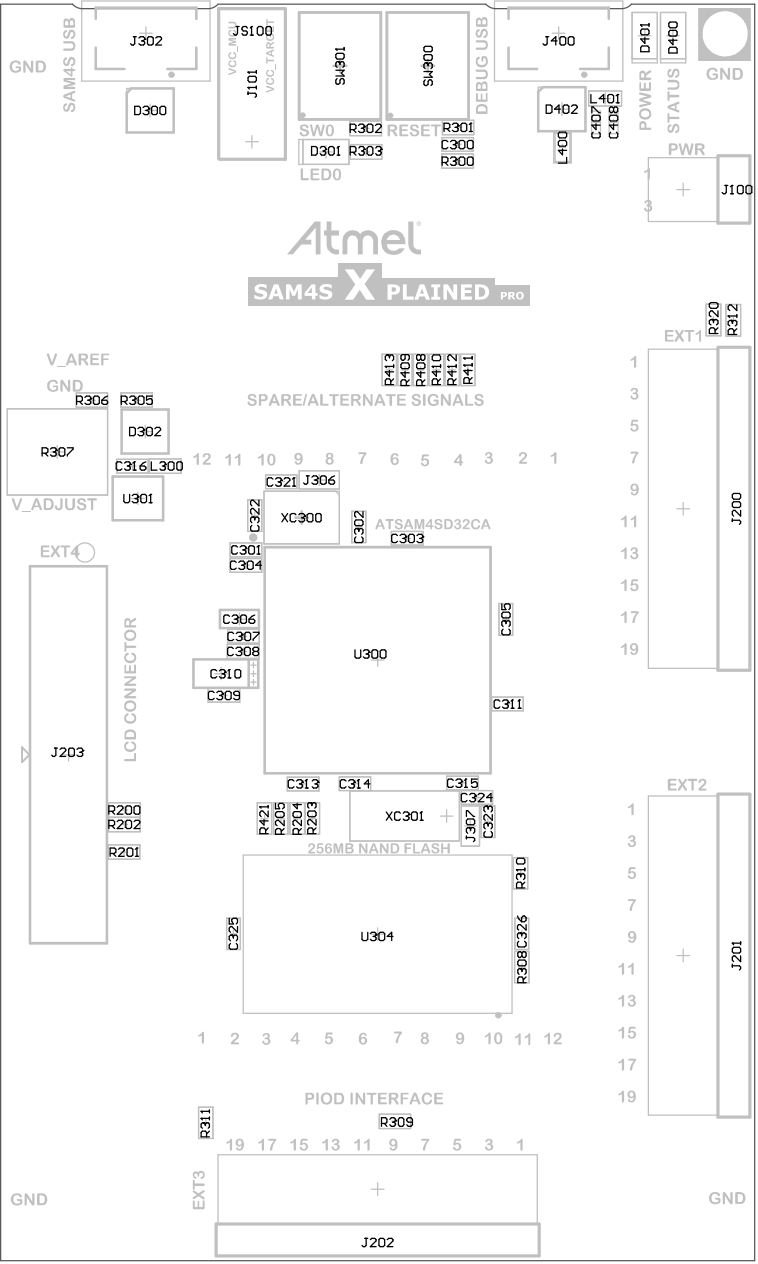
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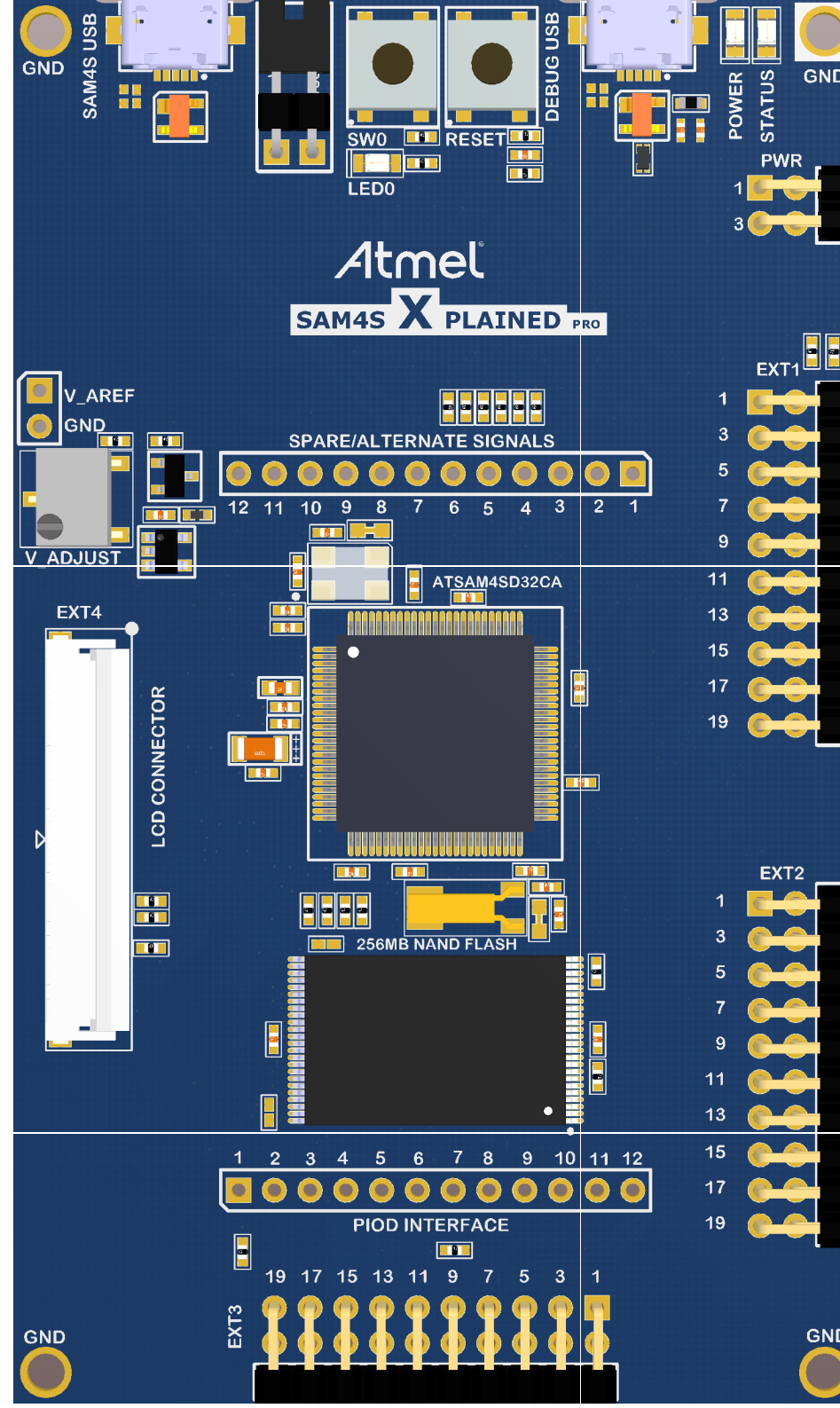
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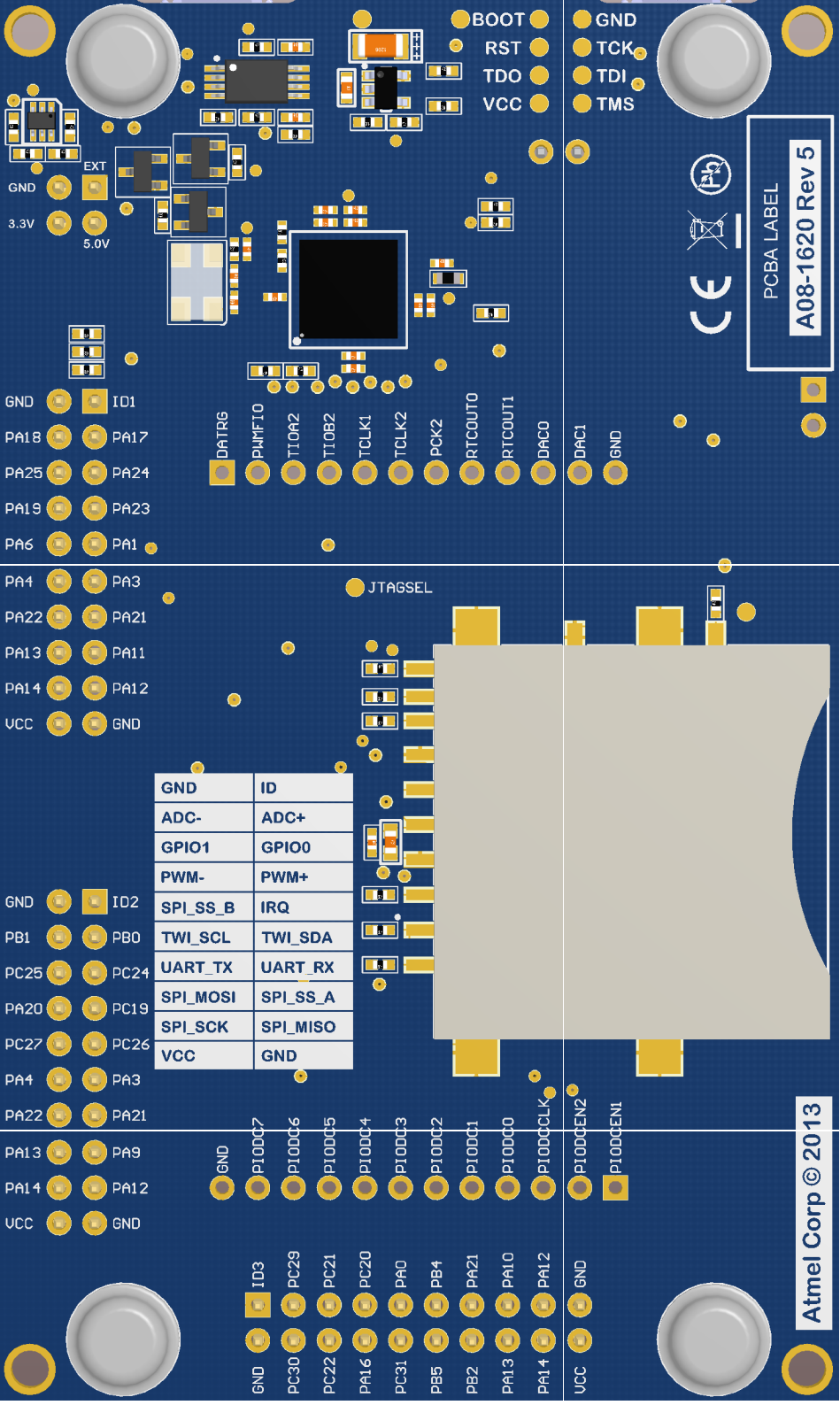
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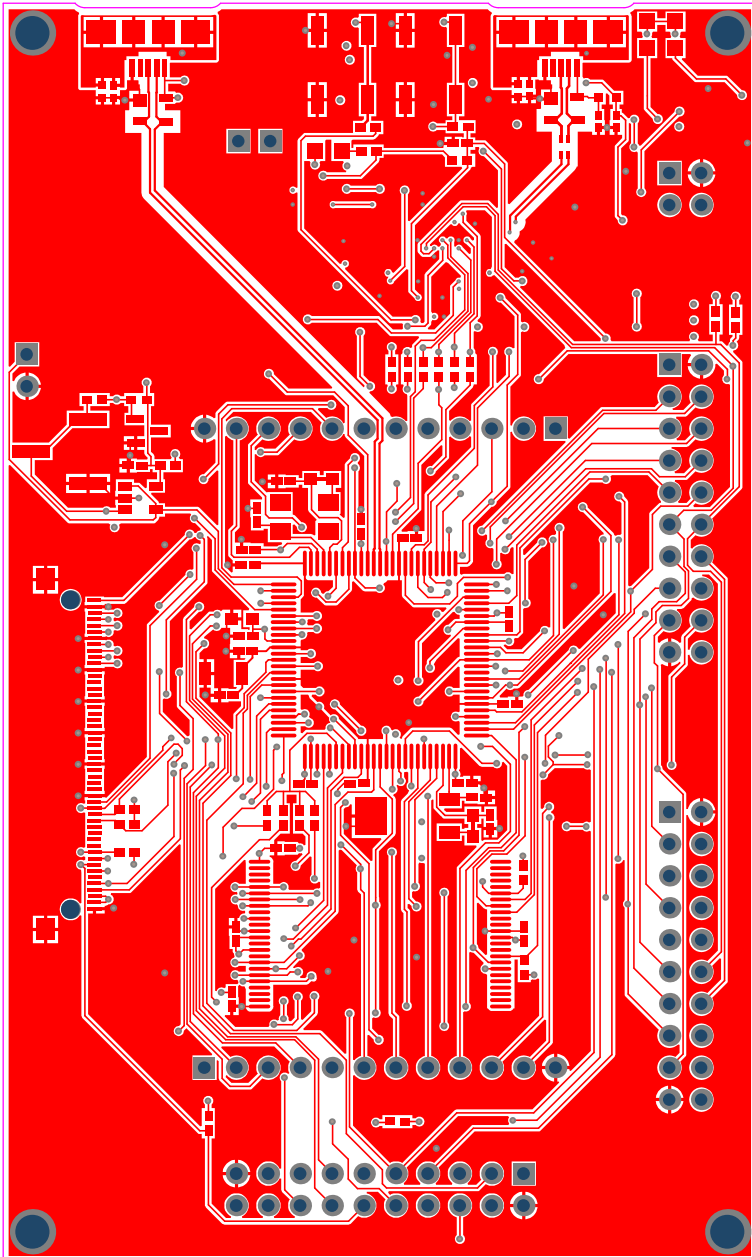
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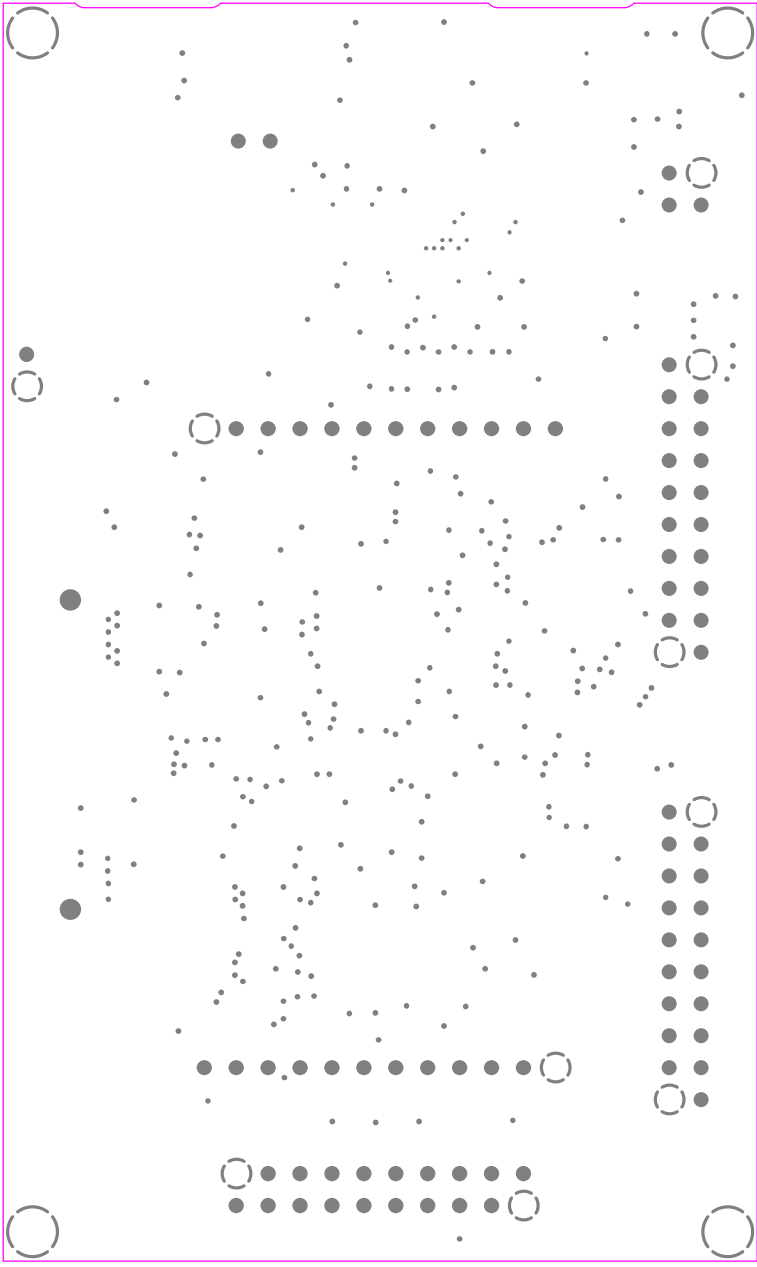


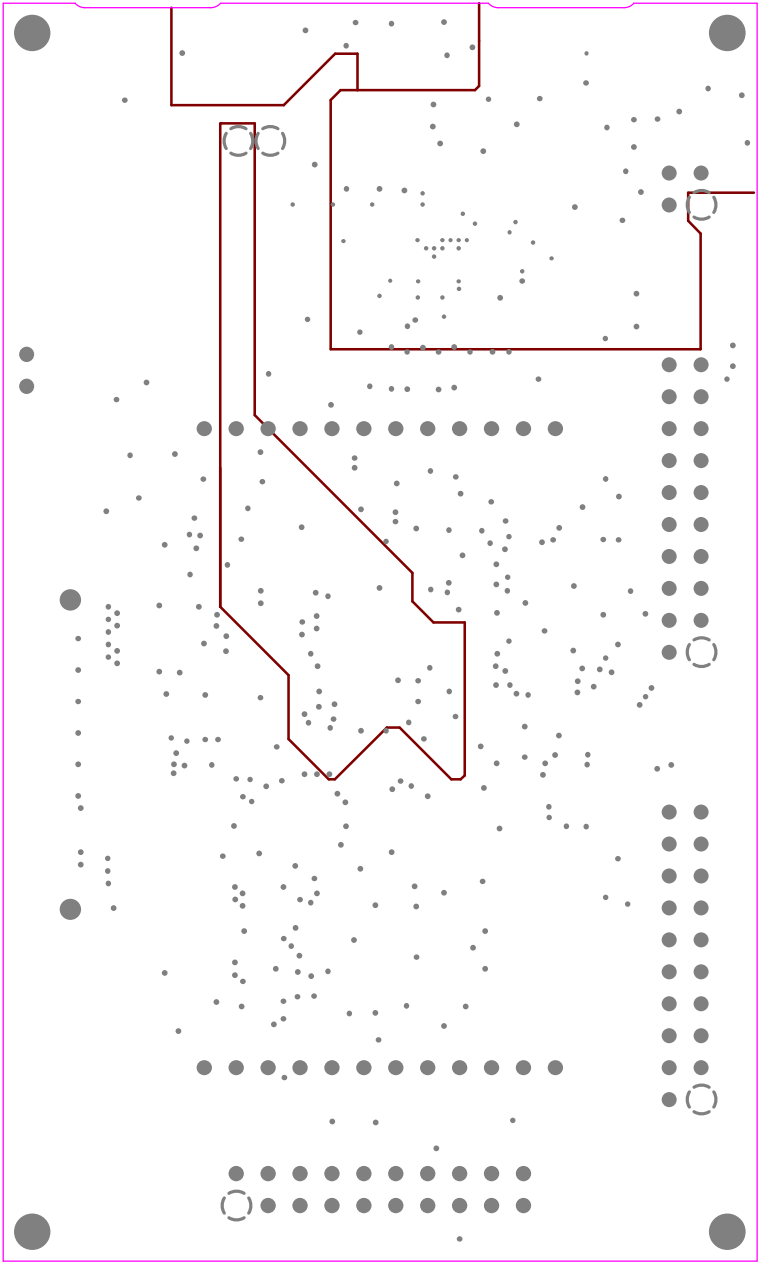


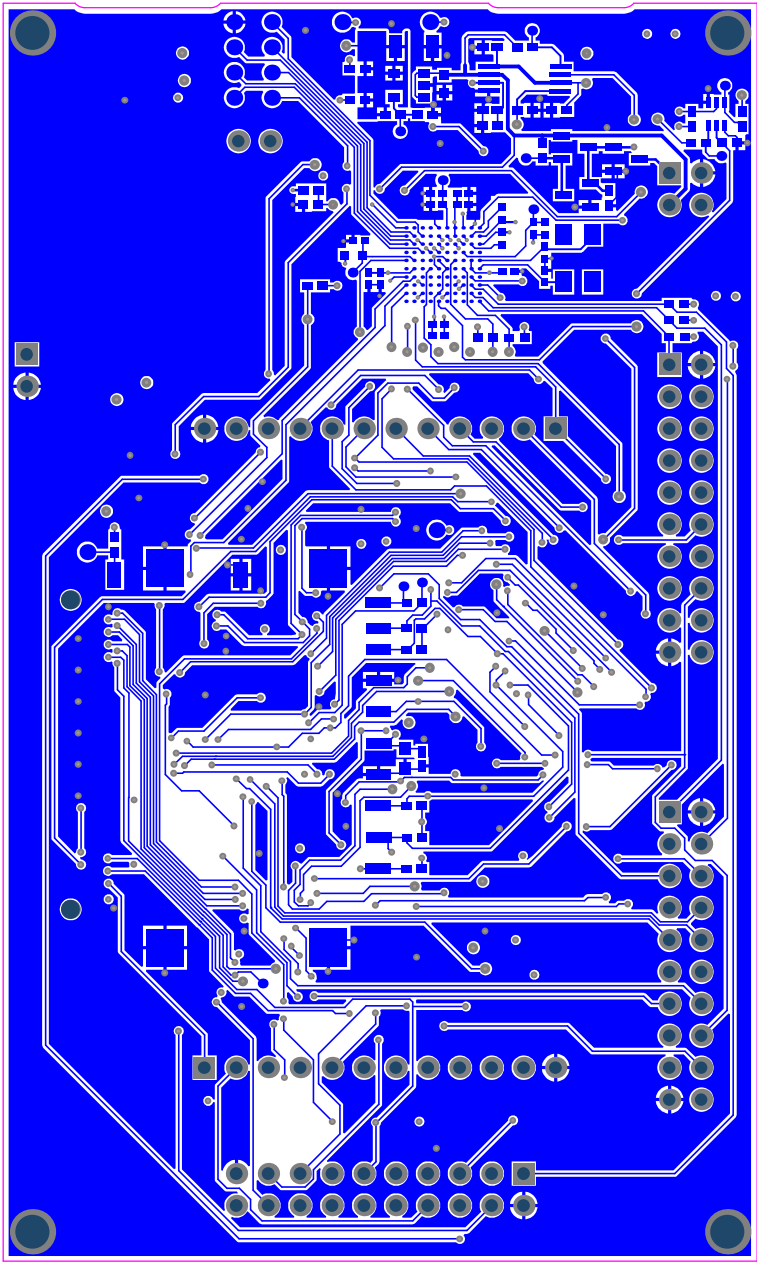












Component list

Top Level Schematics

Source Data From:

SAM4S_Xplained_Pro.PrjPCB

Project:

SAM4S_Xplained_Pro.PrjPCB

Variant:

Default_assembly

Report Date:

27.03.2015

11:08:12

Print Date:

27.03.2015

11:01:50



Fitted	Designator	Quantity	Value	Manufacturer	MPN	Description
Fitted	C100	1	10u	vishay	TR3A106K016C1700	SMD tantalum capacitor, ESR = 1.7, 3216-18 (EA) 1206,
Fitted	C101	1	4.7uF	tdk	C1608X5R1A475K	Ceramic capacitor, SMD 0603, X5R, 10V, 10% (de31036)
Fitted	C102, C103, C301, C302, C303, C304, C305, C307, C308, C309, C311, C313, C314, C315, C316, C319, C325, C328, C404, C410, C411, C412, C413	23	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Fitted	C300	1	4.7n			Ceramic capacitor, SMD 0402, X7R, 25V, +/-10% (de35287)
Fitted	C306, C320	2	10u			Ceramic capacitor, SMD 0603
Fitted	C310	1	2.2uF	Kemet	T494A225K010AT	Capacitor Tantalum 10V 2.2uF 10% ESR = 6 ohm
Fitted	C321, C322	2	18p			Ceramic capacitor, SMD 0402, NPO, 50V, +/-5%
Fitted	C323, C324	2	6.8p			Ceramic capacitor, SMD 0402, NPO, 50V, +/-5%
Fitted	C400, C401	2	22p			Ceramic capacitor, SMD 0402, NPO, 50V, +/-5%
Fitted	C402	1	10p			Ceramic capacitor, SMD 0402, NPO, 50V, +/-5%
Fitted	C405, C409, C414, C415	4	2.2uF	Kemet	C0402C225MBFAC	Ceramic capacitor, SMD 0402, X5R, 6.3V, +/-20%
Fitted	C406, C407, C408	3	1 nF C0G	Murata	GRM1555C1H102JA01D	Ceramic capacitor, SMD 0402, C0G, 50V, +/-5%
Fitted	D300, D402	2		Philips	PRTR5V0L2X	Double rail-to-rail USB ESD protection diode
Fitted	D301, D400	2	EL17-21UYC/A2	Everlight	EL17-21UYC/S530-A3/TR8	LED, Yellow, Wave length=591nm, SMD 0805, ±70°
Fitted	D302	1	LM4040BM3-4.1	National Instruments	LM4040BM3-4.1	Voltage reference 4.096V, SOT-23
Fitted	D401	1	EL17-21SYGC	Everlight	EL17-21SYGC	LED, Green, Wave length=575nm, SMD 0805, ±70°
Fitted	DOC1	1	A09-1803 PCB A Files	ATMEL		SAM4S Xplained PRO PCB A documentation
Fitted	E1, E2, E3, E4	4	SJ-5076	3M	SJ-5076	2.8mm adhesive feet, diam 8.0mm
Fitted	FIXTURE1	1	Xplained PRO MCU board Jupiter Test Fixture	ESCA TEC	Xplained PRO MCU board Jupiter Test Fixture	Xplained PRO MCU board Jupiter Test Fixture
Fitted	FW1	1	EDBG secured firm ware			EDBG secured firm ware
Fitted	J100	1	P101-2*02RGF-139-ND		P101-2*02RGF-139-ND	Pin header, 2x2, Right Angle, 2.54mm, THF, Pin In Paste
Fitted	J101	1	Pin header 1x2 right angle	Pro-data International Corp	Z213R-ZG	1x2 pin header, right angle, 2.54mm pitch, through-hole
Fitted	J200, J201, J202	3	P101-2*10RGF-139-ND	Pro-data International Corp	P101-2*10RGF-139-ND	Pin header, 2x10, Right Angle, 2.54mm, THF, Pin In Paste
Fitted	J203	1	XF2M-5015-1A	Omron Components	XF2M-5015-1A	50pin FPC connector, 0.5mm pitch, Top/Bottom contacts
Fitted	J302, J400	2	10104111-0001LF	FCI	10104111-0001LF	Micro USB AB Connector
Fitted	J305	1	KYOCERA - 14 5738 009 220 859+	Kyocera-elco	KYOCERA - 14 5738 009 220 859+	SDMMC socket, 2.7mm, push-push, SMD
Fitted	JS100	1	SNF-100-BK-G	SAMTEC	SNF-100-BK-G	Jumper cap for 2.54mm pinheader
Fitted	L300	1	BLM15BB221SN1	Murata	BLM15BB221SN1	SMD RF inductor 0402, Z=220Ohm (@100MHz), Max R(dc)=0.80Ohm, Max current=200mA
Fitted	L400	1	0603USB-142ML	Coilcraft	0603USB-142ML	USB common-mode filter in 0603
Fitted	L401, L402	2	BLM18PG471SN1	Murata	BLM18PG471SN1	SMD RF inductor 0603, Z=470Ohm (@100MHz), Max R(dc)=0.65Ohm, Max current=1A
Fitted	LABEL1	1	Label PCB A	ACT Logmark AS	505462	PCBA identification label PP Top White Gloss
Fitted	PCB1	1		NCA B		SAM4S Xplained PRO PCB, 4 layer, size 60mm x 100mm
Fitted	Q100, Q101	2	IRJLM16402PBF	International Rectifier	IRJLM16402PBF	P-ch. MOSFET, -30V, -3.7A continuous RDS(ON)=0.050hm@VGS=4.5V, RDS(ON)=0.080hm@VGS=2.5V
Fitted	Q102	1	2N7002.215	NXP	2N7002.215	N-Channel MOSFET, 60V, 0.300A continuous, 1.2A Peak RDS(ON) = 3.80hm@VGS=4.5V, VGS(th)<2.5V
Fitted	Q400	1	2N7002DW	Fairchild	2N7002DW	Dual N-Channel MOSFET, 60V, 115mA cont.RDS(ON) < 7.5 Ohm @50mA@5V, SOT-363
Fitted	R100	1	30k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R101, R102, R104, R110, R405, R407	6	1M			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R103	1	18k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R105	1	390R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R106, R200, R201, R202, R300, R308, R310, R314, R315, R316, R317, R419, R420	13	100k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R107, R418	2	0R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R108, R109	2	47k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R203, R204, R205, R421	4	43R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R301, R302, R318, R414, R415	5	39R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R303, R404, R406, R408, R409, R410, R411, R412, R413	9	330R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R305	1	1.6k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R306	1	22k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R307	1	TS63Y104KT20	vishay	TS63Y104KT20	100k trimmer, SMD, 13 turn
Fitted	R309, R311, R312, R320	4	4.7k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R313, R319	2	10k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R400, R401, R402, R403	4	1k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R416	1	6.81k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	SW300, SW301	2	SKRAAKED10	ALPS	SKRAAKED10	6.2x6.2 mm SMD tact sw ich, same as A08-0091 but less force is needed
Fitted	TEST1	1	SAM4S Xplained PRO test	ATMEL		Fixture test for SAM4S Xplained PRO
Fitted	U100	1	SPX3819M5-L/TR	Exar	SPX3819M5-L/TR	500mA LDO, low noise, SOT23-5 package
Fitted	U101	1	TPS2113PWR	Texas Instruments	TPS2113PWR	Autoswitching 2.1 Power Mux
Fitted	U300	1	ATSAM5D32CA-AU	ATMEL	ATSAM5D32CA-AU	ARM Cortex-M4 MCU with 2MB flash, 160KB SRAM
Fitted	U301	1	AD8541ARTZ-R2	Analog Devices	AD8541ARTZ-R2	Single, Low Voltage, Rail-to-rail output, Op-Amp, SOT23-5
Fitted	U304	1	MT29F2G08ABA0A0WPE	Micron	MT29F2G08ABA0A0WPE	2Gb, x 8 NAND flash, 3.3V 48-TSOP1
Fitted	U400	1	AT32UC3A4256J-C1UR	ATMEL	AT32UC3A4256J-C1UR	AVR 32-bit RISC MCU
Fitted	XC300, XC400	2	12.0MHz	Fox Electronics	FQ5032B-12-C-C-C-200-1	Fox FQ5032B 12.0MHz SMD crystal 738B-12
Fitted	XC301	1	32.768kHz +/-20ppm 7pF SMD	Micro Crystal	MS1V-T1K 32.768kHz 7pF +/-20ppm TA	32k768 crystal, +/-20ppm CL+7pF, max ESR 60kOhm, SMD
Nbt	C312, C403	0	4.7n			Ceramic capacitor, SMD 0402, X7R, 25V, +/-10%
Nbt	C317, C318	0	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Nbt	J300, J301	0	HMTSW-112-23-F-S-237	SAMTEC	HMTSW-112-23-F-S-237	1x12 pin header, 2.54mm pitch, Pin-in-Paste THM
Nbt	J303	0	HMTSW-102-23-F-S-237	SAMTEC	HMTSW-102-23-F-S-237	1x2 pin header, 2.54mm pitch, Pin-in-Paste THM
Nbt	R304, R417	0	1M	KOA	RK73H1ETTP1004F	Thick film resistor, SMD 0402, 1/16W, 1%

Approved

Notes

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