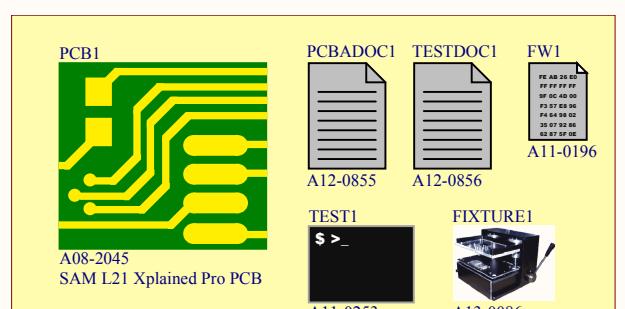
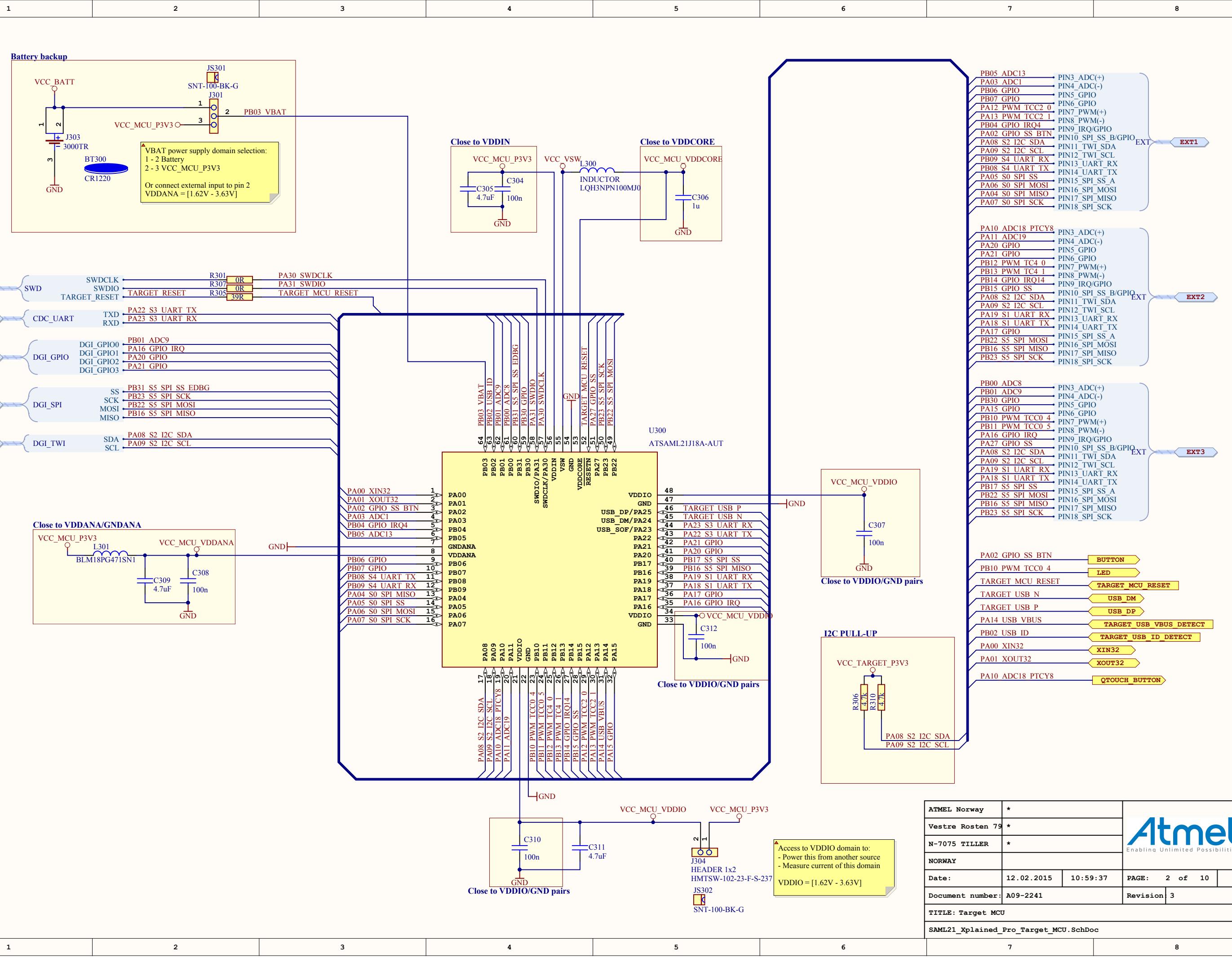


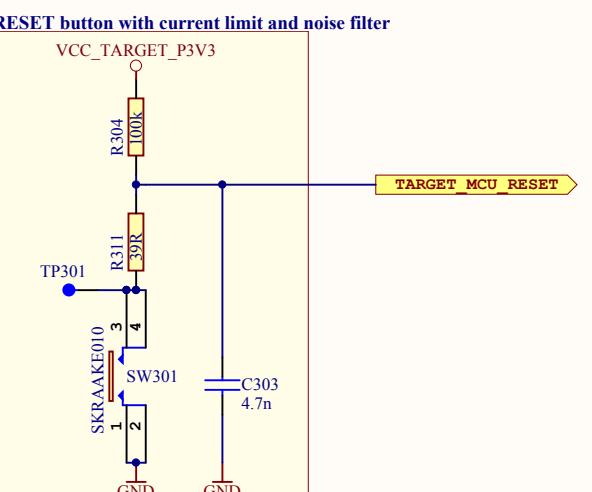
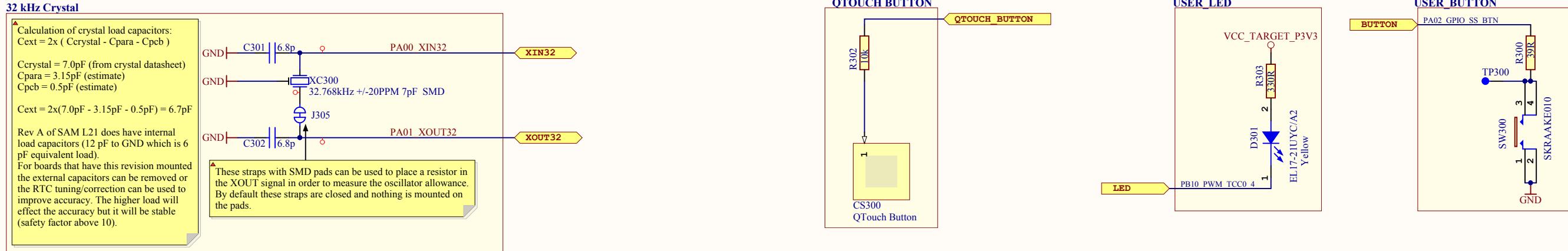
LABEL1
 Product number/revision
 Serial number

Label PCB

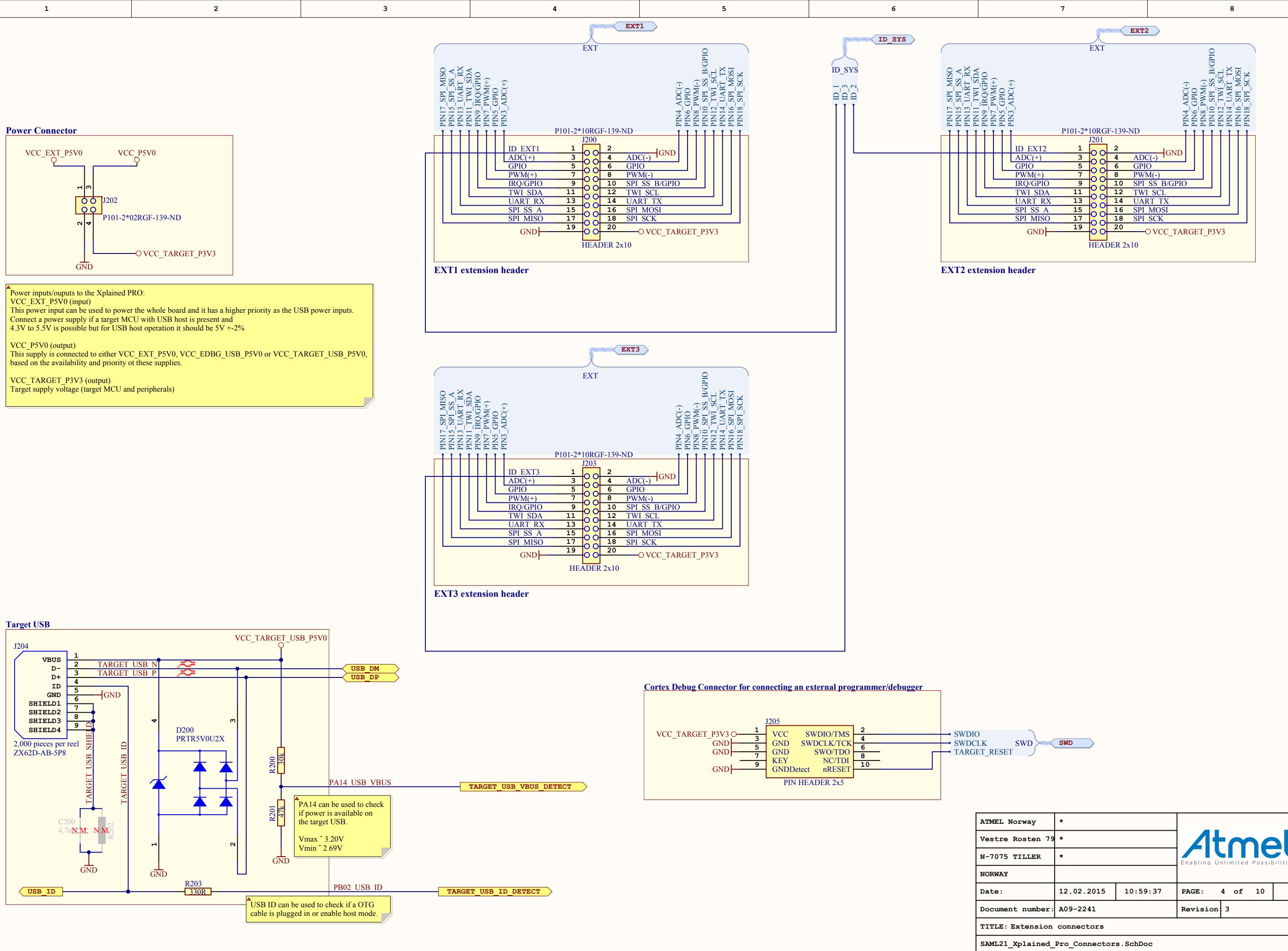


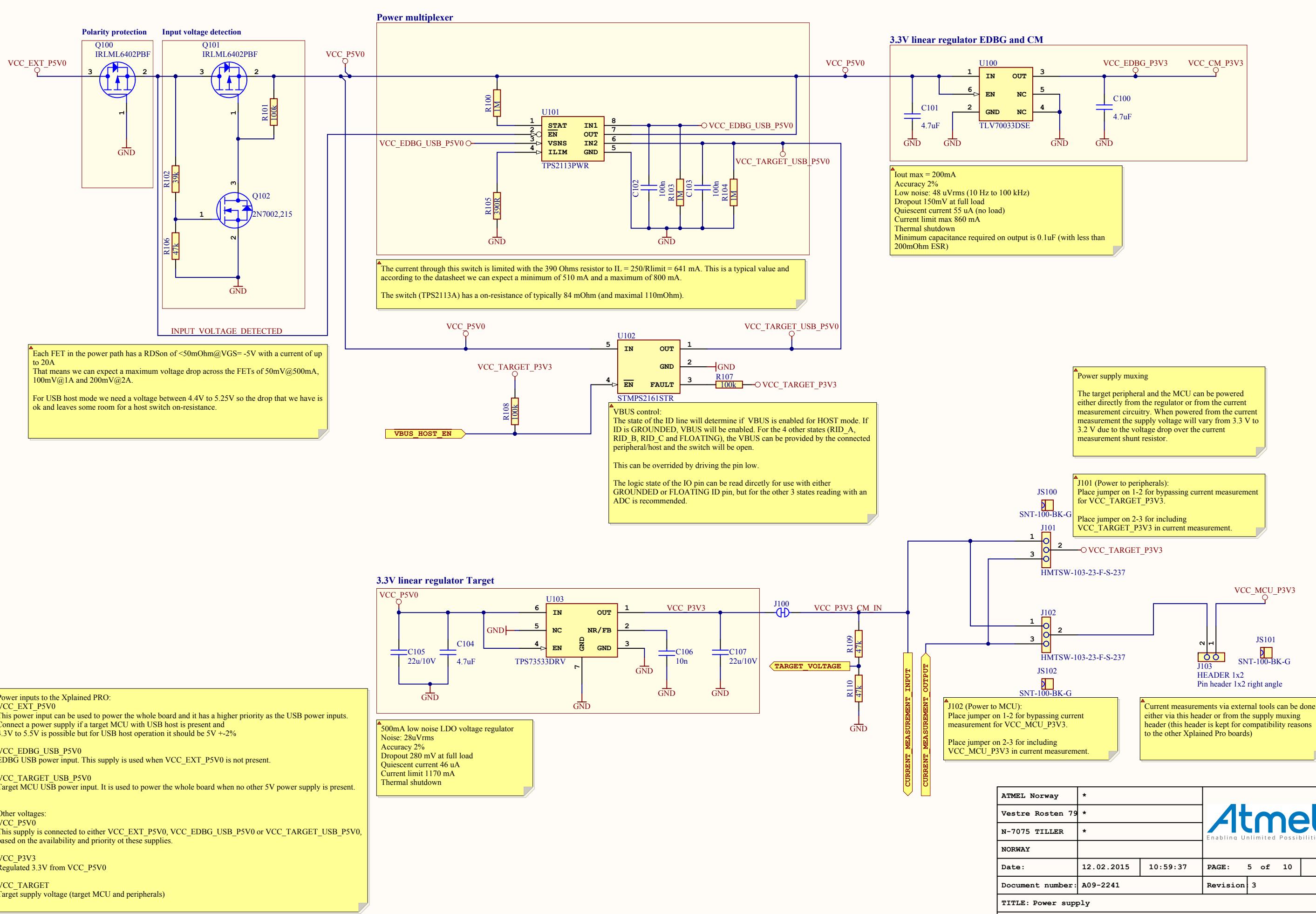
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Vestre Rosten 79	*	
N-7075 TILLER	*	
NORWAY		
Date:	12.02.2015 10:59:37	PAGE: 1 of 10
Document number:	A09-2241	Revision 3
TITLE: Top Level Schematics		
SAML21_Xplained_Pro_TopLevel.SchDoc		

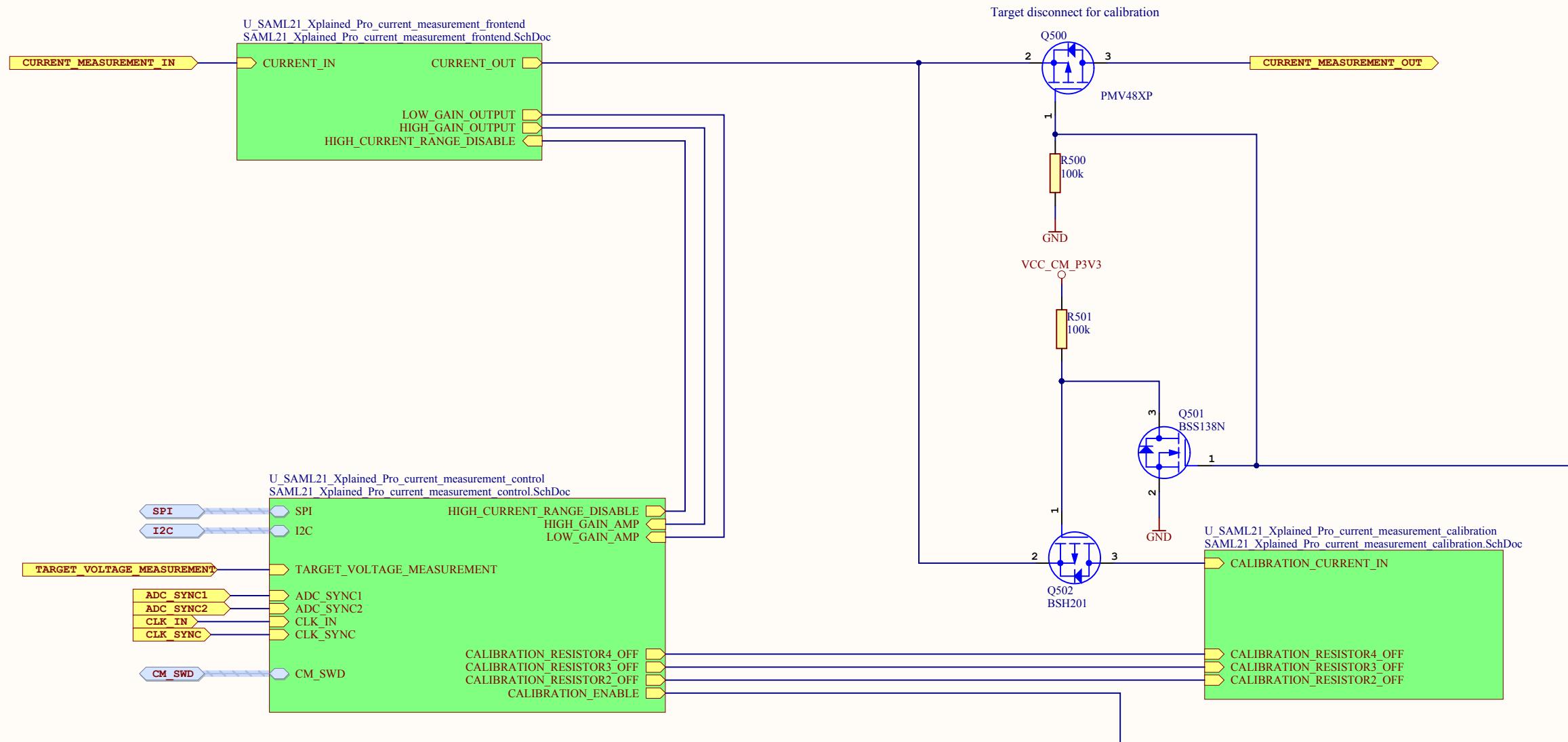


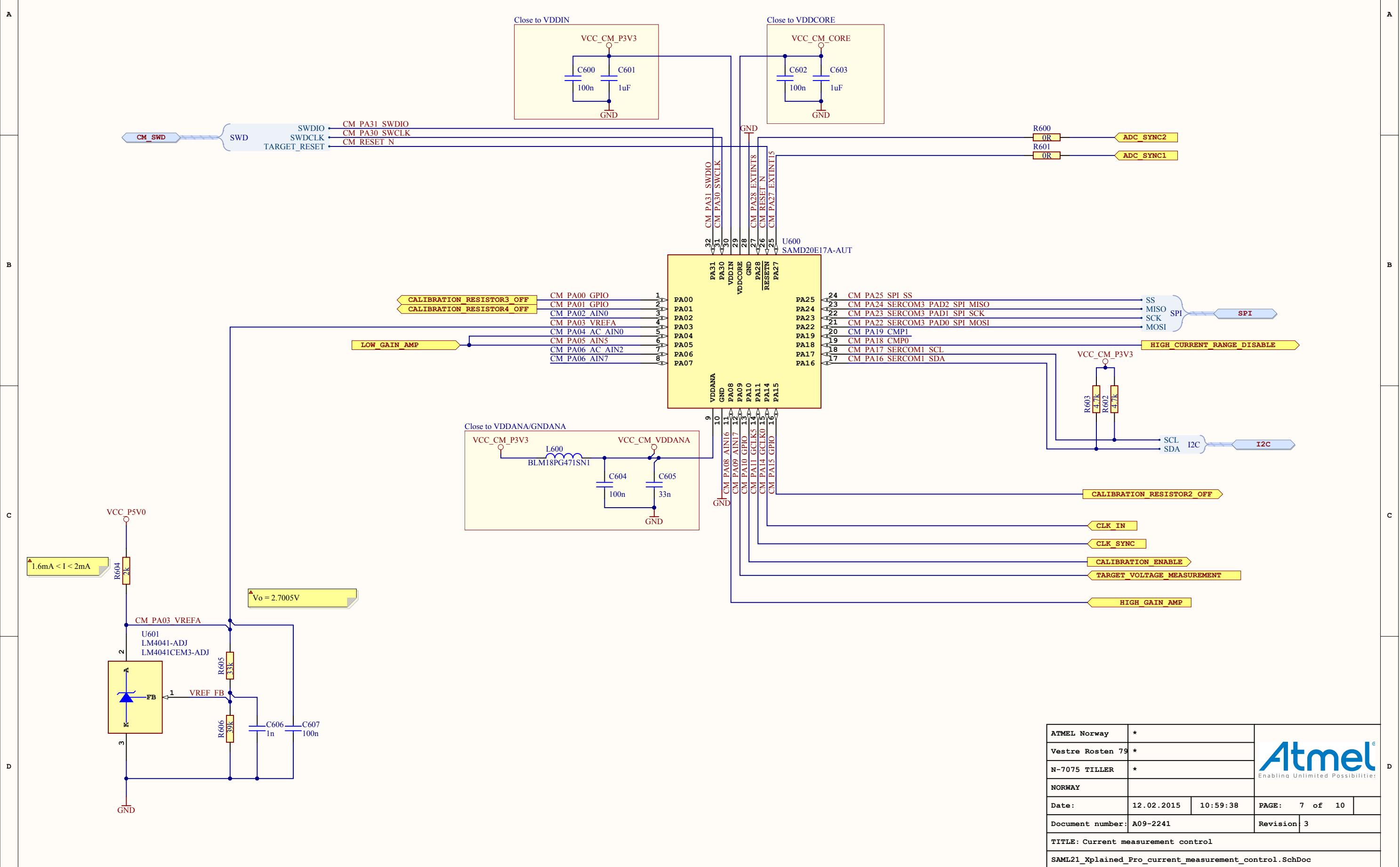


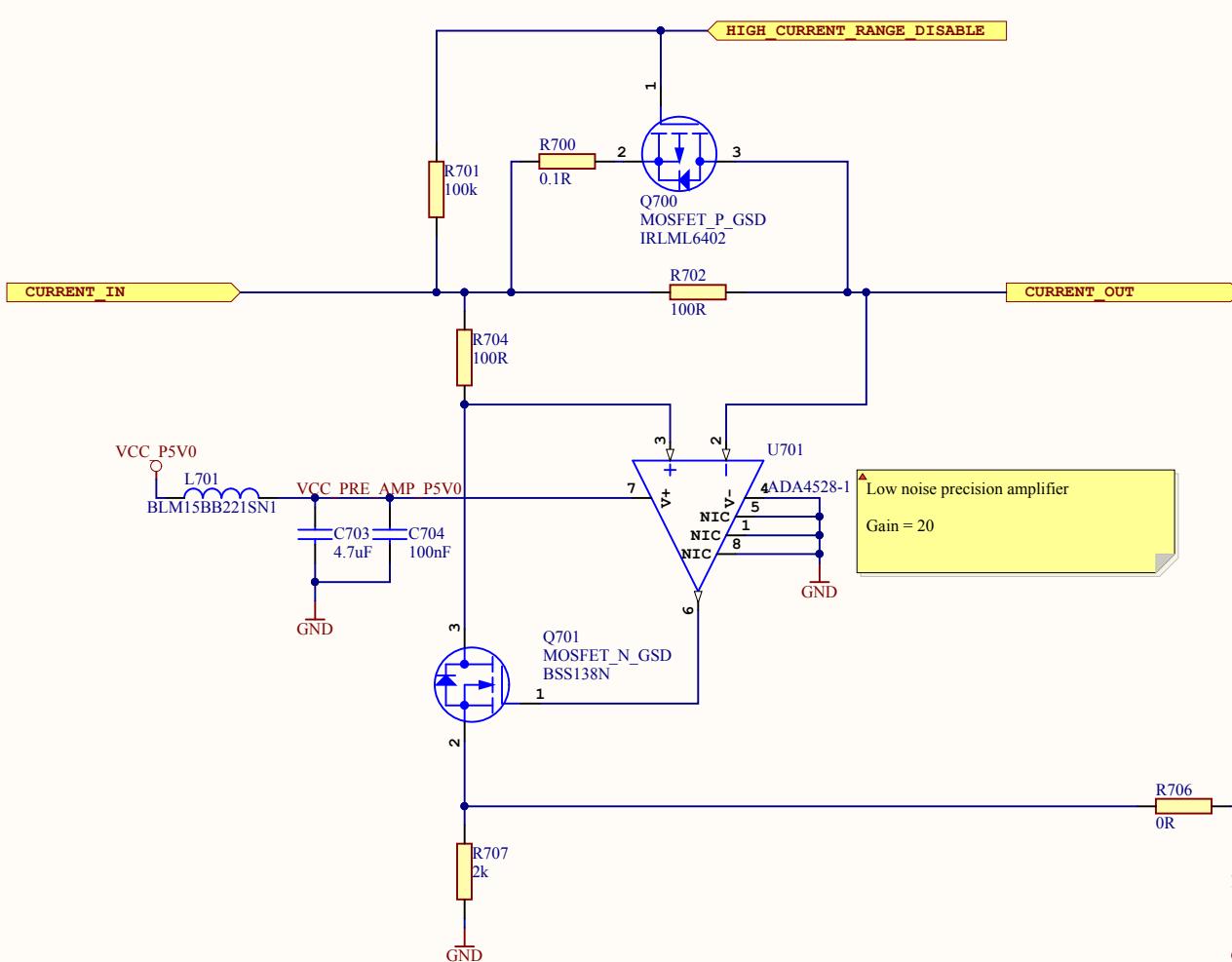
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SAML21_Xplained_Pro_SAML21_peripherals.SchDoc		



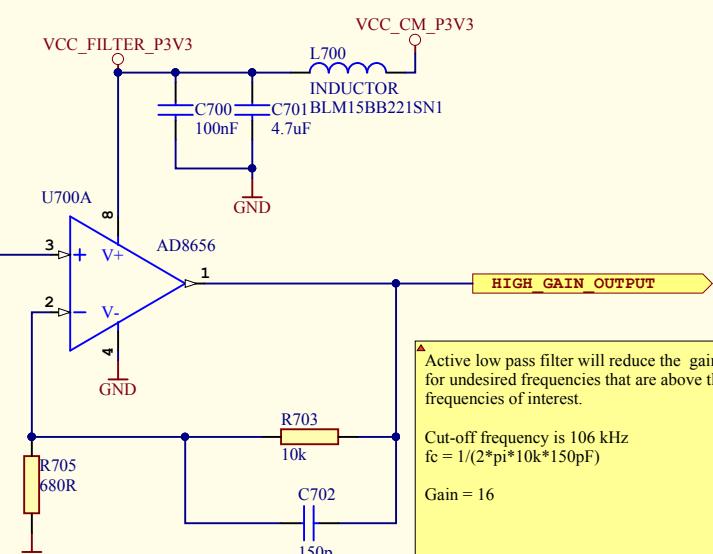




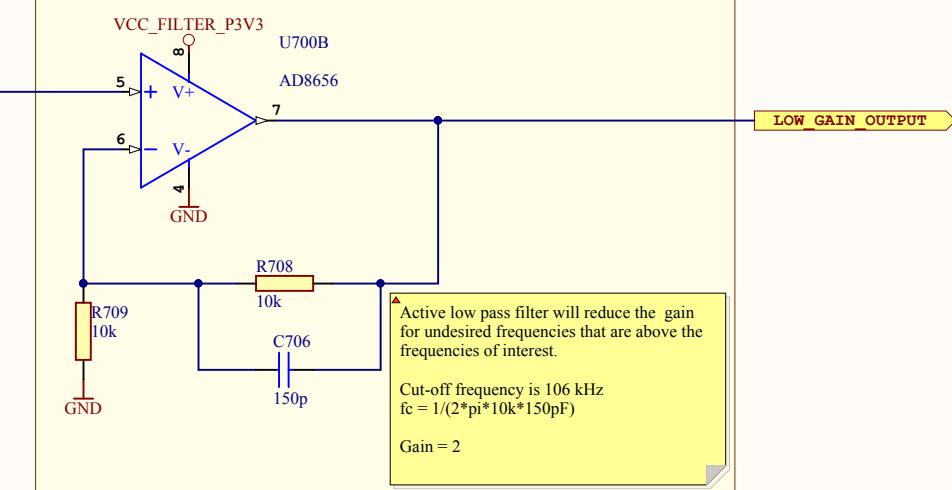




Active low pass filter with gain



Active low pass filter with gain



ATMEL Norway	*	
Vestre Rosten 79	*	
N-7075 TILLER	*	
NORWAY		
Date:	12.02.2015 10:59:38	PAGE: 8 of 10
Document number:	A09-2241	Revision 3
TITLE: Current measurement frontend		
SAML21_Xplained_Pro_current_measurement_frontend.SchDoc		

A

A

B

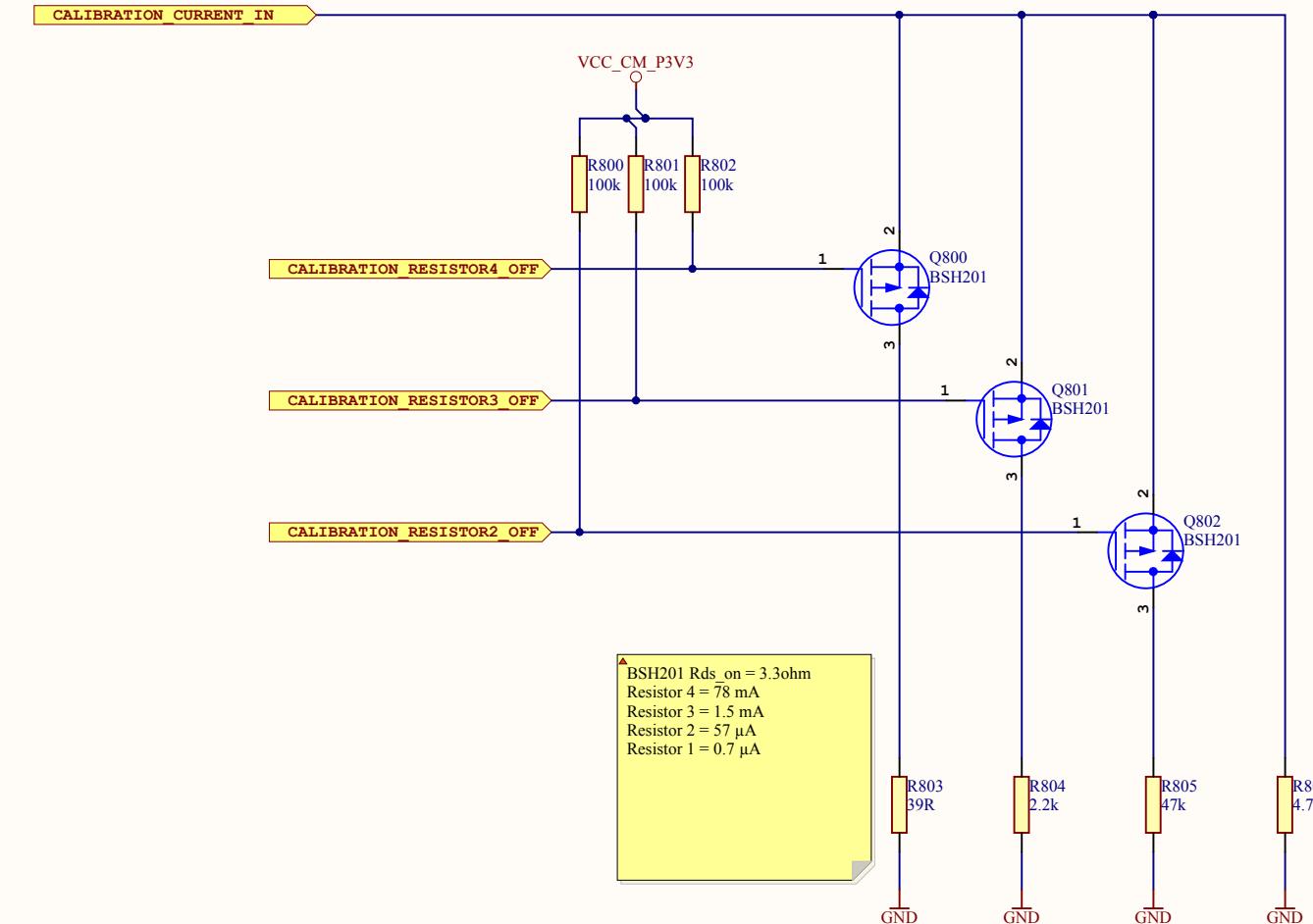
B

C

C

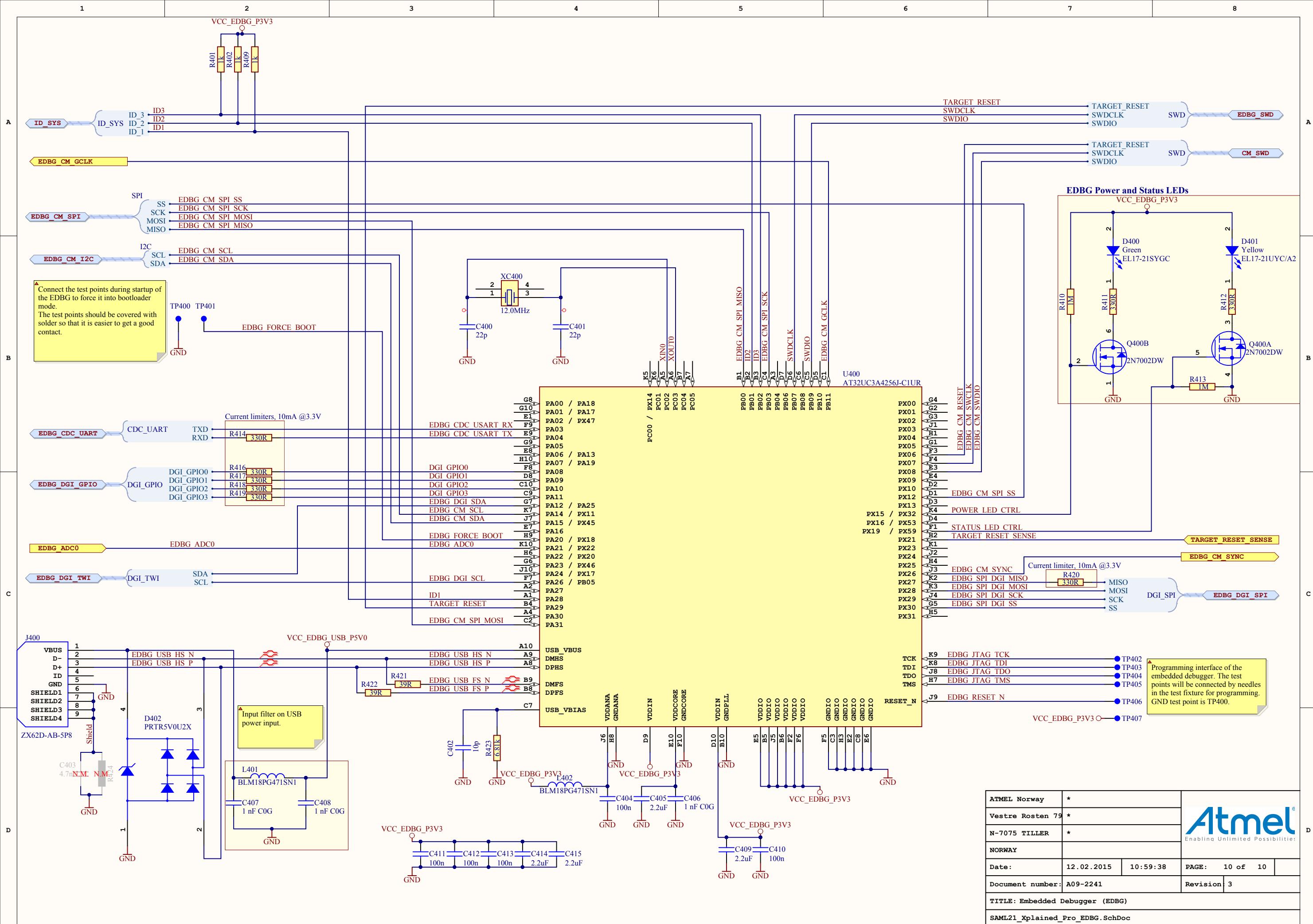
D

D

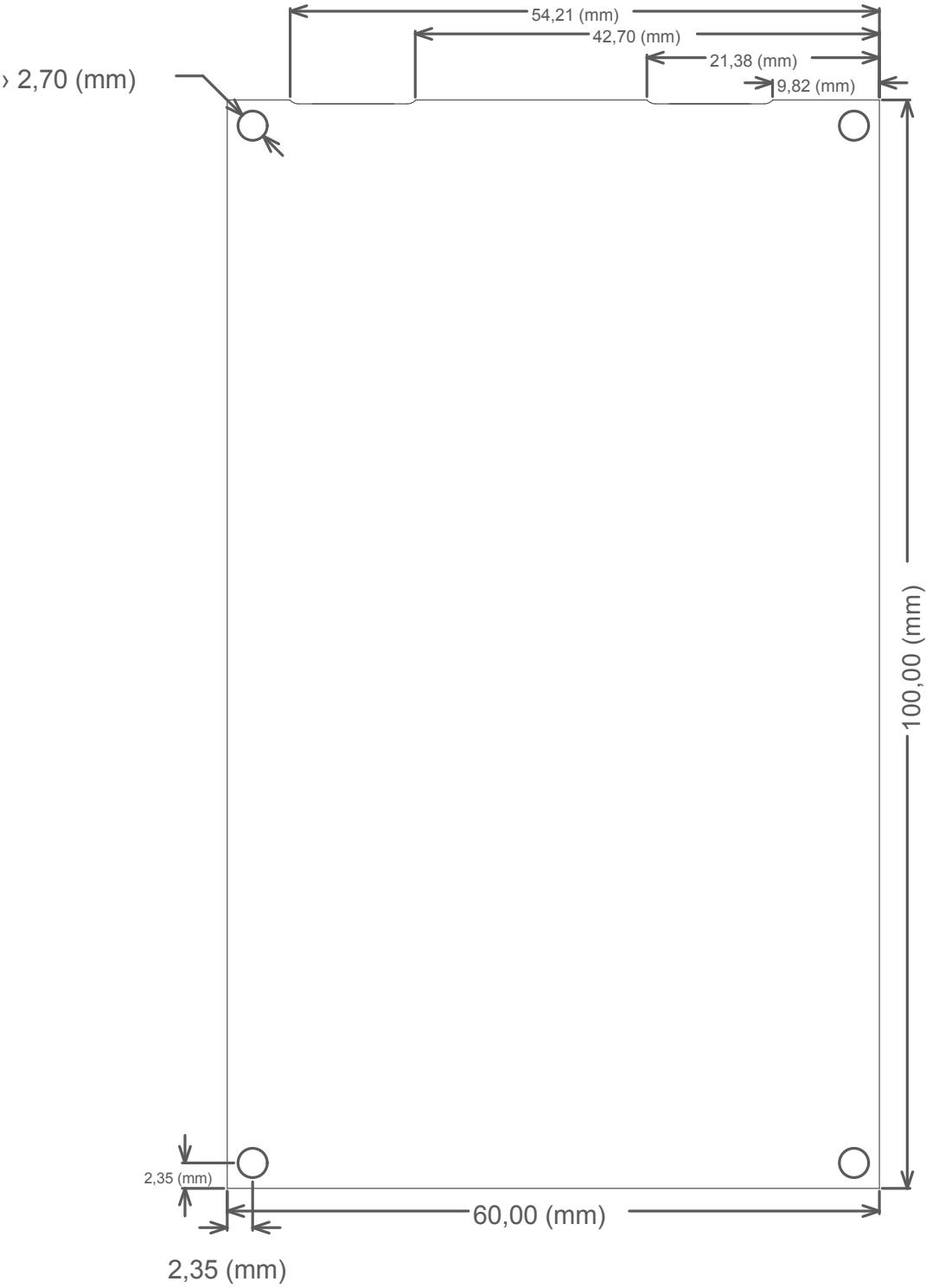


ATMEL Norway	*		
Vestre Rosten 79	*		
N-7075 TILLER	*		
NORWAY			
Date:	12.02.2015	10:59:38	PAGE: 9 of 10
Document number:	A09-2241	Revision	3
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SAML21_Xplained_Pro_current_measurement_calibration.SchDoc			

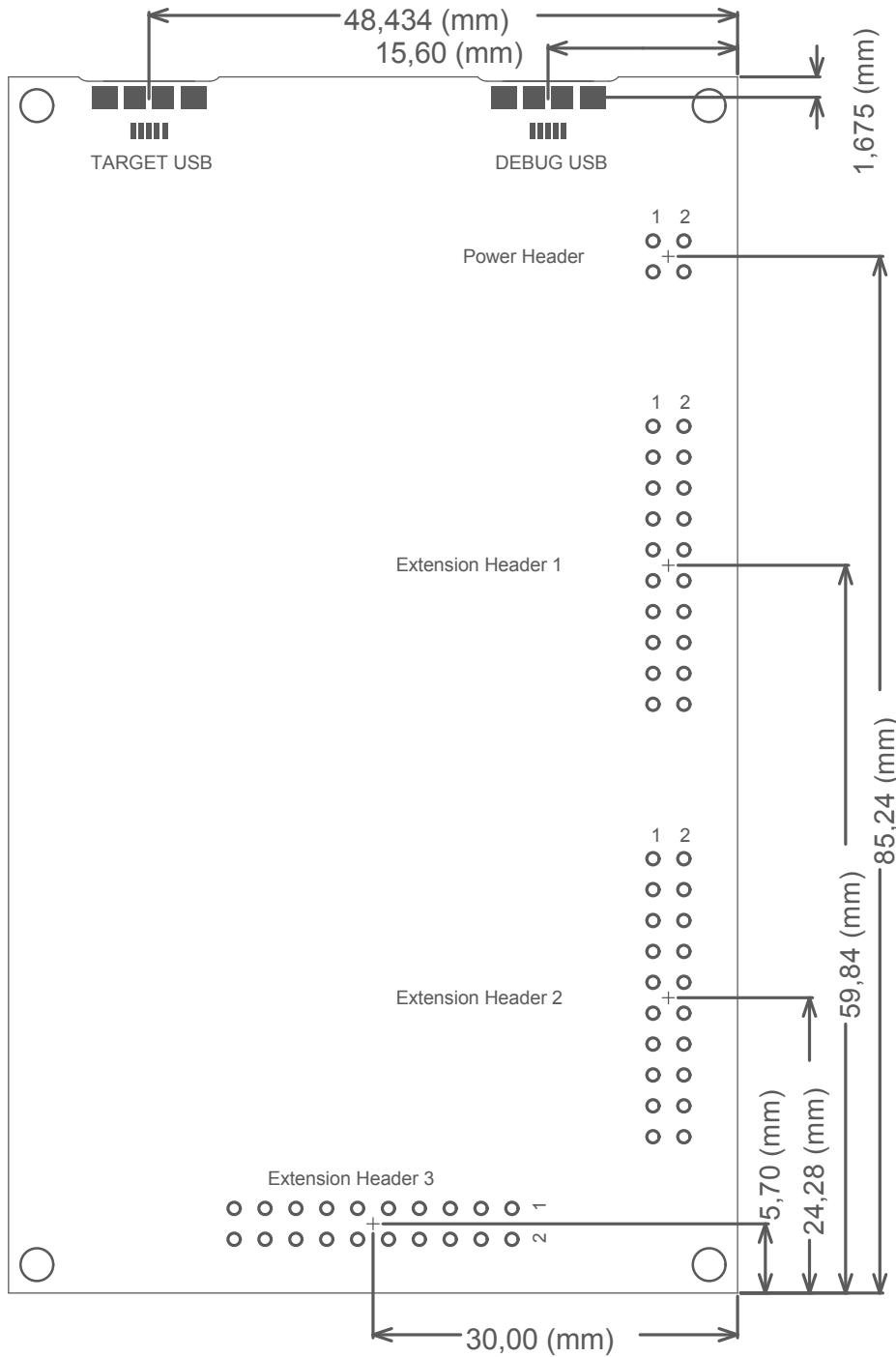
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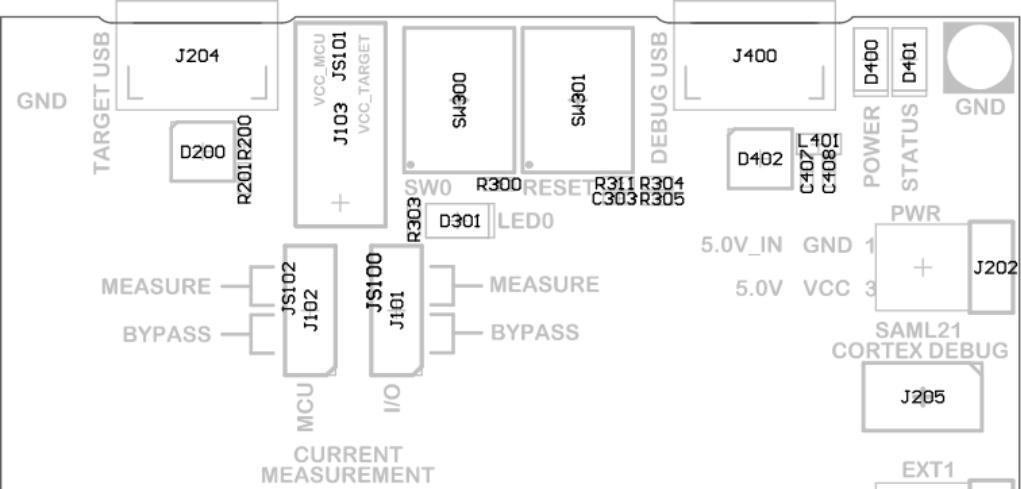


Medium MCU Mechanical Dimensions



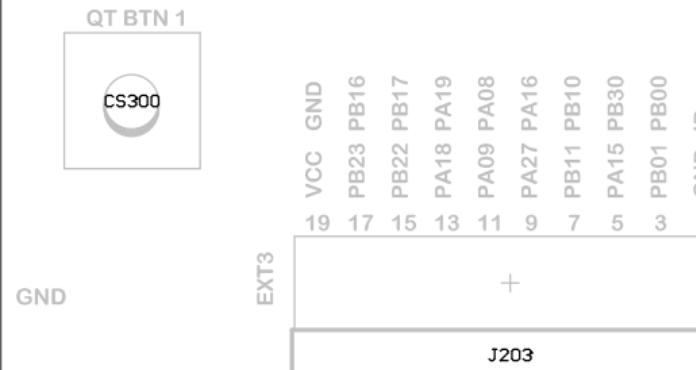
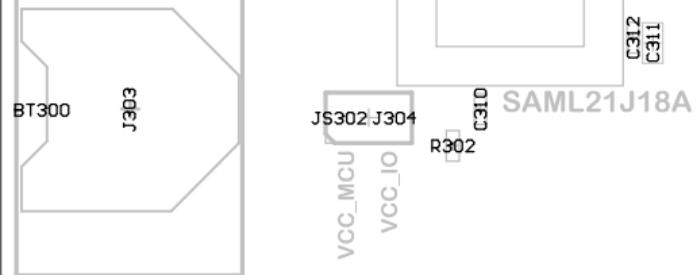
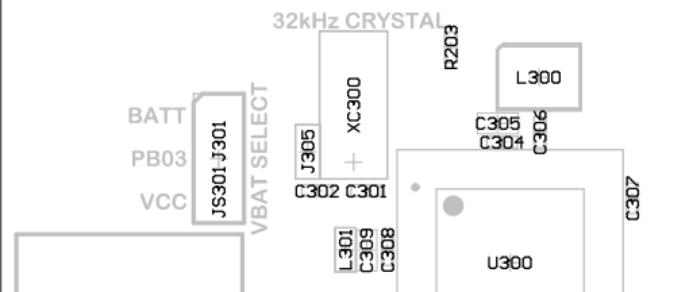
Medium MCU Connector Placement





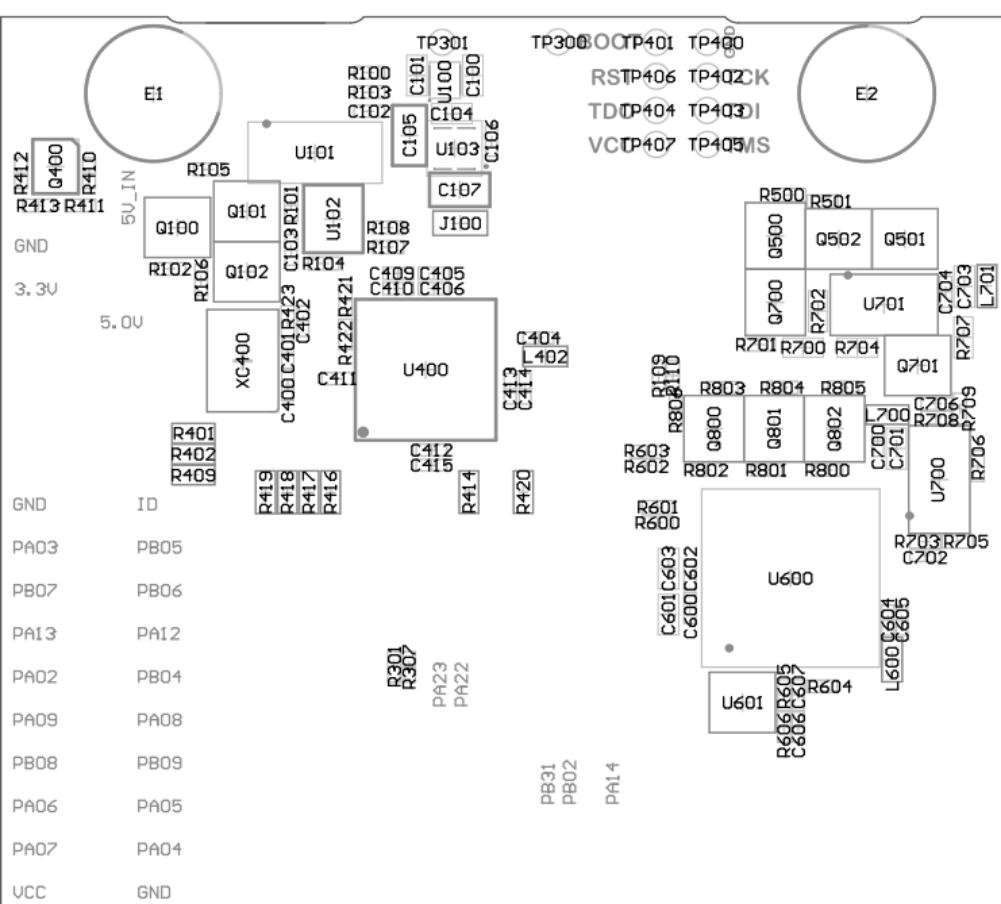
Atmel®

SAML21 X PLAINED PRO



ID	GND	1
PB05	PA03	3
PB06	PB07	5
PA12	PA13	7
PB04	PA02	9
PA08	PA09	11
PB09	PB08	13
PA05	PA06	15
PA04	PA07	17
GND	VCC	19

			EXT2
ID	GND	1	R31D
PA10	PA11	3	R306
PA20	PA21	5	
PB12	PB13	7	
PB14	PB15	9	
PA08	PA09	11	
PA19	PA18	13	+ J201
PA17	PB22	15	
PB16	PB23	17	
GND	VCC	19	



XPLAINED PRO EXTENSION HEADER

	ID	GND	ID
PA11	PA10	ADC-	ADC+
PA21	PA20	GPIO1	GPIO0
PB13	PB12	PWM-	PWM+
PB15	PB14	SPI_SS_B	IRQ
PA09	PA08	TWI_SCL	TWI_SDA
PA18	PA19	UART_TX	UART_RX
PB22	PA17	SPI_MOSI	SPI_SS_A
PB23	PB16	SPI_SCK	SPI_MISO
VCC	GND	VCC	GND

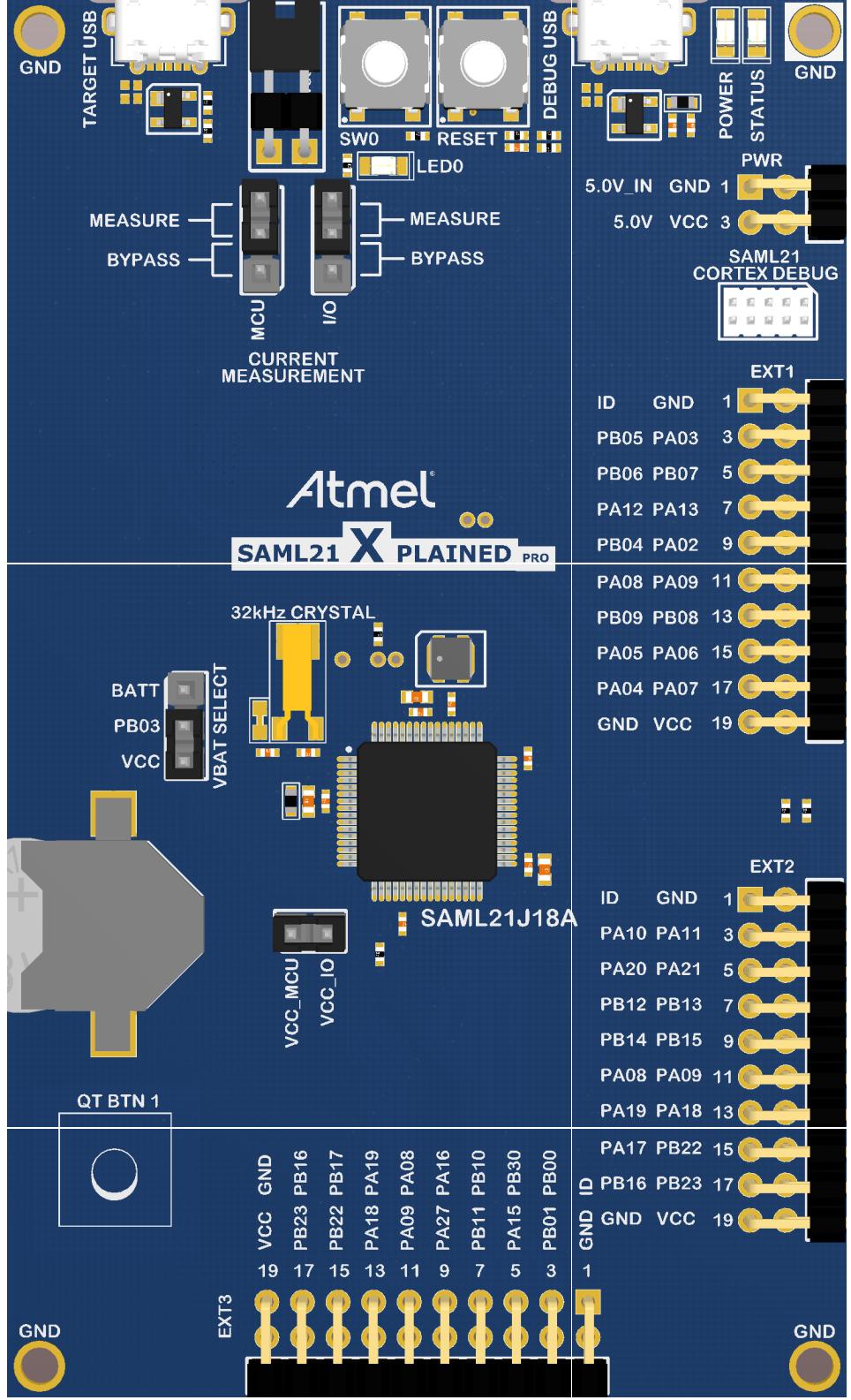
ID	ID	ID	ID
PB01	PB00	PB10	PB16
PA15	PA30	PA16	PA08
PB11	PB19	PA18	PA19
PA27	PB17	PB22	PB23
PA09	GND	GND	GND
PA18	UCC	UCC	UCC

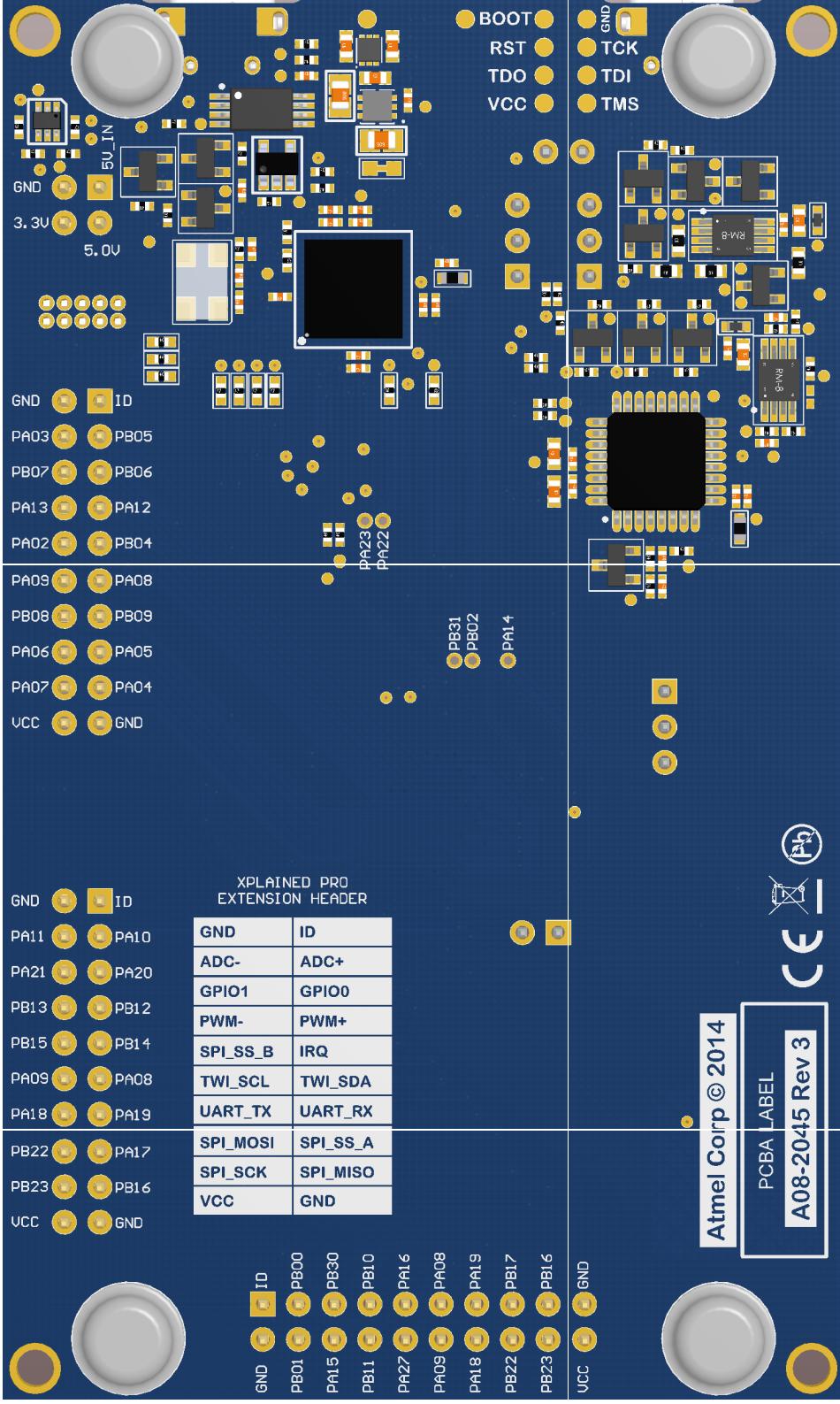
Atmel Corp © 2014

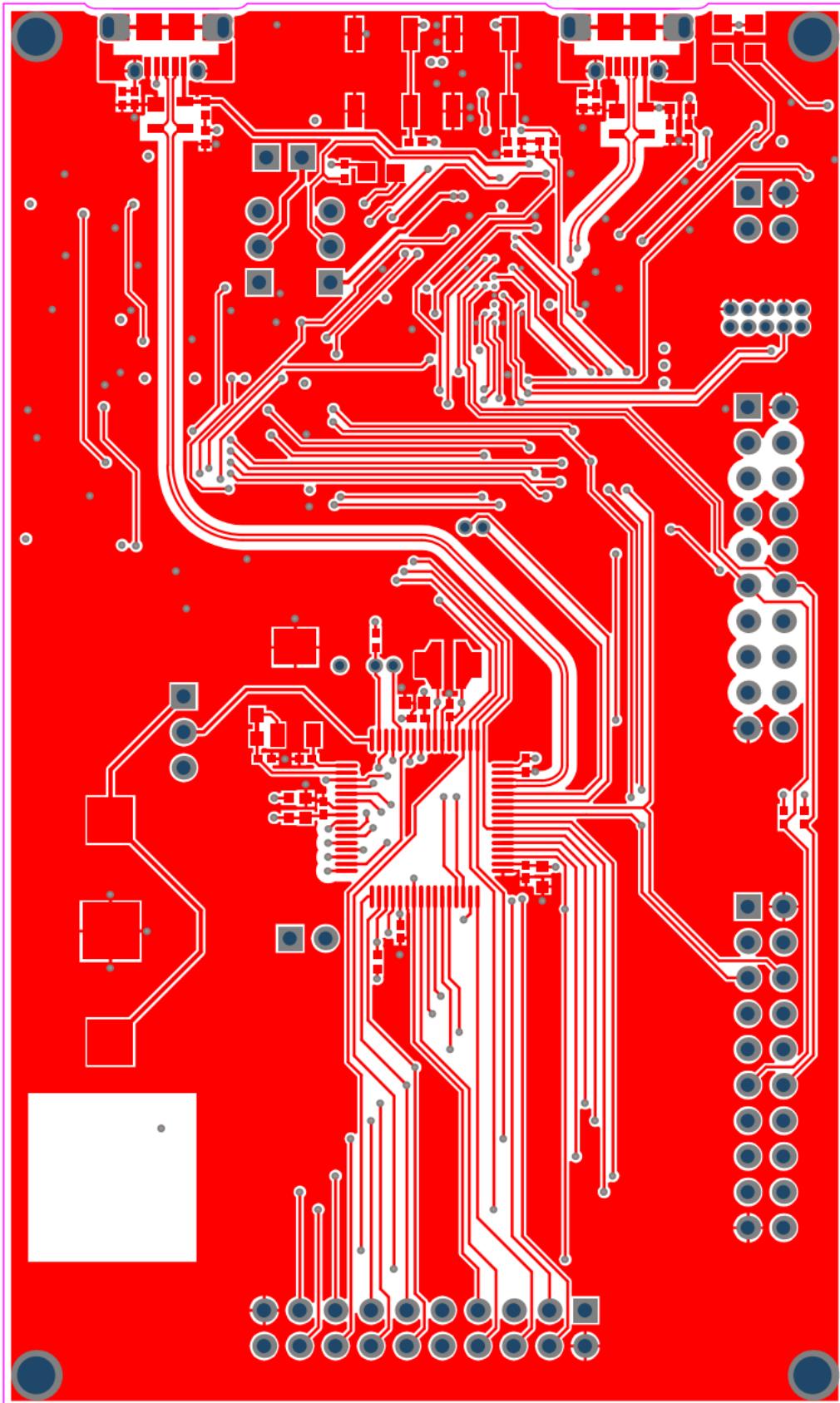
PCBA LABEL
LABEL1

A08-2045 Rev 3

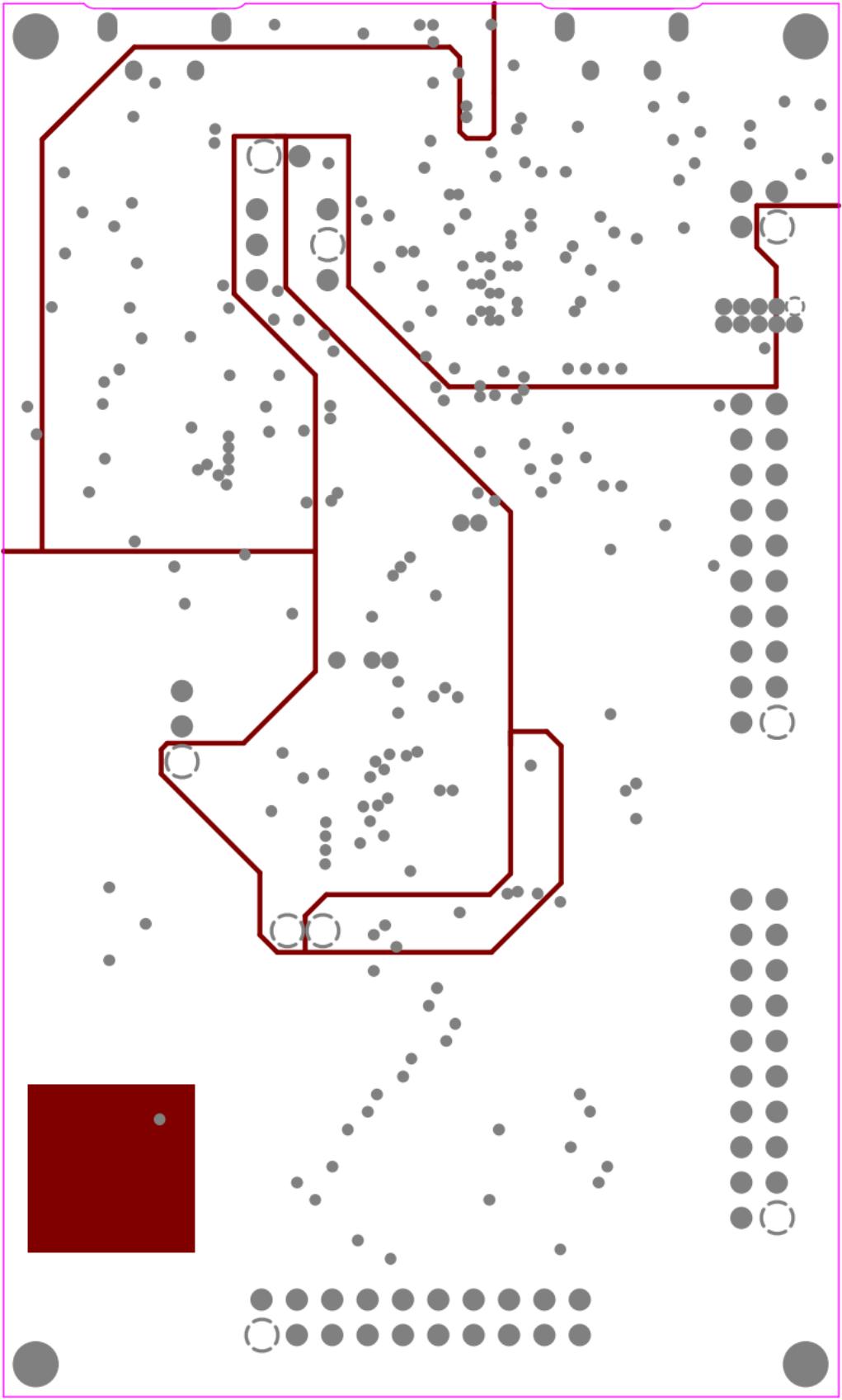


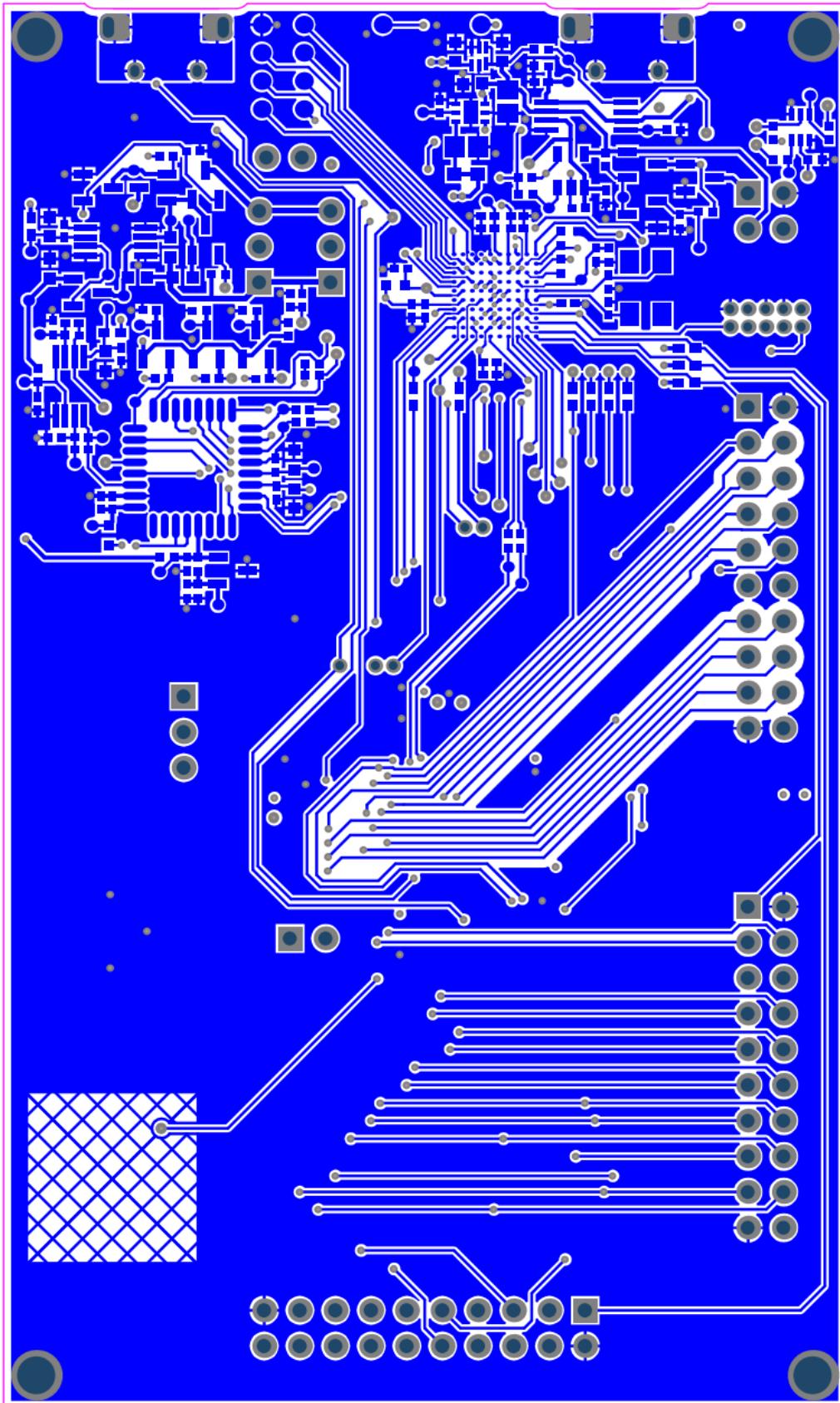












Component list

Top Level Schematics

Source Data From:

SAML21_Xplained_Pro.PjrPCB

Project:

SAML21_Xplained_Pro.PjrPCB

Variant:

Default_assembly



Report Date:	12.02.2015	11:00:06
Print Date:	12.02.2015	10:54:36

Fitted	Designator	Quantity	Value	Manufacturer	MPN	Description
Fitted	BT300	1	CR1220	Panasonic	CR1220	CR1220 Lithium coin-cell battery
Fitted	C100, C101, C104, C305, C309, C311, C701, C703	8	4.7uF	tdk	C1608X5R1A475K	Ceramic capacitor, SMD 0603, X5R, 10V, 10% (de31036)
Fitted	C102, C103, C304, C307, C308, C310, C312, C600, C602, C604, C607	11	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Fitted	C105, C107	2	22u/10V	tdk	C2012X5R1A226M0.85	Ceramic capacitor, SMD 0805, X5R, 10V, A±20%
Fitted	C106	1	10n			Ceramic capacitor, SMD 0402, X7R, 25V, +/-10%
Fitted	C301, C302	2	6.8p			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5%
Fitted	C303	1	4.7n			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5% (de35287)
Fitted	C306	1	1u	Kemet	C0402C105K9PAC	Ceramic capacitor, SMD 0402, C0G, 50V, +/-5%
Fitted	C400, C401	2	22p			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5%
Fitted	C402	1	10p			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5%
Fitted	C404, C410, C411, C412, C413	5	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Fitted	C405, C409, C414, C415	4	2.2uF	Kemet	C0402C225M9PAC	Ceramic capacitor, SMD 0402, X5R, 6.3V, +/-20%
Fitted	C406, C407, C408	3	1 nF C0G	Murata	GRM1555C1H102JA01D	Ceramic capacitor, SMD 0402, C0G, 50V, +/-10%
Fitted	C601, C603	2	1uF	Murata	GRM188P61E105K	Ceramic capacitor, SMD 0603, X5R, 25V, ±10%
Fitted	C605	1	33n	Murata	GRM155R71E33KA88D	Ceramic capacitor, SMD 0402, X7R, 25V, ±10%
Fitted	C606	1	1n			Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%
Fitted	C700, C704	2	100nF			Ceramic capacitor, SMD 0402, High Density Footprint
Fitted	C702, C706	2	150p			Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%
Fitted	D200, D402	2	PRTR5V0U2X	Philips	PRTR5V0U2X	Double rail-to-rail USB ESD protection diode
Fitted	D301, D401	2	EL17-21UY/GA2	Everlight	17-21UY/GS50-A/3/TR8	LED, Yellow, Wave length=591nm, SMD 0805, ±70°
Fitted	D400	1	EL17-21SY/GC	Everlight	EL17-21SY/GC	LED, Green, Wave length=575nm, SMD 0805, ±70°
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	ESCATEC	Xplained PRO MCU board Jupiter Test Fixture	Xplained PRO MCU board Jupiter Test Fixture
Fitted	FW1	1	EDBG secured firmw are	ATMEL		EDBG secured firmw are
Fitted	J101, J102, J301	3	HMTSW-103-23-F-S-237	SAMTEC	HMTSW-103-23-F-S-237	
Fitted	J103	1	Pin header 1x2 right angle	Pro-data International Corp	2213R-2G	1x3 pin header, 2.54mm pitch, Pin-in-Paste THM, 1mm hole
Fitted	J200, J201, J203	3	PI01-2*10RGF-139-ND		PI01-2*10RGF-139-ND	1x2 pin header, right angle, 2.54 mm pitch, through-hole
Fitted	J202	1	PI01-2*02RGF-139-ND		PI01-2*02RGF-139-ND	Pin header, 2x10, Right Angle, 2.54mm, THM, Pin In Paste
Fitted	J204, J400	2	ZX620-AB-5P8	Garry	STL21-0730 G TT-10U	Micro USB AB Connector, Standard SMT + DIP
Fitted	J205	1	PIN HEADER 2x5			2x5 pin header, 1.27mm pitch, THM
Fitted	J303	1	3000TR	Keystone Corp.	3000TR	CR1220 Li-ion coin-cell battery clip, SMD
Fitted	J304	1	HMTSW-102-23-F-S-237	SAMTEC	HMTSW-102-23-F-S-237	1x2 pin header, 2.54mm pitch, Pin-in-Paste THM
Fitted	JS100, JS101, JS102, JS301, JS302	5	SNT-100-BK-G	SAMTEC	SNT-100-BK-G	Jump cap for 2.54mm header
Fitted	L300	1	LQH3NPNT00MJ0	Murata	LQH3NPNT00MJ0	10uH power inductor, Isat = 560mA , Itemp = 710mA, Rdc = 0.360ohm
Fitted	L301, L401, L402, L600	4	BLM18PG471SN1	Murata	BLM18PG471SN1	SMD RF inductor 0603, Z=470mH (@100MHz), Max R(d)=0.650m, Max current=1A
Fitted	L700, L701	2	BLM15BB221SN1	Murata	BLM15BB221SN1	SMD RF inductor 0402, Z=220mH (@100MHz), Max R(d)=0.800m, Max current=200mA
Fitted	LABEL1	1	Label PCB	ACT Logmark AS	505462	PCBA identification label Top Side White Gloss
Fitted	PCB1	1	SAM L21 Xplained Pro PCB			SAM L21 Xplained Pro PCB, 4 layer, 60mm x 100mm
Fitted	PCBADC01	1	A09-2241 PCBA Files			SAM L21 Xplained Pro PCB documentation
Fitted	Q100, Q101	2	IRML6402PBF	International Rectifier	IRML6402PBF	P-ch. MOSFET, -30V, -3.7A continuous RDS(ON)=0.05Ohm@VGs=-4.5V, RDS(ON)=0.08Ohm@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, 115m cont.RDS(ON) < 7.5 Ohm @50mA@4.5V, SOT-363
Fitted	Q500	1	PMV48XP	NXP	PMV48XP215	P-Channel Digital FET, -30V, -3.5A continuous, -14A Peak RDS(ON)=48nOhm@VGs=-4.5V, RDS(ON)=7.1mOhm@VGs=-2.5V, VGS(th)<1.25V
Fitted	Q501, Q701	2	BSS138N	Infineon	BSS138N	Low leakage N-Channel MOSFET, 60V, 0.23A continuous, 0.92A Peak RDS(ON) = 3.50hm@VGs=4.5V, VGS(th)<1.4V
Fitted	Q502, Q800, Q801, Q802	4	BSH201	NXP	BSH201,215	P-Channel Digital FET, -60V, -0.3A continuous, -1.2A Peak RDS(ON)=2.5@VGs=-10V, RDS(ON)<5 ohm @VGs=-2.5V
Fitted	Q700	1	IRML6402	International Rectifier	IRML6402PBF	P-ch. MOSFET, -30V, -3.7A continuous RDS(ON)=0.05Ohm@VGs=-4.5V, RDS(ON)=0.08Ohm@VGs=-2.5V
Fitted	R100, R103, R104, R410, R413	5	1M			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R101, R107, R108, R304, R500, R501, R701, R800, R801, R802	10	100k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R102, R606	2	39k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R105	1	390R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R106, R109, R110, R201, R805	5	47k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R200	1	30k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R203, R303, R411, R412	4	330R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R300, R305, R311, R421, R422, R803	6	39R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R301, R307, R600, R601, R706	5	0R	(n/a)	RMC0402ZT0R00	RES 0.0 OHM 1/16W 0402 SMD
Fitted	R307, R703, R708, R709	4	10k	vishay	CRCW040210K0PKED	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R308, R310, R602, R603	4	4.7k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R401, R402, R409	3	1k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R414, R416, R417, R418, R419, R420	6	330R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R423	1	6.81k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R604	1	2k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R605	1	33k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R700	1	0.1R	vishay	WSL0603R1000FEA	WSL0603R1000FEA, metal strip resistor, 0.1 Ohm, +1%, 0603 SMD, 1/10W, TEMPCO +75 ppm/A°C
Fitted	R702, R704	2	100R	Panasonic	ERA3YEB101V	ERA-3YEB101V, metal film 100R ±0.1%, resistor in 0603 at 100mW, TEMPCO ±25ppm/A°C, Max V=75V
Fitted	R705	1	680R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R707	1	2k			Thick film resistor, SMD 0603, 1/10W, 1%
Fitted	R804	1	2.2k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R806	1	4.7M			Thick film SMD 0402 1/16W 1%
Fitted	SW300, SW301	2	SKRAAKE010	ALPS	SKRAAKE010	6.2x6.2 mm SMD tact switch, same as A08-0091 but less force is needed
Fitted	TEST1	1	SAM L21 Xplained Pro Test			Fixture eggTest for SAM L21 Xplained Pro
Fitted	TESTDDC01	1	SAM L21 Xplained Pro Test Instructions			SAM L21 Xplained Pro Test Instructions
Fitted	U100	1	TLV70033DSE	Texas Instruments	TLV70033DSE	LDO, 200 mA, Iq=31 uA, Vdo=250mV, Vout=3.3V, VIN= 2 V to 5.5V, SON-6 package
Fitted	U101	1	TPS2113PWR	Texas Instruments	TPS2113PWR	Autoswitching 2.1 Pow er Mux
Fitted	U102	1	STMS2161STR			Single channel power swtch, 1A, reverse block, active low enabled.
Fitted	U103	1	TPS73533DRV	Texas Instruments	TPS73533DRV	Low noise LDO, 500 mA, Vout=3.3V, 2% accuracy, IQ=46uA, noise=28uVRms, VIN= 2.7V to 6.5V, Vdo=280mV, stable with low ESR capacitor
Fitted	U300	1	ATSAM21J18A-AUT	ATMEL	ATSAM21J18A-AUTES	Atmel 32-bit RISC MCU 64pin
Fitted	U400	1	AT32UC3A4256J-C1UR	ATMEL	AT32UC3A4256J-C1UR	AVR 32-bit RISC MCU
Fitted	U600	1	SAMD20E17A-AUT	ATMEL	ATSAMD20E17A-AUT	Atmel 32bit RISC MCU 32 pin
Fitted	U601	1	LM4041CBM3-ADJ	National Semiconductor	LM4041CBM3-ADJ	Adjustable shunt voltage regulator, 1.24 to 10V out
Fitted	U700	1	AD8656	Analog Devices	AD8656ARMZ	AD8656, dual low noise precision OpAmp, rail-to-rail, low offset 250uV, GBP=28 MHz, 8MSOP
Fitted	U701	1	ADA4528-1	Analog Devices	ADA4528-1ARMZ	Precision OpAmp, Zero-Drift 0.015uV/K, ultra low noise 5.6nV/sqr(Hz), Vo=2uV, GBW=4MHz, single supply 2.2V to 5.5V or dual supply +1V to +2.75V, rail to rail, unity gain stable
Fitted	XC300	1	32.768kHz +/-20ppm 7pF SMD	Micro Crystal	MSIV-TIK 32.768kHz 7pF +/-20ppm TA	32k/68 crystal, +/-20ppm, CL=7pF, max ESR 60kOhm, SMD
Fitted	XC400	1	12.0MHz	Fox Electronics	FQ5032B-12-C-C-200-1	Fox FQ5032B 12.0MHz SMD crystal 738B-12
Not Fitted	C200, C403	0	4.7n			Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%
Not Fitted	C705	0	1n			Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%
Not Fitted	R202, R424	0	1M	KOA	RK73H1ETTP1004F	Thick film resistor, SMD 0402, 1/16W, 1%