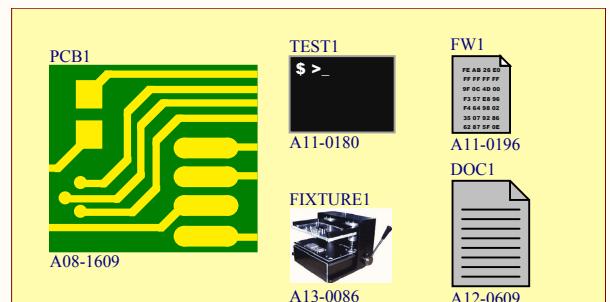
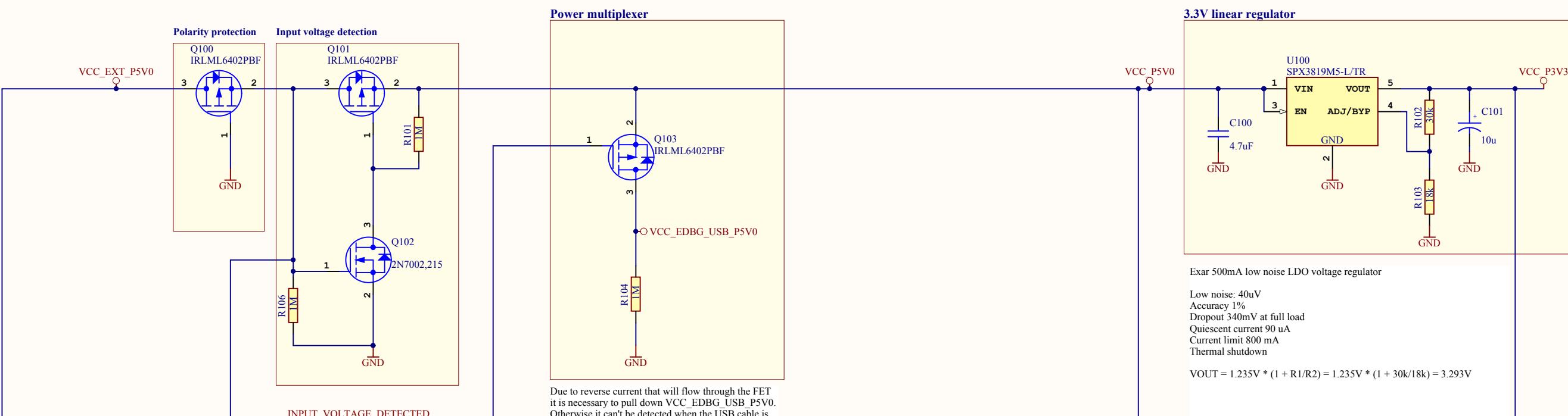


LABEL1
Product number/revision
Serial number

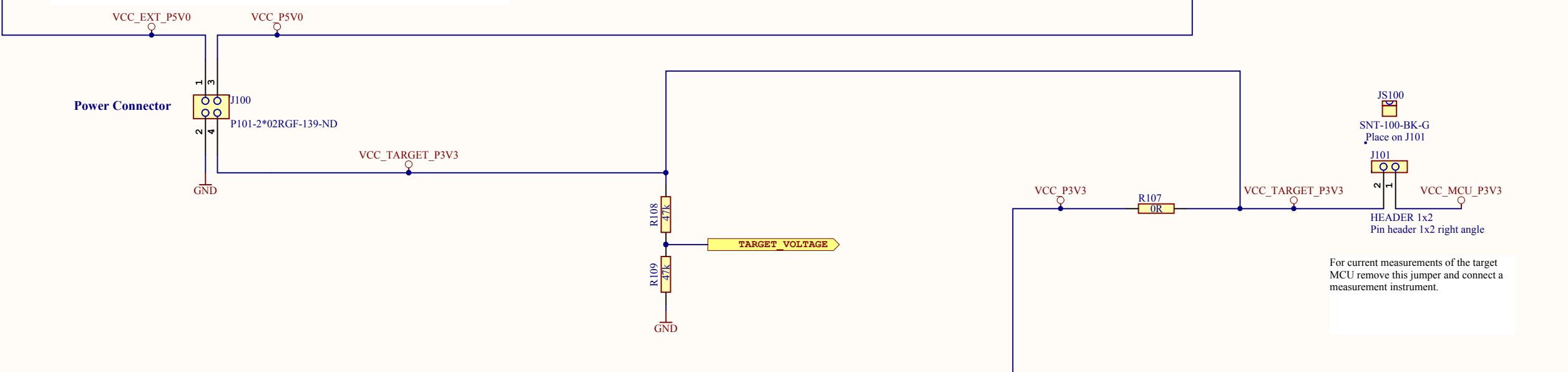
Label PCBA with MAC64 and FCC ID



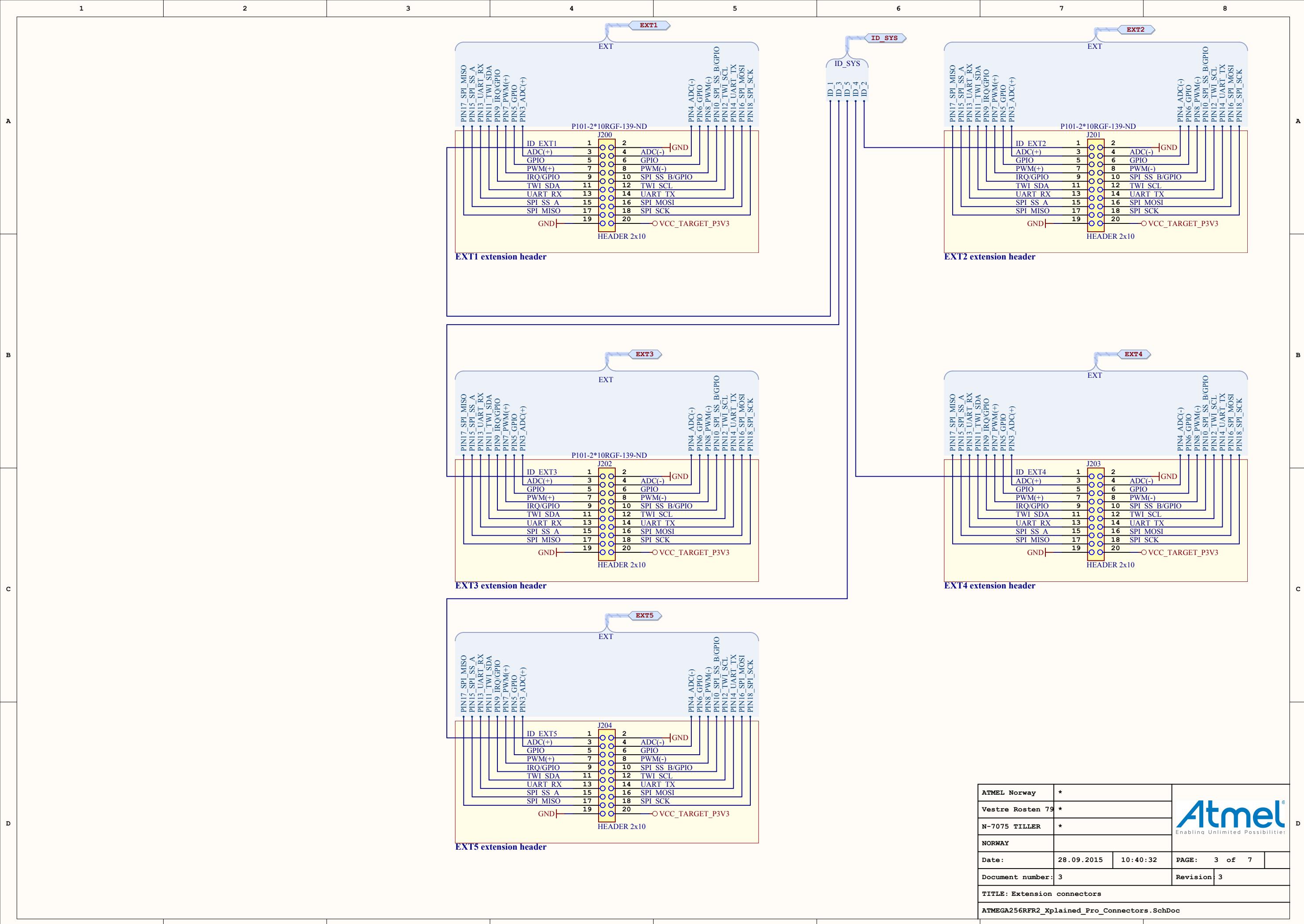
ATMEL Norway	*	
Vestre Rosten 79	*	
N-7075 TILLER	*	
NORWAY		
Date:	28.09.2015 10:40:32	PAGE: 1 of 7
Document number:	1	Revision 3
TITLE: Top Level Schematics		
ATMEGA256RFR2_Xplained_Pro_TopLevel.SchDoc		

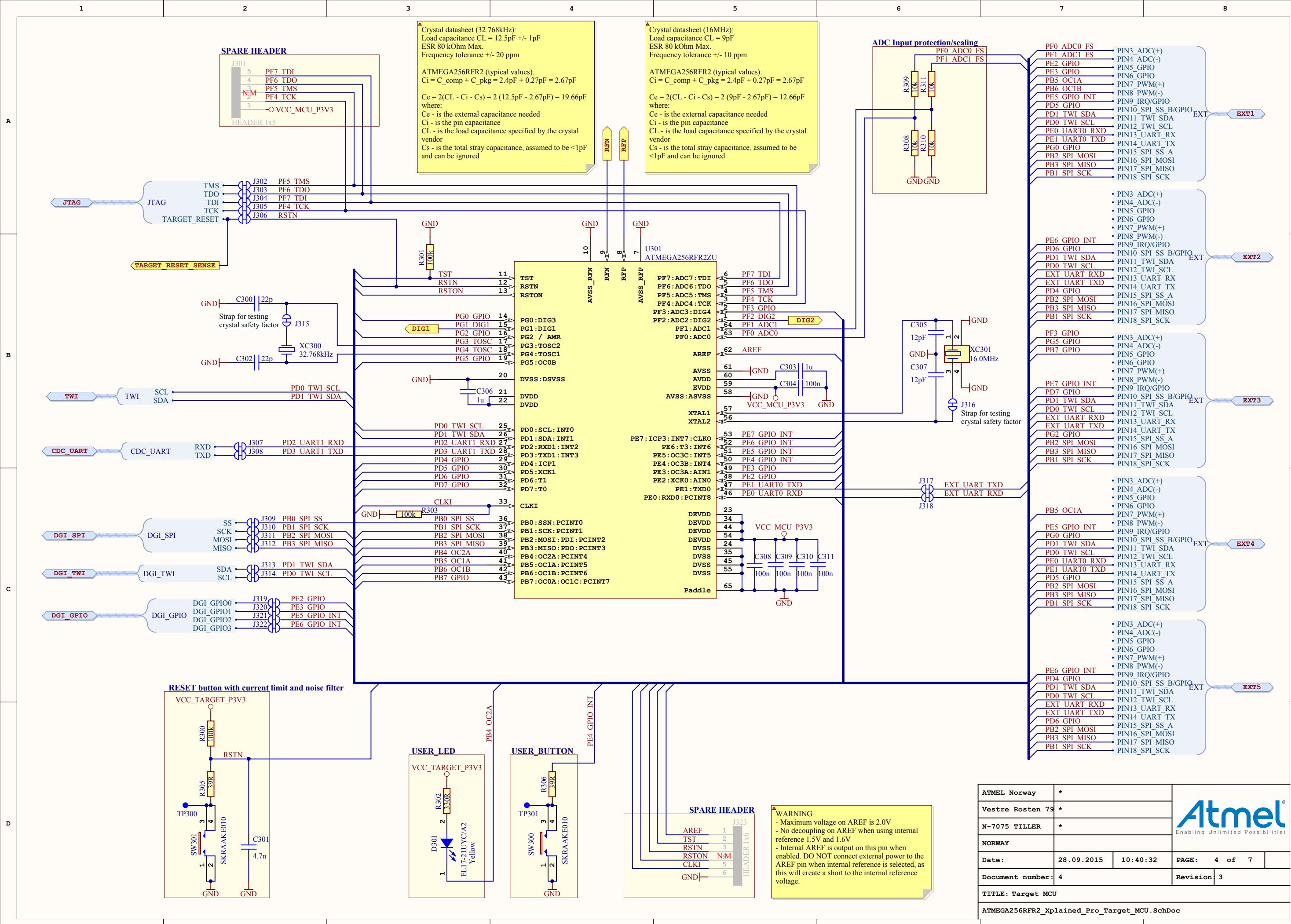


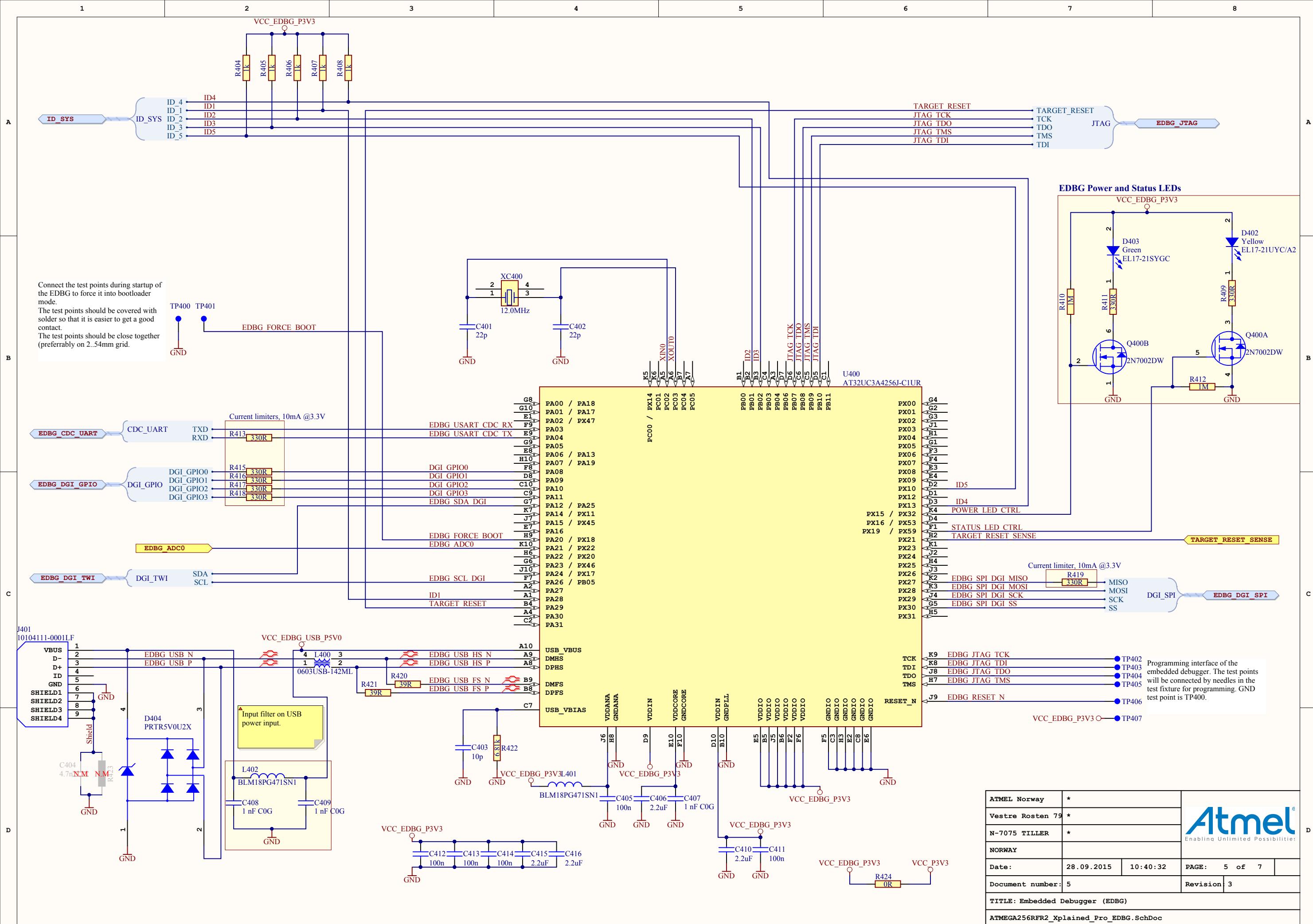
Each FET in the power path has a RDson of <50mOhm@VGS= -5V with a current of up to 20A
That means we can expect a maximum voltage drop across the FETs of 50mV@500mA, 100mV@1A and 200mV@2A.
For USB host mode we need a voltage between 4.4V to 5.25V so the drop that we have is ok and leaves some room for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



ATMEL Norway	*	Atmel Enabling Unlimited Possibilities
Vestre Rosten 79	*	
N-7075 TILLER	*	
NORWAY		
Date:	28.09.2015 10:40:32	PAGE: 2 of 7
Document number:	2	Revision 3
TITLE: Power supply		
ATMEGA256RFR2_Xplained_Pro_dual_input_power_supply.SchDoc		







A

A

B

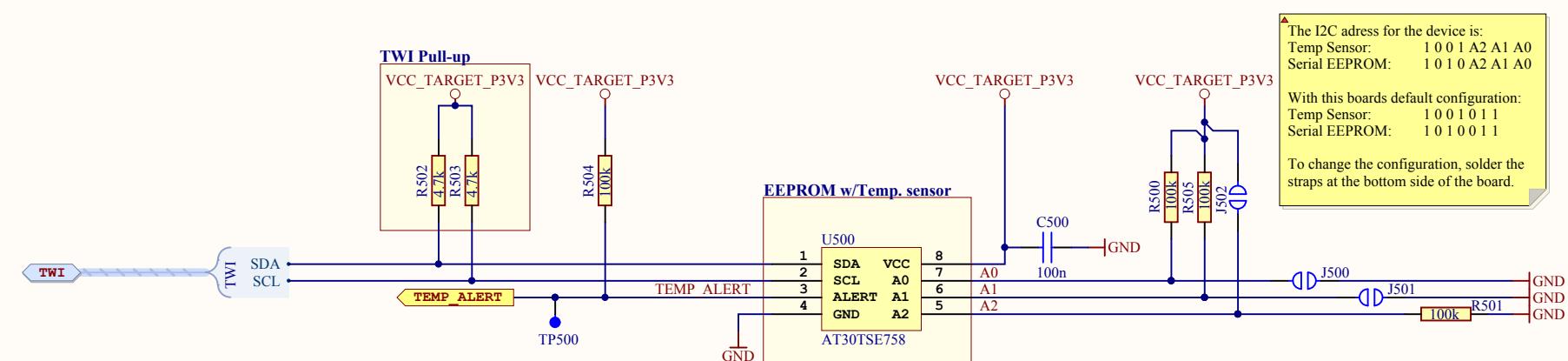
B

C

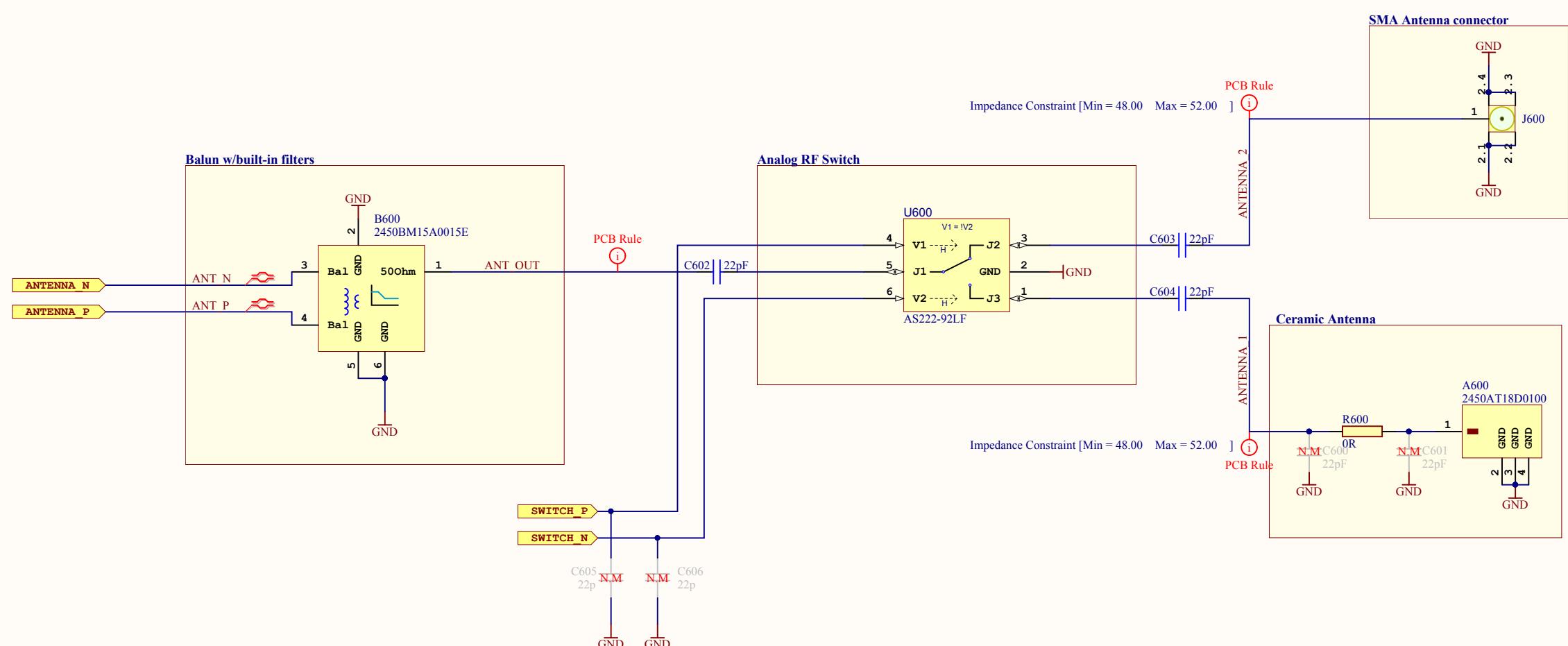
C

D

D

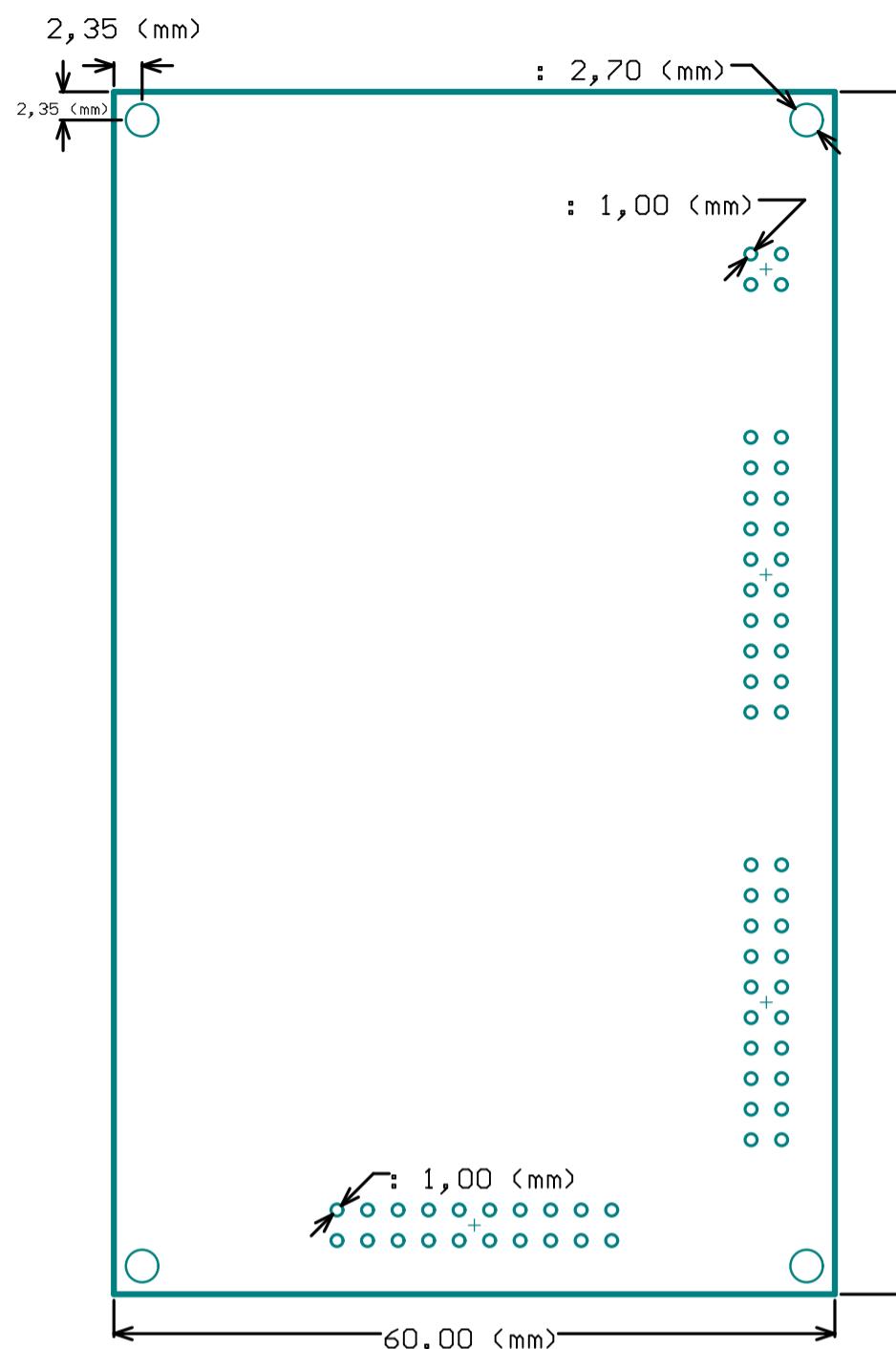


ATMEL Norway	*		
Vestre Rosten 79	*		
N-7075 TILLER	*		
NORWAY			
Date:	28.09.2015	10:40:32	PAGE: 6 of 7
Document number:	6	Revision	3
TITLE: Temperature Sensor			
ATMEGA256RFR2_Xplained_Pro_Temperature.SchDoc			

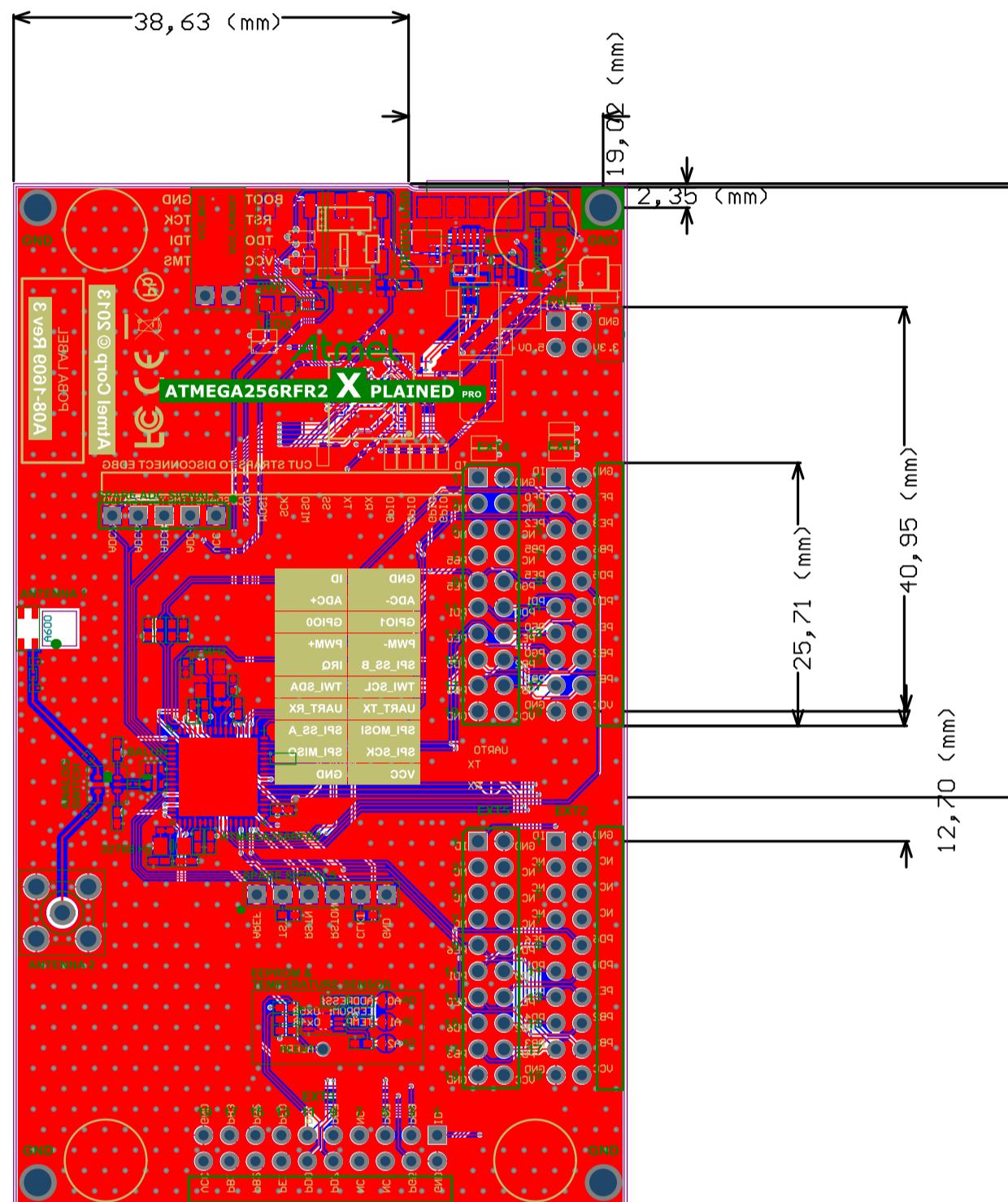
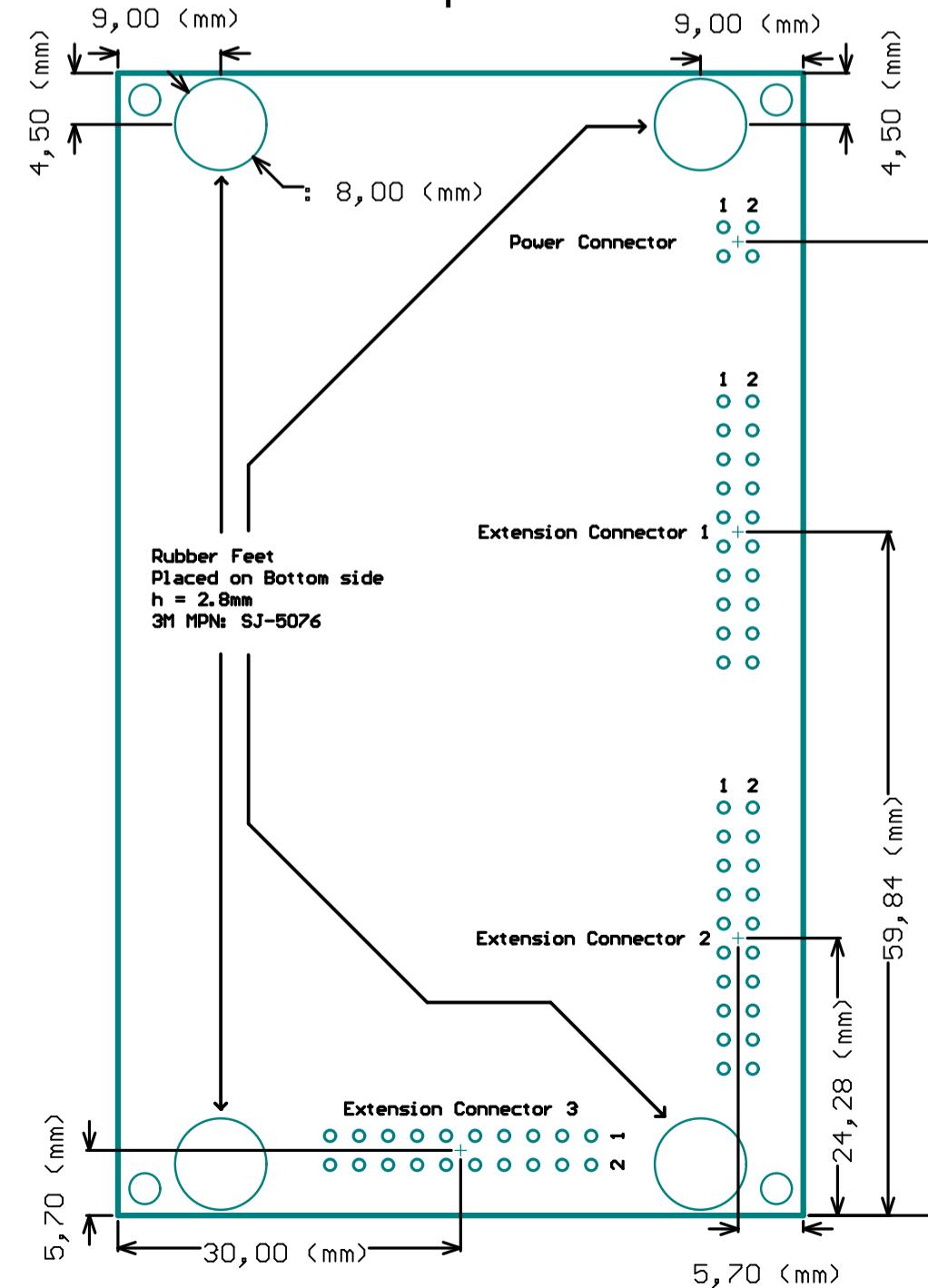


ATMEL Norway	*	
Vestre Rosten 79	*	
N-7075 TILLER	*	
NORWAY		
Date:	28.09.2015	10:40:32
Document number:	7	Revision 3
TITLE:	Antenna	
ATMEGA256RFR2_Xplained_Pro_Antenna.SchDoc		

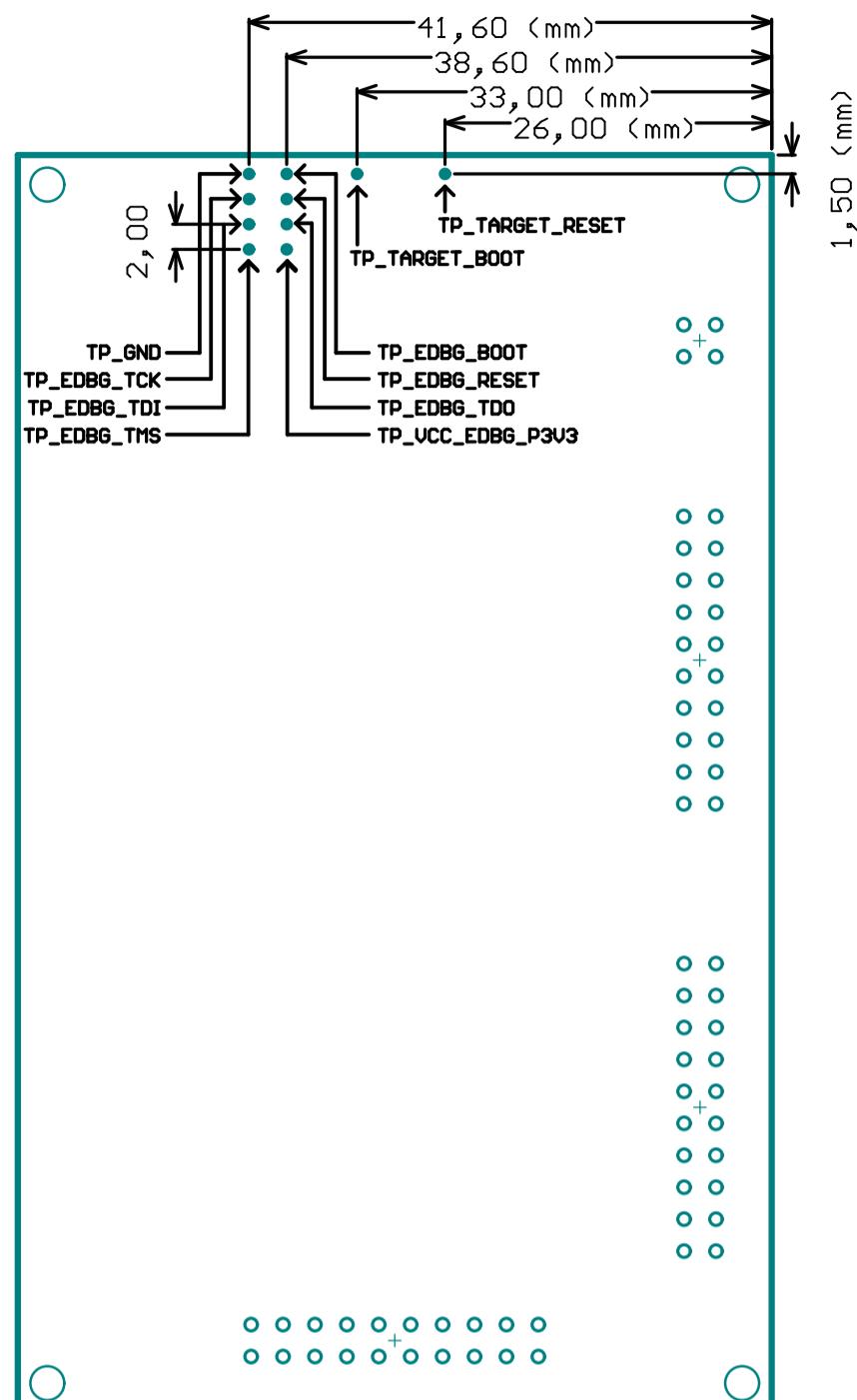
MCU Board Mechanical Dimensions



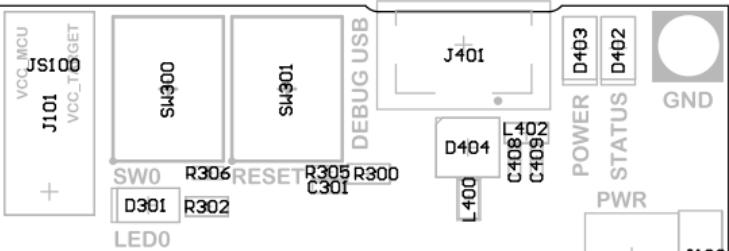
MCU Board Component Placement



MCU Board Test Points



GND

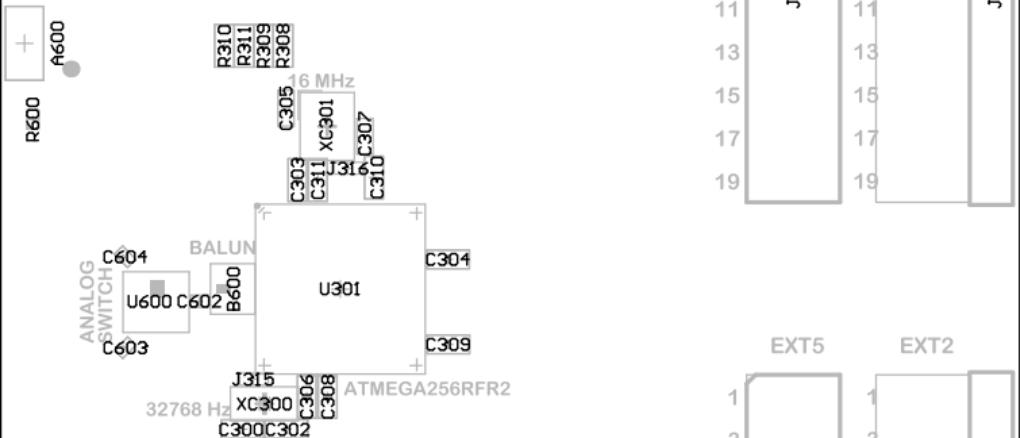


Atmel®

ATMEGA256RFR2 X PLAINED PRO

SPARE ADC SIGNALS

ANTENNA 1



ANTENNA 2

EEPROM & TEMPERATURE SENSOR

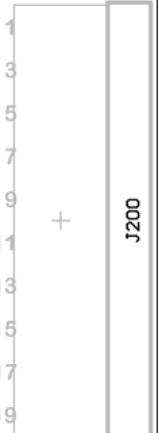


EXT3



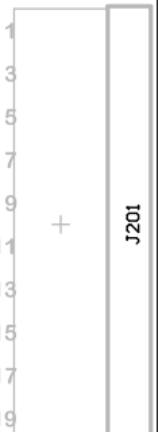
EXT4

EXT1



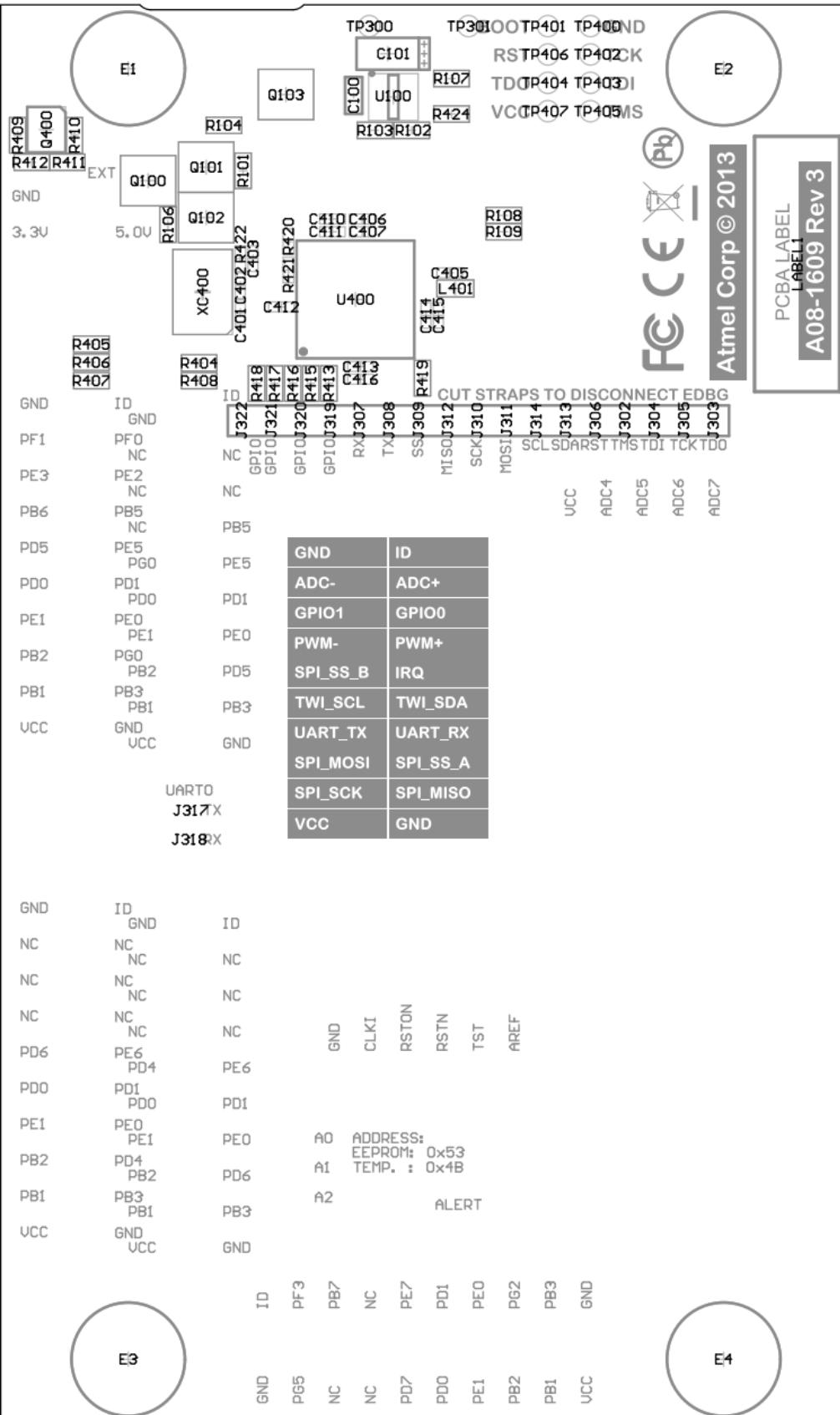
EXT5

EXT2



GND

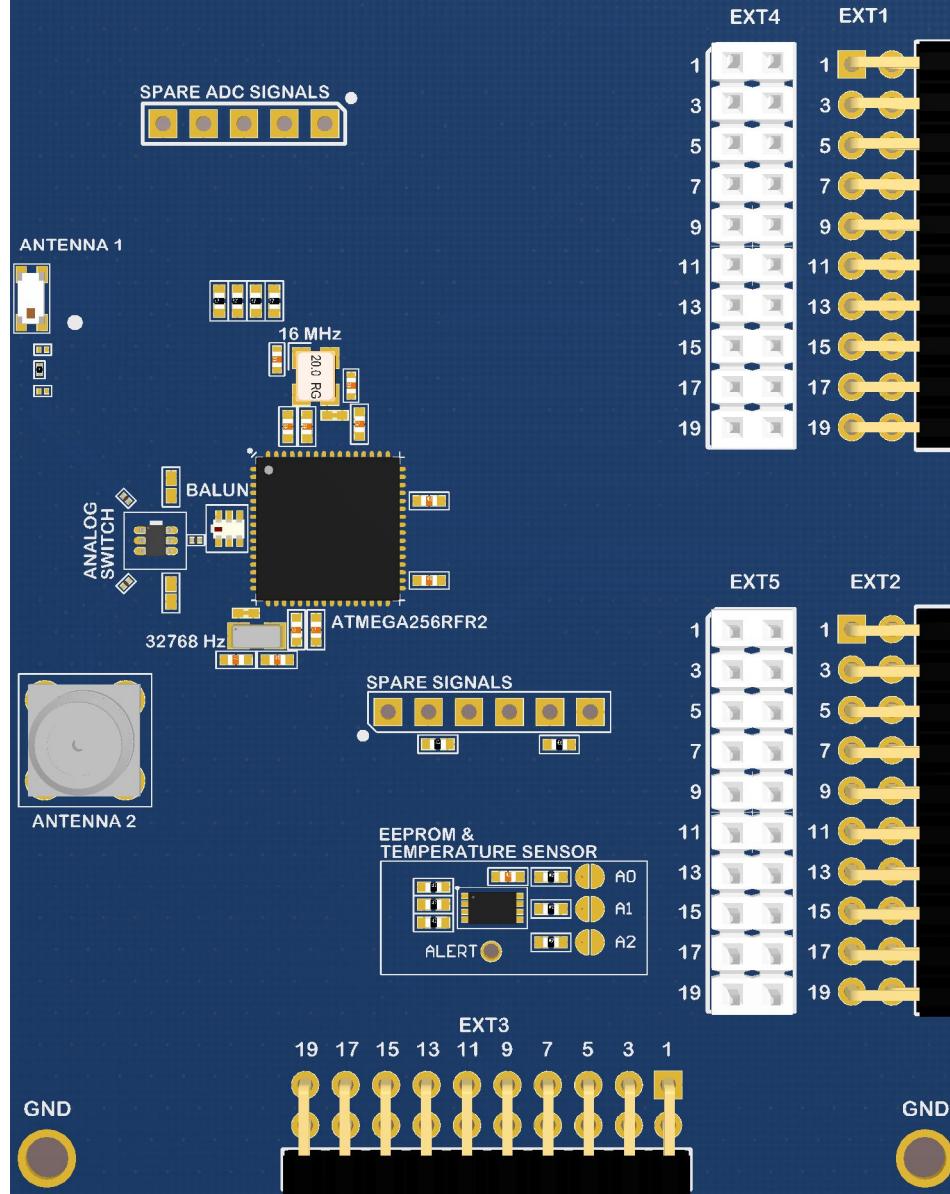
GND

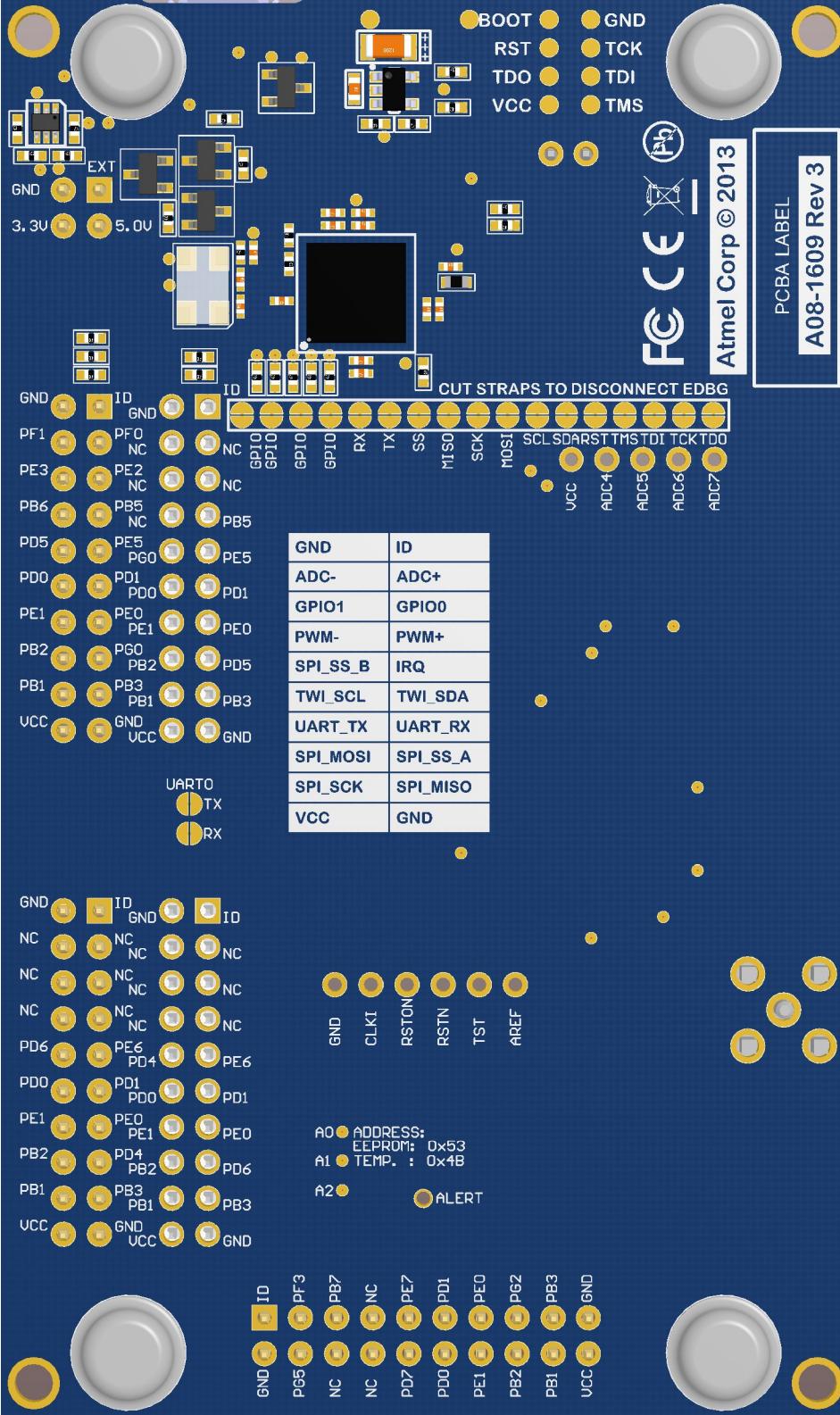


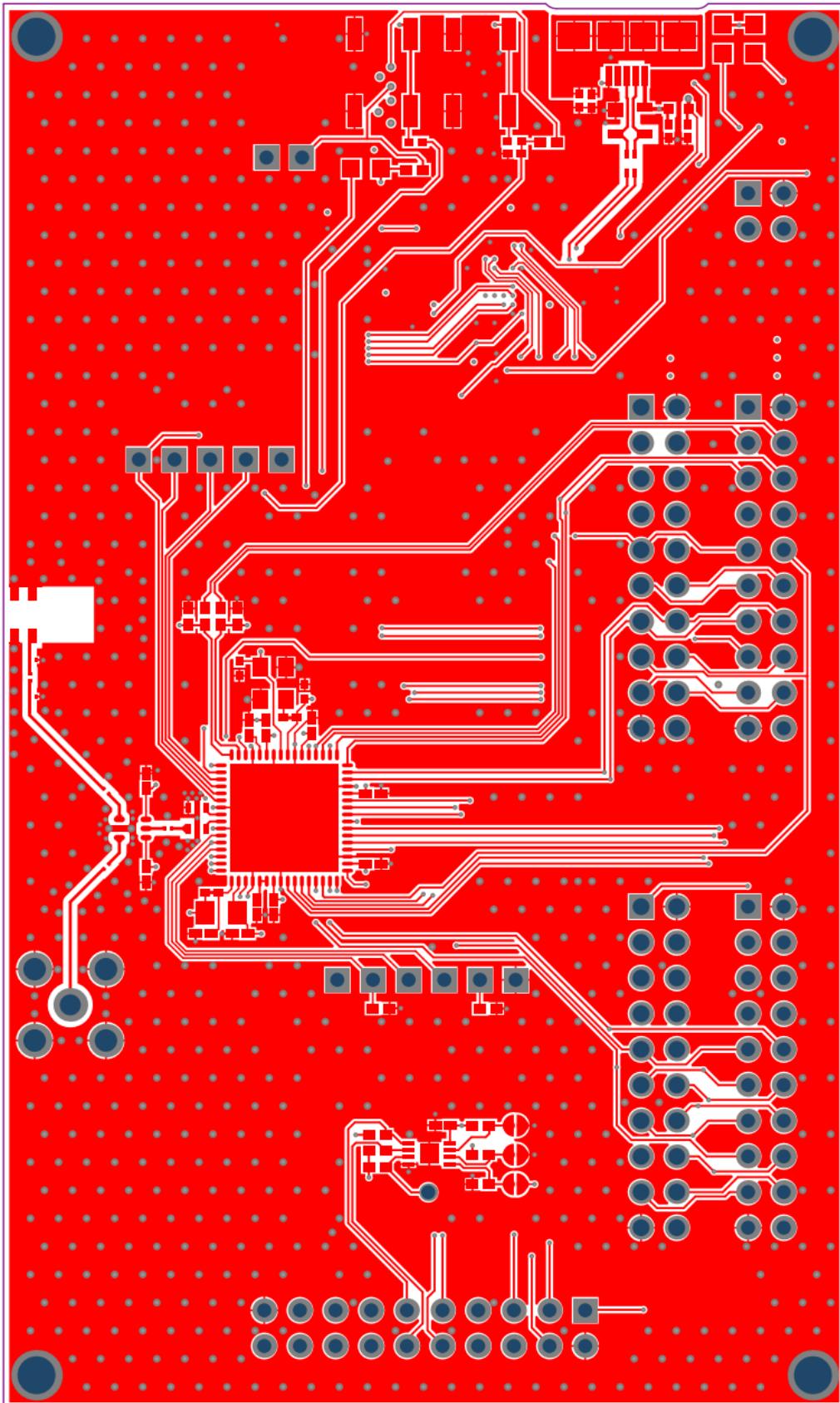


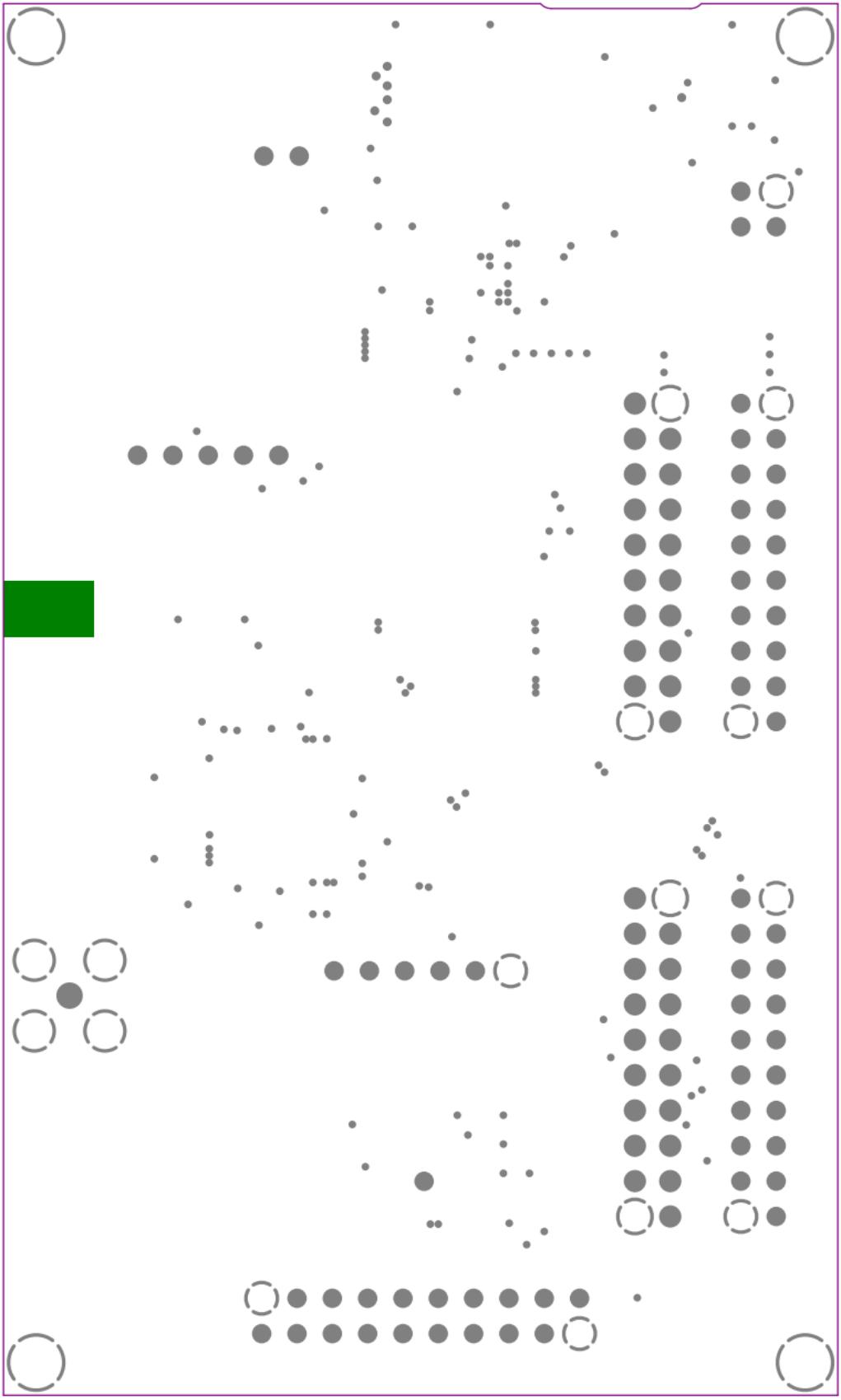
Atmel®

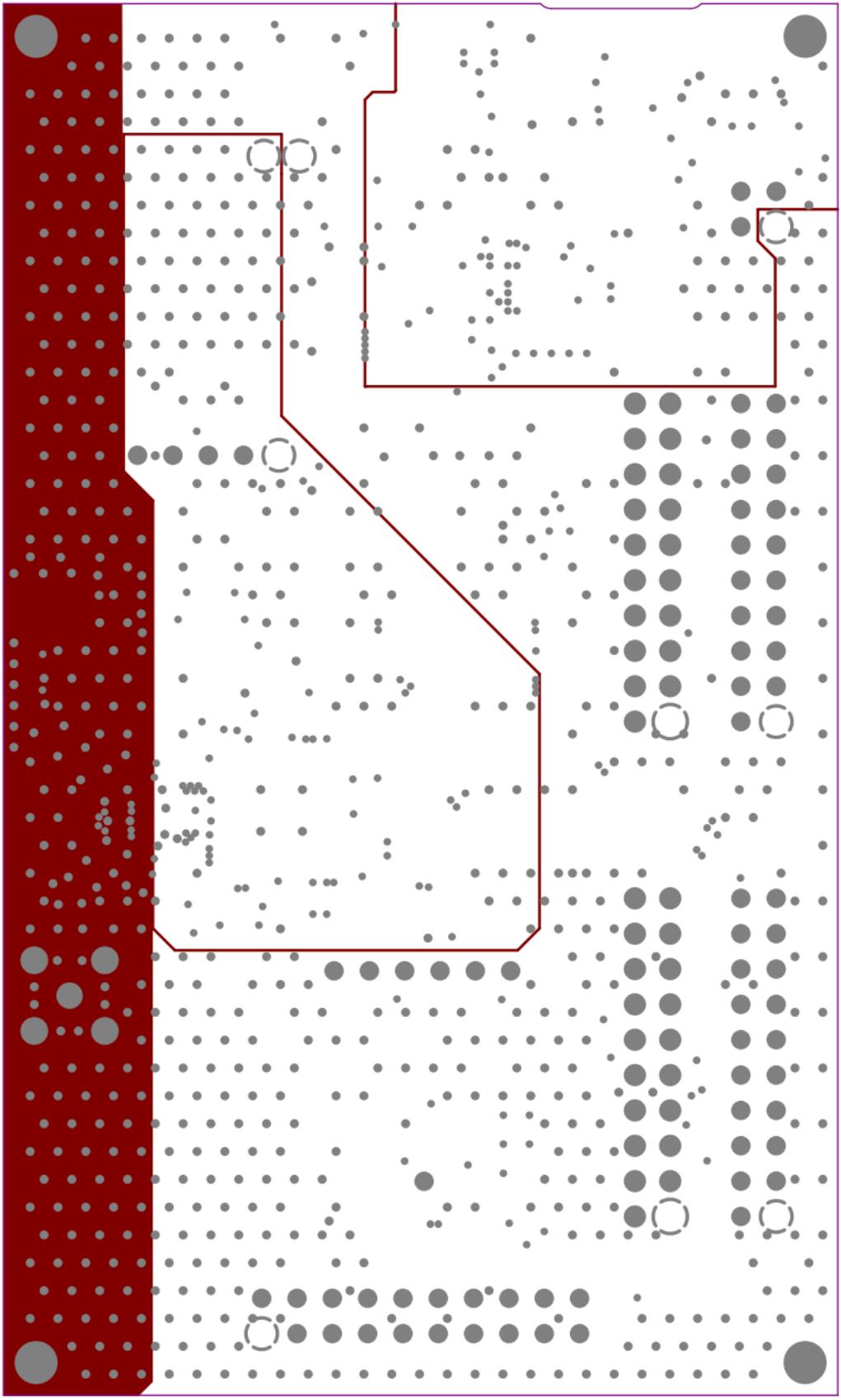
ATMEGA256RFR2 X PLAINED PRO

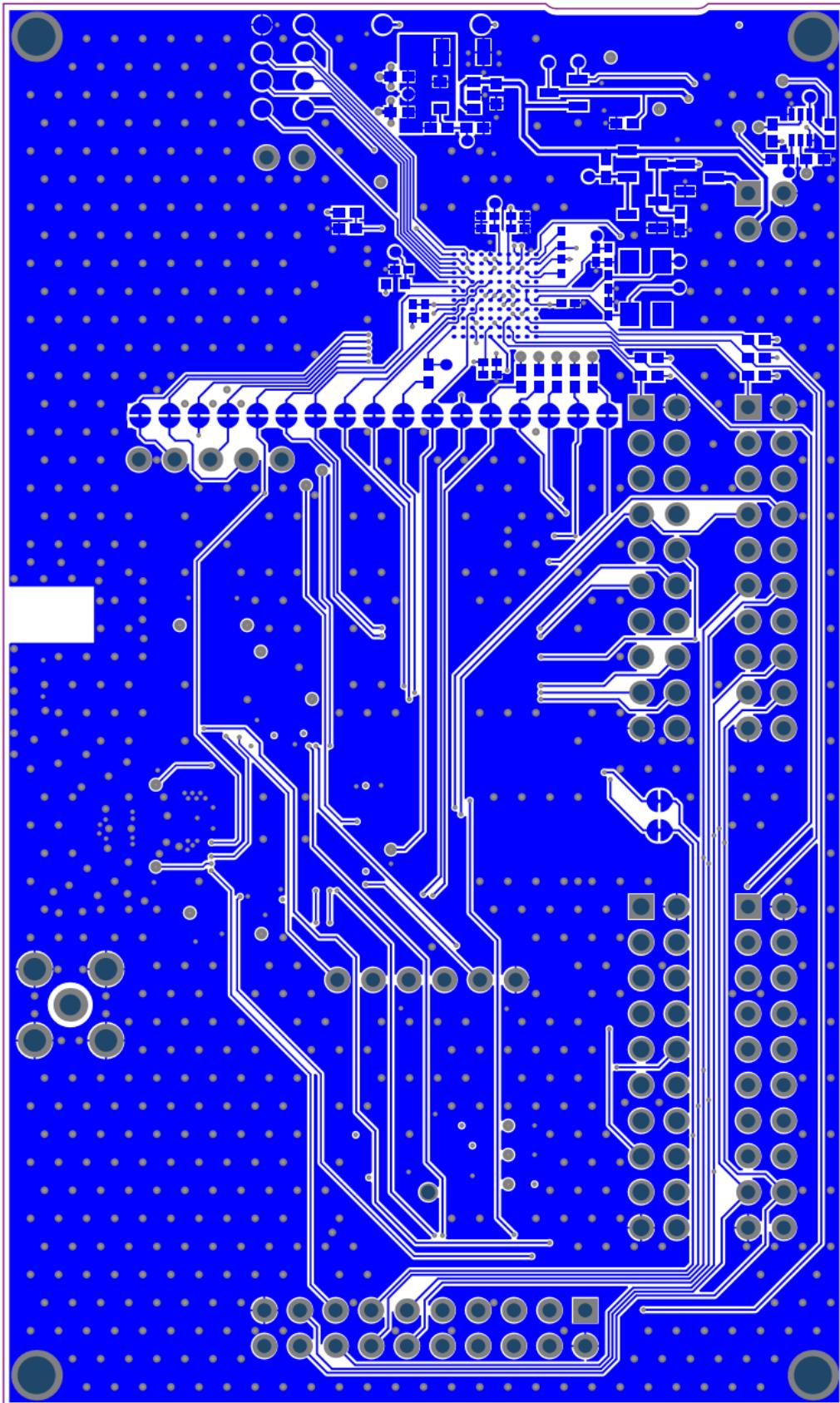












Component list

Top Level Schematics

Source Data From:

ATMEGA256RFR2_Xplained_Pro.PrbPCB

Project:

ATMEGA256RFR2_Xplained_Pro.PrbPCB

Variant:

Default_assembly



Report Date: 28.09.2015 10:40:54
Print Date: 28.09.2015 10:40:52

Fitted	Designator	Quantity	Value	Manufacturer	MPN	Description
Fitted	A600	1	2450A-T18D0100	Johanson Technology	2450A-T18D0100	2.45 GHz Ceramic Antenna
Fitted	B600	1	2450BM15A0015E	Johanson Technology	2450BM15A0015E	Filtered Balun to match AT86RF232/233 (35288)
Fitted	C100	1	4.7μF	tdk	C1608X5R1A475K	Ceramic capacitor, SMD 0603, X5R, 10V, 10% (de31036)
Fitted	C101	1	10u	vishay	TR3A106K016C1700	SMD tantalum capacitor, ESR = 1.7. 3216-18 (EA) 1206,
Fitted	C300, C302, C401, C402	4	22p			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5%
Fitted	C301	1	4.7n			Ceramic capacitor, SMD 0402, X7R, 25V, +/-10% (de35287)
Fitted	C303, C306	2	1u	Kemet	C0402C105K9PAC	Ceramic capacitor, SMD 0402, X7R, 6.3V, +/-10% (de26942)
Fitted	C304, C308, C309, C310, C311, C405, C411, C412, C413, C414, C500	11	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Fitted	C305, C307	2	12pF	Kyocera-elco	CM05CG120J50AH	Ceramic capacitor, SMD 0402, NP0, 50V, +/-5% (de19819)
Fitted	C403	1	10p			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5%
Fitted	C406, C410, C415, C416	4	2.2uF	Kemet	C0402C225M9PAC	Ceramic capacitor, SMD 0402, X5R, 6.3V, +/-20%
Fitted	C407, C408, C409	3	1nF C0G	Murata	GRM155C1H1H02JA01D	Ceramic capacitor, SMD 0402, COG, 50V, +/-5%
Fitted	C602, C603, C604	3	220F	Johanson Technology	250P05L220,V4T	Ceramic Capacitor, SMD 0201, 25V, NP0, 22PF
Fitted	D301, D402	2	EL17-21UY/C2	Everlight	17-21UY/C05S30-A3/TR8	LED, Yellow, Wave length=511nm, SMD 0805, +/-0°
Fitted	D403	1	EL17-21SYGC	Everlight	EL17-21SYGC	LED, Green, Wave length=575nm, SMD 0805, +/-0°
Fitted	D404	1	PRT85V0U2X	Philips	PRT85V0U2X	Double rail-to-rail USB ESD protection diode
Fitted	DOC1	1	A09-1784 PCB Files	ATMEL		ATmega256RFR2 Xplained PRO PCB4 documentation
Fitted	E1, E2, E3, E4	4	SJ-5076		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			EDBG secured firmw are
Fitted	J100	1	P101-2*02RGF-139-ND		P101-2*02RGF-139-ND	Pin header, 2x2, Right Angle, 2.54mm, THt, Pin In Paste
Fitted	J101	1	Pin header 1x2 right angle	Pro-data International Corp	2213R-2G	1x2 pin header, right angle, 2.54 mm pitch, through-hole
Fitted	J200, J201, J202	3	P101-2*02RGF-139-ND		P101-2*02RGF-139-ND	Pin header, 2x10, Right Angle, 2.54mm, THt, Pin In Paste
Fitted	J203, J204	2	HMTSW-110-23-F-D-237	SAMTEC	HMTSW-110-23-F-D-237	2x10 pin header, 2.54mm pitch, Pin-in-Paste THM
Fitted	J401	1	10104111-0001LF	FCI	10104111-0001LF	Micro USB AB Connector
Fitted	J600	1	19-46-1-TGG	Multicomp	19-46-1-TGG	SMA PCB mounted connector 50Ohm (de19205)
Fitted	JS100	1	SNT-100-BK-G	SAMTEC	SNT-100-BK-G	Jump cap for 2.54mm pinheader
Fitted	L400	1	0603USB-142ML	Colcraft	0603USB-142ML	USB common-mode filter in 0603
Fitted	L401, L402	2	BLM18PG471SN1	Murata	BLM18PG471SN1	SMD RF inductor 0603, Z=470Ohm (@100MHz), Max R(d)=0.65Ohm, Max current=1A
Fitted	LABEL1	1	Label PCB with MA064 and FCC ID	ACT Logmark AS	505462	Label for use on wireless PCBA that needs 64 bit MAC and FCC ID
Fitted	PCB1	1	ATMEGA256RFR2 Xplained Pro PCB	ATMEL		ATMEGA256RFR2 XPRO PCB, 4 layer, 60mm x 100 mm
Fitted	Q100, Q101, Q103	3	IRLM6402PBF	International Rectifier	IRLM6402PBF	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) = 3.80mΩ@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	R101, R104, R106, R410, R412	5	1M			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R102	1	30k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R103	1	18k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R107, R424	2	0R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R108, R109	2	47k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R300, R301, R303, R500, R501, R504, R505	7	100k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R302, R409, R411, R413, R415, R416, R417, R418, R419	9	330R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R305, R306, R420, R421	4	39R			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R308, R309, R310, R311	4	10k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R404, R405, R406, R407, R408	5	1k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R422	1	6.81k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R502, R503	2	4.7k			Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R600	1	0R	ROHM	MCR006YZP000	Thick film resistor, SMD 0201, 1/20W, 5%
Fitted	SW300, SW301	2	SKRAAKE#010	ALPS	SKRAAKE#010	6.2x6.2 mm SMD tact sw litch, same as A08-0091 but less force is needed
Fitted	TEST1	1	ATmega256RFR2 Xplained PRO test	ATMEL		Fixture test for ATmega256RFR2 Xplained PRO
Fitted	U100	1	SPX3819M5-L/T/R	Exar	SPX3819M5-L/T/R	500mA LDO, low noise, SOT23-5 package
Fitted	U301	1	ATMEGA256RFR2ZU	ATMEL	ATMEGA256RFR2ZU	AVR Microcontroller with Low Power 2.4GHz Transceiver for IEEE 802.15.4 (de35289)
Fitted	U400	1	AT32UC3A4256J-C1UR	ATMEL	AT32UC3A4256J-C1UR	AVR 32-bit RISC MCU
Fitted	U500	1	AT30TSE758-NA-8-T	ATMEL	AT30TSE758-NA-8-T	SINGLE DIGITAL TEMPERATURE SENSOR W/ SERIAL EEPROM, UDFN8
Fitted	U600	1	AS222-92LF	SKYWORKS SOLUTIONS	AS222-92LF	PHEMT SPDT Analog SWITCH, 0.1-3 GHz
Fitted	XC300	1	32.768kHz	GEYER ELECTRONIC	12.87150	32.768kHz KX-327NHF, 3.2 x 1.5 mm SMD 20ppm (de19774)
Fitted	XC301	1	16.0MHz	GEYER ELECTRONIC	12.88785	3.2x2.5mm, 10/15/5ppm, 9pF, 600Ωm (de33221)
Fitted	XC400	1	12.0MHz	Fox Electronics	FQ5032B-12-C-C-200-1	Fox FQ5032B 12.0MHz SMD crystal 7388-12
Not Fitted	C404	0	4.7n			Ceramic capacitor, SMD 0402, X7R, 25V, +/-10%
Not Fitted	C600, C601	0	22pF	Johanson Technology	250R05L220JV4T	Ceramic Capacitor, SMD 0201, 25V, NP0, 22PF
Not Fitted	C605, C606	0	22p			Ceramic capacitor, SMD 0402, NP0, 50V, +/-5%
Not Fitted	J301	0	PIN HEADER 1x5 THM	SAMTEC	TSW-105-26-L-S	1x5 pin header, 2.54 mm pitch, THM
Not Fitted	J323	0	PIN HEADER 1x6 PIP	Freber	CD0750141X6T&R	1x6 pin header, 2.54 mm pitch, THM Pin-In-Paste
Not Fitted	R423	0	1M	KOA	RK73H1ETTP1004F	Thick film resistor, SMD 0402, 1/16W, 1%
		121				

Approved

Notes