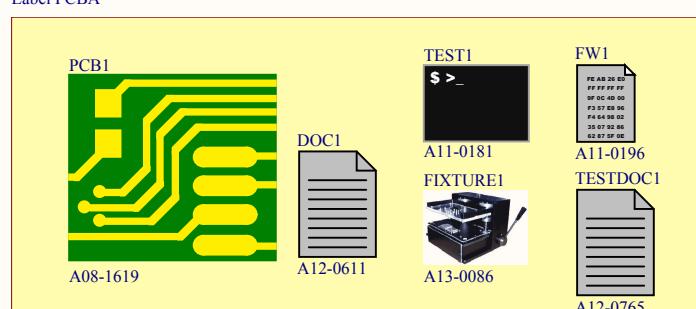
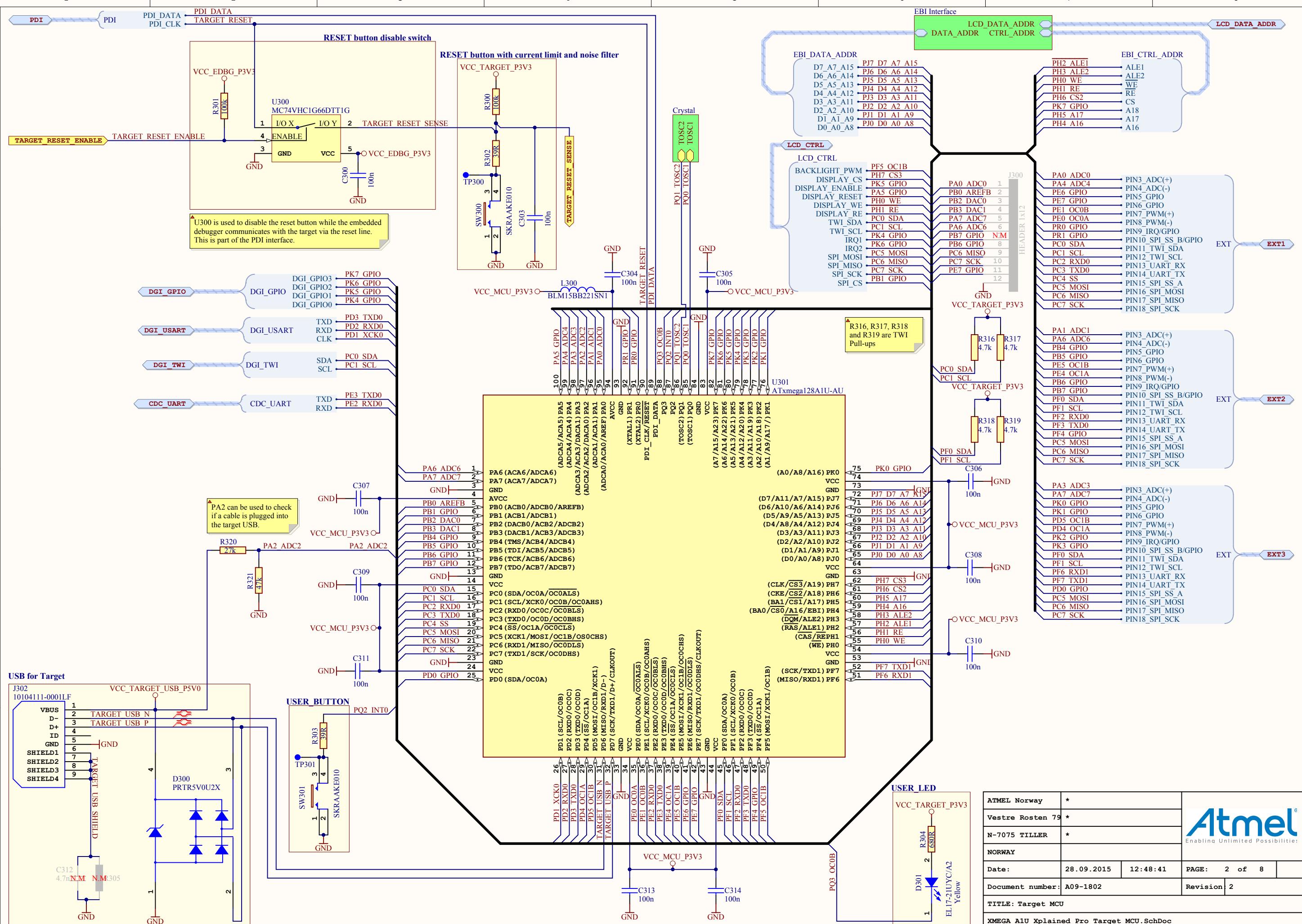


Label PCBA



ATMEL Norway	*		
Vestre Rosten 79	*		
N-7075 TILLER	*		
NORWAY			
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XMEGA_A1U_Xplained_Pro_TopLevel.SchDoc			

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A

A

Crystal datasheet:  
 Load capacitance CL = 7 pF  
 ESR 60 kOhm Max.  
 Frequency tolerance +/- 20 ppm

ATxmega128A1 IBIS file (typical values):  
 (assumed to be the same for ATxmega128A1U)  
 $C_{comp} = 4.44 \text{ pF}$   
 $C_{pkg} = 0.27 \text{ pF}$   
 $C_i = C_{comp} + C_{pkg}$   
 $C_i = 4.71 \text{ pF}$

$C_e = 2CL - Ci - Cs$   
 where:  
 $C_e$  - is the external capacitance needed  
 $C_i$  - is the pin capacitance  
 $CL$  - is the load capacitance specified by the crystal vendor  
 $C_s$  - is the total stray capacitance

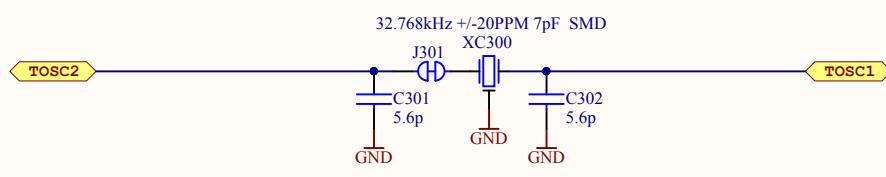
$C_s$  is assumed to be <1pF and can be ignored

$$C_e = 2 * 7\text{pF} - 4.71 \text{ pF}$$

$$C_e = 9.29 \text{ pF}$$

Measurements of the actual clock during verification revealed that 5.6pF yields better clock accuracy.

Verification data:  
 Accuracy: 12ppm  
 Startup time: 3.7 seconds to reach full swing (first clock after 387ms)  
 Safety factor: Above 17



J301 is used for safety factor measurement, if needed.

B

B

C

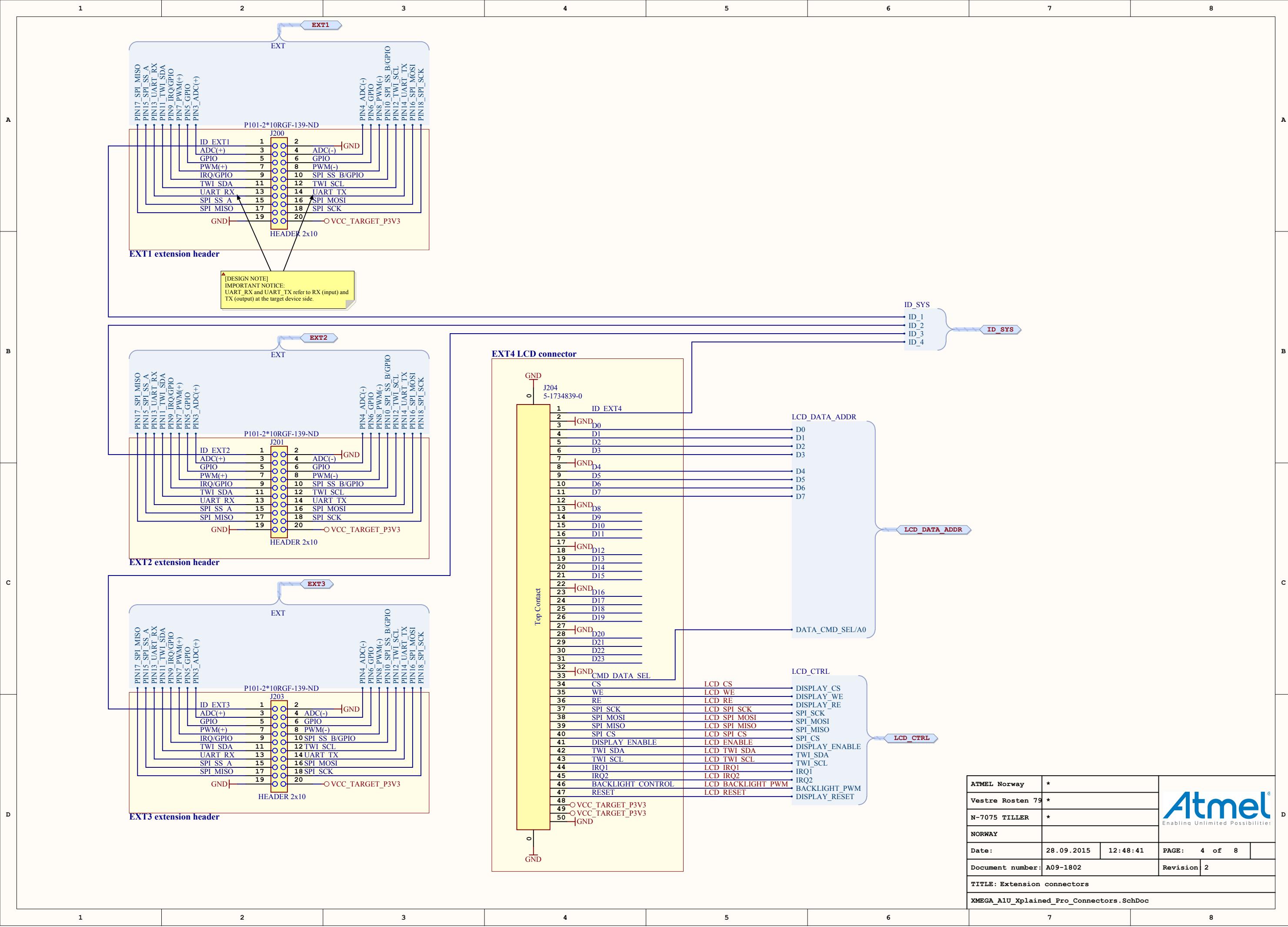
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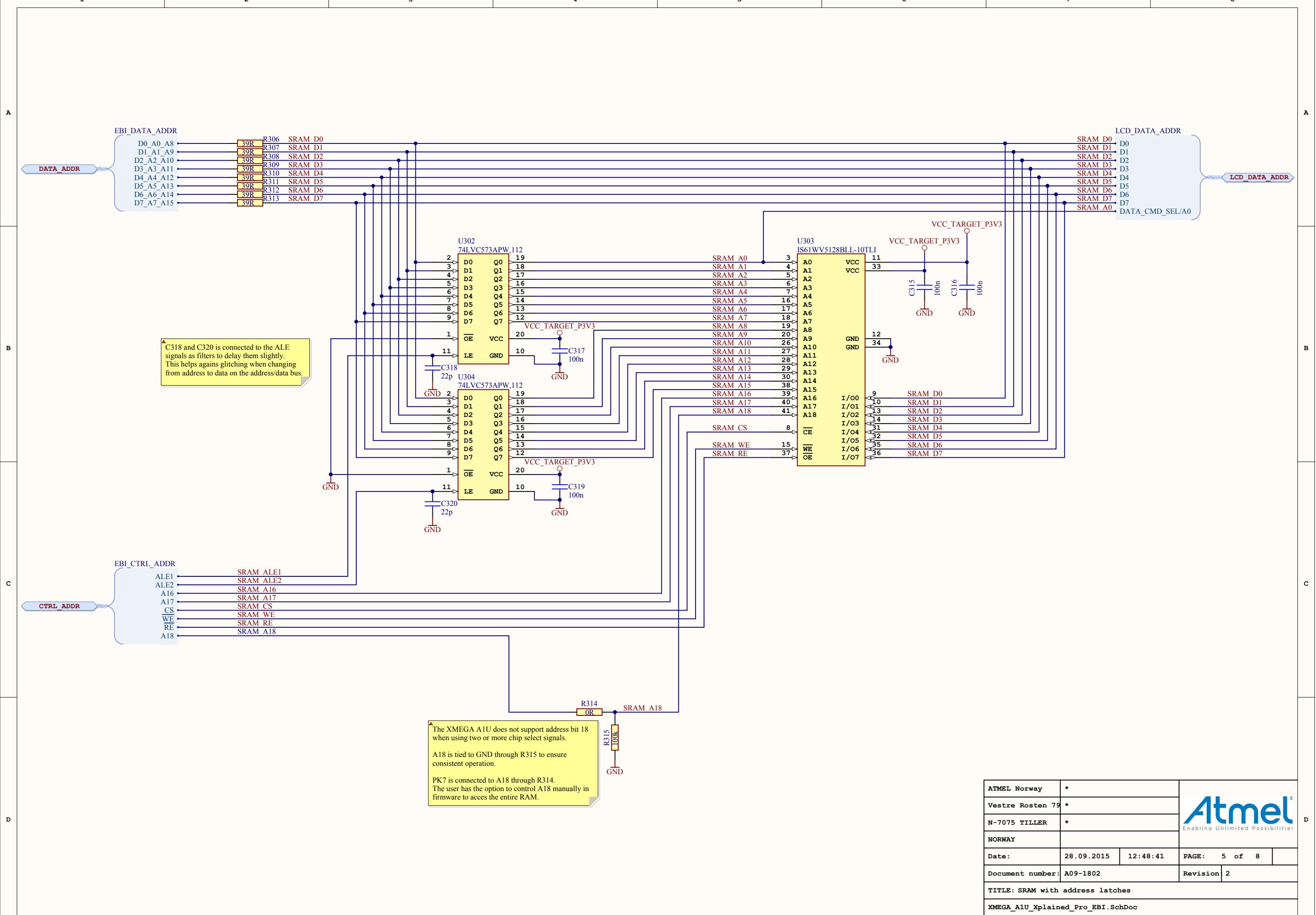
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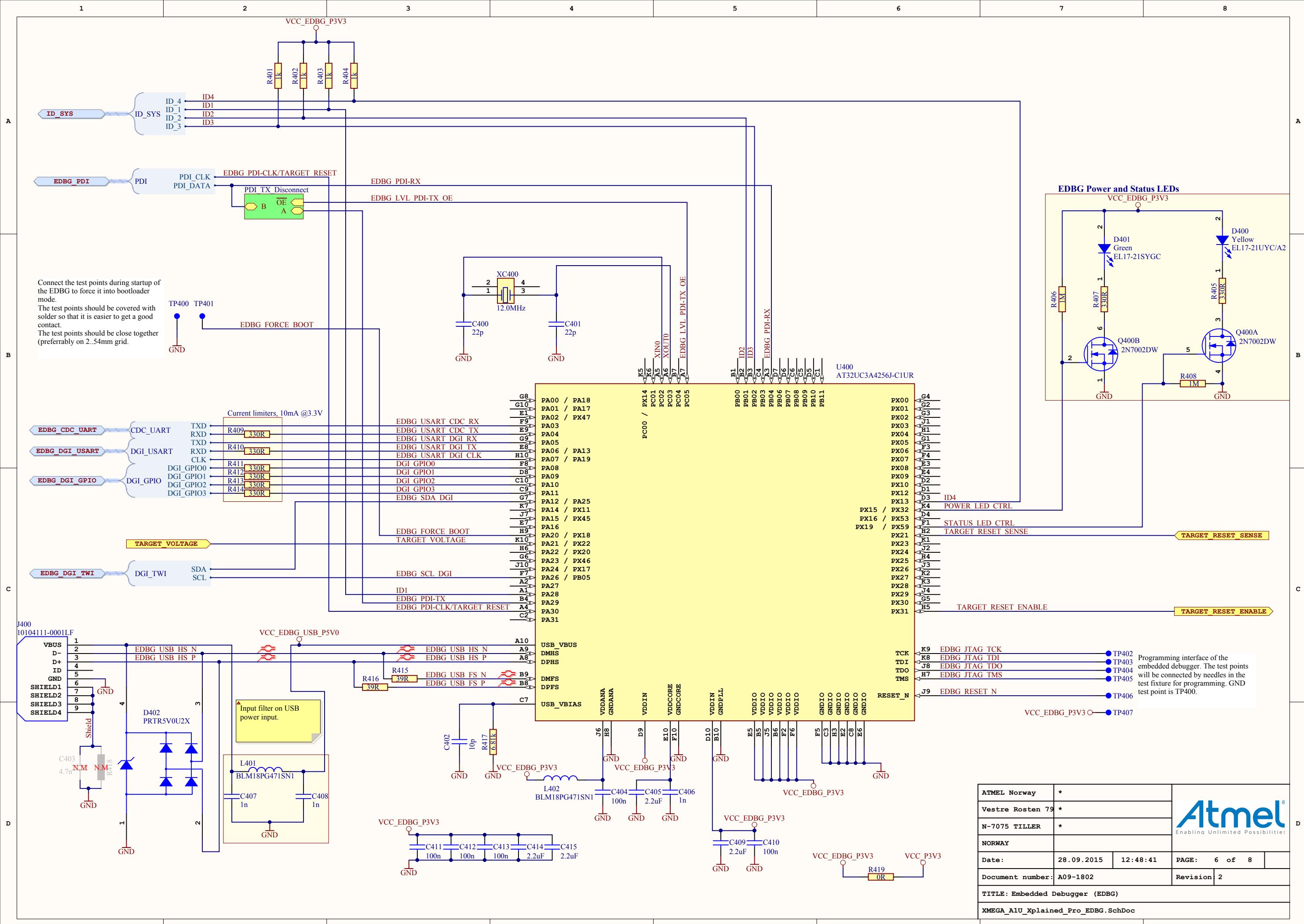
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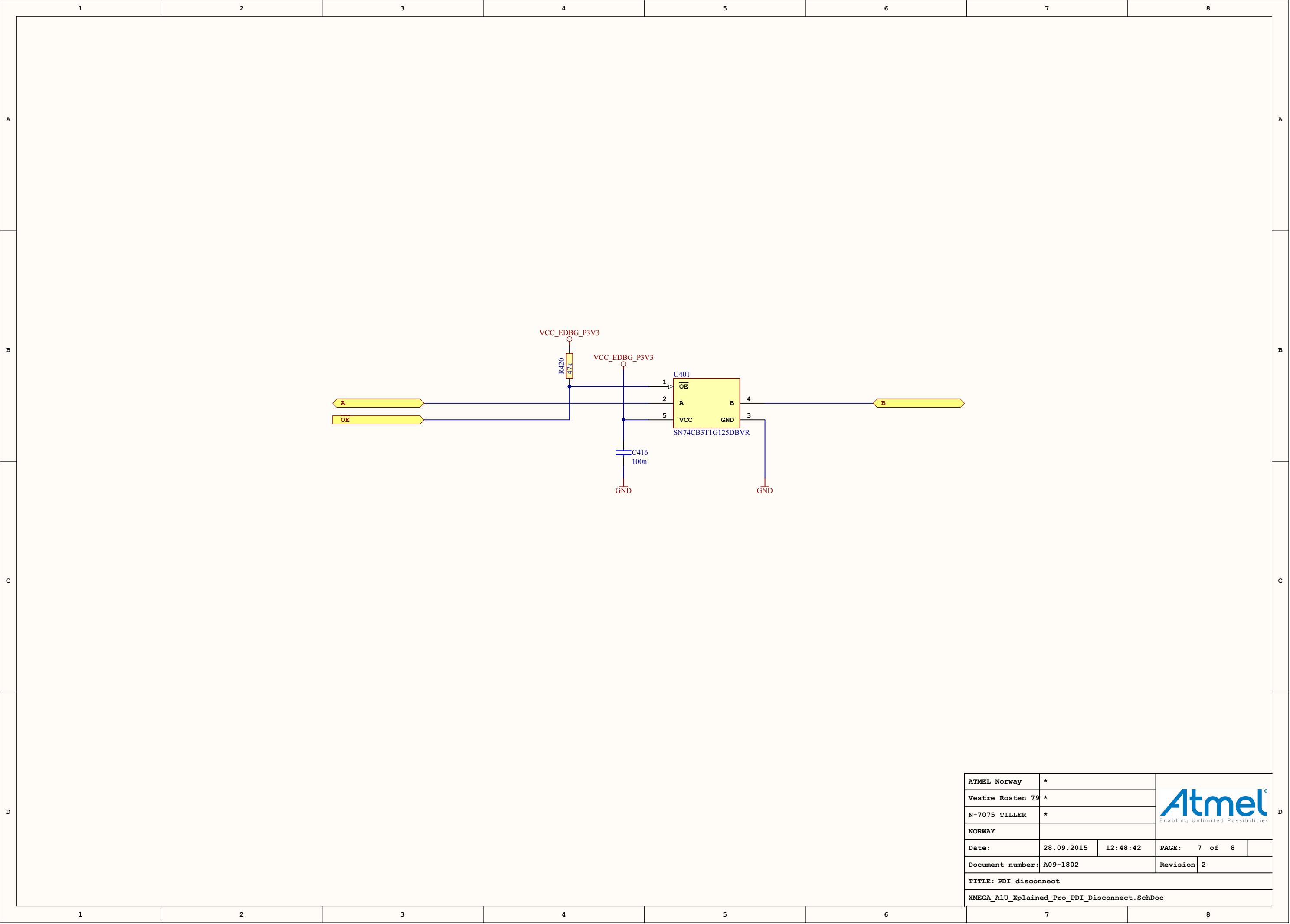
ATMEL Norway	*		
Vestre Rosten 79	*		
N-7075 TILLER	*		
NORWAY			
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Document number:	A09-1802	Revision	2
TITLE: 32.768KHz Crystal			
XMEGA_A1U_Xplained_Pro_Crystal.SchDoc			

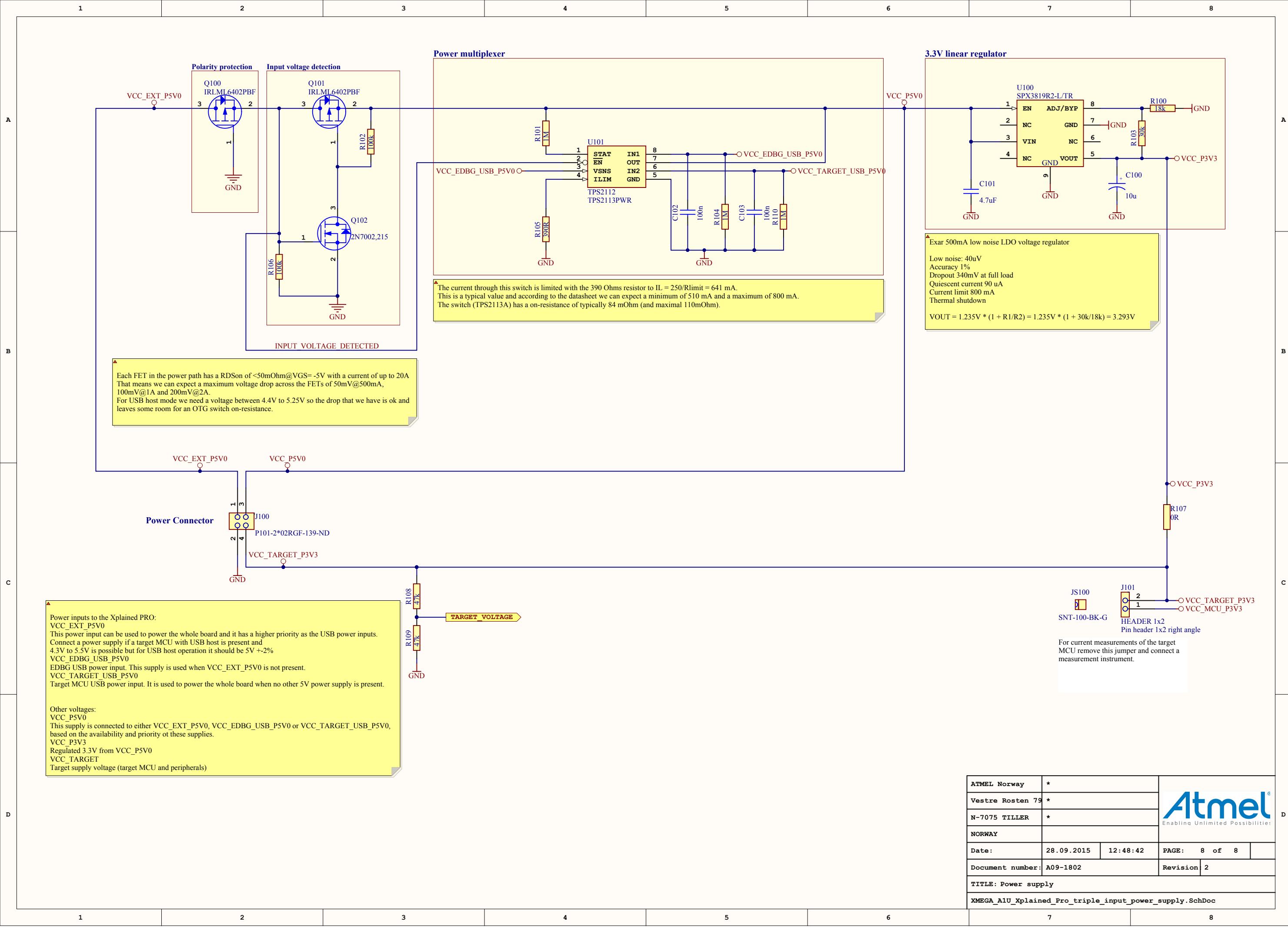
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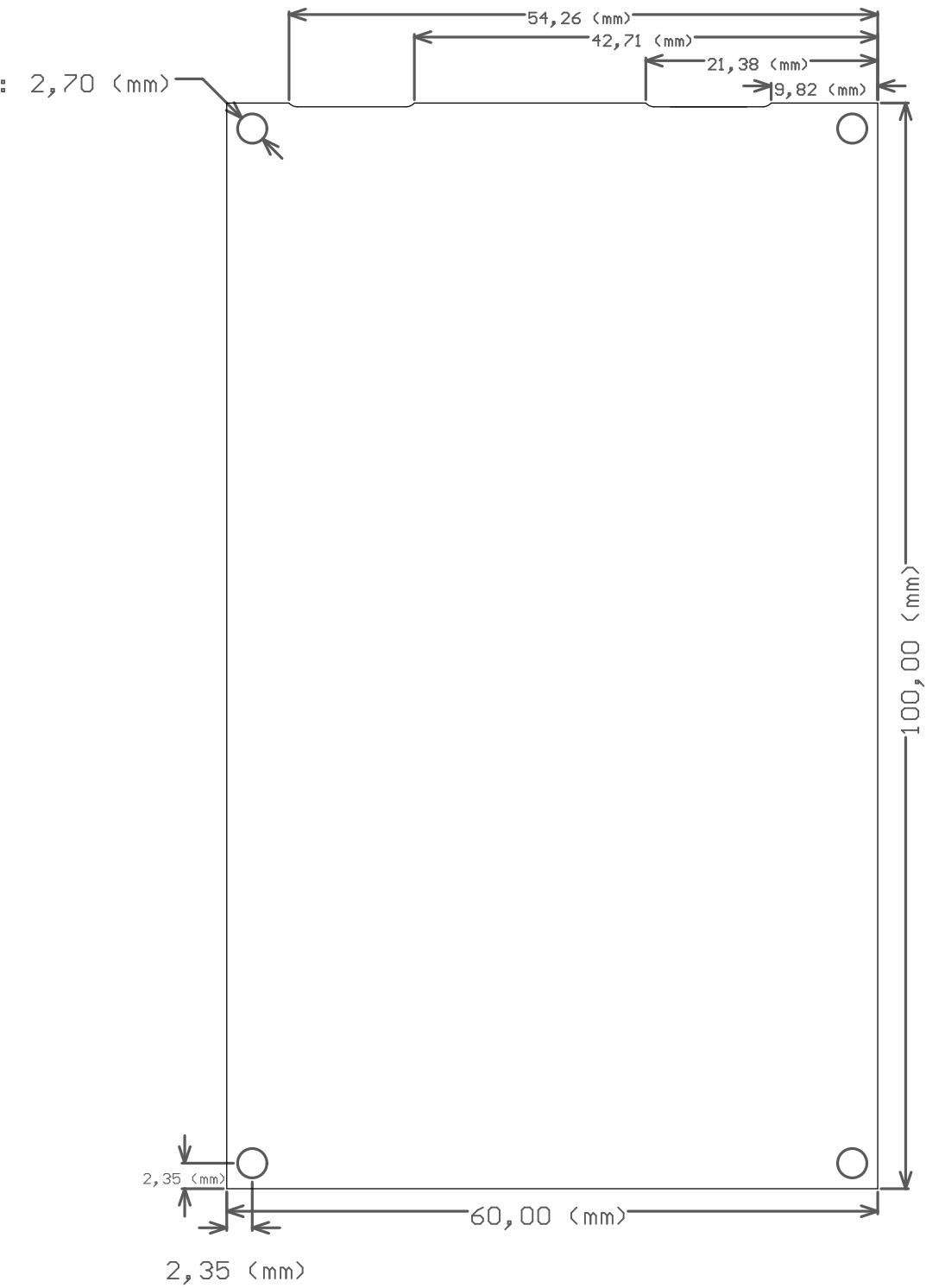


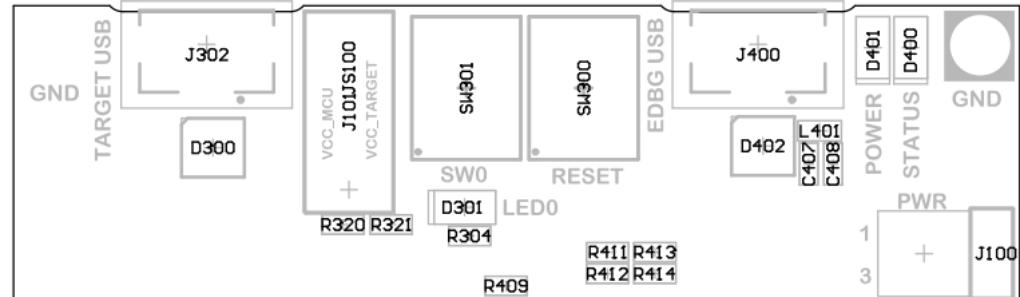






# Mechanical Dimensions





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## XMEGA A1U X PLAINED PRO

