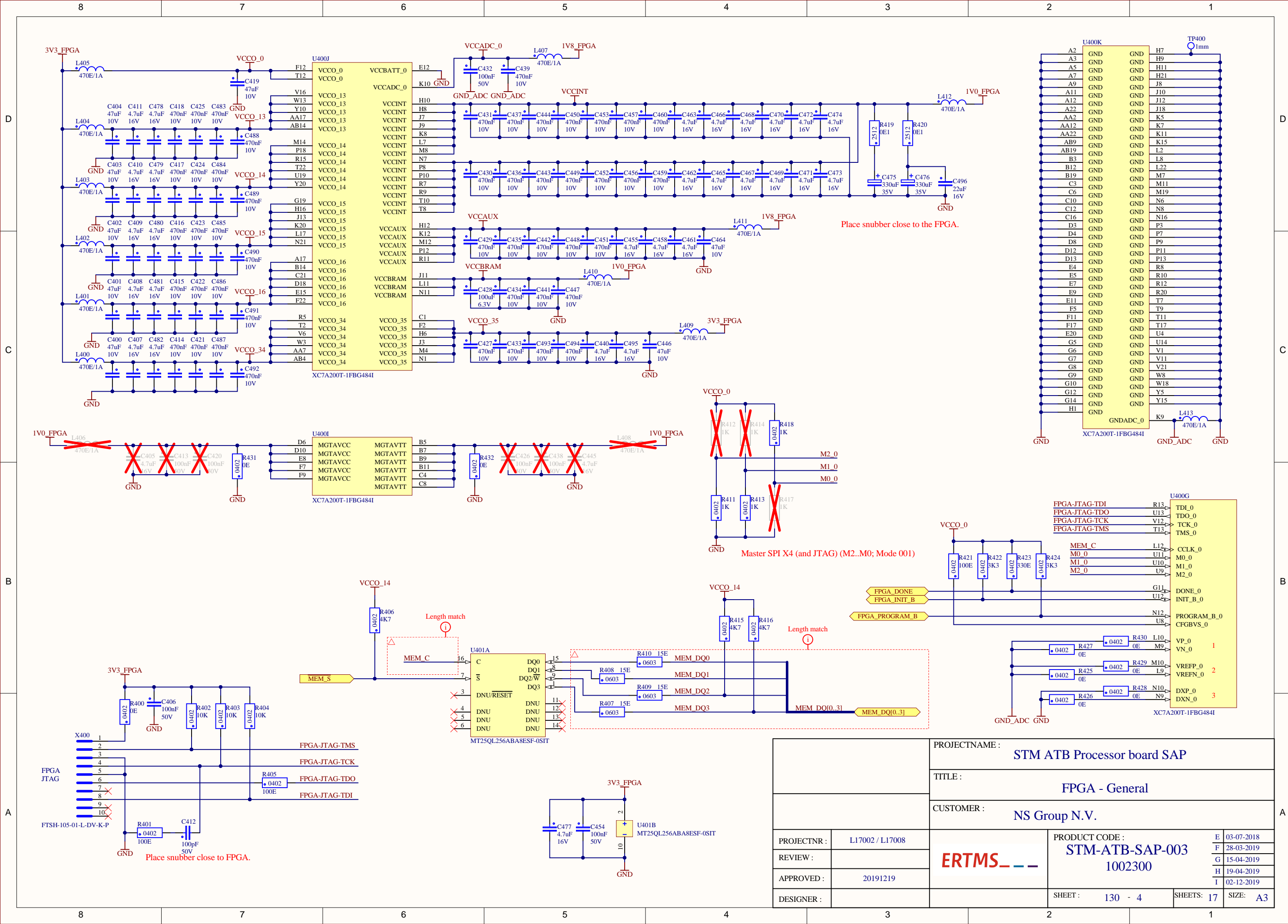
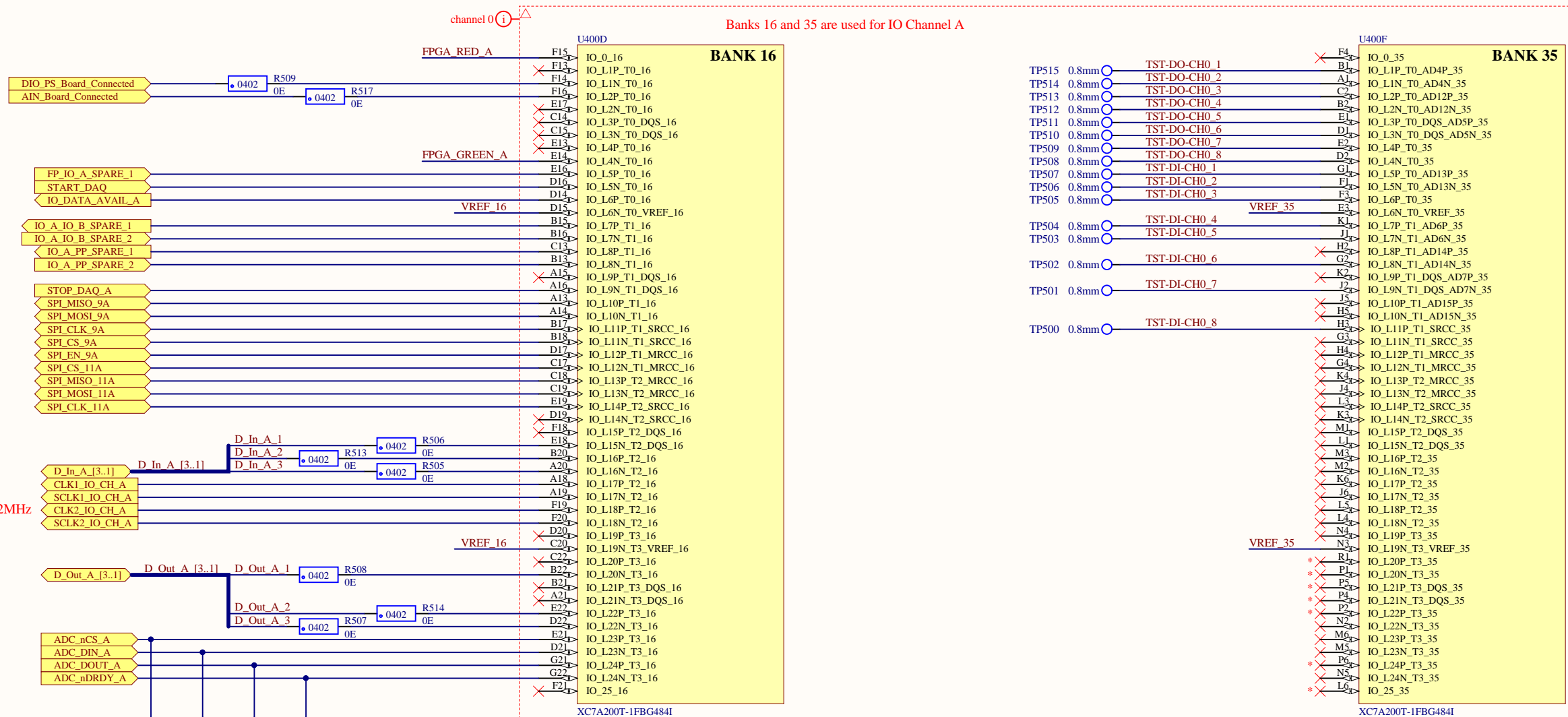


		PROJECTNAME : STM ATB Processor board SAP					
		TITLE : FPGA Overview					
		CUSTOMER : NS Group N.V.					
		ERTMS_ _ _	PRODUCT CODE : STM-ATB-SAP-003 1002300			E	03-07-2018
PROJECTNR :	L17002 / L17008					F	28-03-2019
REVIEW :						G	15-04-2019
APPROVED :	20191219					H	19-04-2019
						I	02-12-2019
DESIGNER :			SHEET :	130 - 3	SHEETS: 17	SIZE: A3	



Pinning of FPGA needs to be double checked with Vivado Design Suite of Xilinx FPGA

Banks 16 and 35 are used for IO Channel A

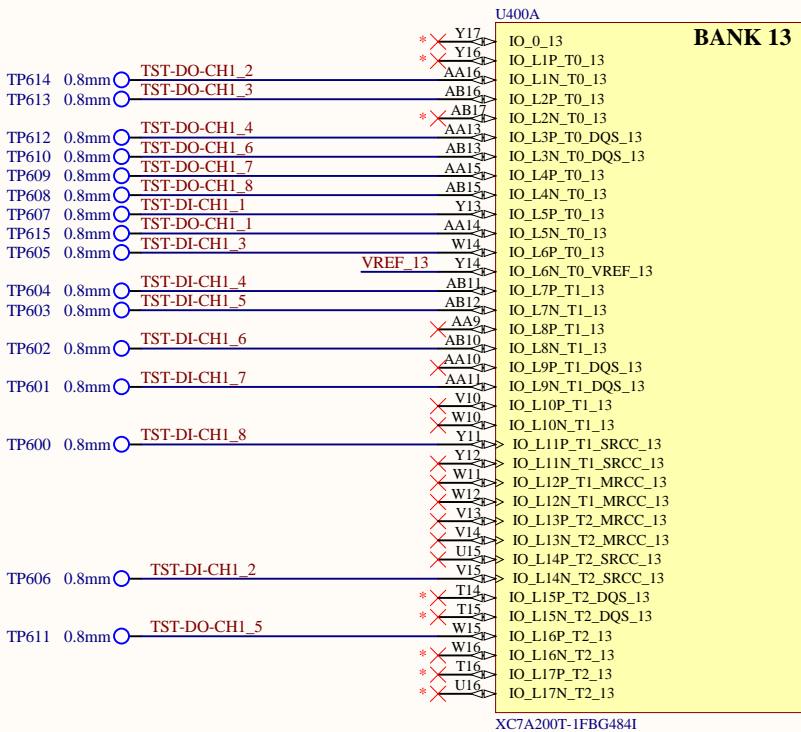
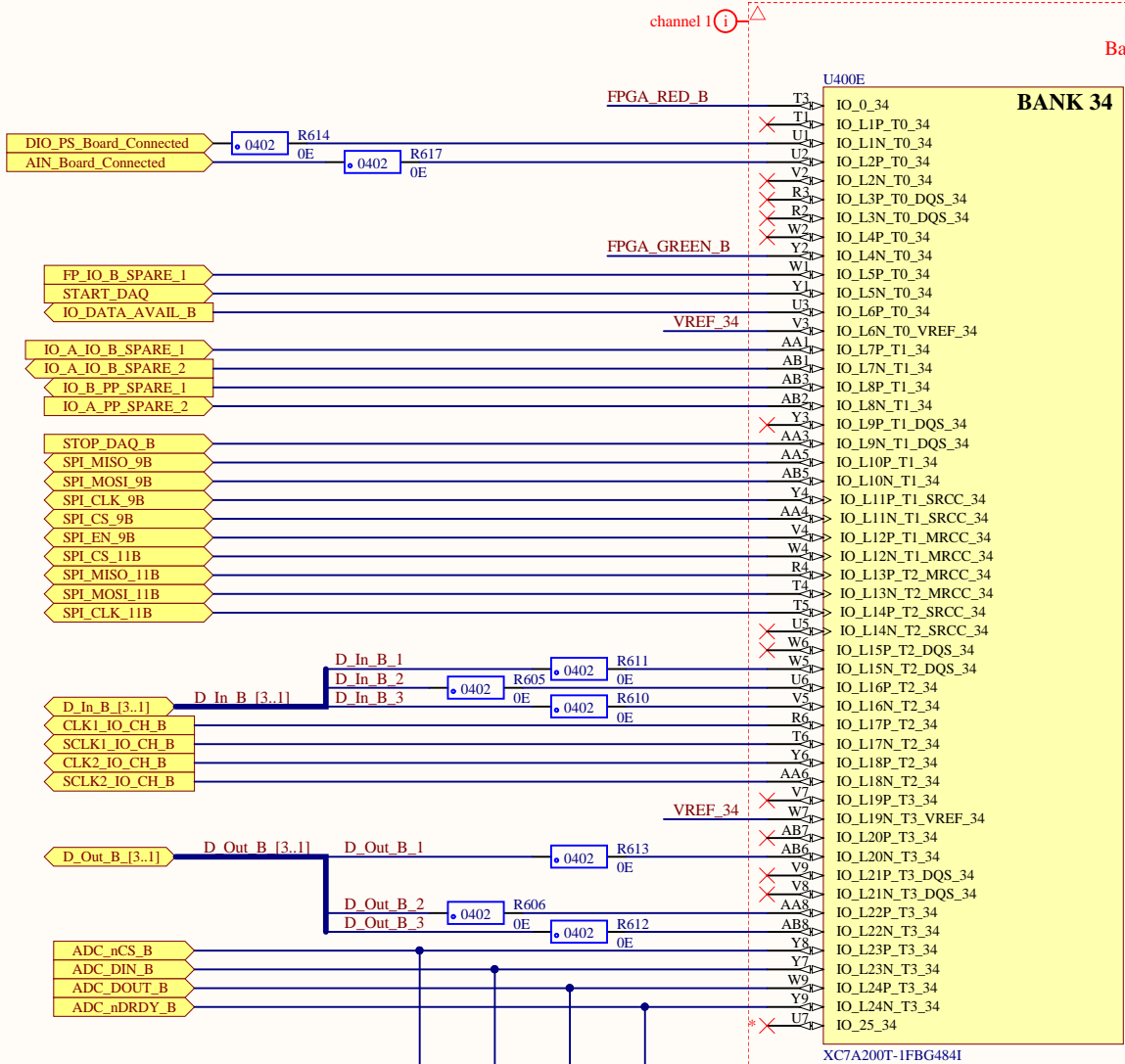


* Pins L6, P1, P2, P4, P5, P6 and R1 not to be used, to isolate IO channel A and B

		PROJECTNAME : STM ATB Processor board SAP				
		TITLE : FPGA - IO Channel A				
		CUSTOMER : NS Group N.V.				
PROJECTNR :	L17002 / L17008	ERTMS_ _ _	PRODUCT CODE :		E	03-07-2018
REVIEW :			STM-ATB-SAP-003		F	28-03-2019
APPROVED :	20191219		1002300		G	15-04-2019
					H	19-04-2019
					I	02-12-2019
DESIGNER :			SHEET :	130 - 5	SHEETS: 17	SIZE: A3

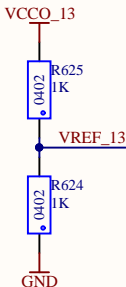
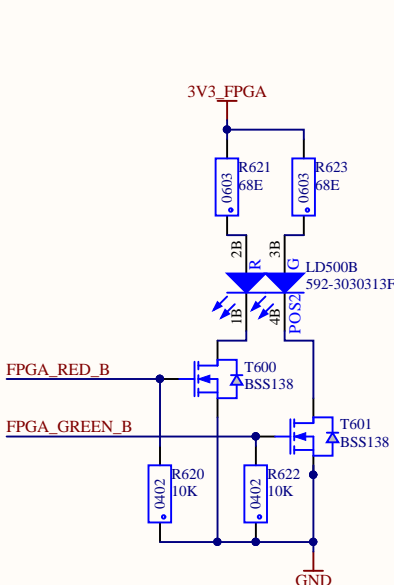
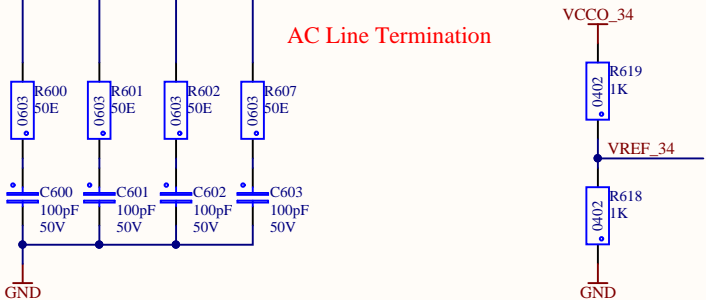
Pinning of FPGA needs to be double checked with Vivado Design Suite of Xilinx FPGA

Banks 34 and 13 are used for IO Channel B



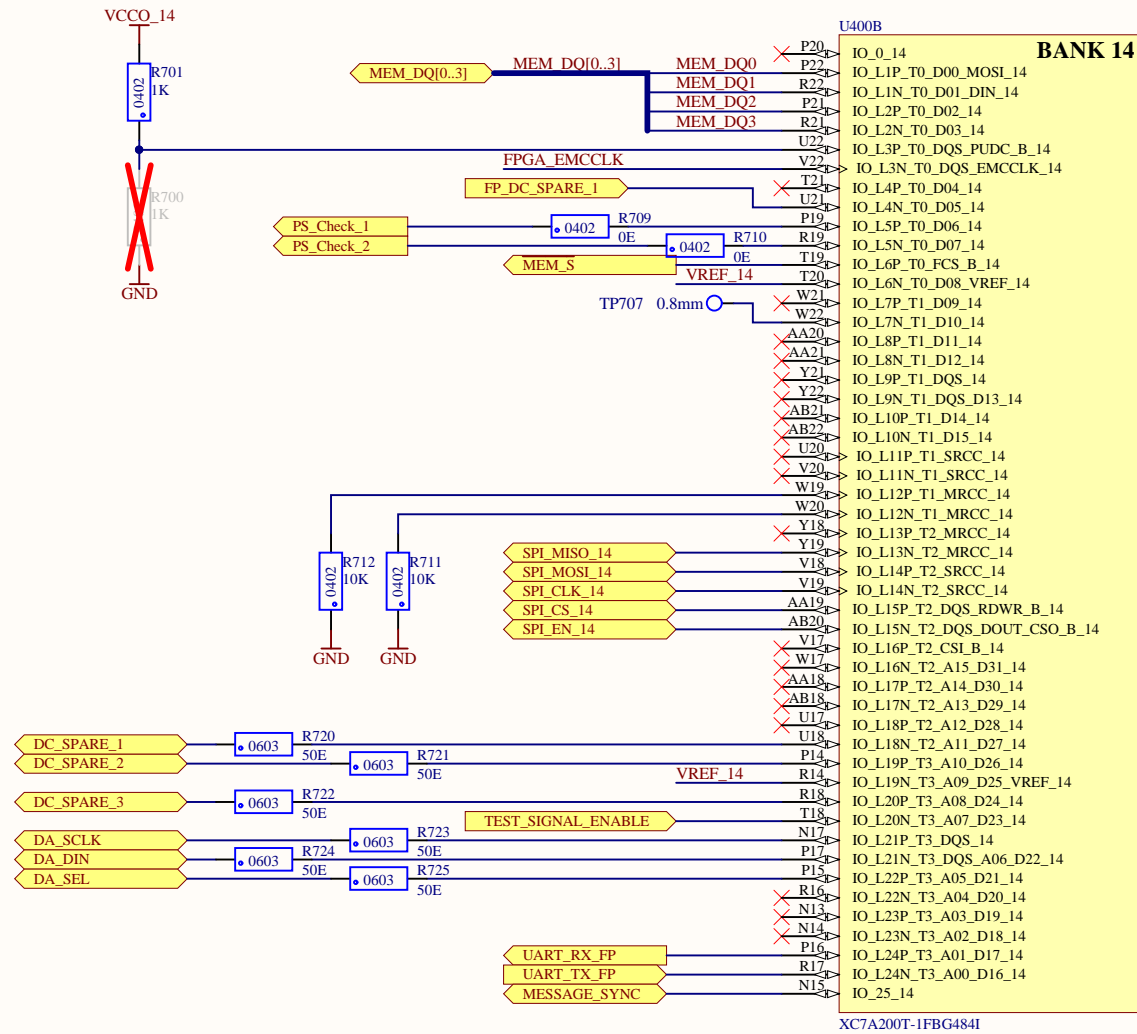
* Pins T14, T15, T16, U16, W16, Y16, Y17 and AB17 not to be used, to isolate IO Channel A and B

AC Line Termination

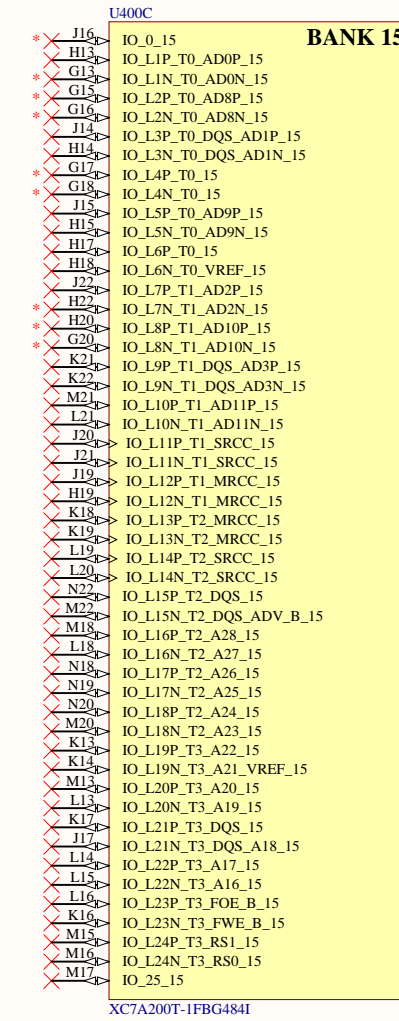


PROJECTNR : L17002 / L17008 REVIEW : APPROVED : DESIGNER : 20191219		PROJECTNAME : STM ATB Processor board SAP	
		TITLE : FPGA - IO Channel B	
		CUSTOMER : NS Group N.V.	
ERTMS_ _ _		PRODUCT CODE : STM-ATB-SAP-003 1002300	
		E 03-07-2018	
		F 28-03-2019	
		G 15-04-2019	
		H 19-04-2019	
		I 02-12-2019	
SHEET : 130 - 6		SHEETS: 17 SIZE: A3	

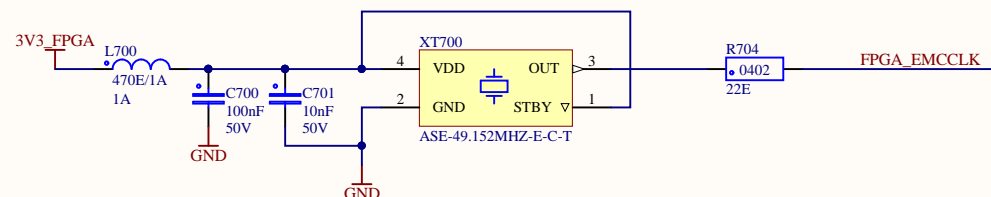
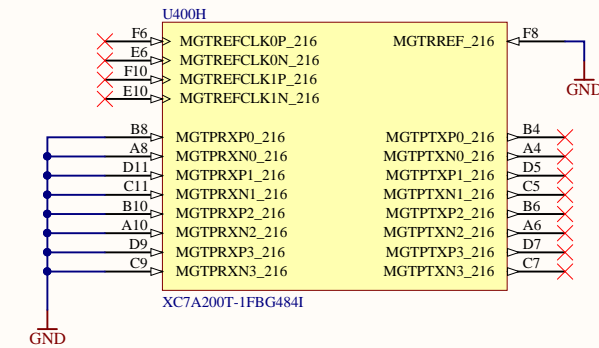
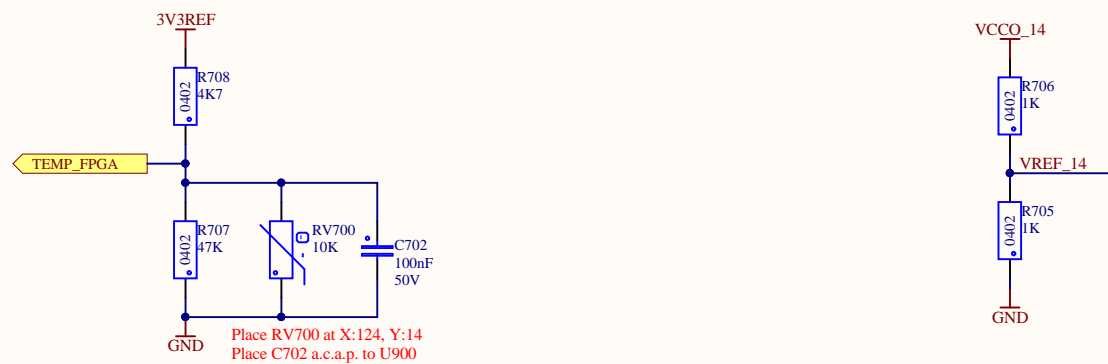
Pinning of FPGA needs to be double checked with Vivado Design Suite of Xilinx FPGA



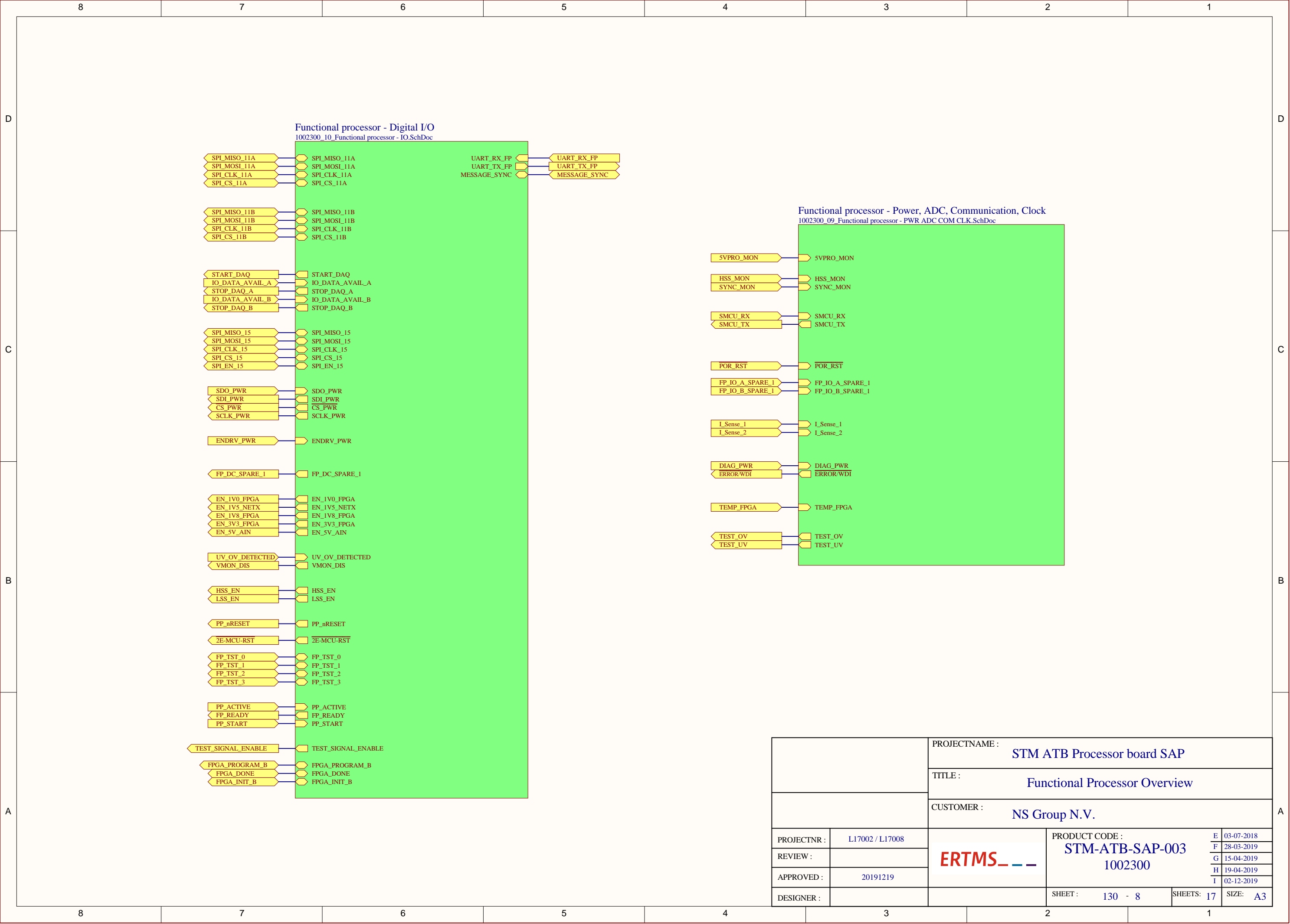
Diagnostic Channel



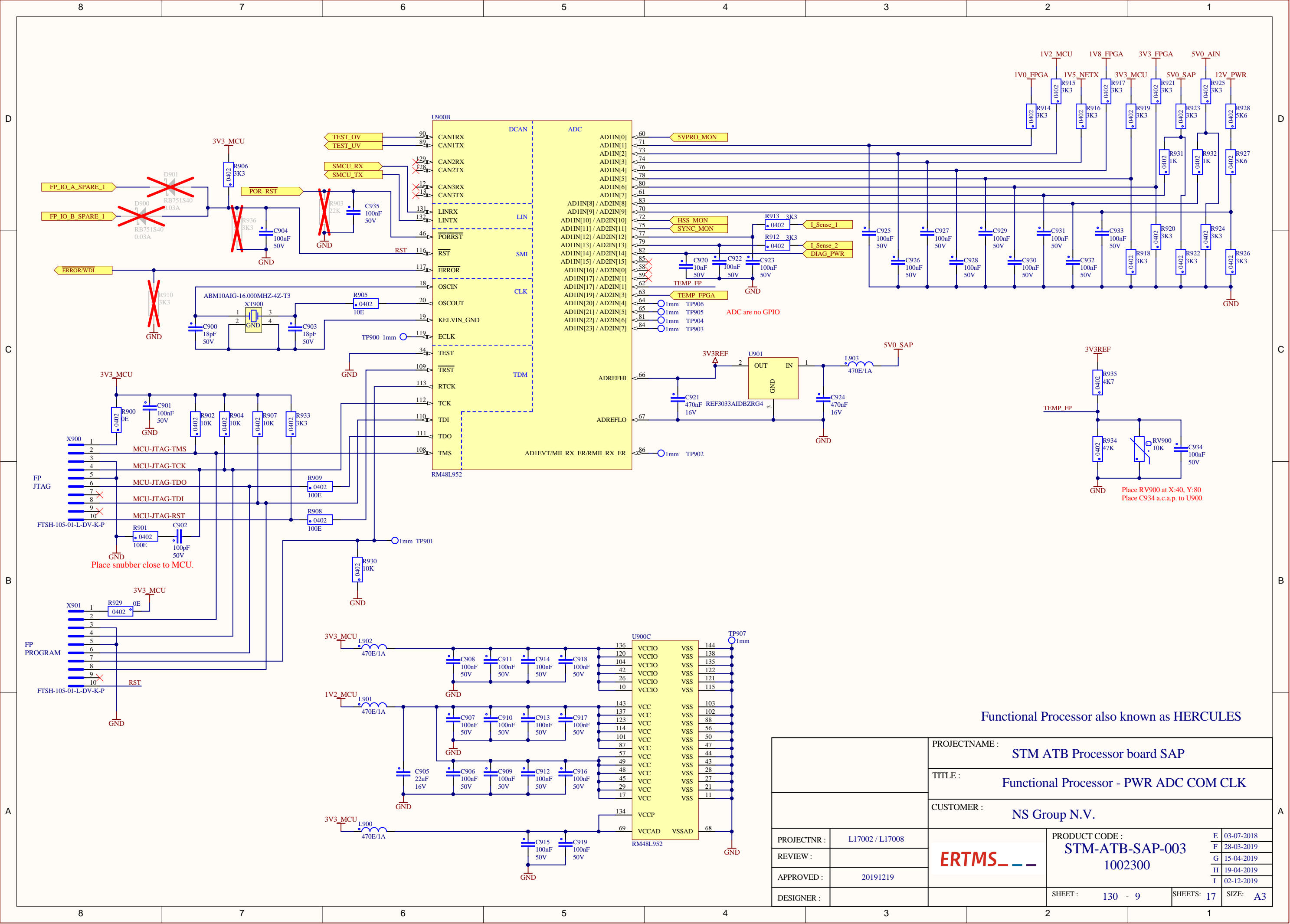
* Pins G13, G15, G16, G17, G18, G20, H20, H22 and J16 not to be used, to isolate channel A and B



		PROJECTNAME : STM ATB Processor board SAP				
		TITLE : FPGA - Diagnostic Channel				
		CUSTOMER : NS Group N.V.				
PROJECTNR :	L17002 / L17008	ERTMS_ _ _	PRODUCT CODE :		E	03-07-2018
REVIEW :			STM-ATB-SAP-003 1002300		F	28-03-2019
					G	15-04-2019
APPROVED :	20191219				H	19-04-2019
					I	02-12-2019
DESIGNER :			SHEET :	130 - 7	SHEETS: 17	SIZE: A3

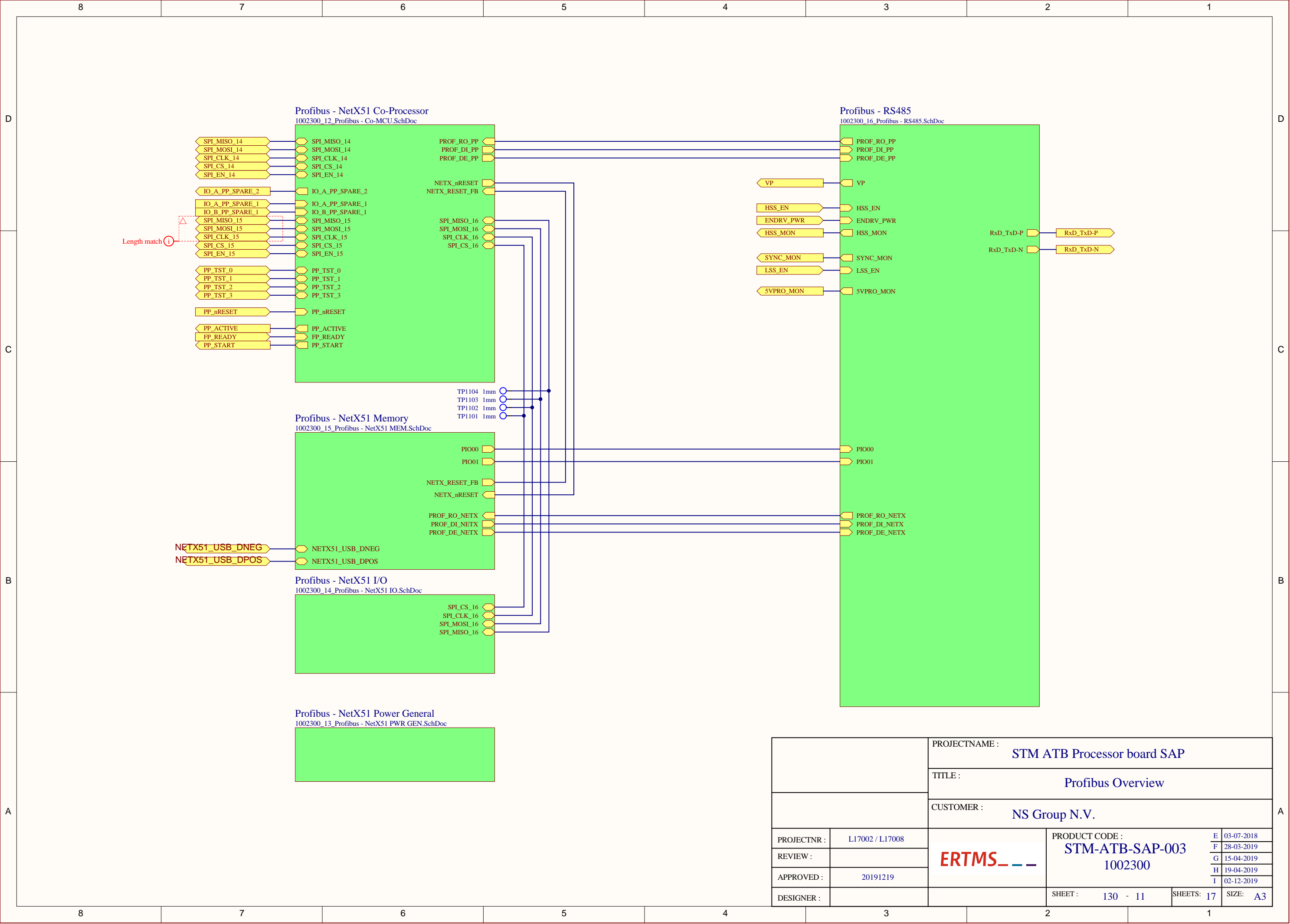


		PROJECTNAME : STM ATB Processor board SAP					
		TITLE : Functional Processor Overview					
		CUSTOMER : NS Group N.V.					
		ERTMS_ _ _	PRODUCT CODE : STM-ATB-SAP-003 1002300			E	03-07-2018
PROJECTNR :	L17002 / L17008					F	28-03-2019
REVIEW :						G	15-04-2019
APPROVED :	20191219					H	19-04-2019
						I	02-12-2019
DESIGNER :			SHEET :	130 - 8	SHEETS: 17	SIZE: A3	

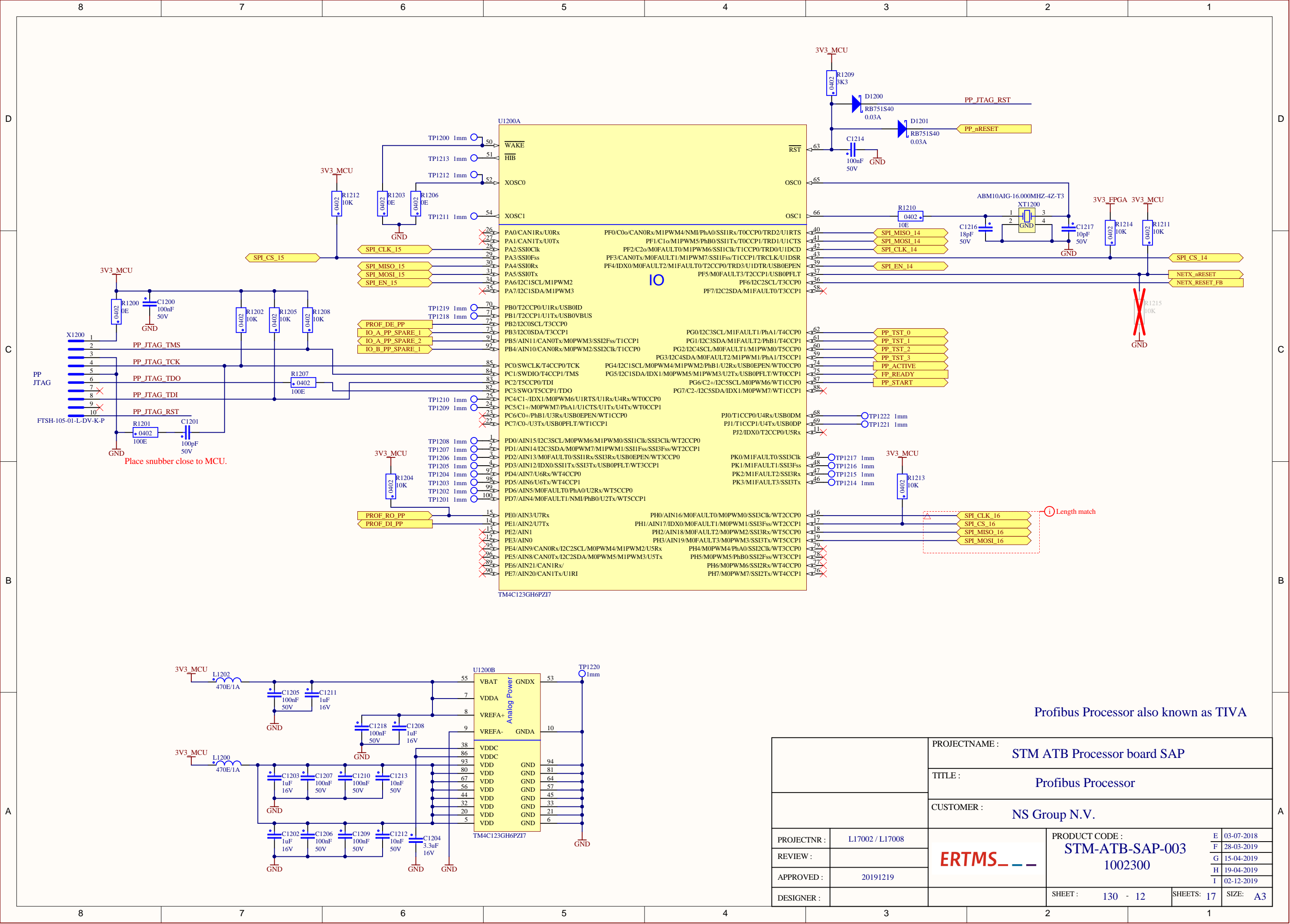


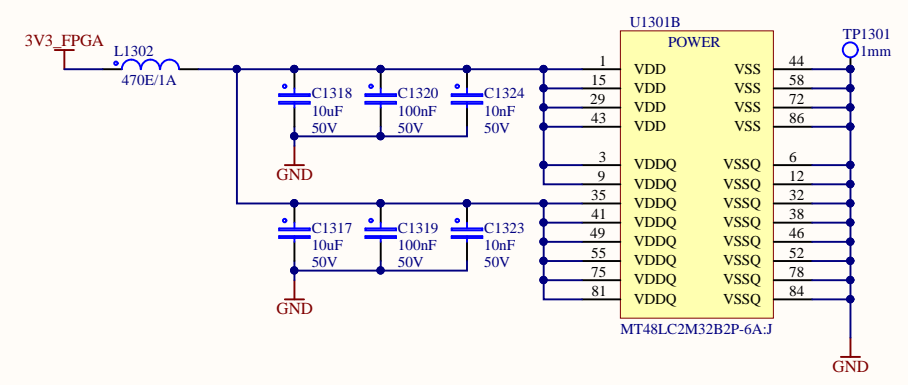
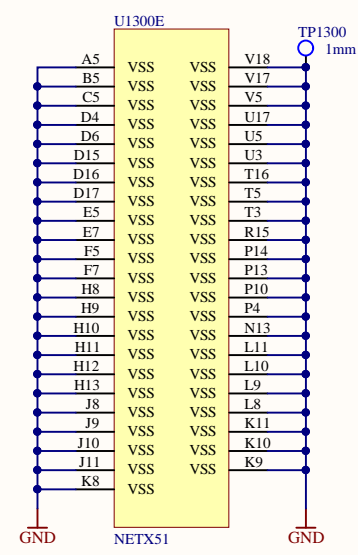
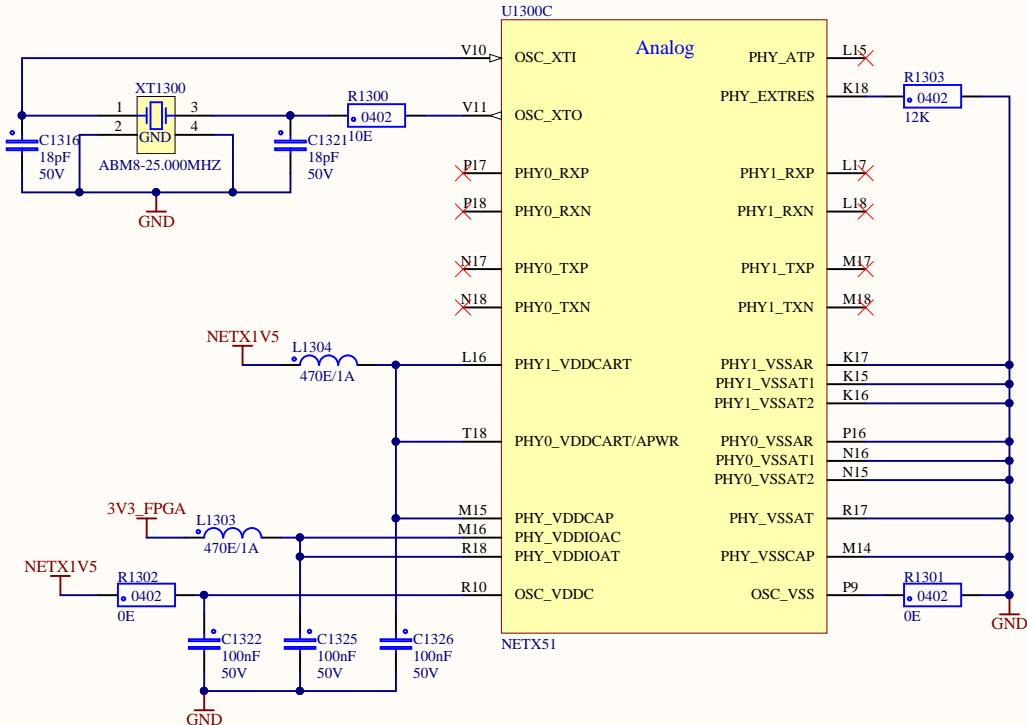
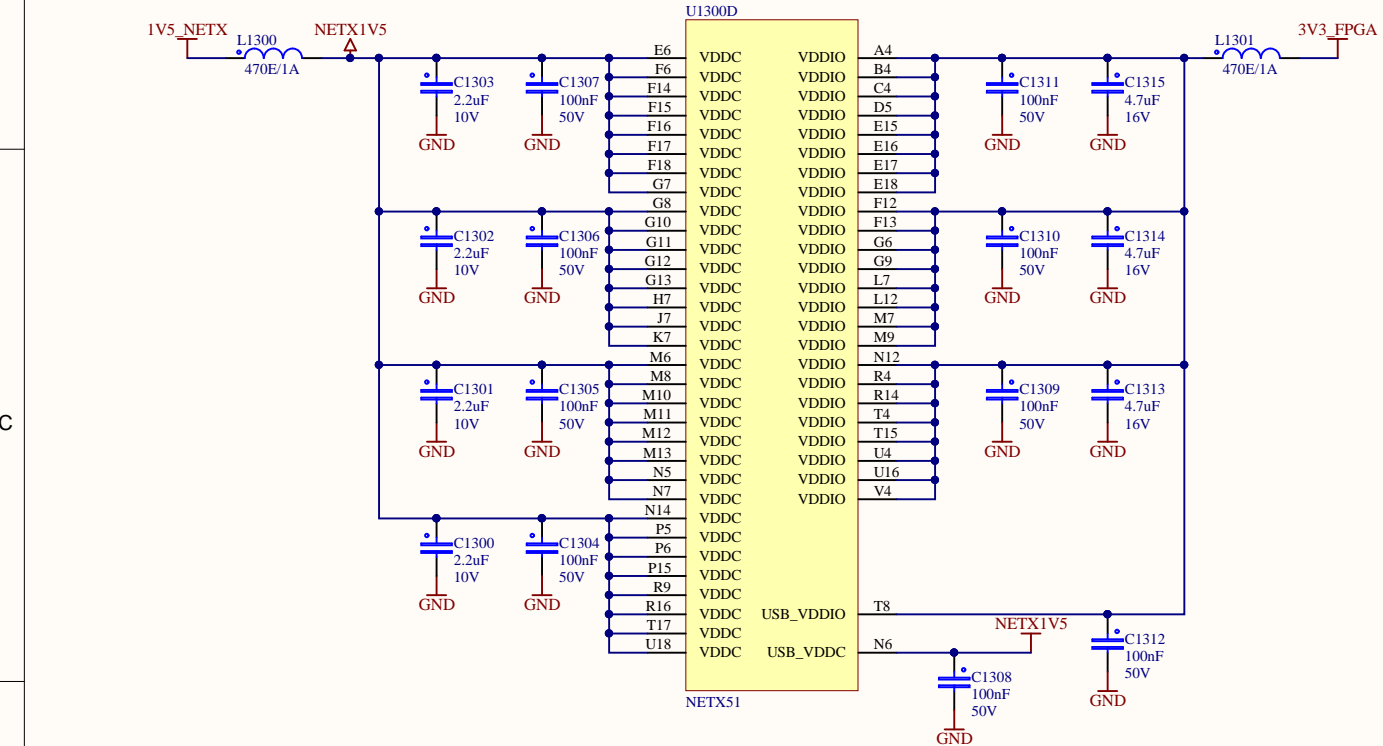
Functional Processor also known as HERCULES

PROJECTNR : L17002 / L17008 REVIEW : APPROVED : DESIGNER : 20191219		PROJECTNAME : STM ATB Processor board SAP	
		TITLE : Functional Processor - PWR ADC COM CLK	
		CUSTOMER : NS Group N.V.	
ERTMS		PRODUCT CODE : STM-ATB-SAP-003 1002300	
		SHEET : 130 - 9	
		SHEETS: 17	
		SIZE: A3	

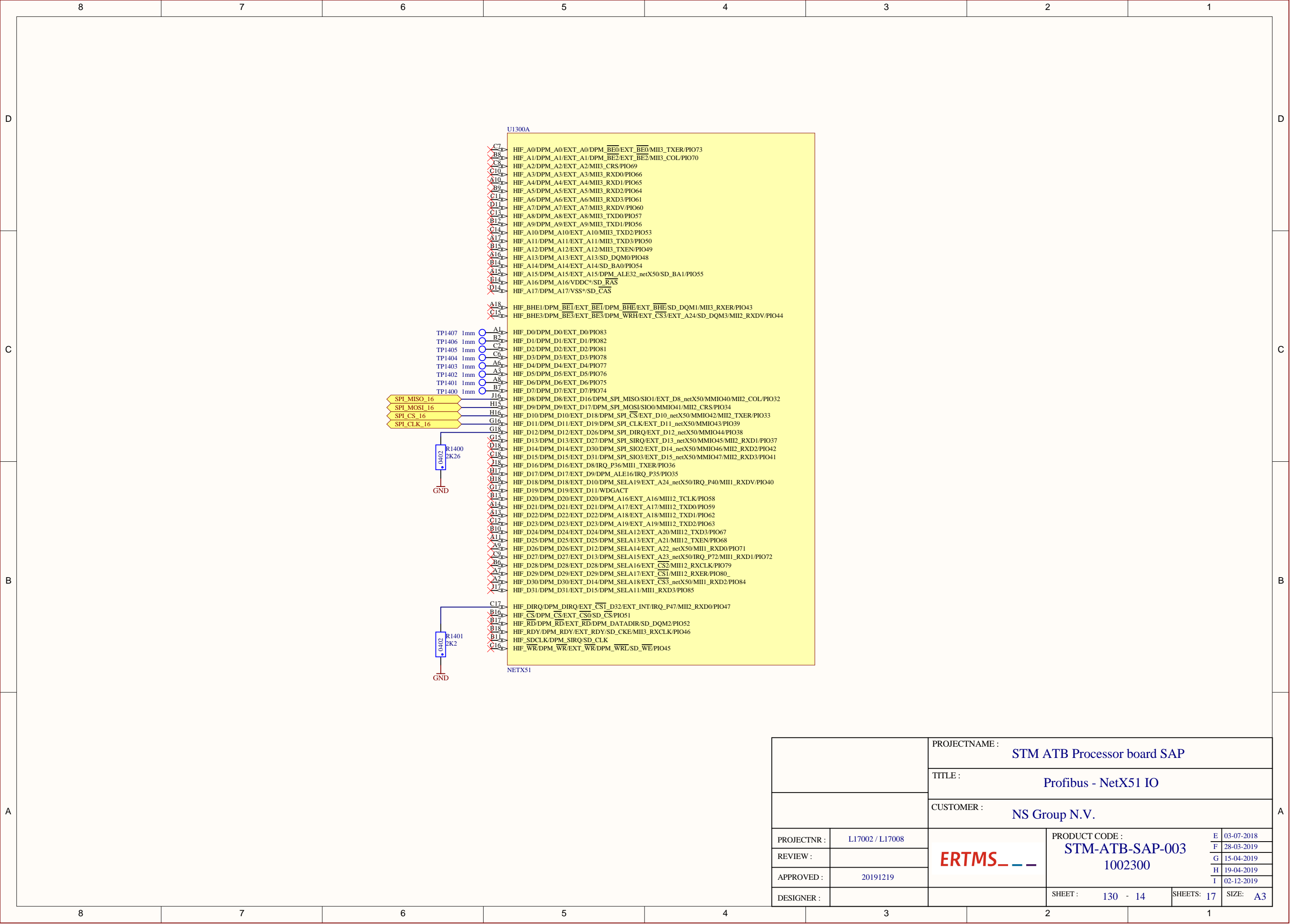


		PROJECTNAME : STM ATB Processor board SAP						
		TITLE : Profibus Overview						
		CUSTOMER : NS Group N.V.						
		ERTMS_ _ _	PRODUCT CODE : STM-ATB-SAP-003 1002300		E	03-07-2018		
F	28-03-2019							
G	15-04-2019							
H	19-04-2019							
I	02-12-2019							
PROJECTNR :	L17002 / L17008		SHEET :	130 - 11	SHEETS:	17	SIZE:	A3
REVIEW :								
APPROVED :	20191219							
DESIGNER :								





		PROJECTNAME : STM ATB Processor board SAP				
		TITLE : Profibus - NetX51 PWR GEN				
		CUSTOMER : NS Group N.V.				
PROJECTNR :	L17002 / L17008	ERTMS_ _ _	PRODUCT CODE :		E	03-07-2018
REVIEW :			STM-ATB-SAP-003		F	28-03-2019
APPROVED :	20191219		1002300		G	15-04-2019
					H	19-04-2019
DESIGNER :			SHEET :	130 - 13	SHEETS: 17	SIZE: A3



		PROJECTNAME : STM ATB Processor board SAP			
		TITLE : Profibus - NetX51 IO			
		CUSTOMER : NS Group N.V.			
PROJECTNR :	L17002 / L17008	ERTMS_ _ _	PRODUCT CODE :		E 03-07-2018
REVIEW :			STM-ATB-SAP-003		F 28-03-2019
APPROVED :	20191219		1002300		G 15-04-2019
DESIGNER :					H 19-04-2019
			SHEET : 130 - 14	SHEETS: 17	SIZE: A3

