

PCM-939

phyCORE-STM32MP15x Carrier Board

Copyright 2018 PHYTEC TECHNOLOGIE HOLDING AG

INFORMATION IN THIS DOCUMENT IS PROVIDED SOLELY FOR USE IN CONJUNCTION WITH THE PHYTEC PRODUCT DESCRIBED HEREIN. NO INTELLECTUAL PROPERTY RIGHTS -- EXPRESS OR IMPLIED -- ARE GRANTED THROUGH THIS DOCUMENT. LIKEWISE, PHYTEC MAKES NO EXPRESS OR IMPLIED WARRANTIES OF ANY KIND, WHETHER AS TO MANUFACTURABILITY; MERCHANTABILITY; FITNESS FOR A PARTICULAR PURPOSE; OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. SPECIFICATIONS HEREIN ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE.

PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 1 of 21

1

2

3

4

5

6

A

B

C

D

A

B

C

D

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

Intellectual Property
PHYTEC GmbH Messtechnik

PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 2 of 21

1

2

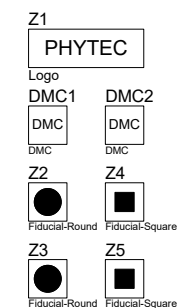
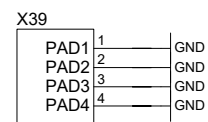
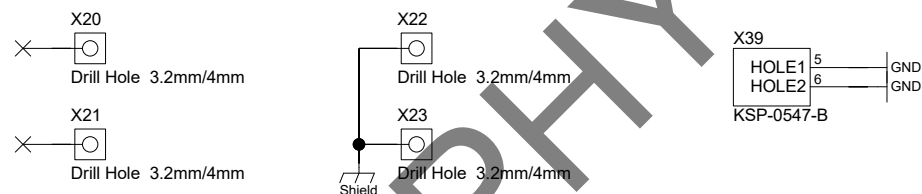
3

4

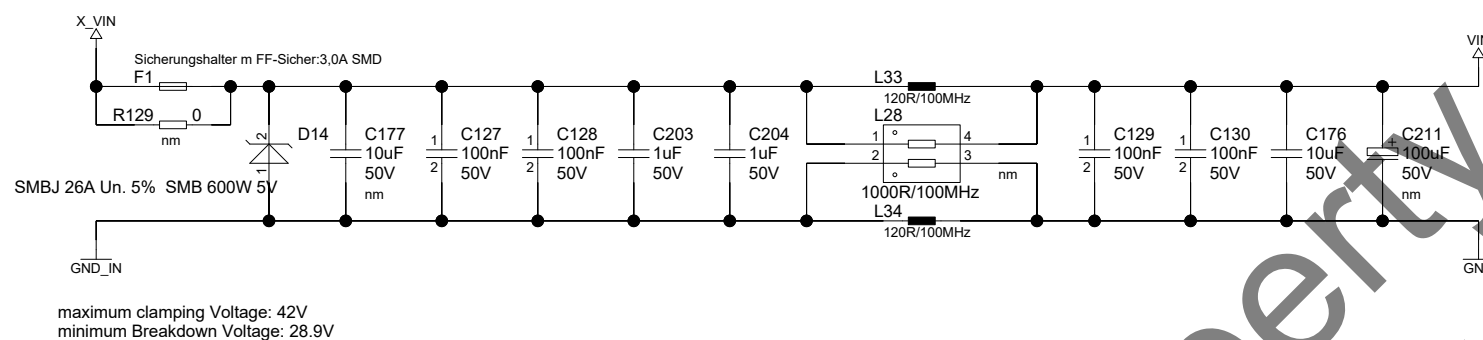
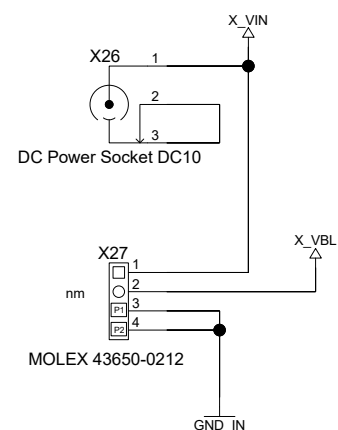
5

6

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

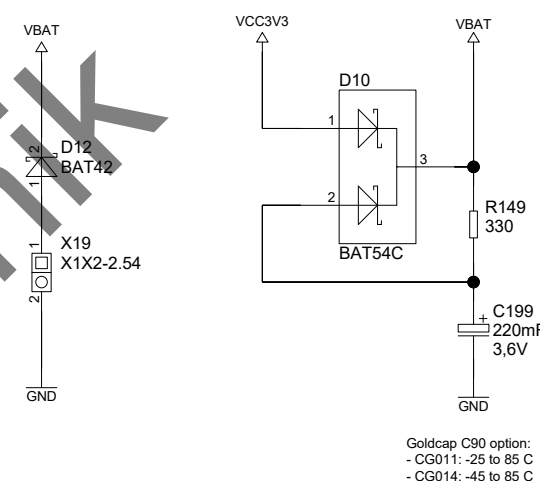


Power Input (12V - 24V)



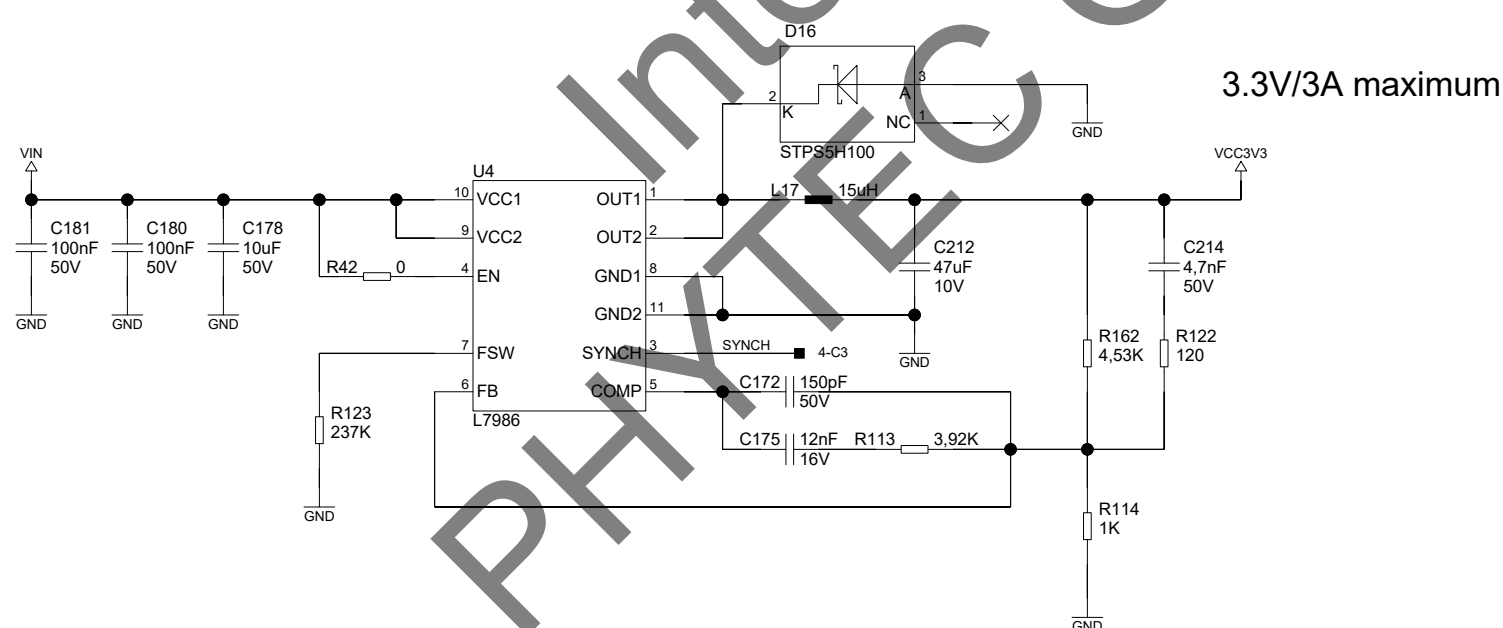
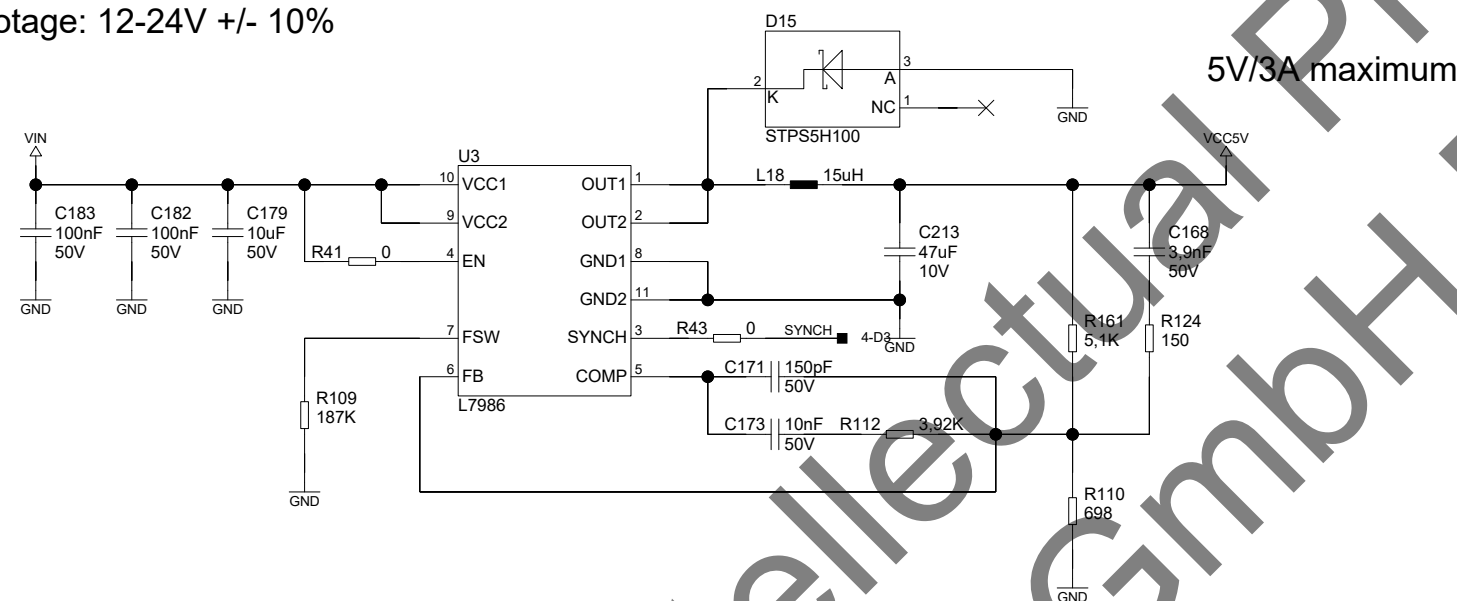
Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

Backup Goldcap

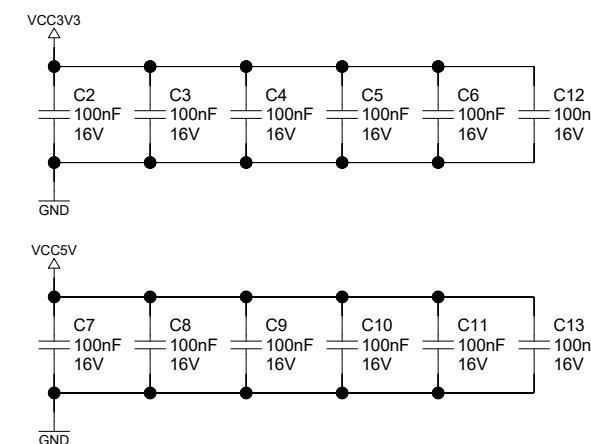
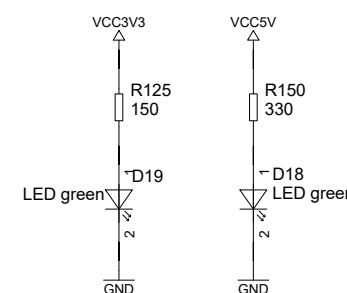
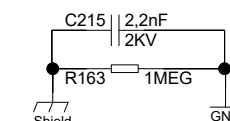


5V/3V3 Regulator 3A

Operating Votage: 12-24V +/- 10%



Shield Coupler

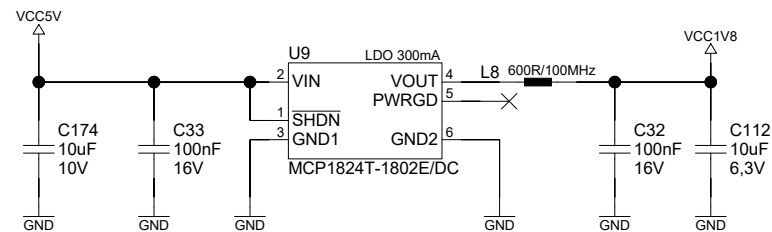


PHYTEC

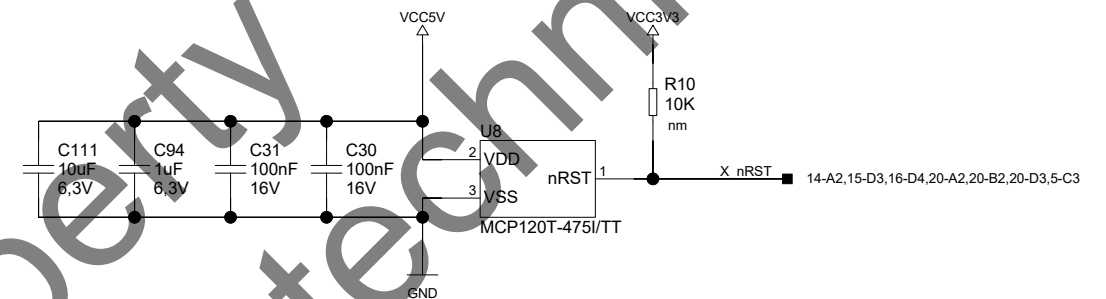
PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project: PCM-939 phyCORE-STM32MP15x Carrier Board	Department : F&E Author: C. Parant
04.02.2019	PCB-No.: 1517.0
Revision : 002	Sheet 4 of 21

1.8V Power Supply

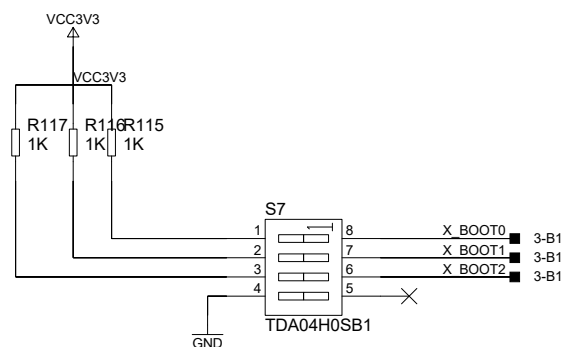


Voltage Supervisor



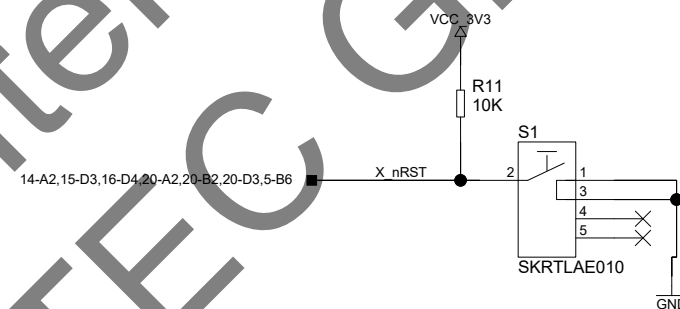
Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

Boot selection

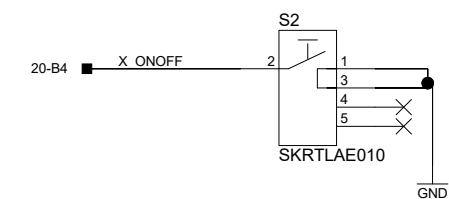


Boot Mode	BOOT2	BOOT1	BOOT0
Reserved	1	0	0
NOR	0	0	1
SD-Card	1	1	1
	1	0	1
eMMC	0	1	0
NAND	0	1	1
UART/USB	1	1	0
	0	0	0

System Reset Button



CPU ON/OFF Button



PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

04.02.2019

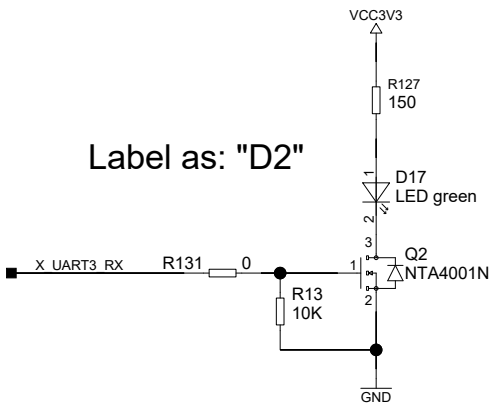
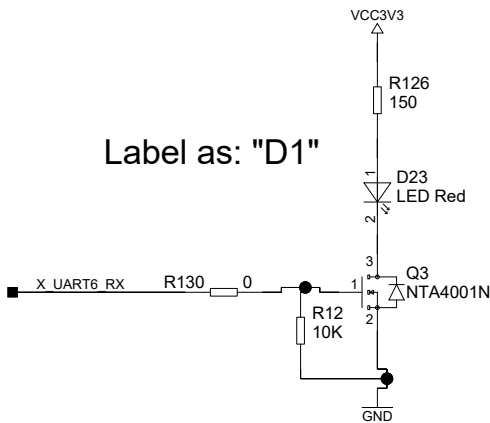
PCB-No.: 1517.0

Revision : 002

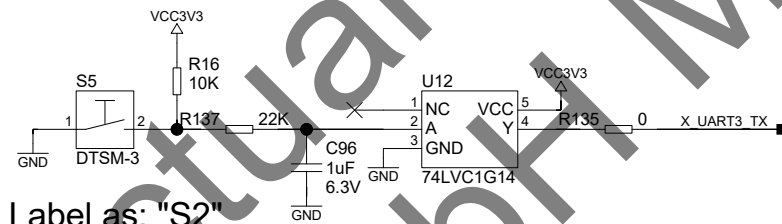
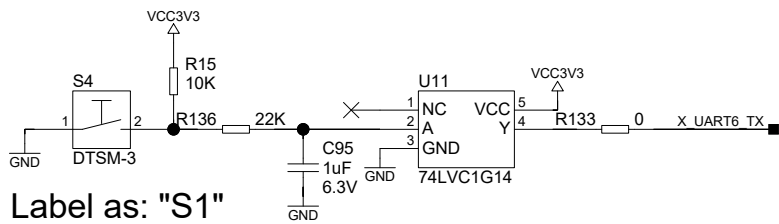
Sheet 5 of 21

User LEDs

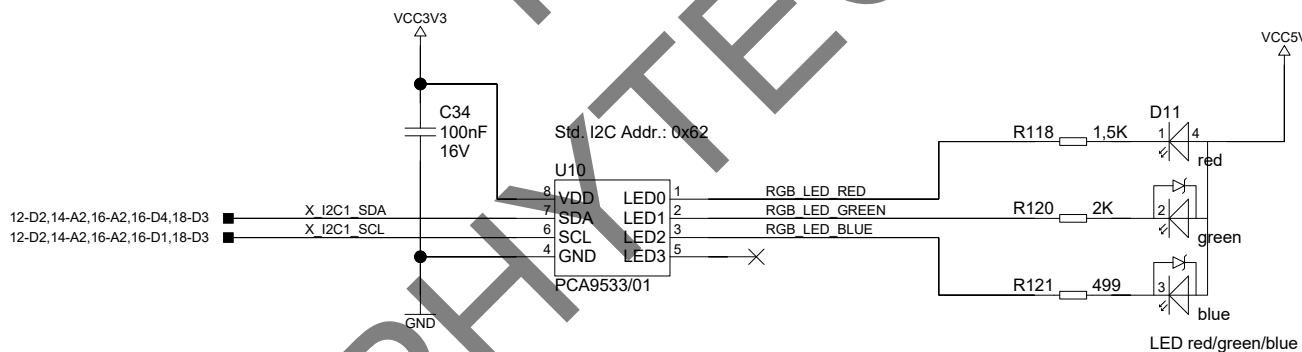
Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



User Buttons



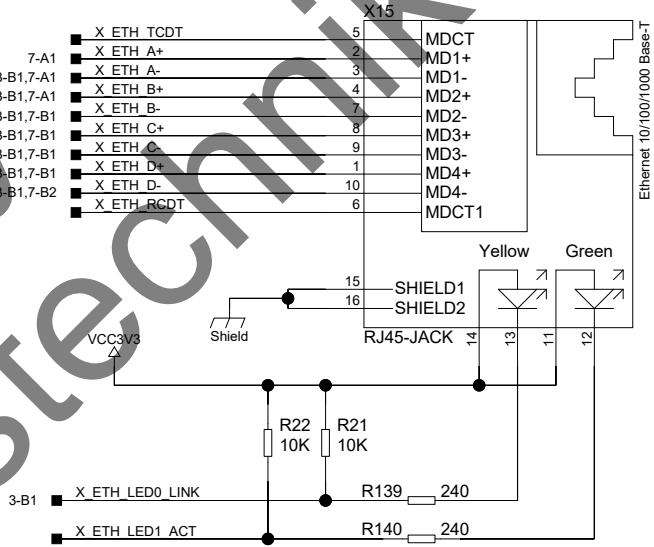
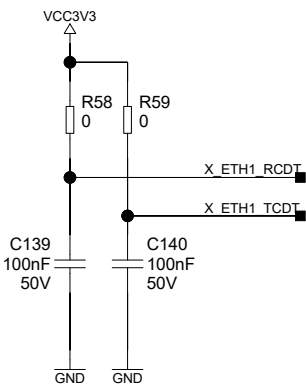
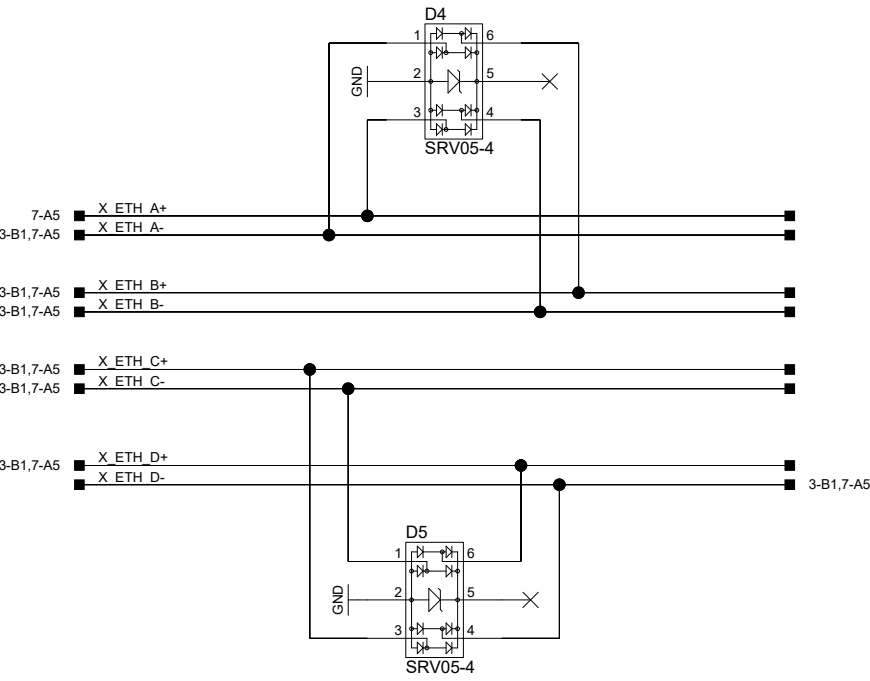
Multicolor LED



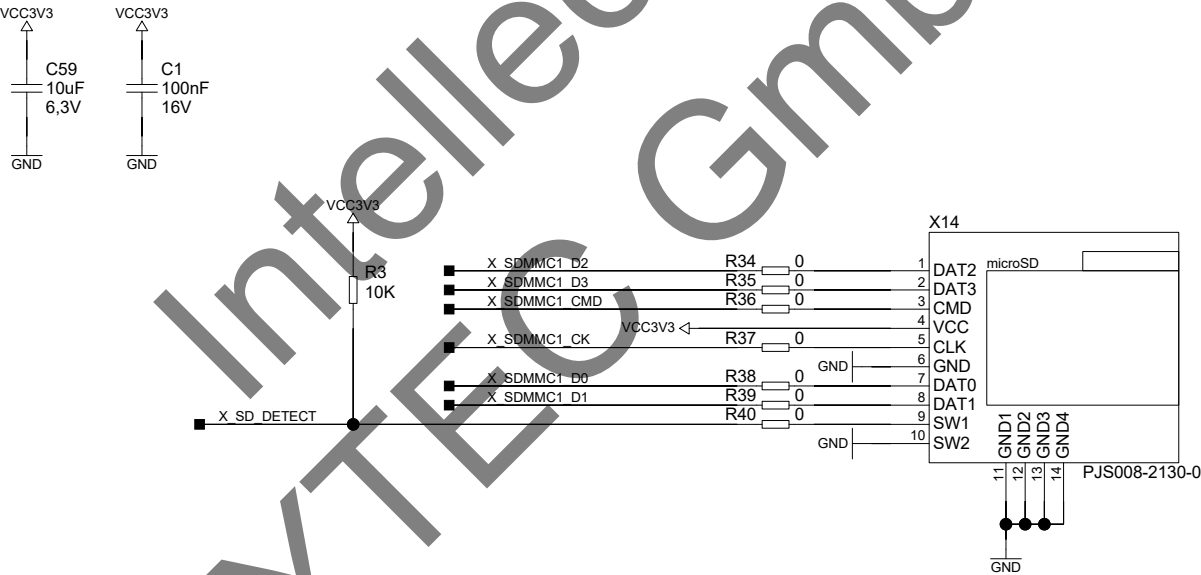
PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 6 of 21

Gigabit Ethernet

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

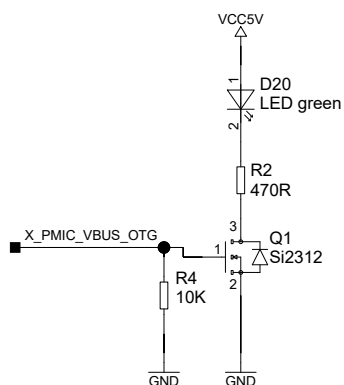


uSD card

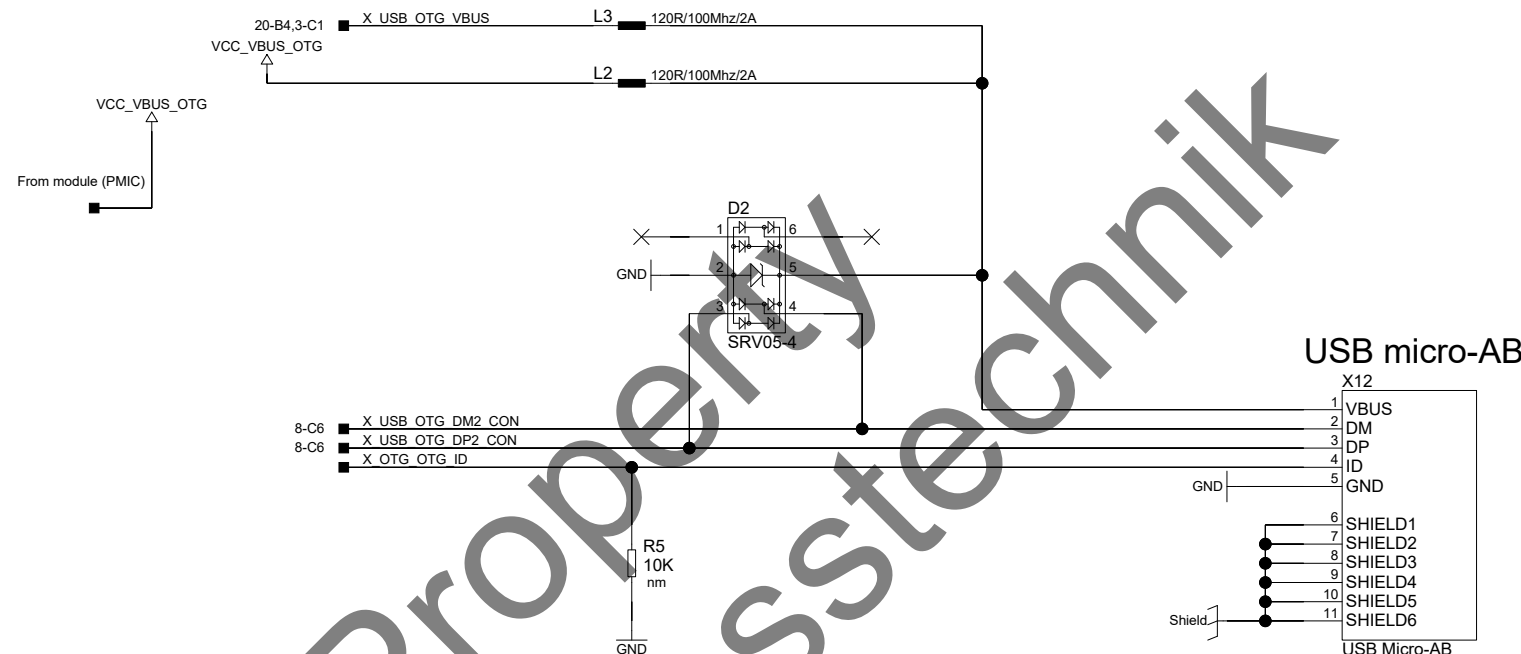


USB OTG

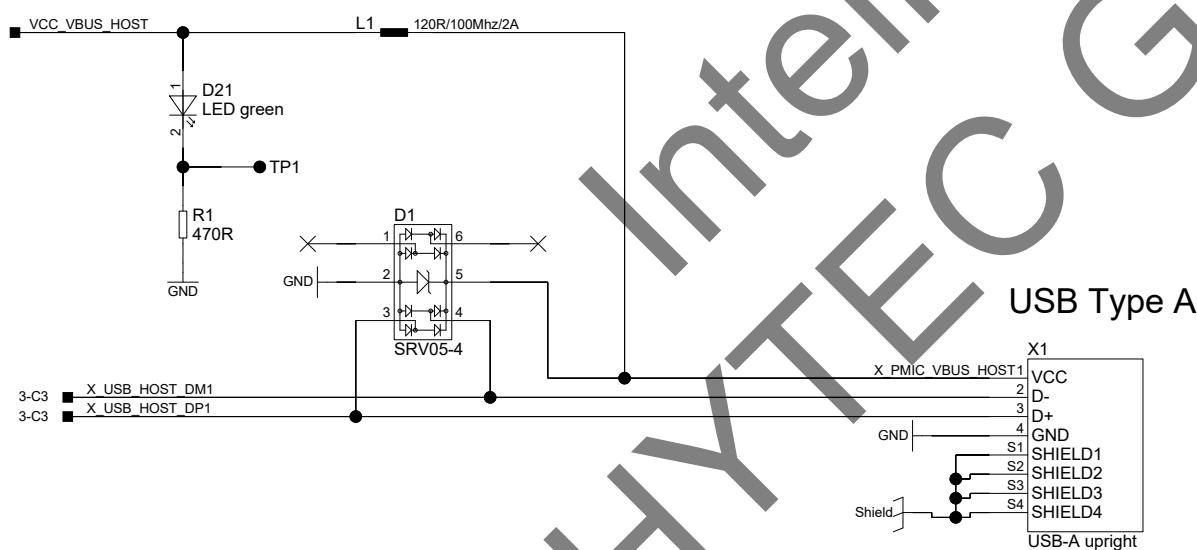
Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



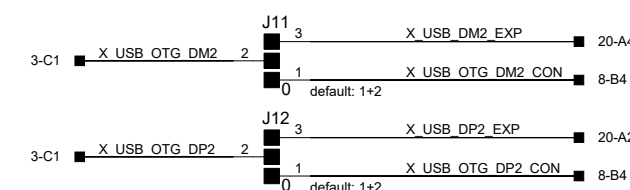
Note :
If OTG1 is connected with Host, ID=1(default), USB_OTG1_VBUS=0V, 5V from Outside.
If OTG1 is connected with Device, ID=0, USB_OTG1_VBUS=5V, to Outside



USB HOST



USB OTG Expansion Port Selection



Note 8:
USB_OTG on USB-OTG connector X8: Jx+Jx=1+2
USB_OTG on expansion connector X16: Jx+Jx=2+3

PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author : C. Parant

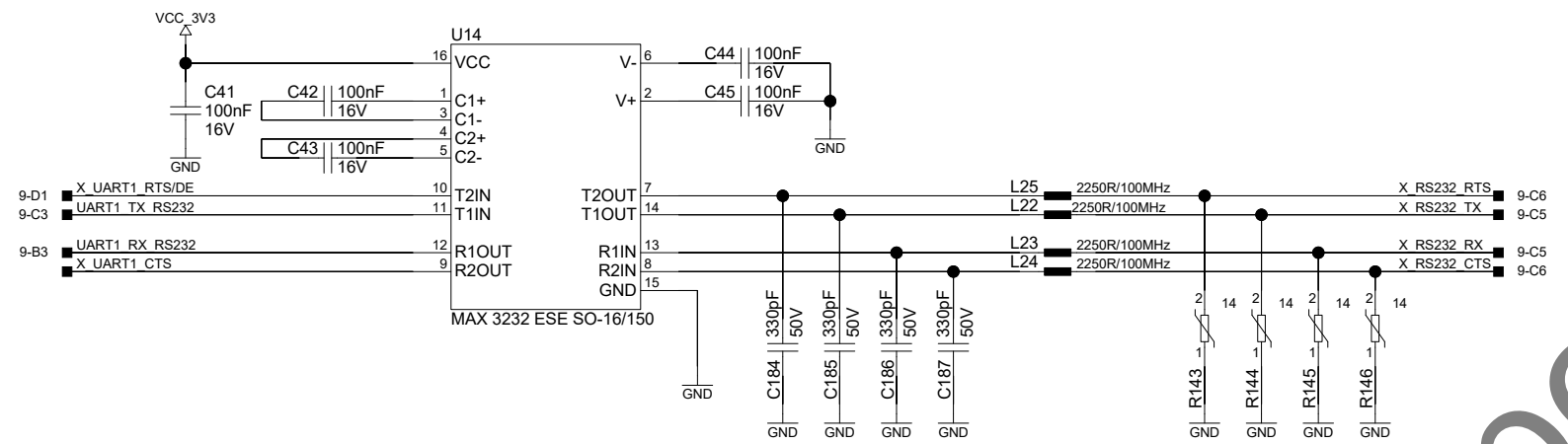
04.02.2019

PCB-No.: 1517.0

Revision : 002

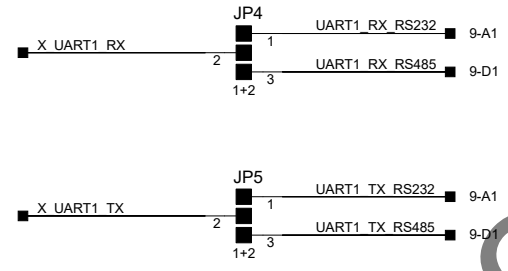
Sheet 8 of 21

RS232

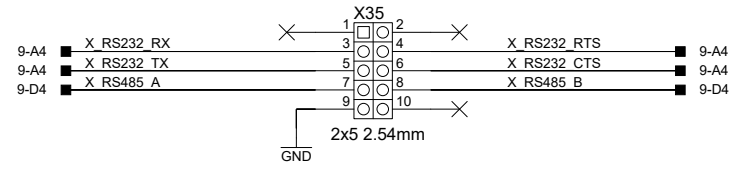


Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

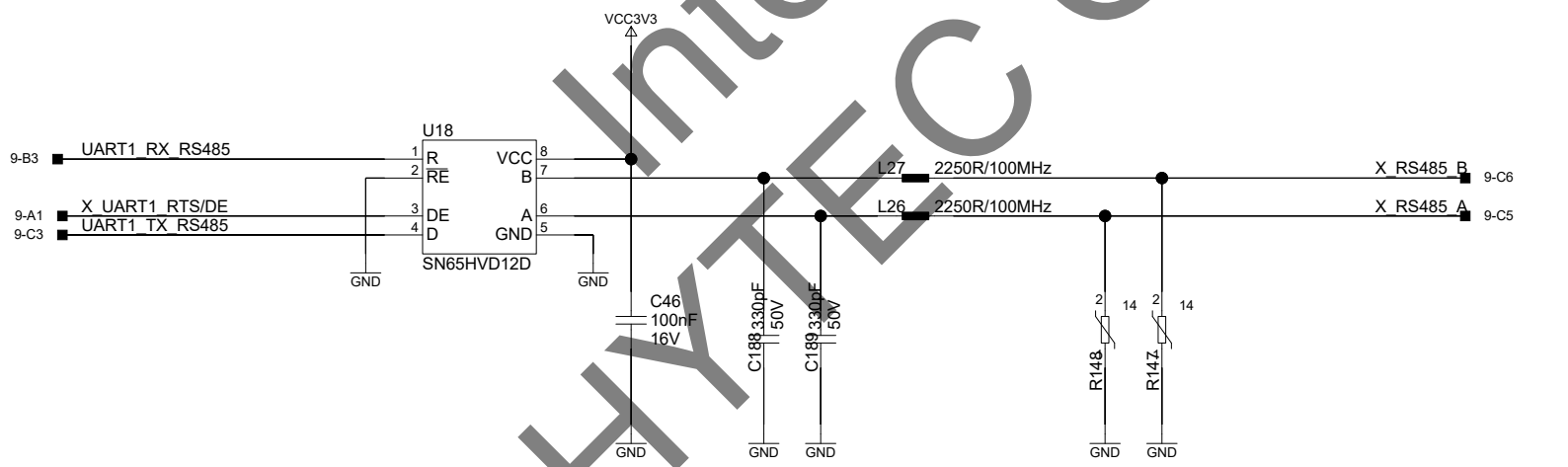
RS232/RS485 selection



RS232/RS485 Pin Header

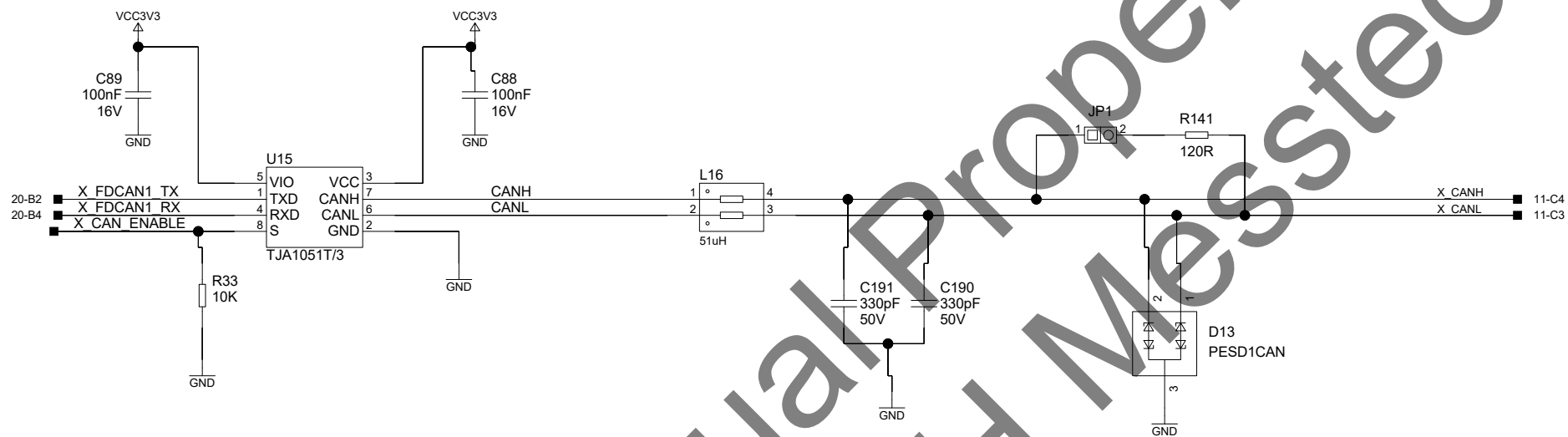


RS485

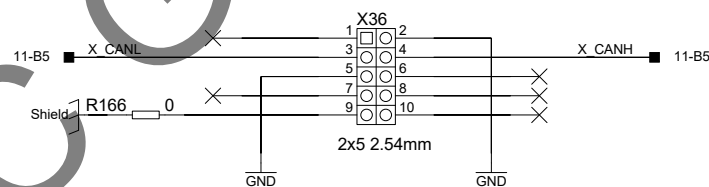


PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 9 of 21

CAN



CAN Pin Header



Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

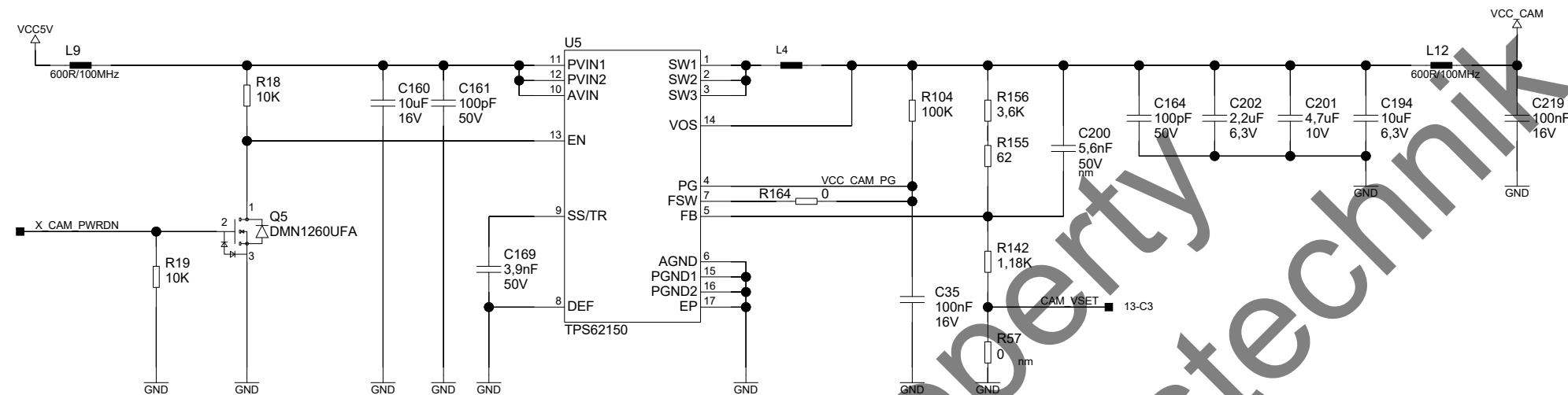
04.02.2019

PCB-No.: 1517.0

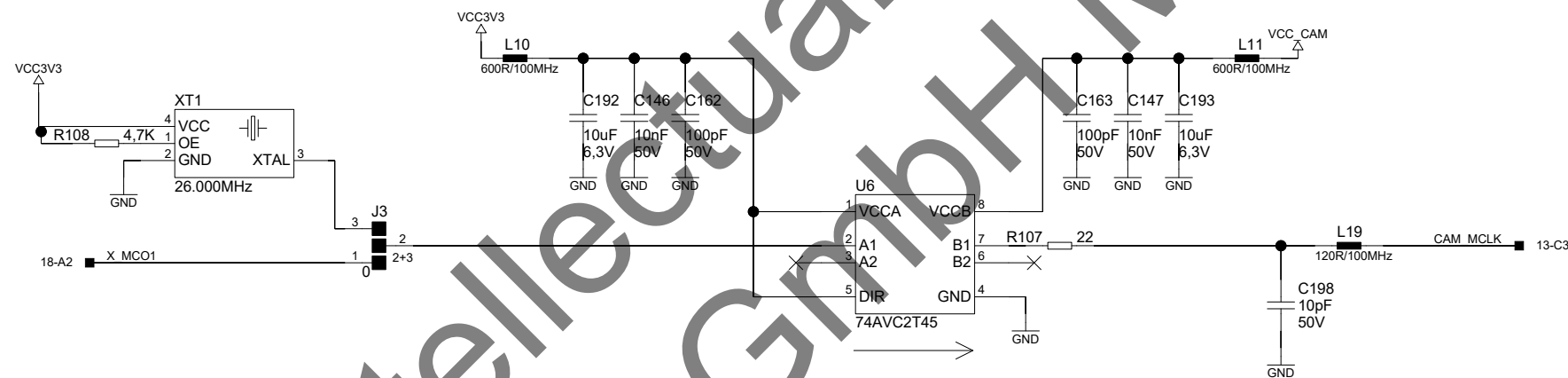
Revision : 002

Sheet 11 of 21

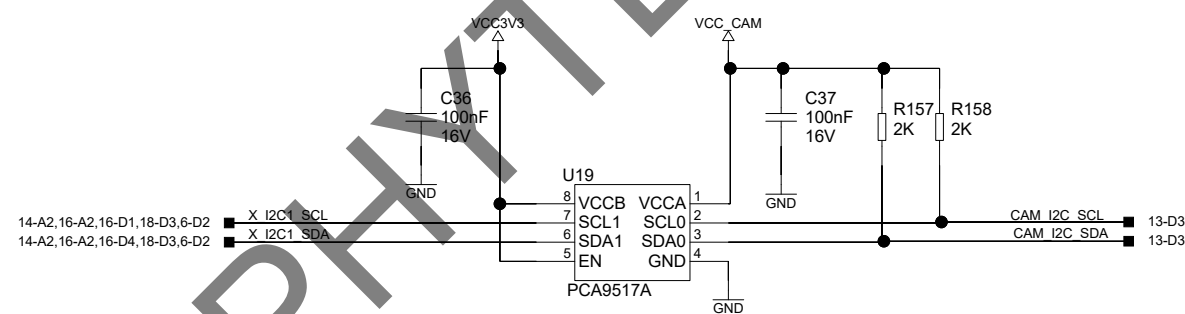
Camera Power Supply



Level Shifter for CAM Master Clock



I2C Buffer



Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project: PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

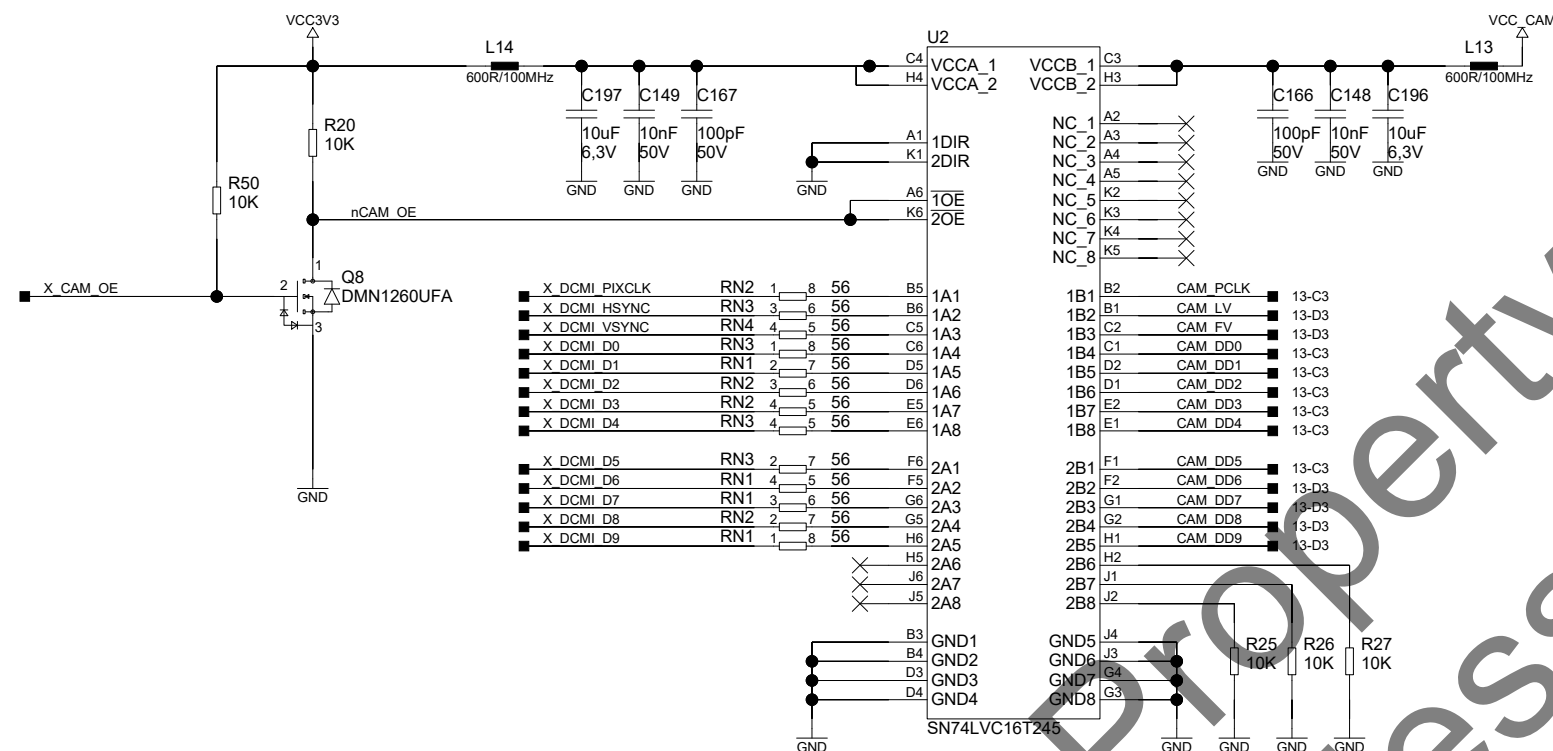
04.02.2019

PCB-No.:	1517.0
----------	--------

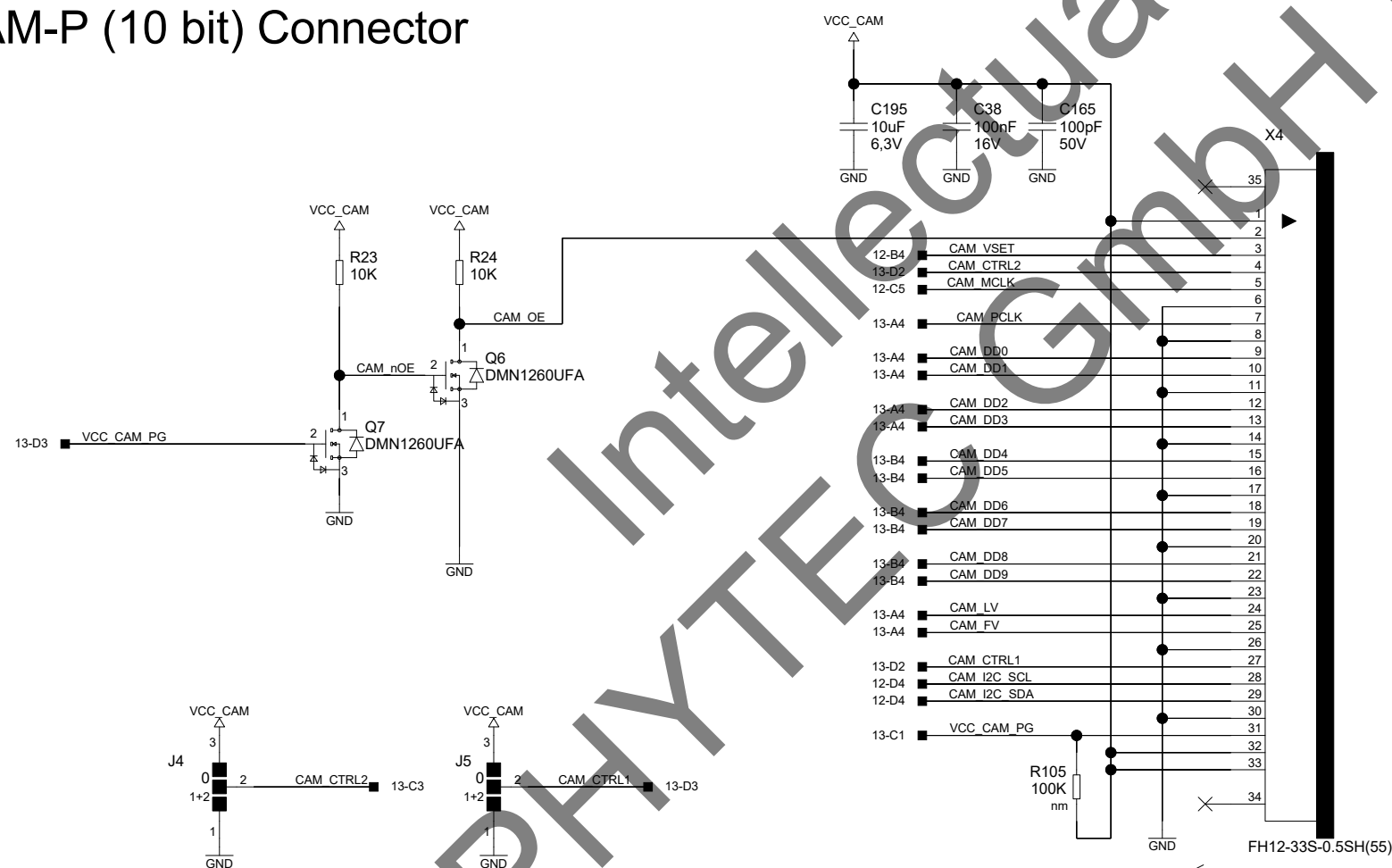
Revision : 002

Sheet 12 of 21

Level Shifter for CAM data



phyCAM-P (10 bit) Connector



Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

04.02.2019

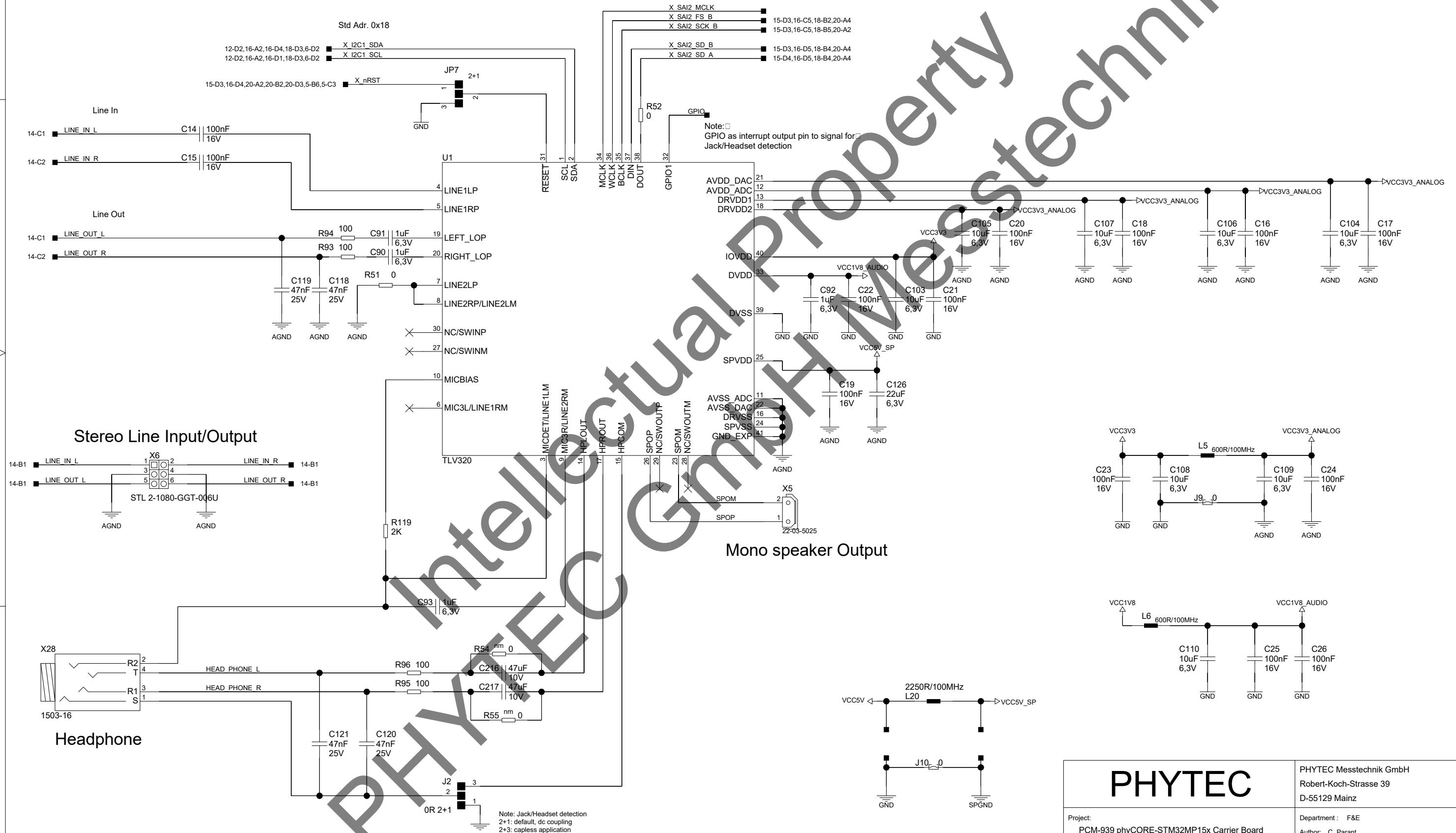
PCB-No.: 1517.0

Revision : 002

Sheet 13 of 21

Audio Stereo Codec

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department: F&E
Author: C. Parant

04.02.2019

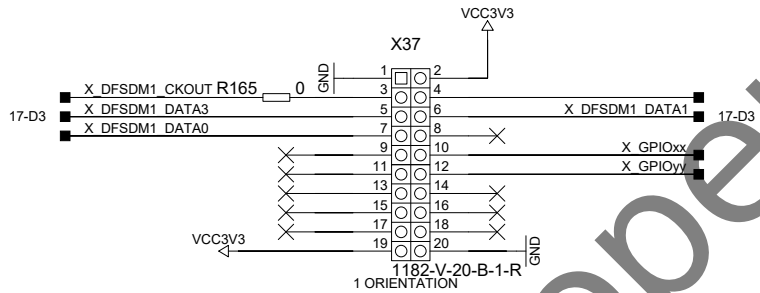
PCB-No.: 1517.0

Revision: 002

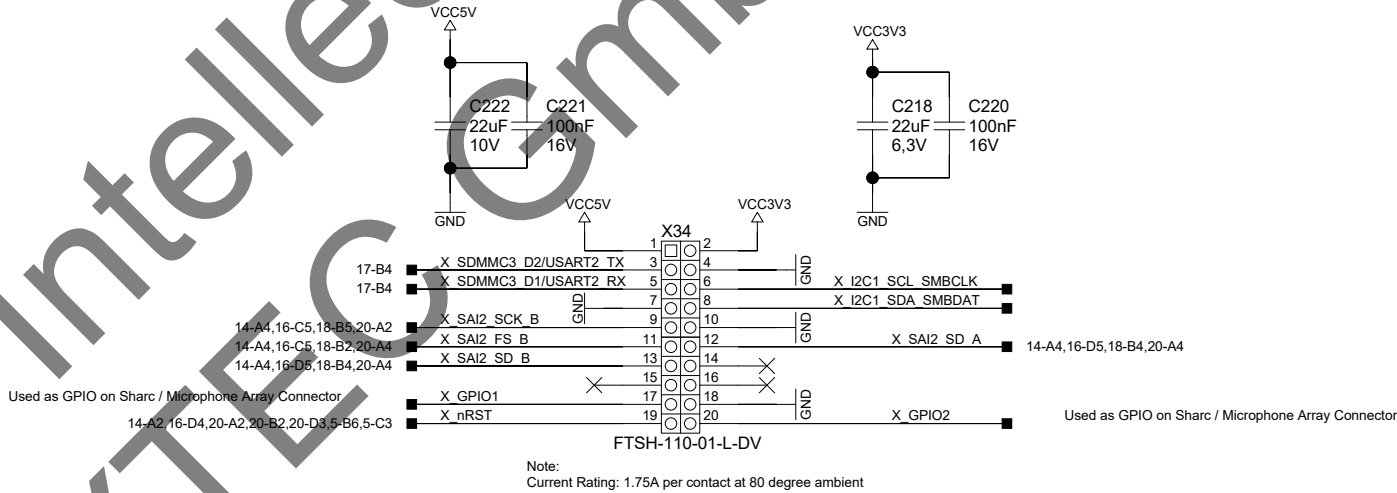
Sheet 14 of 21

ST MEMS connector (PDM digital output)

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



Phytec Microphone Array connector (TDM digital output)

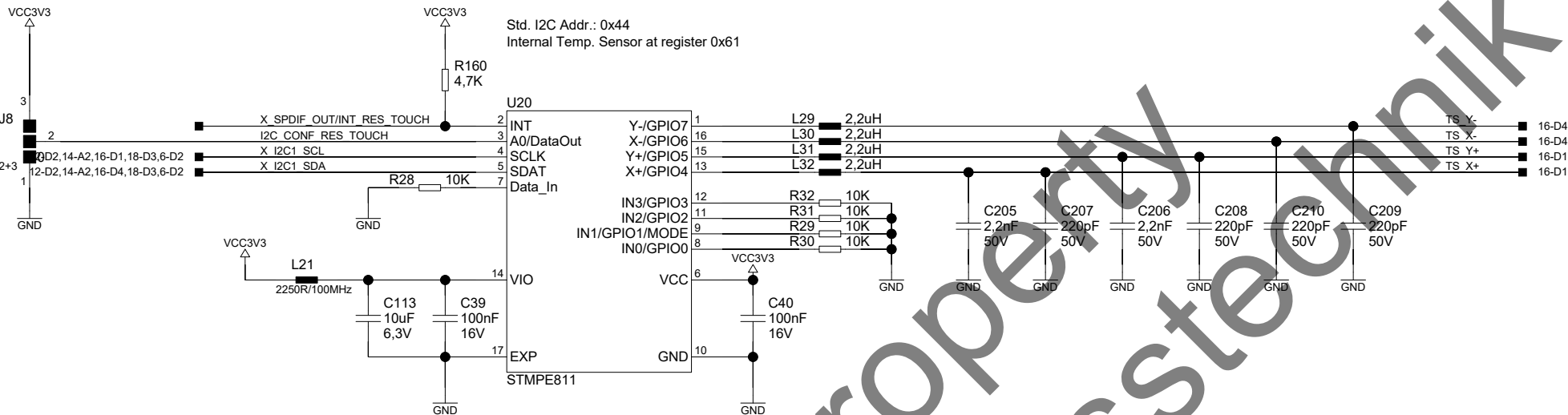


PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 15 of 21

Resistive Touch Controller

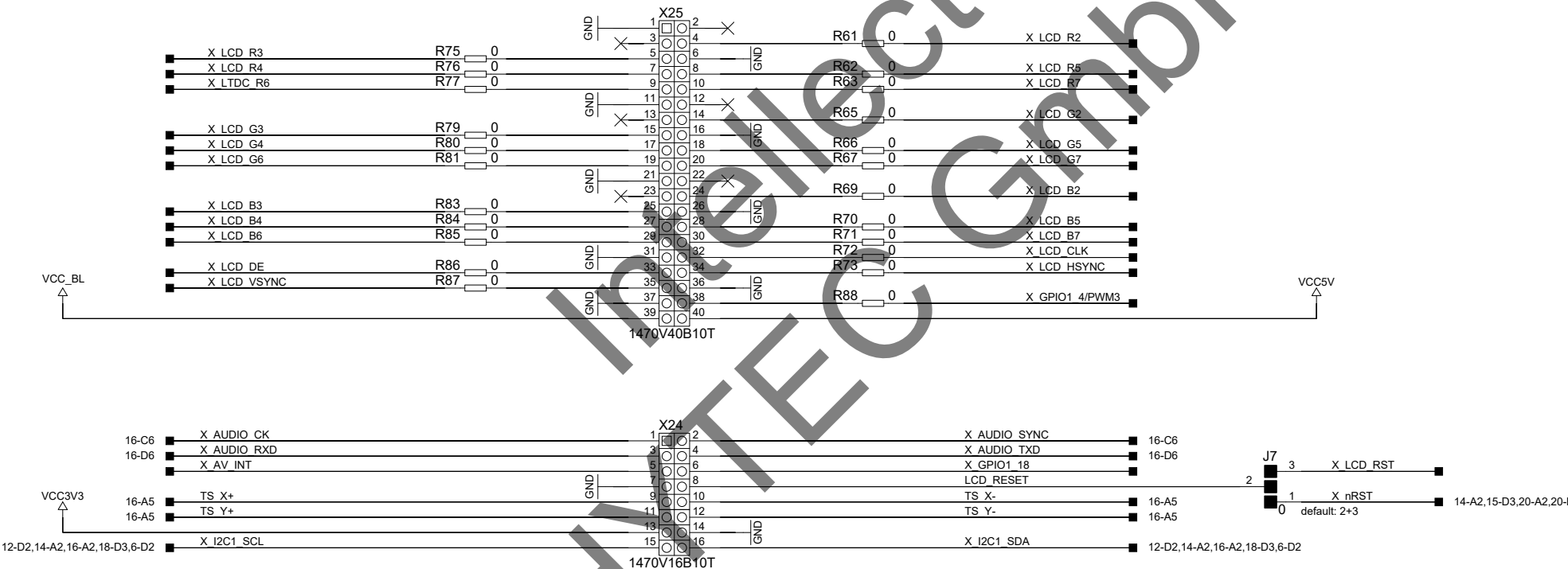
Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

Configuration:
J11 = 1+2: I2C Addr.: 0x41
J11 = 2+3: I2C Addr.: 0x44 (default)

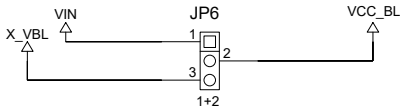


Audio/Video Connector

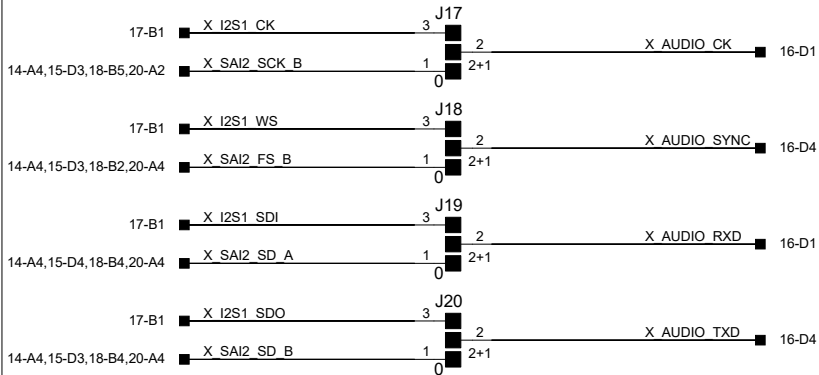
Note :
Please place all the following resistors near the connector X1



Backlight selector



Audio interface selector



PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

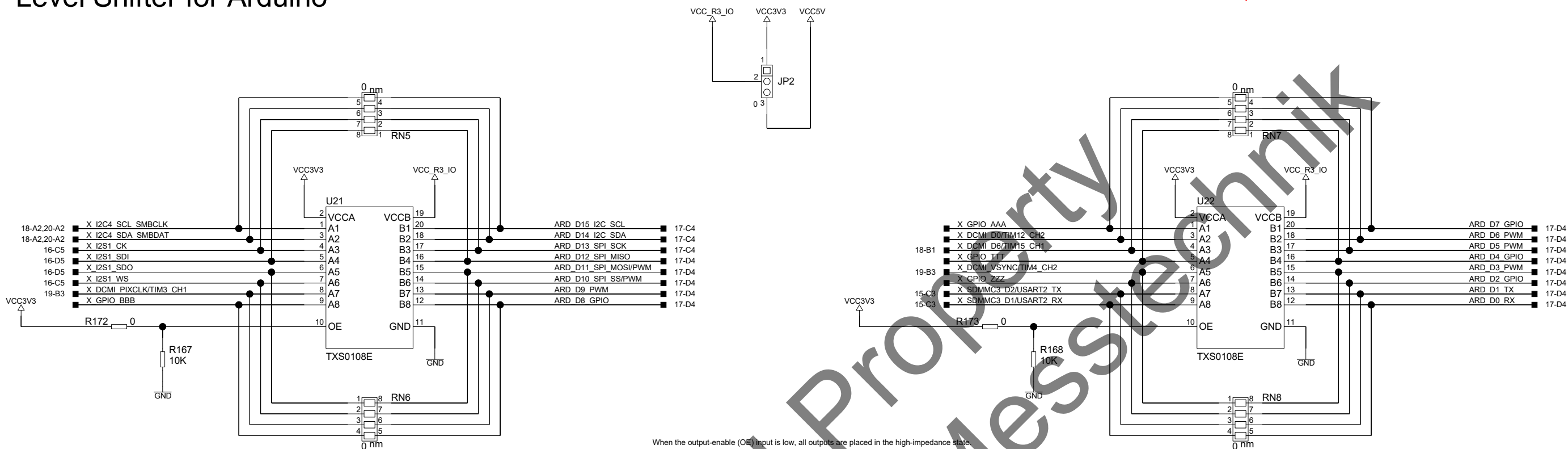
04.02.2019

PCB-No.: 1517.0

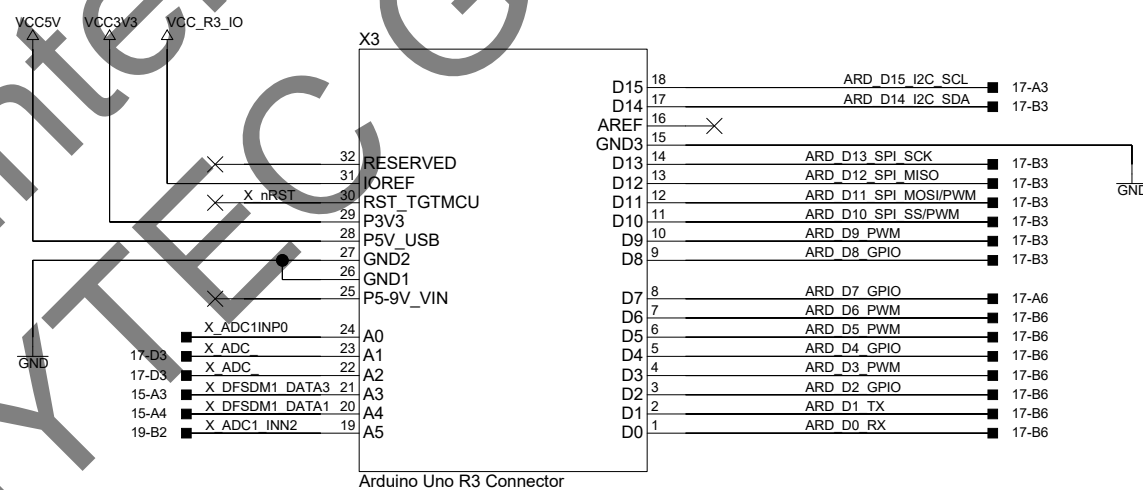
Revision : 002

Sheet 16 of 21

Level Shifter for Arduino



ARDUINO UNO R3 connector



Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

04.02.2019

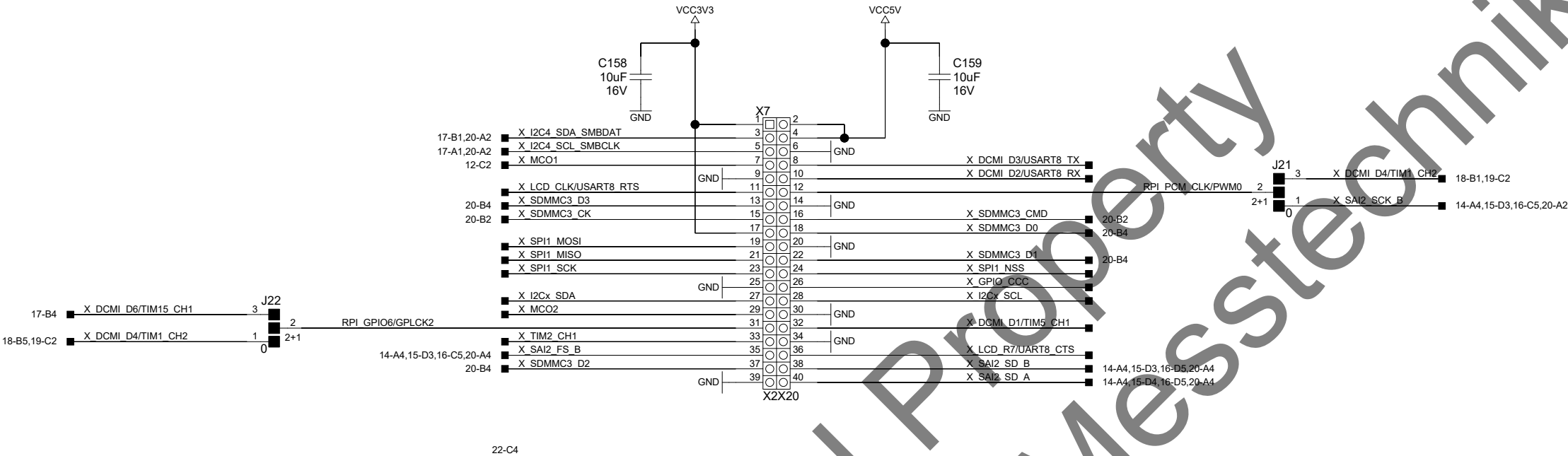
PCB-No.: 1517.0

Revision : 002

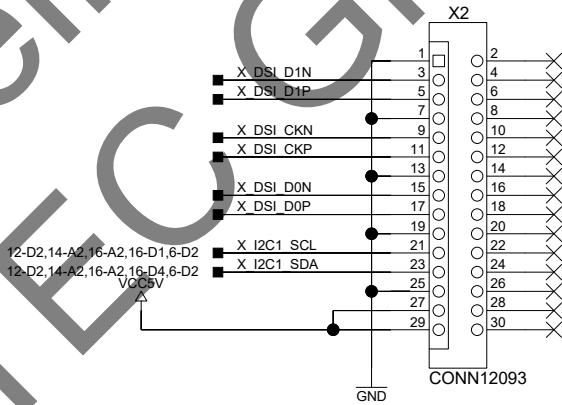
Sheet 17 of 21

Raspberry Pi HAT connector

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



MIPI DSI Display



PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 18 of 21

1

2

3

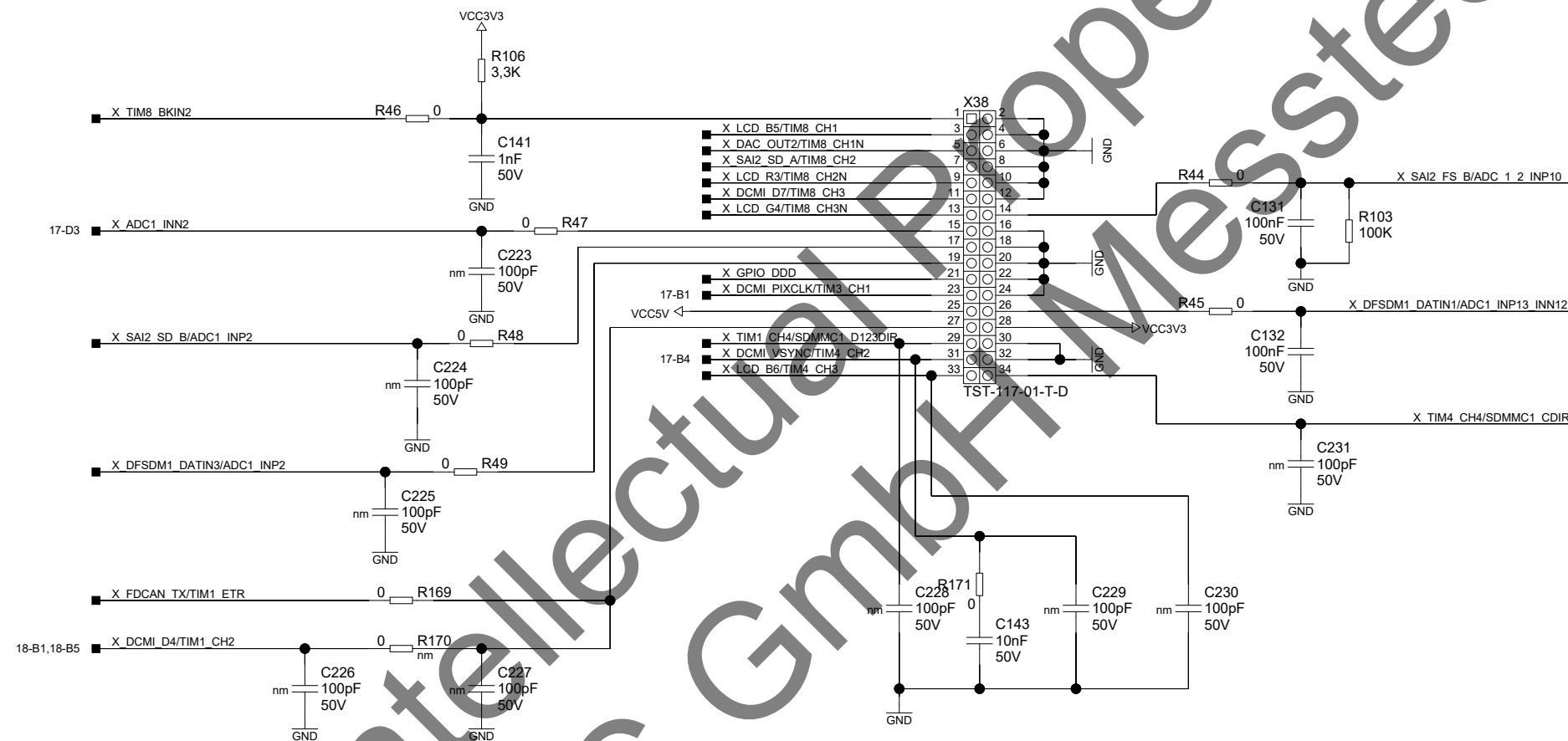
4

5

6

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.

Motor Control Connector



PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

04.02.2019

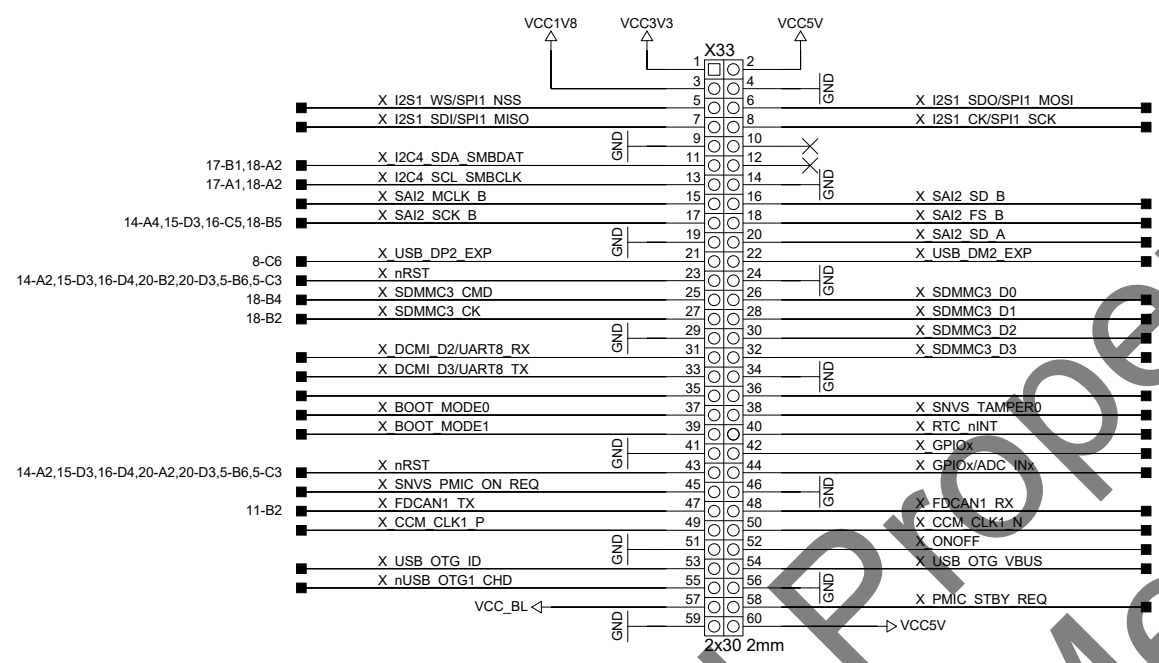
PCB-No.: 1517.0

Revision : 002

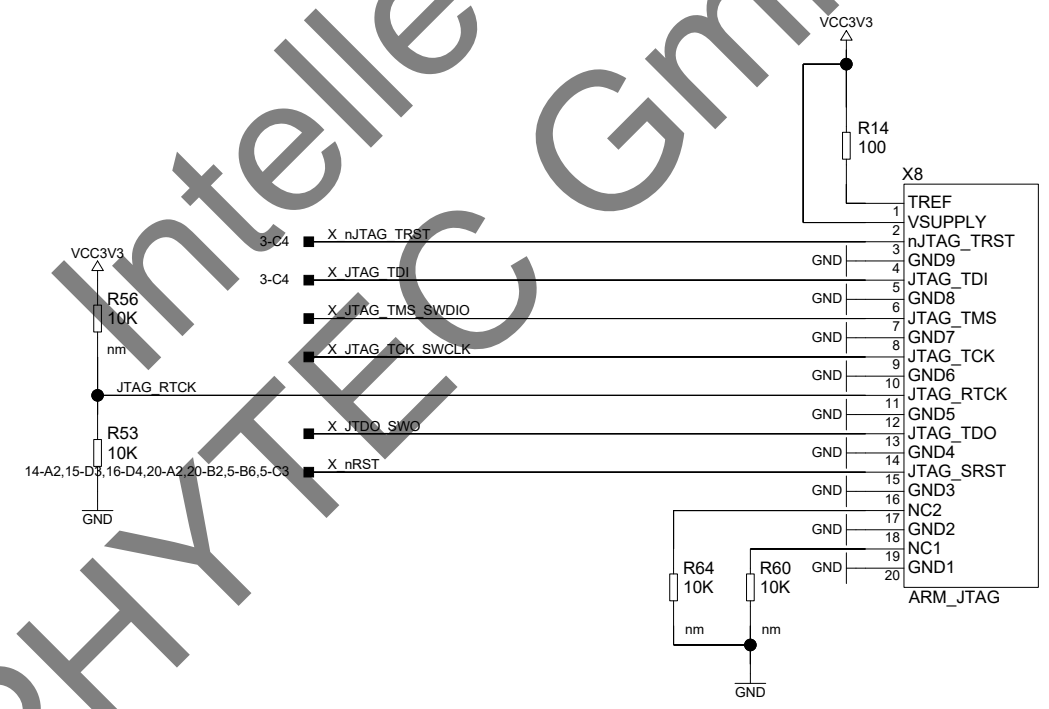
Sheet 19 of 21

Expansion Connector

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



JTAG



PHYTEC		PHYTEC Messtechnik GmbH Robert-Koch-Strasse 39 D-55129 Mainz	
Project: PCM-939 phyCORE-STM32MP15x Carrier Board		Department : F&E Author: C. Parant	
04.02.2019	PCB-No.: 1517.0	Revision : 002	Sheet 20 of 21

1

2

3

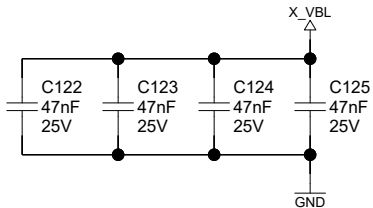
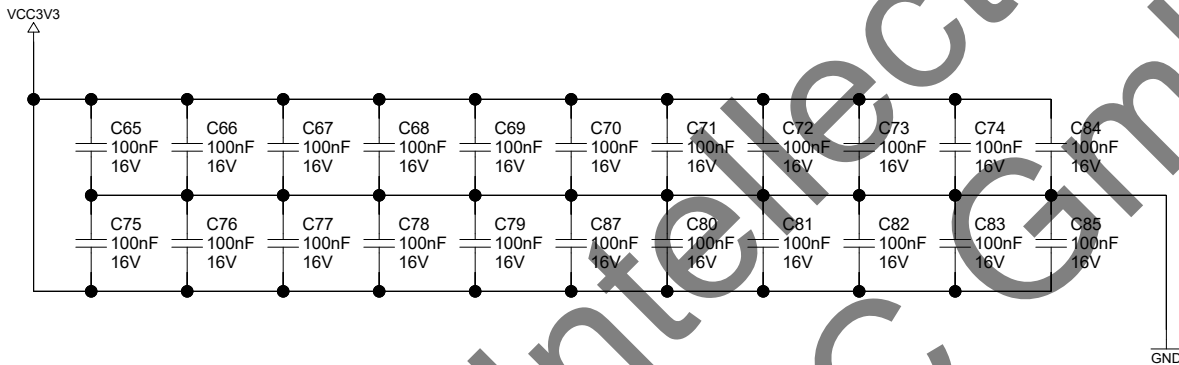
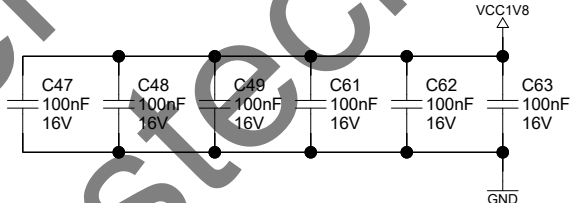
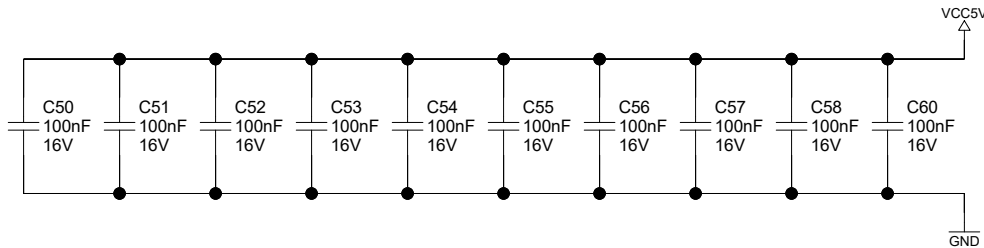
4

5

6

EMC Blocking

Confidential information and property of PHYTEC Messtechnik GmbH.
No part of these materials may be copied, used or disclosed except
with written permission of PHYTEC Messtechnik GmbH.



PHYTEC

PHYTEC Messtechnik GmbH
Robert-Koch-Strasse 39
D-55129 Mainz

Project:
PCM-939 phyCORE-STM32MP15x Carrier Board

Department : F&E
Author: C. Parant

04.02.2019

PCB-No.: 1517.0

Revision : 002

Sheet 21 of 21