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PBA-C-17

phyBOARD-Pollux i.MX 8M Plus

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Project: phyBOARD-Pollux i.MX 8M Plus		Department : F&E Author: H. Schwaer	
29.11.2021	PCB-No.: 1552.2	Revision : 006	Sheet 1 of 21

Overview

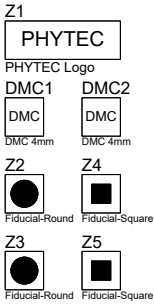
Page	Content
1	Title
2	Overview
3	SOM Connector
4	Power In
5	Main Power Supplies
6	Power sequencing and Reset
7	Voltage supervisory circuit / Boot source selection
8	USB Debug Interface
9	USB 3.2 Gen 1x1 Hub
10	USB 3.2 Gen 1x1 Connector
11	Ethernet 0 TSN Connector
12	Ethernet 1 Phy and Connector
13	RS-232 / RS-485 Transceiver and Connector
14	CAN FD Transceiver and Connector
15	phyCAM-M Connector (MIPI CSI-2)
16	HDMI Connector / MIPI DSI Connector
17	A/V Connector (LVDS0) / Display Connector (LVDS1)
18	Mini PCIe Connector
19	Expansion Connector
20	Micro SD-Card / Trusted Platform Module
21	Miscellaneous

Default I2C2 Addresses	
STUSB4500 (U22)	0x28
TUSB8042A (U3)	0x44
phyCAM-M CSI2 Connector (X12)	-
Mini PCIe Connector (X10)	-
Expansion Connector (X6)	-
PCA9533D/01 (U21)	0x62
M24C02-RMC6TG (U16)	0x51

Default I2C3 Addresses	
phyCAM-M CSI1 Connector (X11)	-

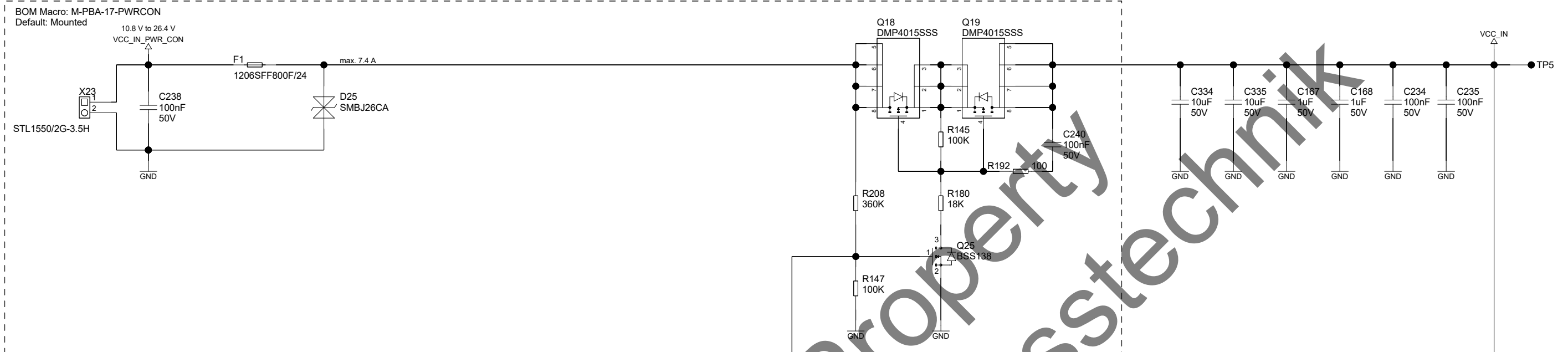
Default I2C4 Addresses	
A/V Connector (X15)	-
Display Connector (X24)	-
MIPI DSI Connector (X21)	-

Notes:
Operating input power supply voltage: +12 V to +24 V DC
Operating temperature range: -40 °C to +85 °C unless otherwise noted.
Parts with property 'nm' are not mounted on PCB.

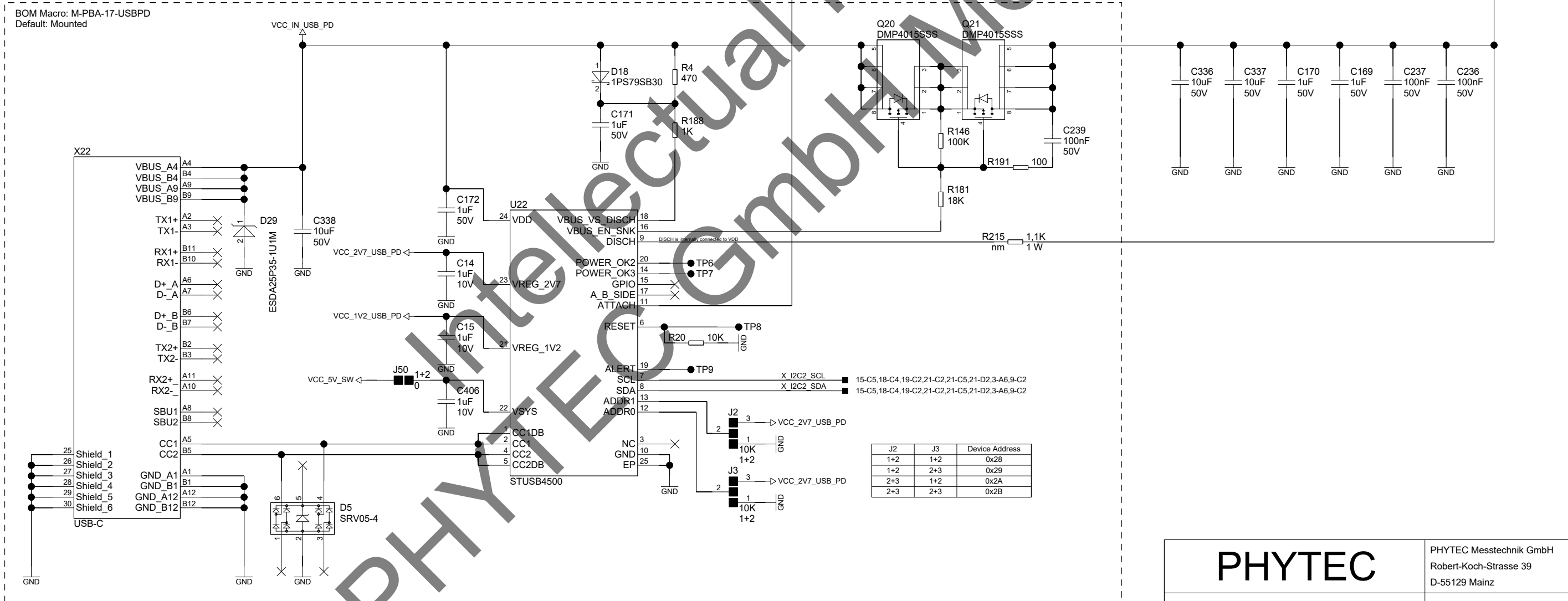


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29.11.2021	PCB-No.: 1552.2	Revision : 006	Sheet 2 of 21

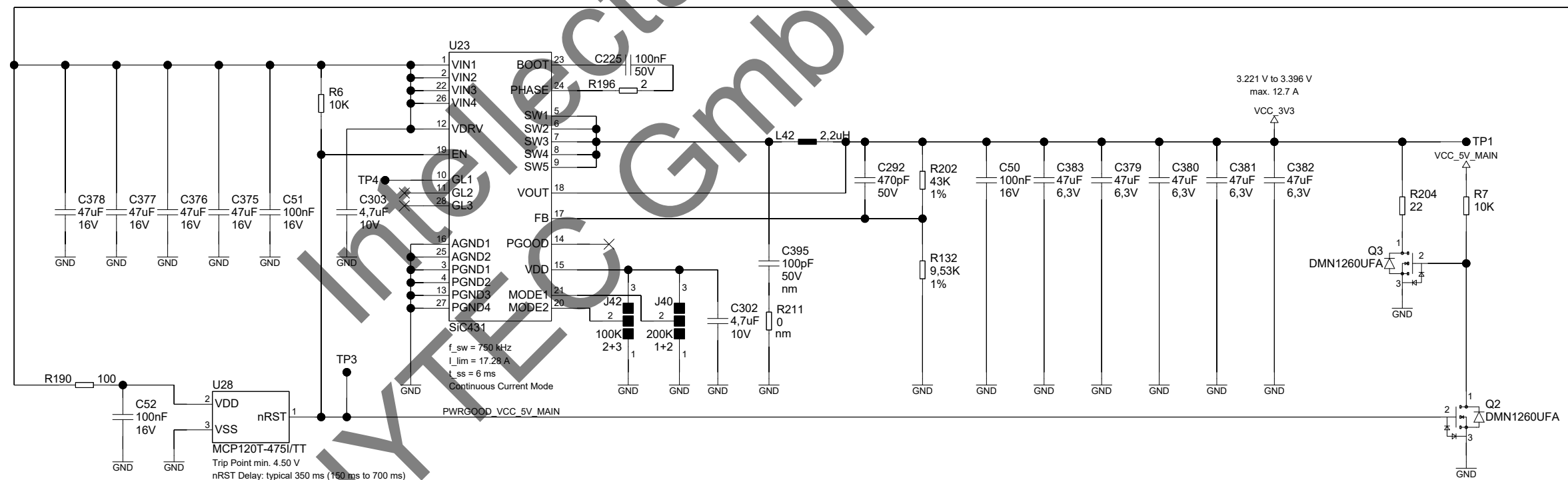
VCC_IN via Power Connector



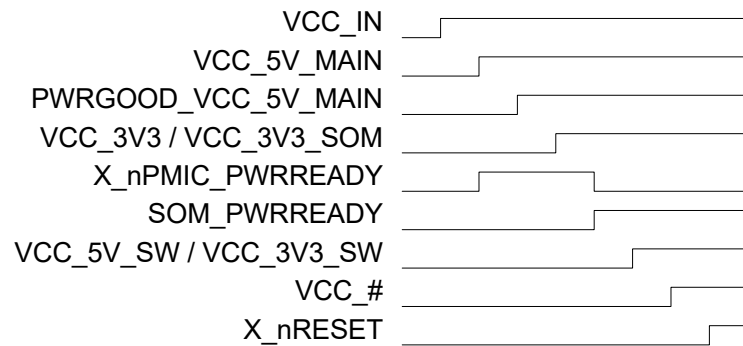
VCC_IN via USB-PD



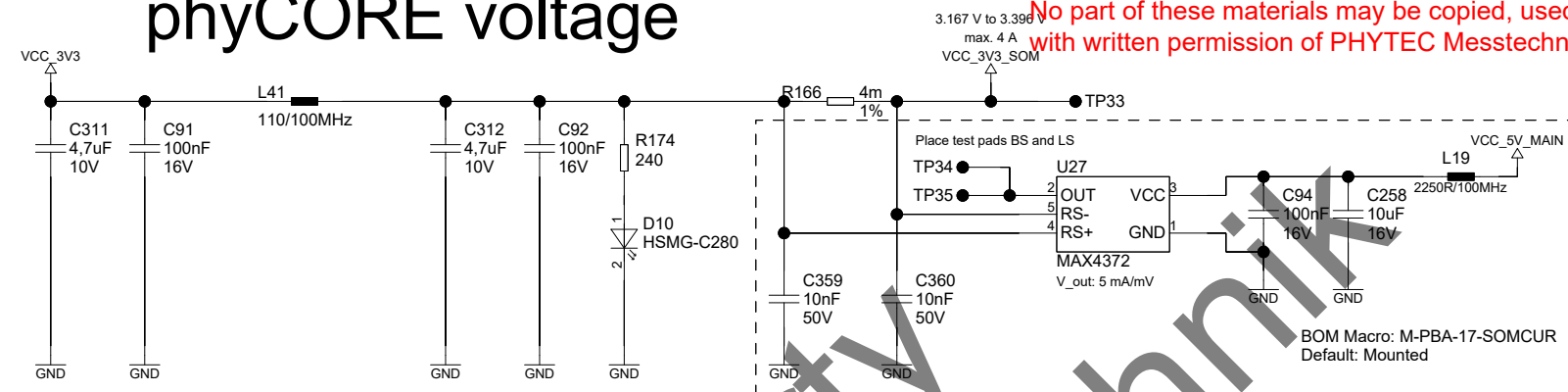
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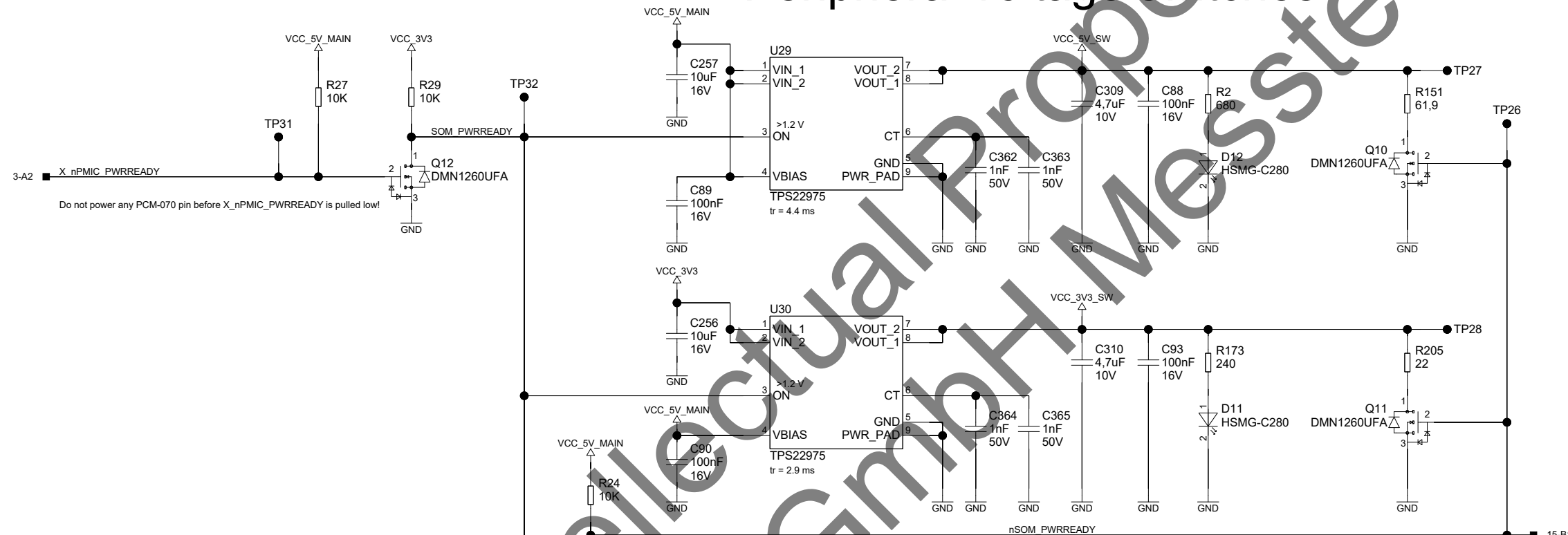
Power sequencing diagram



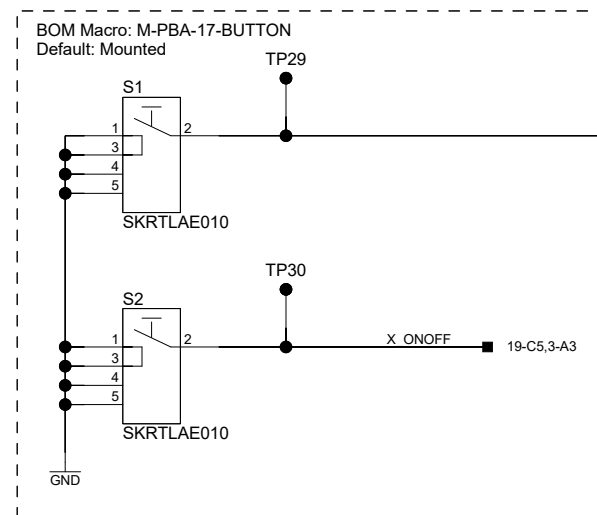
phyCORE voltage



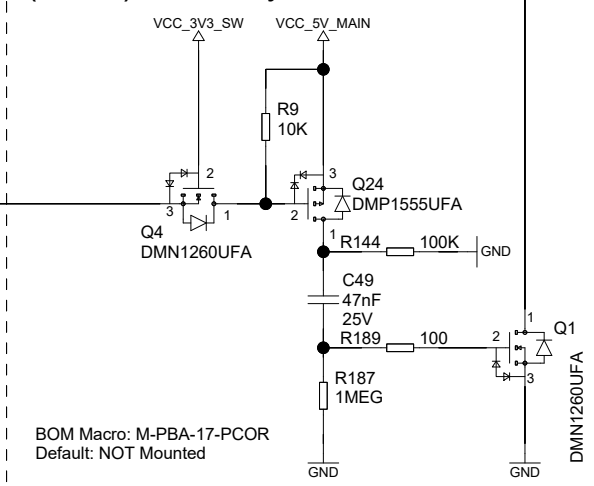
Peripheral voltage switches



Buttons



(PMIC) Power cycle on Reset



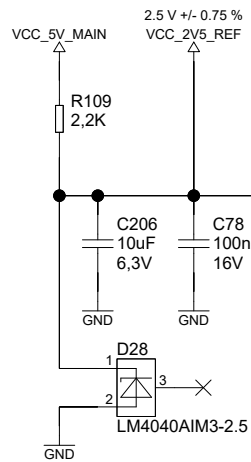
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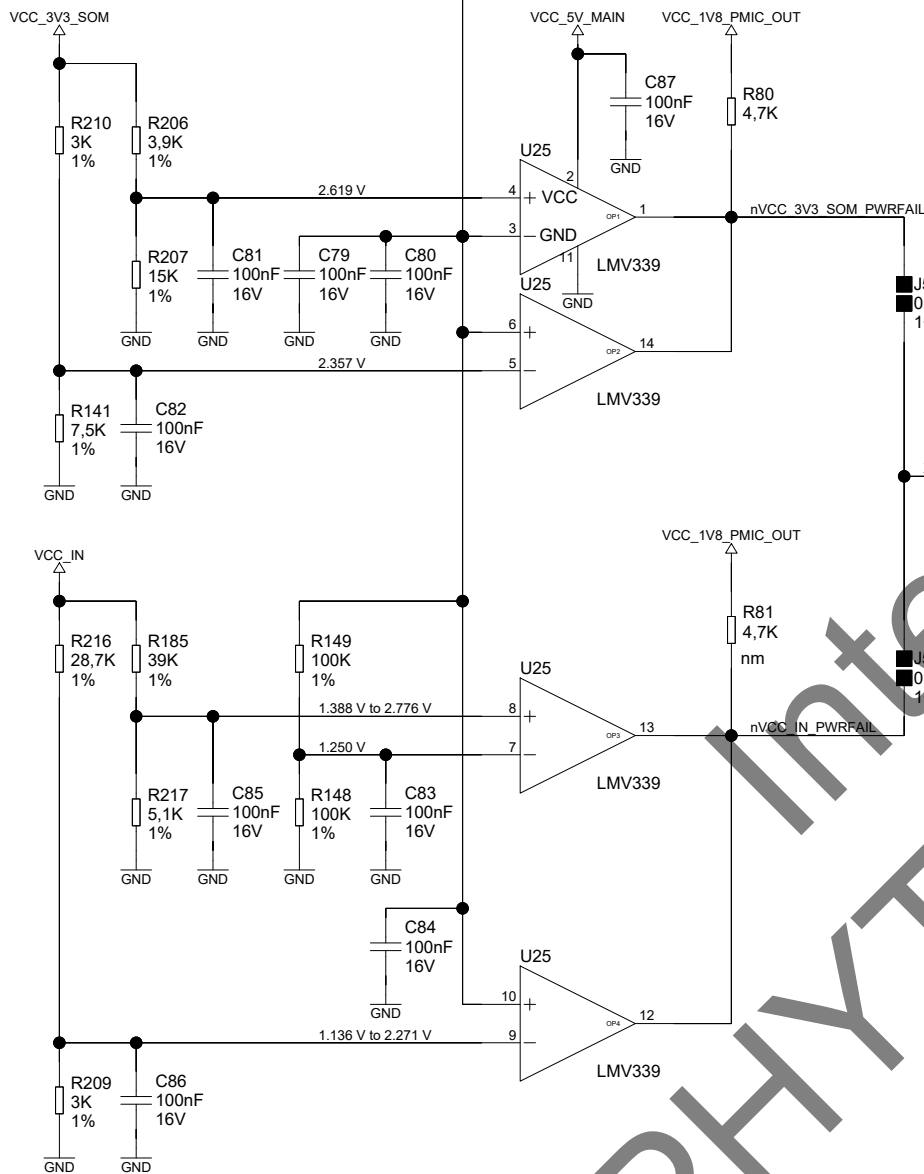
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29.11.2021	PCB-No.: 1552.2	Revision: 006	Sheet 6 of 21

Voltage supervisory circuit

BOM Macro: M-PBA-17-VSVC
Default: Mounted

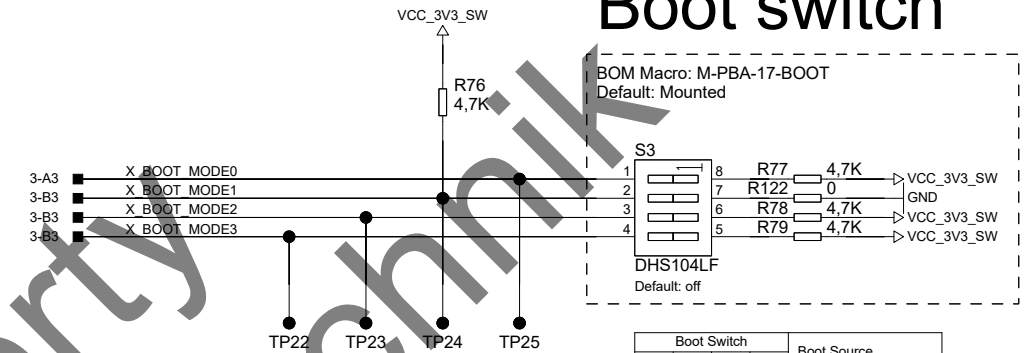


Voltage supervisor thresholds				
		min.	typ.	max.
VCC_3V3_SOM	Under voltage	3.106 V	3.150 V	3.195 V
	Over voltage	3.538 V	3.500 V	3.445 V
VCC_IN	Under voltage	10.43 V	10.81 V	11.20 V
	Over voltage	27.11 V	26.42 V	25.74 V



Boot switch

BOM Macro: M-PBA-17-BOOT
Default: Mounted



Boot Switch				Boot Source
1	2	3	4	
off	off	off	off	eMMC
on	off	off	off	SD Card
off	off	on	off	SPI NOR
on	on	off	off	USB Serial Download
off	on	off	off	Internal Fuses
on	off	on	on	Test Mode

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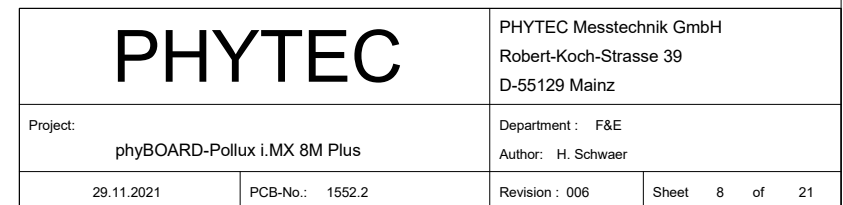
PCB-No.: 1552.2

Revision: 006

Sheet 7 of 21

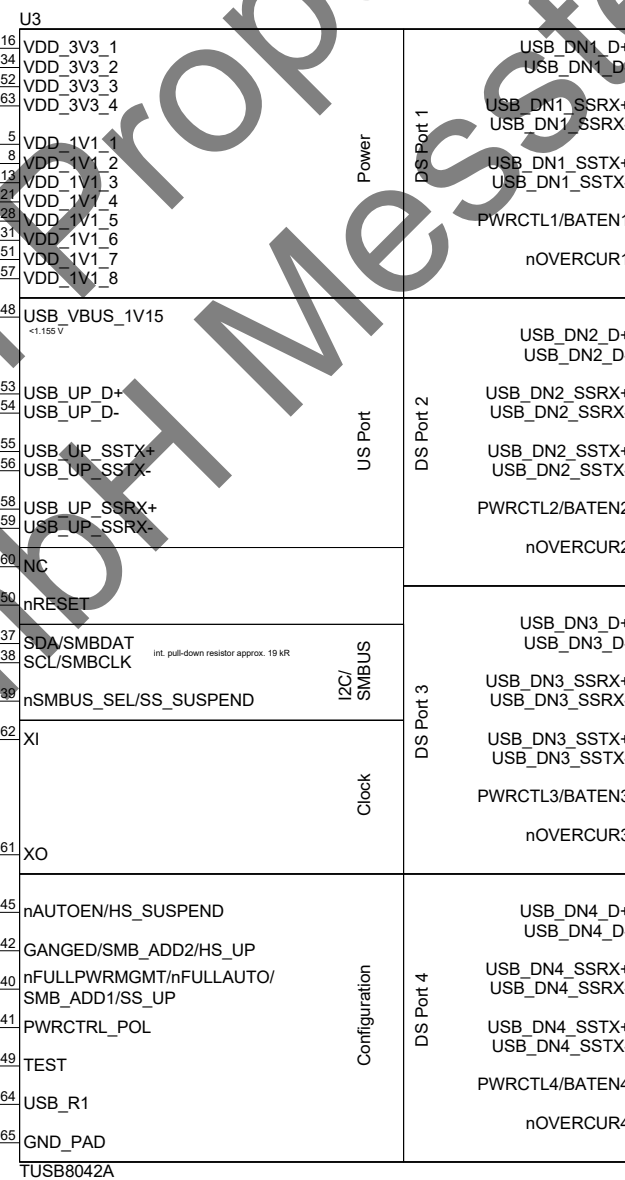
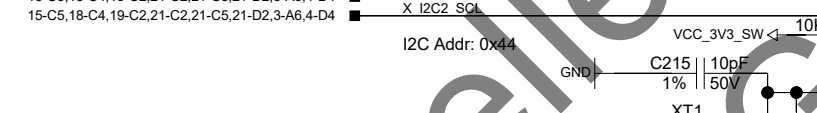
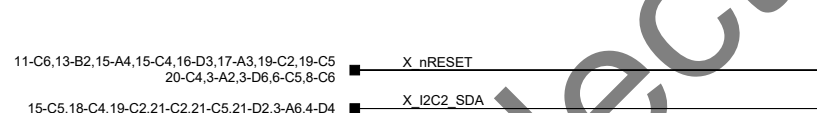
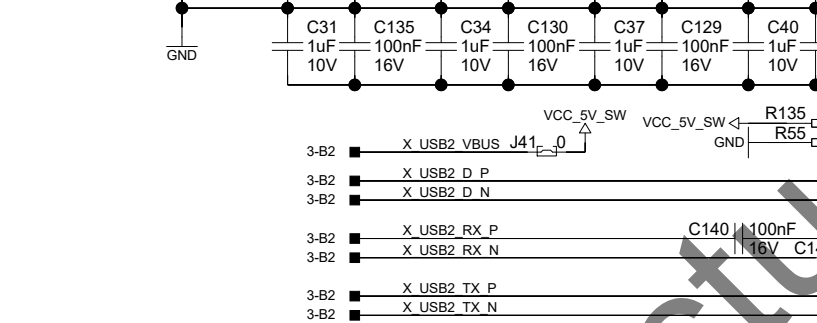
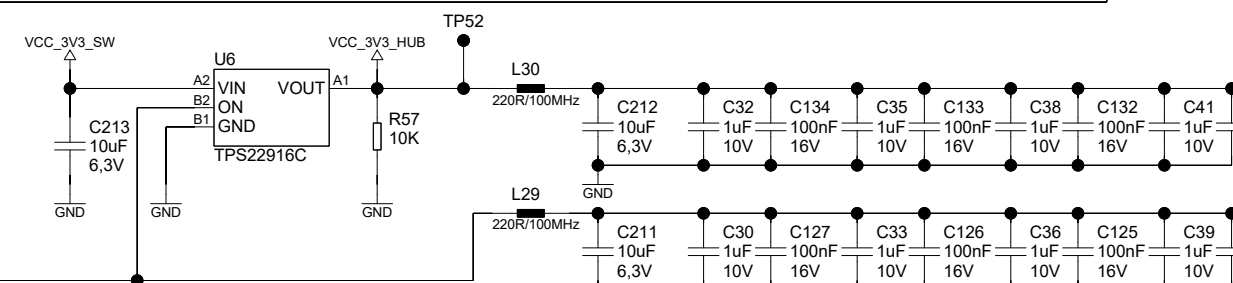
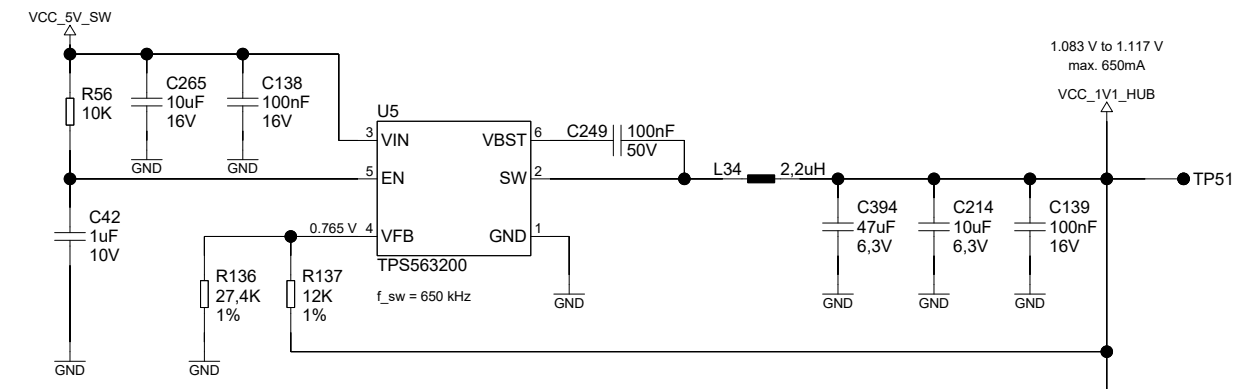
| BOM Macro: M-PBA-17-DEBUG
 | Default: Mounted

- TA: -30°C to +85°C w/ mechanical changes
- TA: -40°C to +85°C w/o mechanical changes



USB Hub

BOM Macro: M-PBA-17-USBHUB
Default: Mounted



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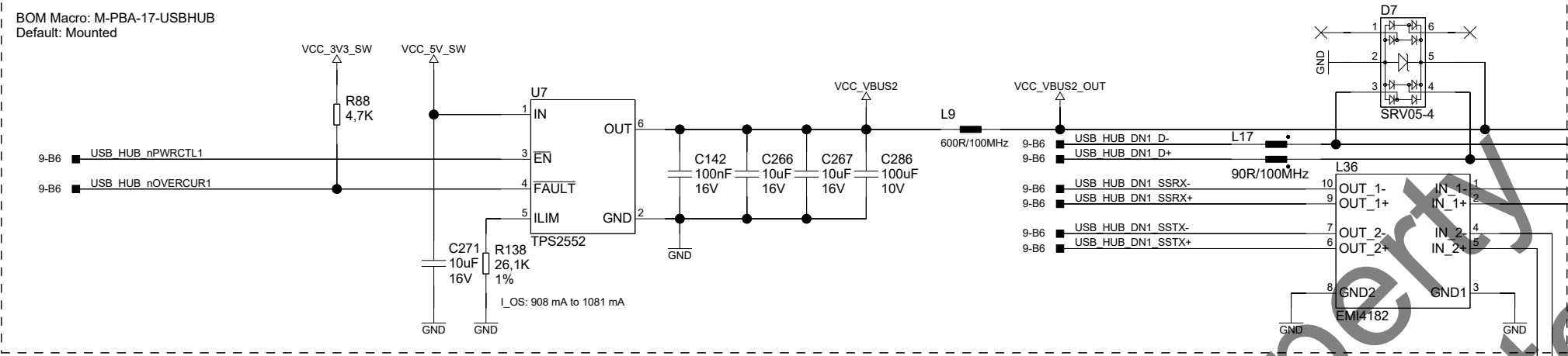
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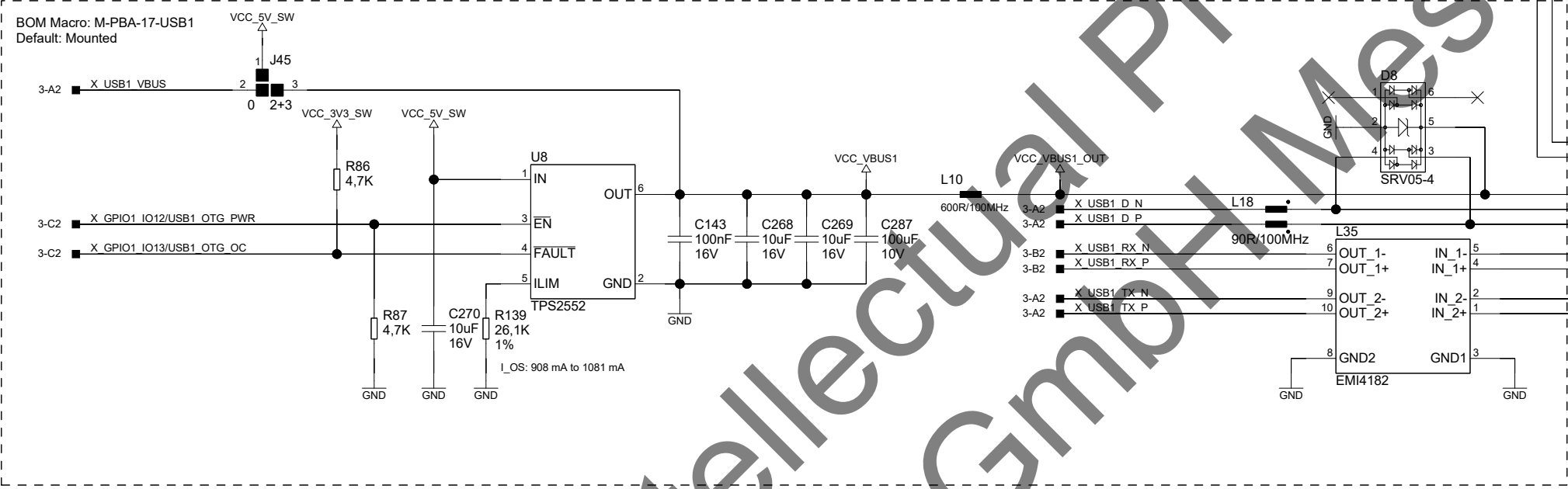
Revision: 006

Sheet 9 of 21

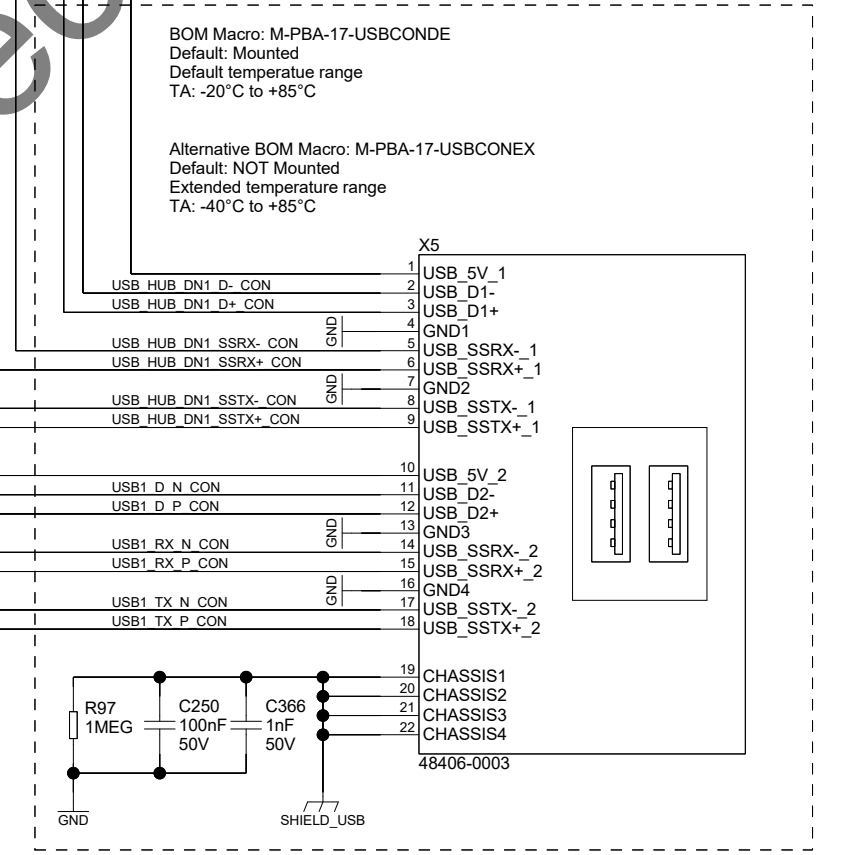
USB2 (via Hub)



USB1



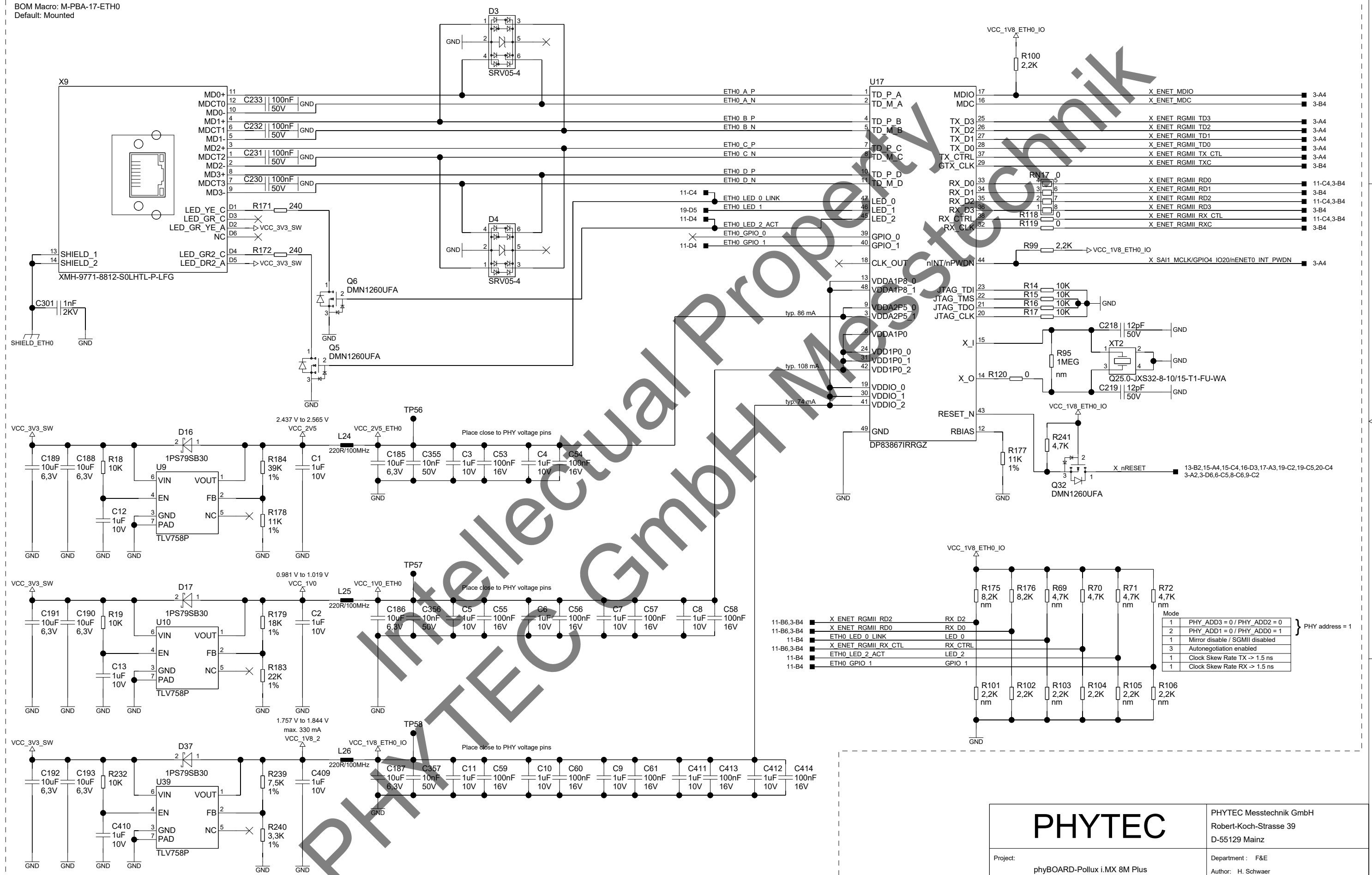
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29.11.2021	PCB-No.: 1552.2	Revision: 006	Sheet 10 of 21

Ethernet0

BOM Macro: M-PBA-17-ETH0
Default: Mounted



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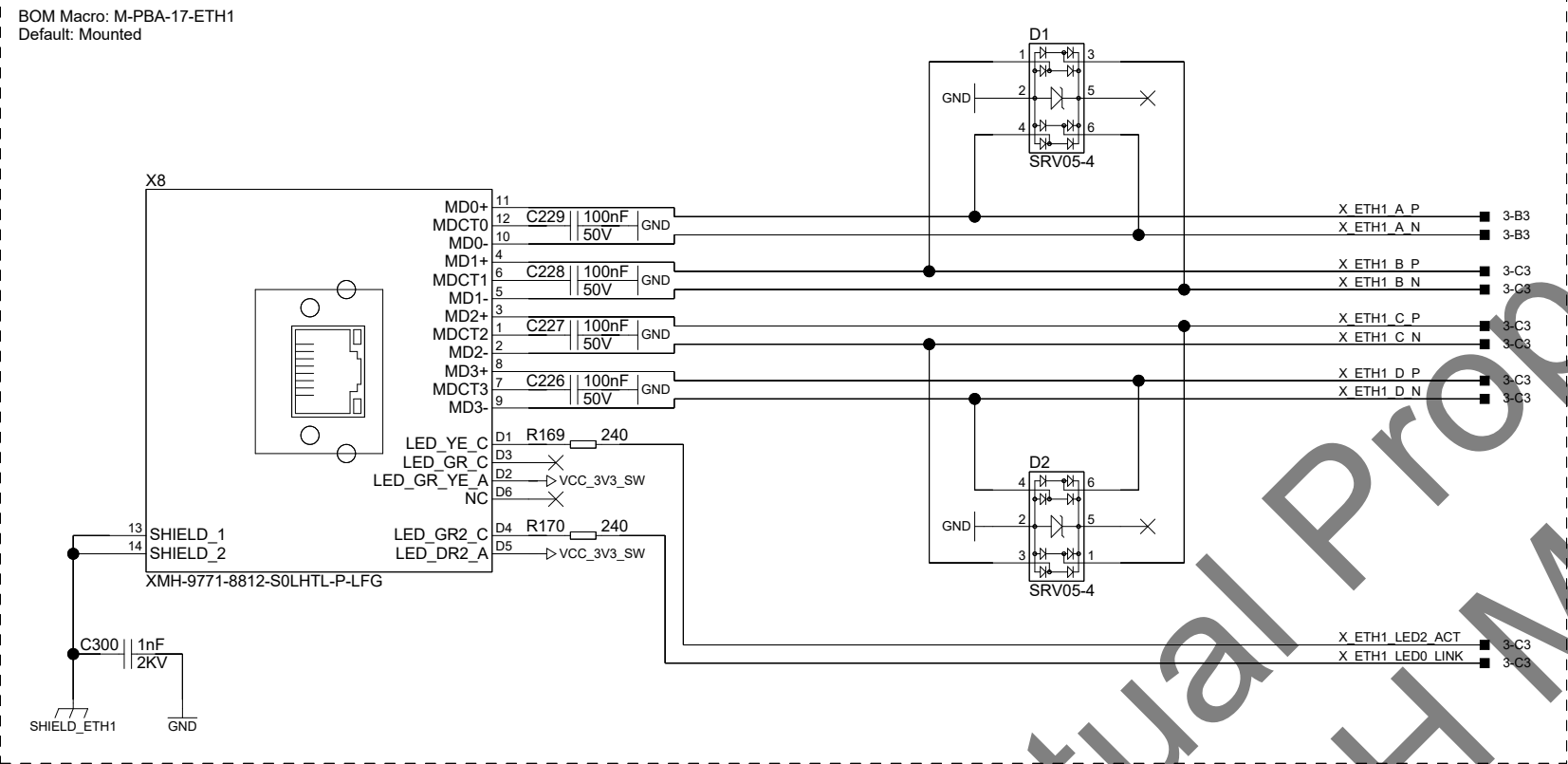
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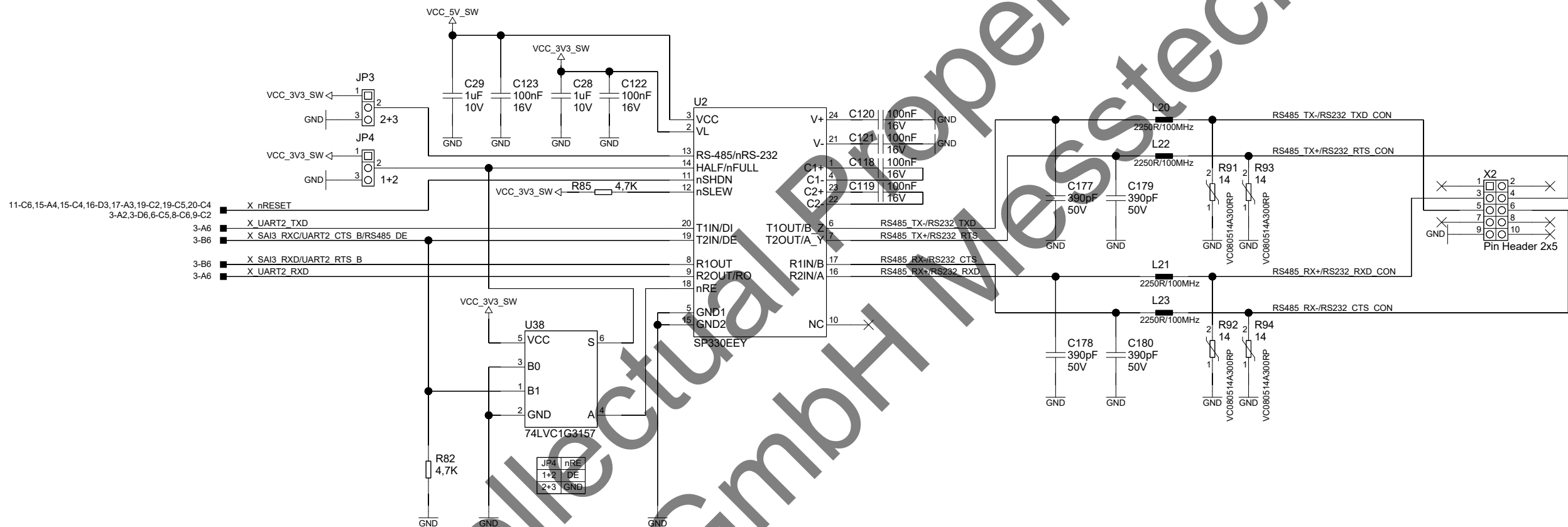
Revision : 006	Sheet 11 of 21
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Ethernet1



RS-232 / RS-485

BOM Macro: M-PBA-17-UARTRS
Default: Mounted



RS-232 / RS-485 Pinout

Configuration		Ribbon cable / 9-pin D-sub					Mode
JP3	JP4	3 / 2	5 / 3	9 / 5	4 / 7	6 / 8	
2+3	X	RXD	TXD	GND	RTS	CTS	RS-232 (DTE)
1+2	2+3	RX+	TX-	GND	TX+	RX-	RS-485 Full Duplex
1+2	1+2	DNC	D-	GND	D+	DNC	RS-485 Half Duplex

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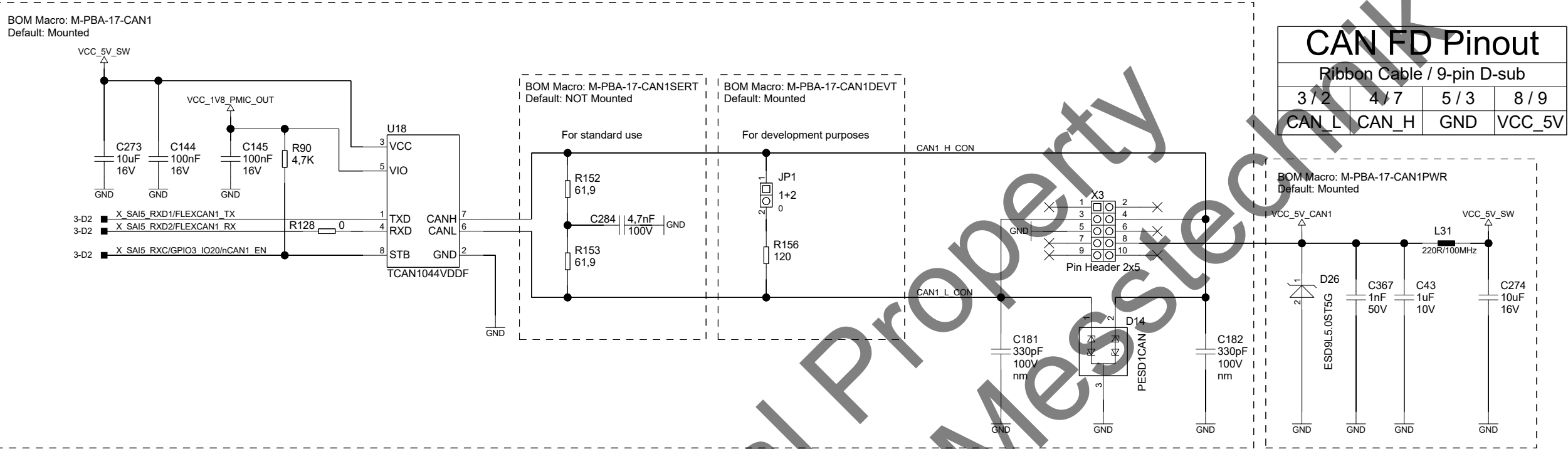
PCB-No.: 1552.2

Revision: 006

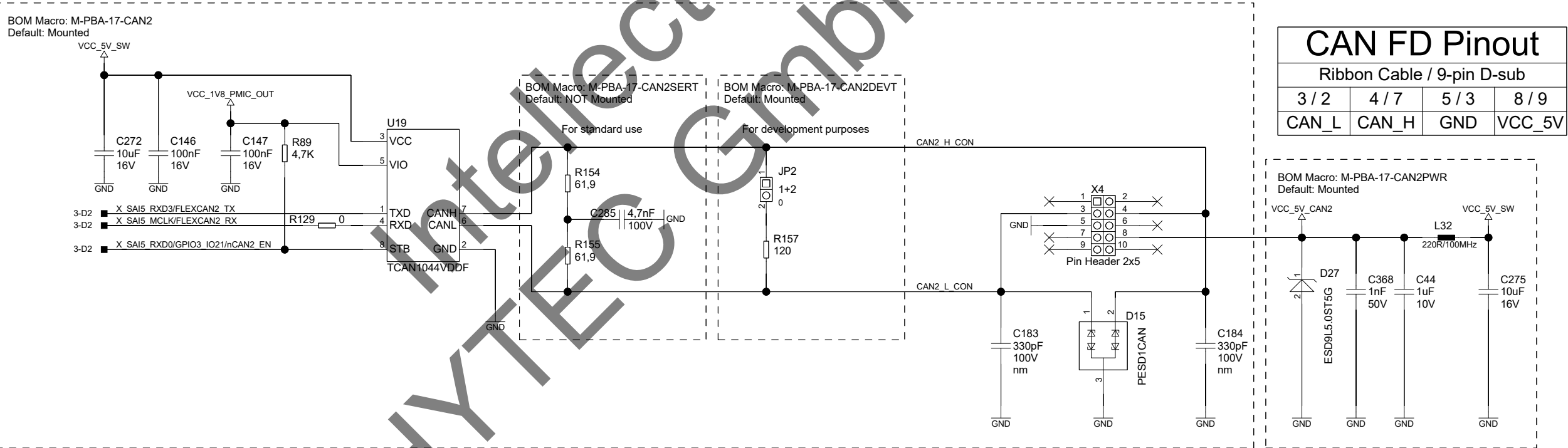
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CAN FD1



CAN FD2



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PCB-No.: 1552.2

Revision : 006

Sheet 14 of 21

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B

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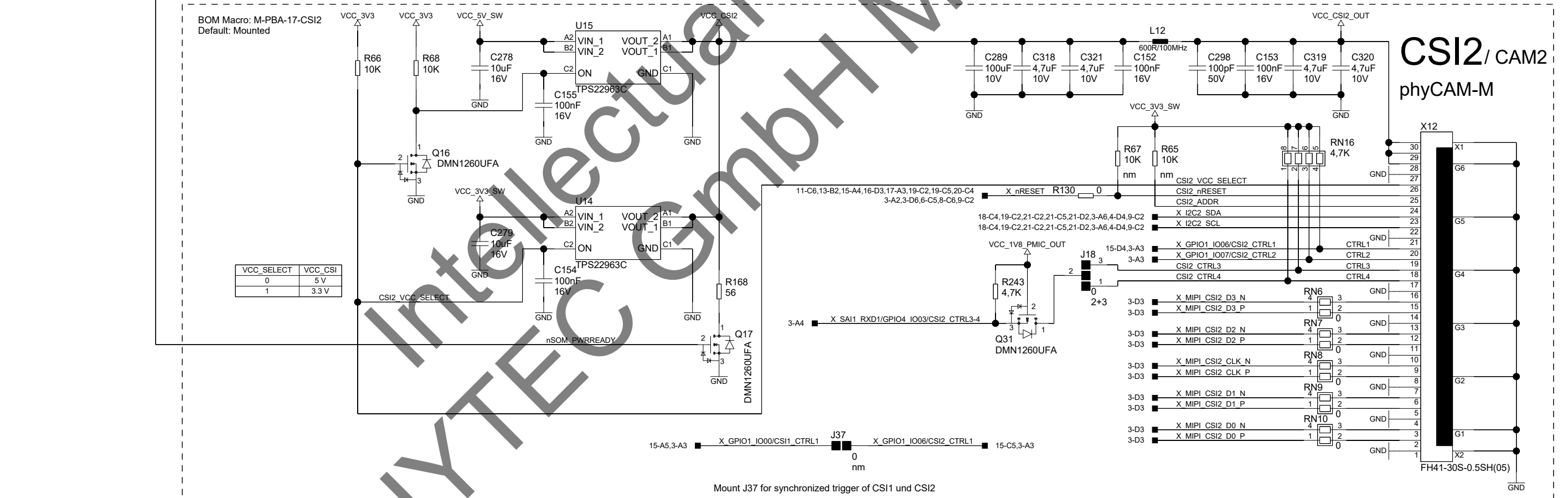
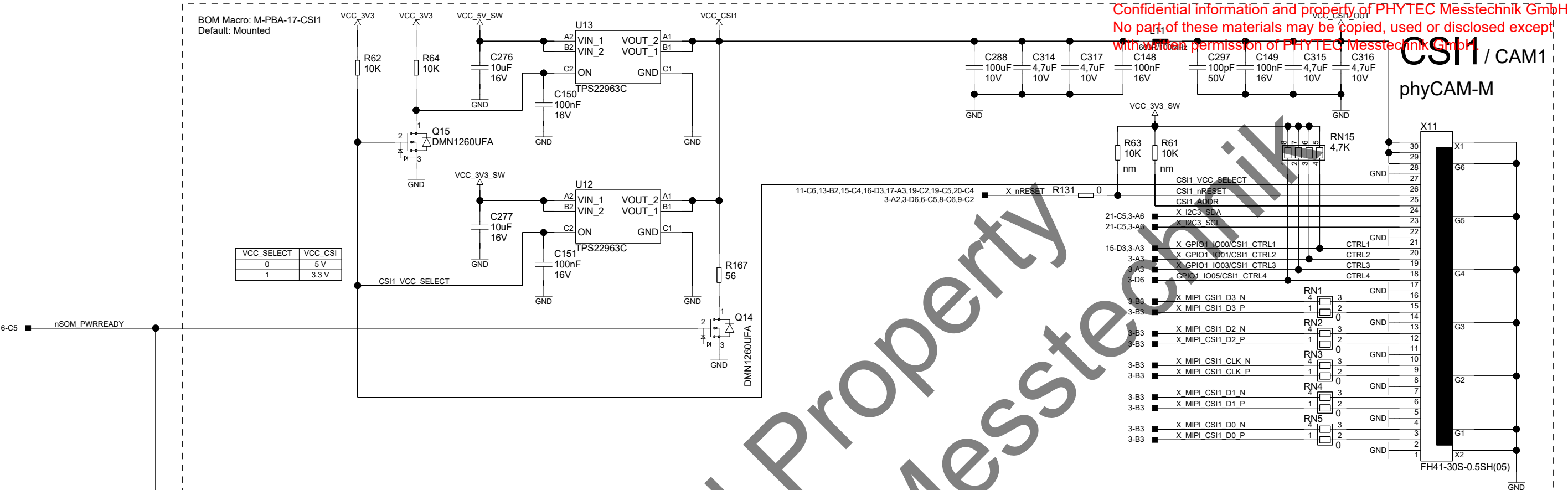
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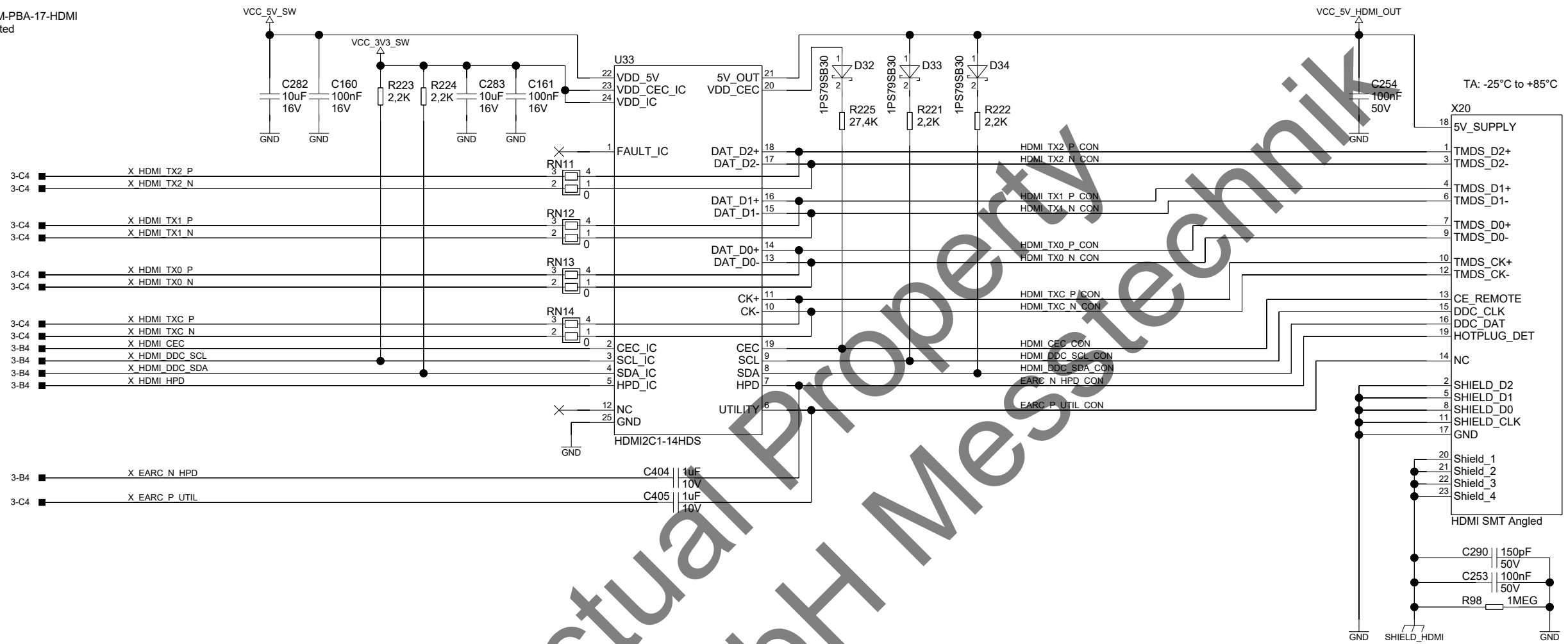


Mount J37 for synchronized trigger of CSI1 und CSI2

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PCB-No.: 1552.2		Sheet 15 of 21	
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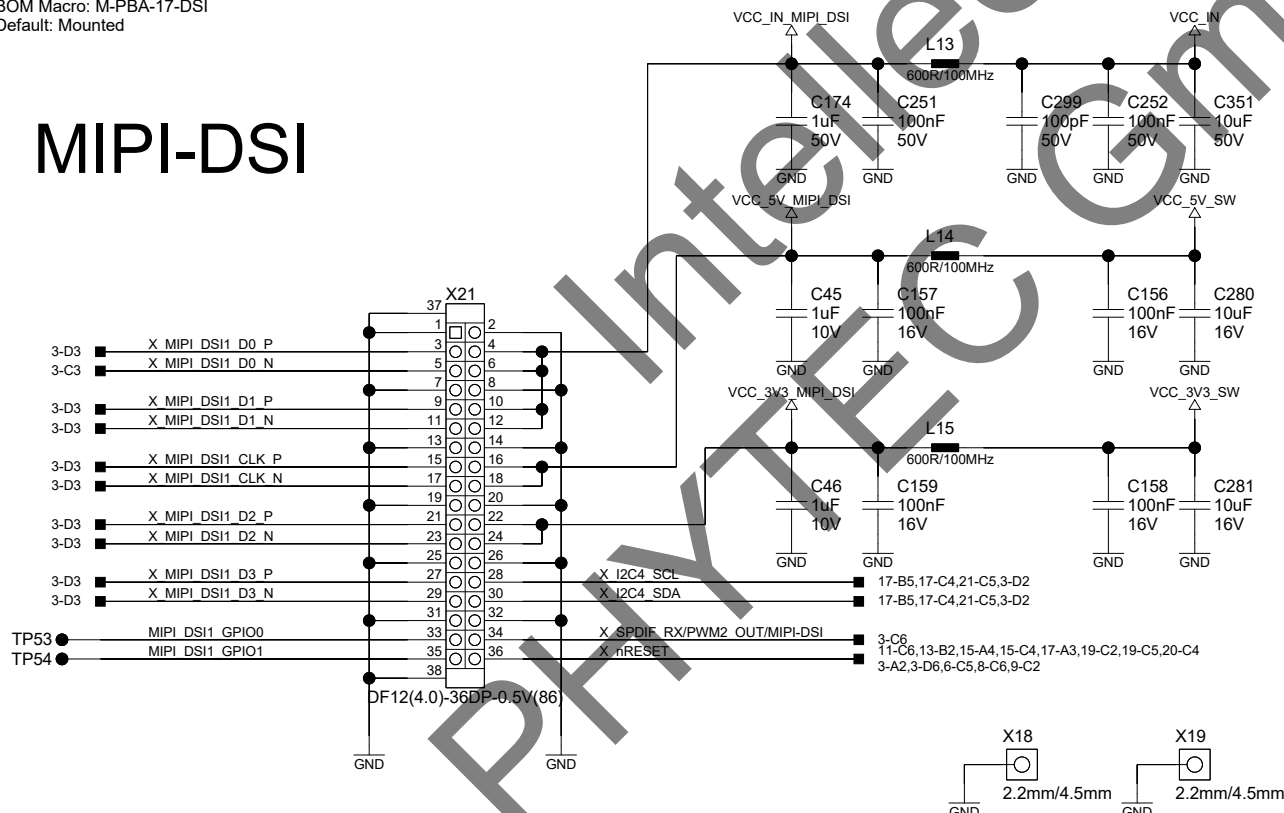
HDMI

BOM Macro: M-PBA-17-HDMI
Default: Mounted



MIPI-DSI

BOM Macro: M-PBA-17-DSI
Default: Mounted



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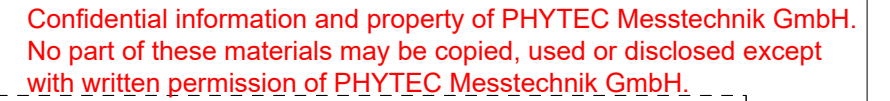
29.11.2021

PCB-No.: 1552.2

Revision: 006

Sheet 16 of 21

BOM Macro: M-PBA-17-AVCON
Default: Mounted



| BOM Macro: M-PBA-17-LVDS1
| Default: Mounted



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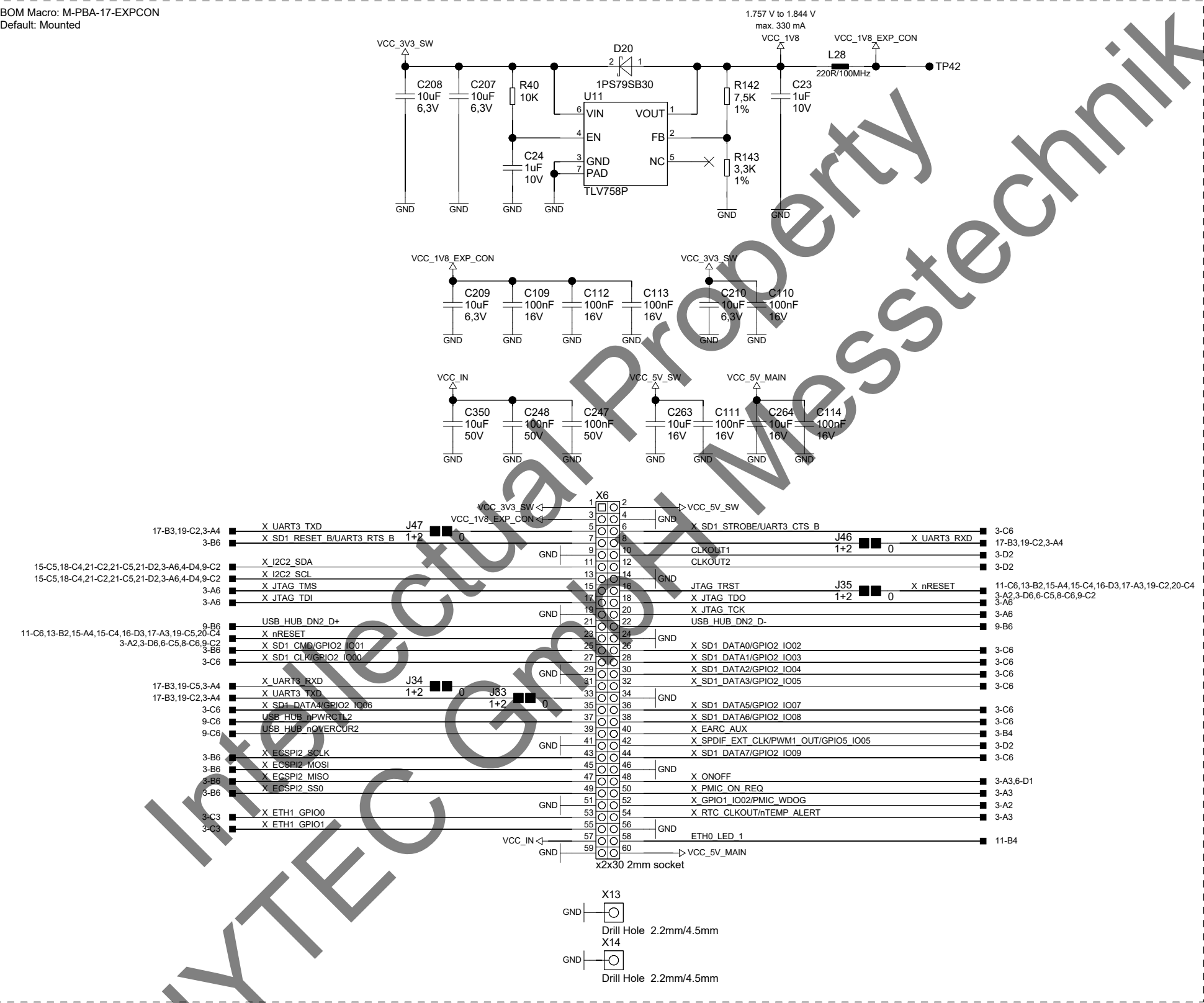
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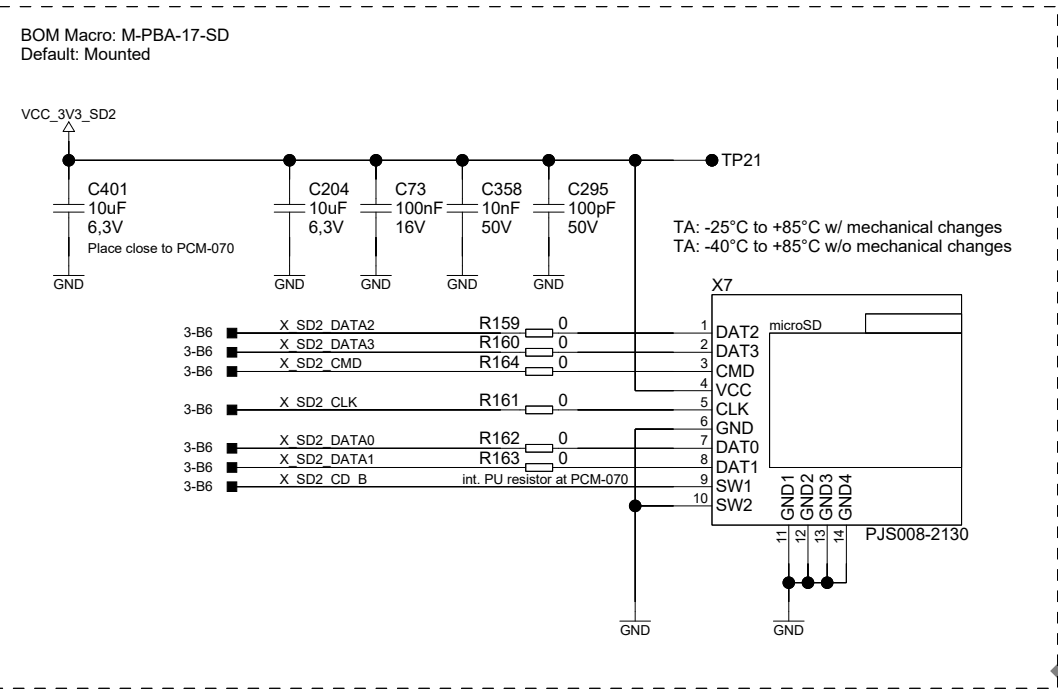
Expansion Connector

BOM Macro: M-PBA-17-EXPCON
Default: Mounted

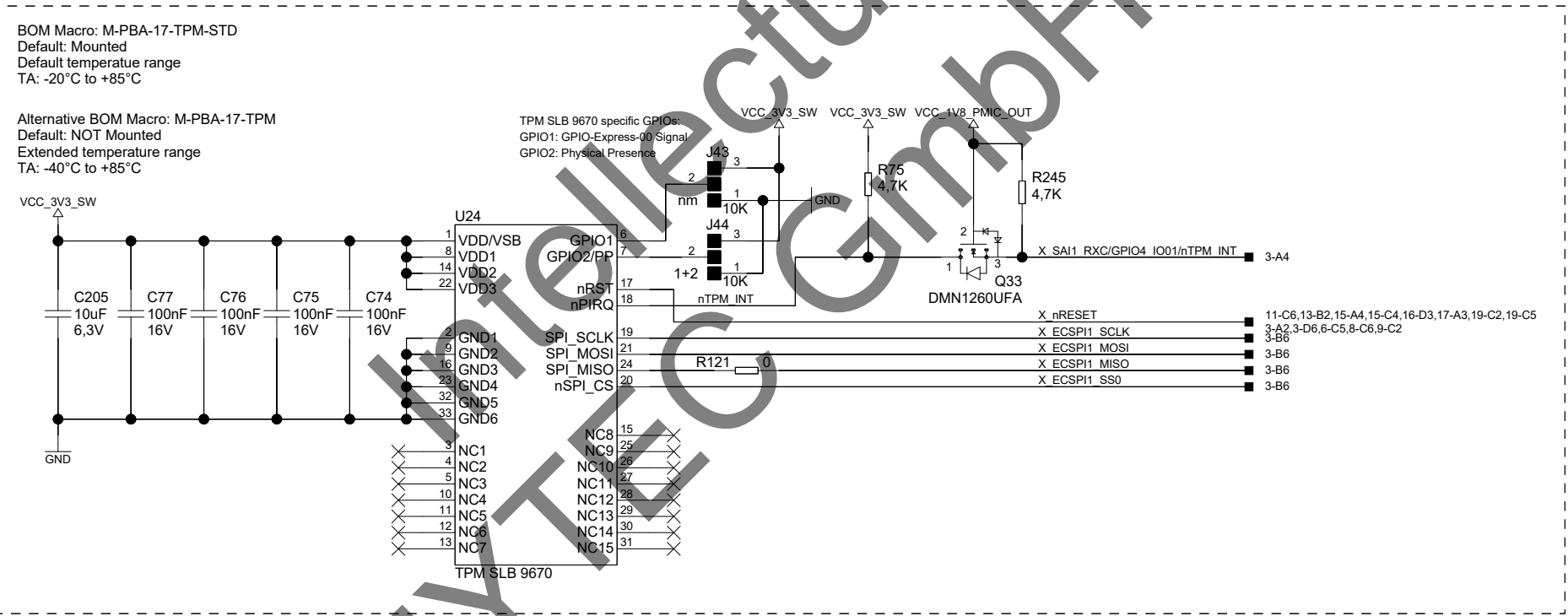


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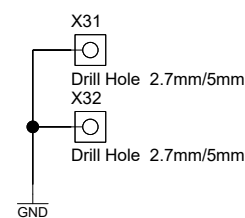
Micro SD-Card



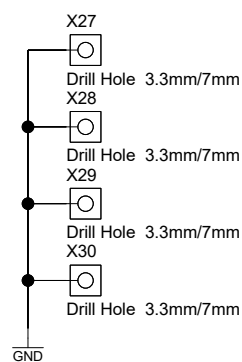
Trusted Platform Module



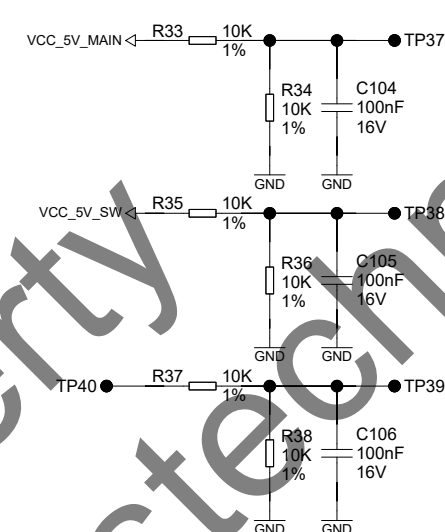
Additional mounting holes



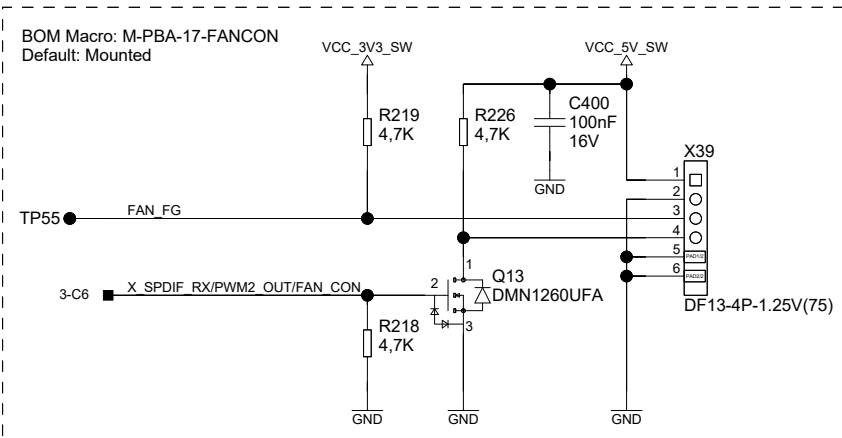
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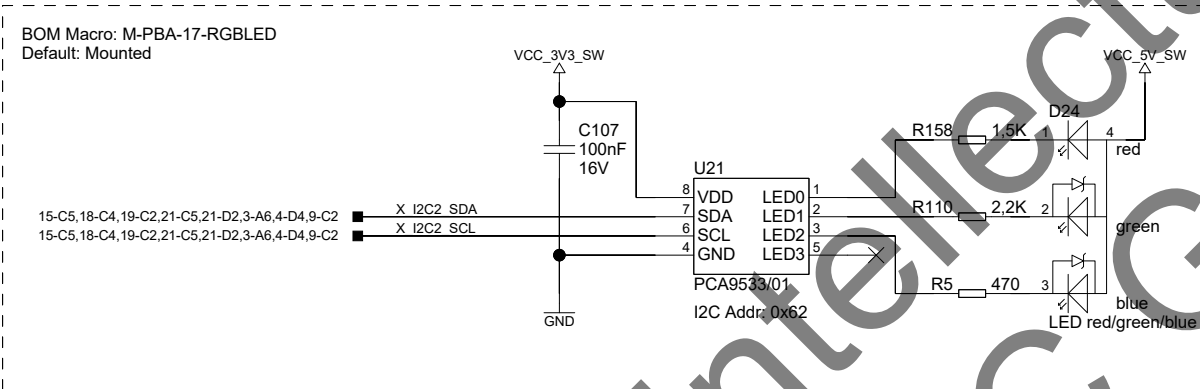
Verification test pads



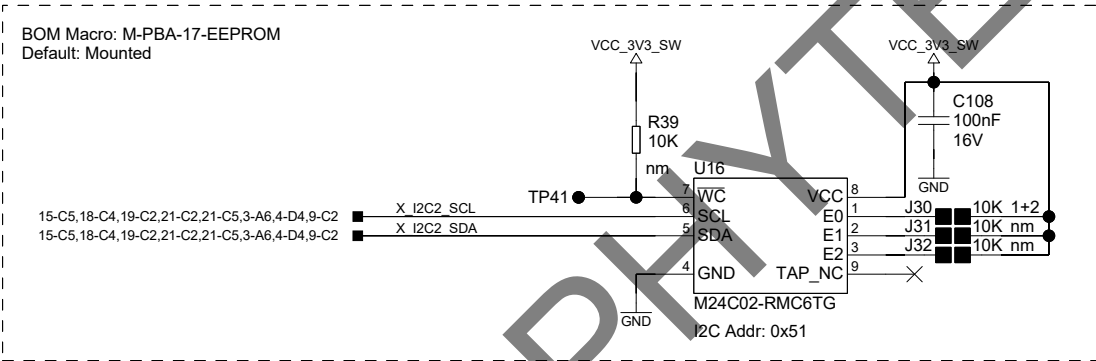
Fan Connector



RGB LED



EEPROM



I2C PU resistors

