

Page 2: MXM3 interface connector

Page 3: Power Supply

Page 4: Ethernet interfaces

Page 5: USB Interfaces

Page 6: HDMI Interface

Page 7: uSD Memory Card Interface

Page 8: CAN Interfaces

Page 9: SATA Interface

Page 10: UART Interfaces

Page 11: PCIe Interface

Page 12: Camera / Display Interfaces

Page 13: I2C Connections

Page 14: LVDS#0 Interfaces

Page 15: LVDS#1 Interfaces

Page 16: Parallel LCD Interface

Page 17: Expansion Connectors

Page 18: Audio Interface

Page 19: Debug Interfaces

UL = UnLoaded = normally not mounted component.

Default jumper settings are indicated in the schematic.
However, always check jumper positions on actual boards
since there is no guarantee that all jumpers are in default place.

Rev B2

Changed to alphabetical numbering of UART, SPI and I2C.

Rev B-B1

Several small enhancements. Added battery charging.
Corrected D17, D23 and D24.

Rev A

Correct U5 pinning error. Added R139 (100K). Change C13.
Correct Q1 pinning. Change L17/L24 to UL.
Added SJ8 for uSD/MMC powering from COM board.
Added H3, J35, JP4/JP6, LED8, Q17/Q18/Q19, U16/U19,
U20, R139/ R145/R146/R141/R147/R148/R178/R179,
R180/R181/R143, SJ12, C113/C132/C133/C134/C109,
C139/C111/C112/C135/C136/C137/C138



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 1/19

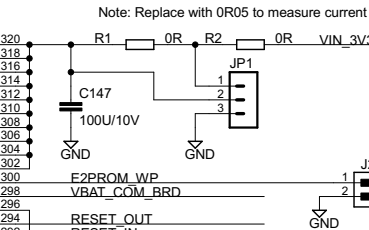
EACOM Board connector (MXM3)

J1B

MXM3 connector

bottom side	top side
PCIE_RX_N	321
PCIE_RX_P	319
PCIE_TX_N	317
PCIE_TX_P	315
PCIE_CLK_N	313
PCIE_CLK_P	311
SATA_RXP	309
SATA_RXN	307
SATA_TXN	305
SATA_TXP	303
CSL_CLKP	301
CSL_CLKM	299
CSL_D0P	297
CSL_D0M	295
CSL_D1P	293
CSL_D1M	291
CSL_D2P	289
CSL_D2M	287
CSL_D3P	285
CSL_D3M	283
CSL_DATA07	281
CSL_DATA06	279
CSL_DATA05	277
CSL_DATA04	275
CSL_DATA03-TP_IRQ_LCD	273
CSL_DATA02-XBEE_RST	271
CSL_DATA01	269
CSL_DATA00	267
CSL_PIXCLK	265
CSL_MCLK	263
CSL_VSYNC	261
CSL_HSYNC	259
GPIO_32-SCAM_DATA	257
GPIO_34	255
GPIO_35	253
GPIO_36	251
GPIO_37	249
GPIO_38	247
GPIO_39	245
GPIO_40	243
VADC_IN0	241
VADC_IN1	239
VADC_IN2	237
VADC_IN3	235
ADC1_IN0	233
ADC1_IN1	231
ADC1_IN2-GPIO	229
ADC1_IN3-GPIO	227
ADC2_IN0-GPIO	225
ADC2_IN1-GPIO	223
ADC2_IN2-GPIO	221
ADC2_IN3-GPIO	219
ADC_VREFH-GPIO	217
LCD_ENABLE	215
LCD_VSYNC	213
LCD_HSYNC	211
LCD_DISP_EN-GPIO	209
LCD_CLK	207
LCD_DATA07	205
LCD_DATA06	203
LCD_DATA05	201
LCD_DATA04	199
LCD_DATA03	197
LCD_DATA02	195
LCD_DATA01	193

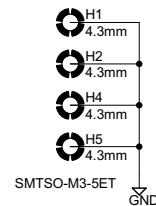
GND



320	R1	0R	R2	0R	VIN_3V3
318	C147	100U/10V			
316					
314					
312					
310					
308					
306					
304					
302					
300					
298					
296					
294					
292					
290					
288					
286					
284					
282					
280					
278					
276					
274					
272					
270					
268					
266					
264					
262					
260					
258					
256					
254					
252					
250					
248					
246					
244					
242					
240					
238					
236					
234					
232					
230					
228					
226					
224					
222					
220					
218					
216					
214					
212					
210					
208					
206					
204					
202					
200					
198					
196					
194					
192					
190					
188					
186					
184					
182					
180					
178					
176					
174					
172					
170					
168					
166					
164					
162					
160					
158					

GND

SMARC mounting holes



J1A

MXM3 connector

bottom side	top side
LCD_DATA00	149
LCD_DATA15	147
LCD_DATA14	145
LCD_DATA13	143
LCD_DATA12	141
LCD_DATA11	139
LCD_DATA10	137
LCD_DATA09	135
LCD_DATA08	133
LCD_DATA07	131
LCD_DATA06	129
LCD_DATA05	127
LCD_DATA04	125
LCD_DATA03	123
LCD_DATA02	121
LCD_DATA01	119
LCD_DATA00	117
LCD_DATA16	115
BL_CONTRAST_PWM-GPIO	113
BL_PWR_EN-GPIO	111
DISP_PWR_EN-GPIO	109
TP_IRQ-GPIO	107
TP_RST-GPIO	105
I2C-C_SCL	103
I2C-C_SDA	101
I2C-B_SCL	99
I2C-A_SCL	97
I2C-A_SDA	95
LVD00_CLK_N	93
LVD00_CLK_P	91
LVD00_DATA0_N	89
LVD00_DATA0_P	87
LVD00_DATA1_N	85
LVD00_DATA1_P	83
LVD00_DATA2_N	81
LVD00_DATA2_P	79
LVD00_DATA3_N	77
LVD00_DATA3_P	75
LVD01_CLK_N	73
LVD01_CLK_P	71
LVD01_DATA0_N	69
LVD01_DATA0_P	67
LVD01_DATA1_N	65
LVD01_DATA1_P	63
LVD01_DATA2_N	61
LVD01_DATA2_P	59
LVD01_DATA3_N	57
LVD01_DATA3_P	55
CAN1_RD	53
CAN1_TD	51
CAN2_RD	49
CAN2_TD	47
SPDIF_OUT-GPIO	45
SPDIF_IN-GPIO	43
AUD_MCLK	41
AUD_TXD	39
AUD_TXC	37
AUD_RXD	35
AUD_TXFS	33
MOS_LEFT-GPIO	31
MOS_RIGHT-GPIO	29
USB_OTG_OC	27
USB_OTG_PWR	25
USB_OTG_VBUS	23
USB_OTG_ID	21
USB_OTG_DP	19
USB_OTG_DN	17
ETH2_TRXP2	15
ETH2_TRXN2	13
ETH2_TRXP3	11
ETH2_TRXN3	9
ETH2_LED_10_100	7
ETH2_LED_1000	5
ETH2_TRXP0	3
ETH2_TRXN1	1
ETH2_TRXP1	0
ETH1_TRXP2	0
ETH1_TRXN2	0
ETH1_TRXP3	0
ETH1_TRXN3	0
ETH1_LED_10_100	0
ETH1_LED_ACT	0
ETH1_LED_1000	0
ETH1_TRXP0	0
ETH1_TRXN1	0
ETH1_TRXP1	0
HDMI_CEC_IN	0
HDMI_D2P	0
HDMI_D2M	0
HDMI_D1P	0
HDMI_D1M	0
HDMI_HPD	0
HDMI_D0P	0
HDMI_D0M	0
HDMI_CLKP	0
HDMI_CLKM	0
MMC_DATA2	0
MMC_DATA3	0
MMC_DATA4	0
MMC_CMD	0
MMC_DATA5	0
MMC_CLK	0
MMC_DATA6	0
MMC_DATA7	0
MMC_DATA0	0
MMC_DATA1	0
SD_PWR	0
SD_DATA2	0
SD_DATA3	0
SD_CMD	0
SD_CLK	0
SD_DATA0	0
SD_DATA1	0
GPIO_28-SD_PWR_EN	0
GPIO_28-SD_CD	0
GPIO_30-PCIE_DISABLE	0
GPIO_31-CAN_STBY	0

GND

GND



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

Document Number:

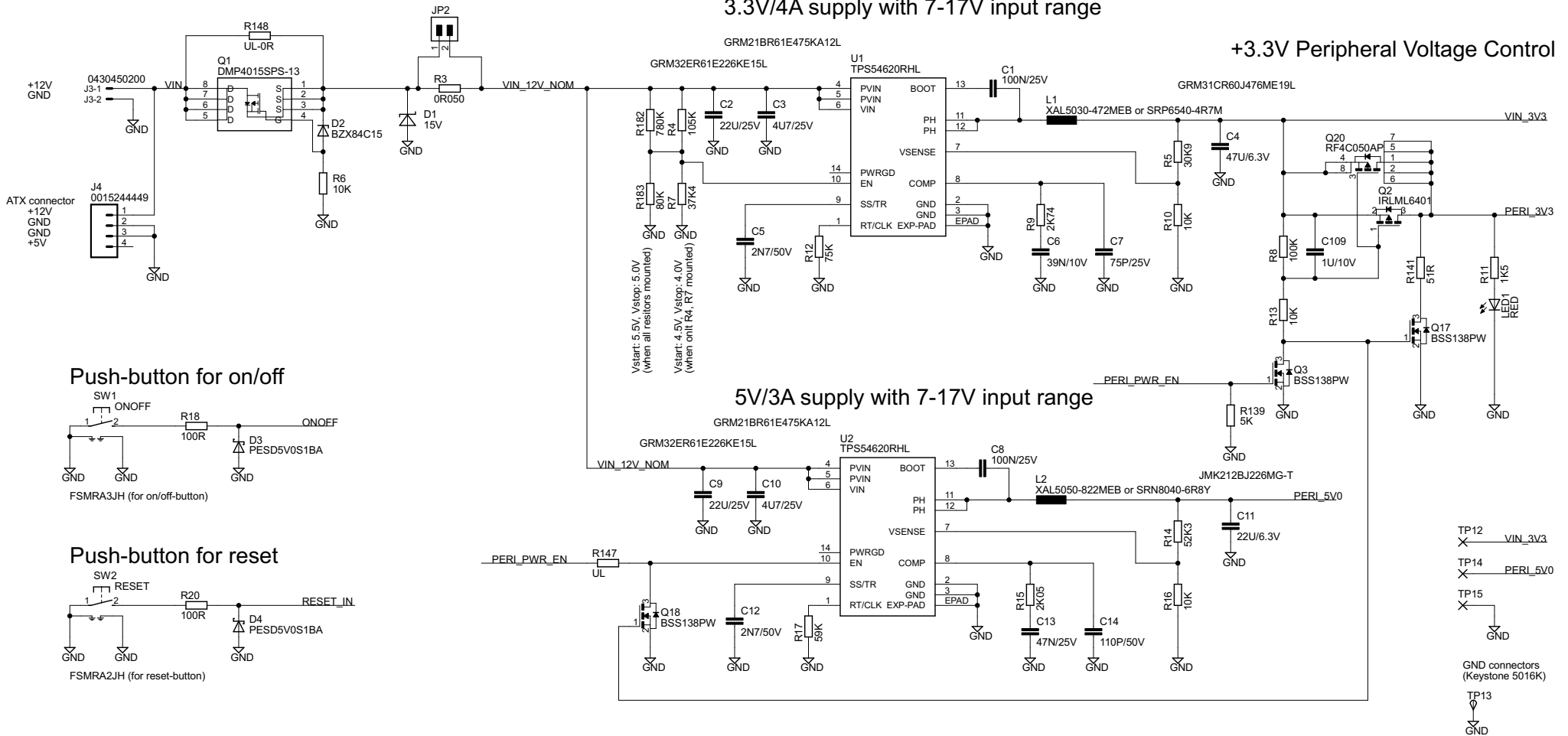
Date: 2018-04-27 10:58:37

Sheet: 2/19

Power Supply Input

3.3V/4A supply with 7-17V input range

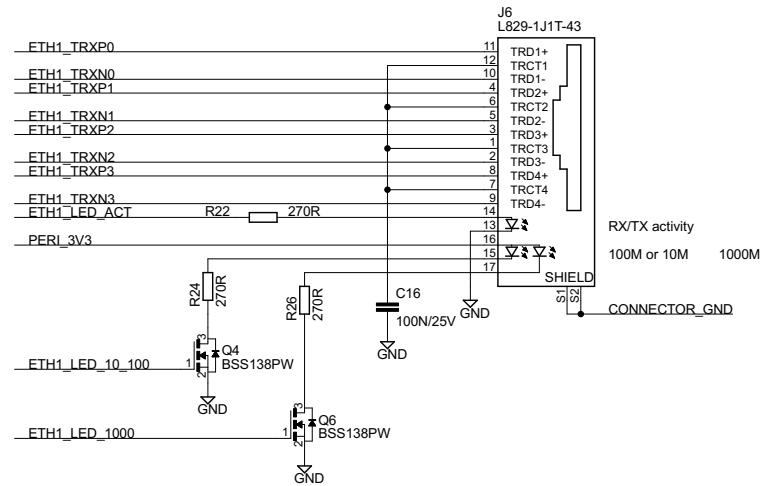
+3.3V Peripheral Voltage Control



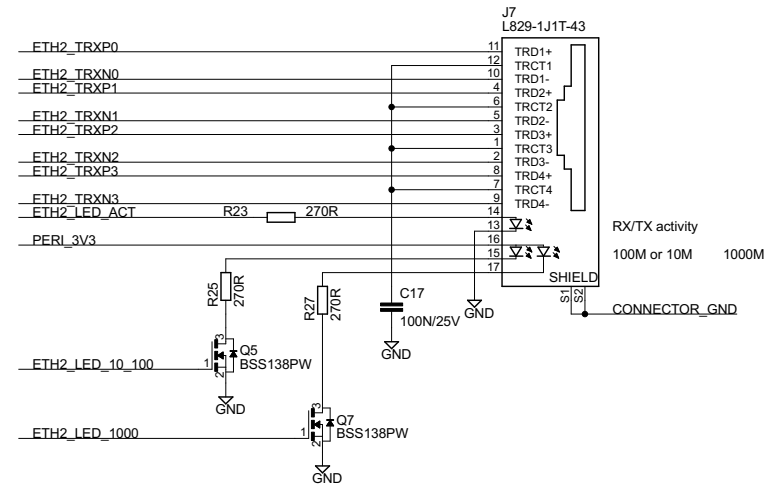
Note: This design is not recommended for customer carrier boards since VBAT will be above maximum recommended voltage (3.6V). A 3.3V LDO is recommended to control the voltage below 3.6V.

Ethernet interfaces

Ethernet Interface #1



Ethernet Interface #2



(C) Embedded Artists AB

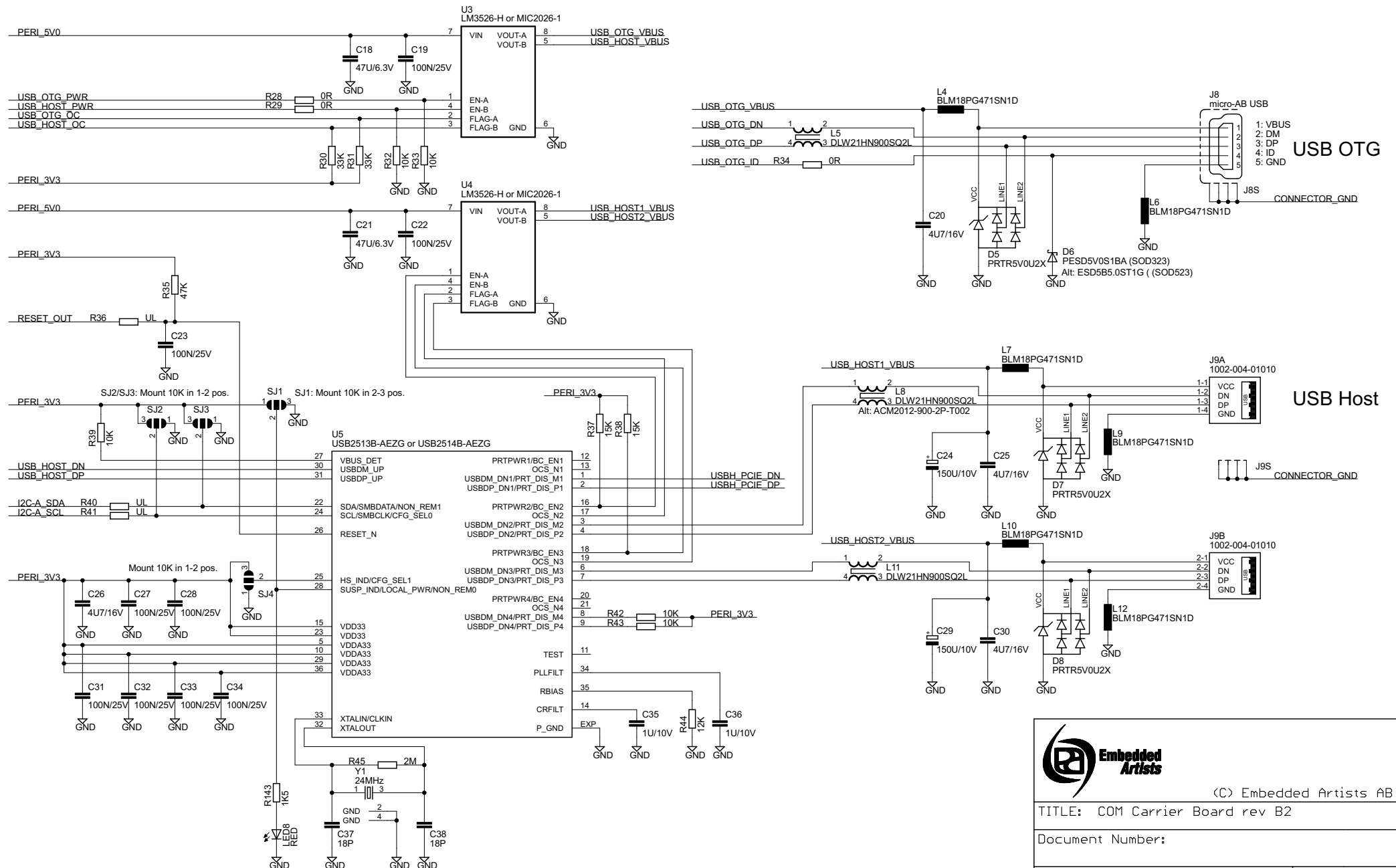
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 4/19

USB Interfaces



(C) Embedded Artists AB

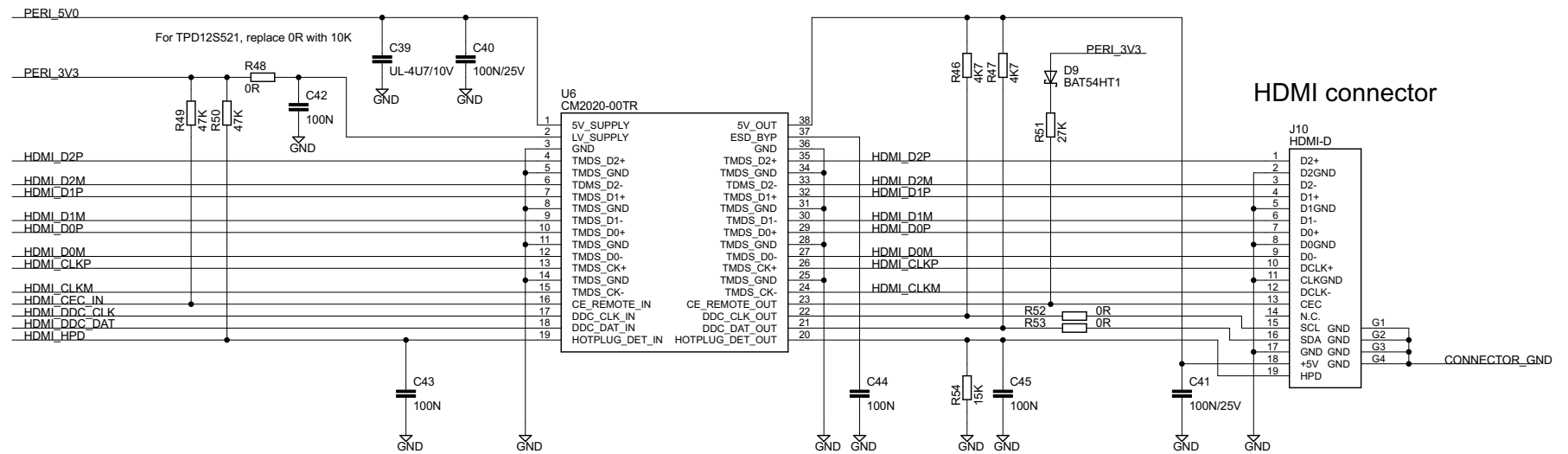
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 5/19

HDMI Interface



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

Document Number:

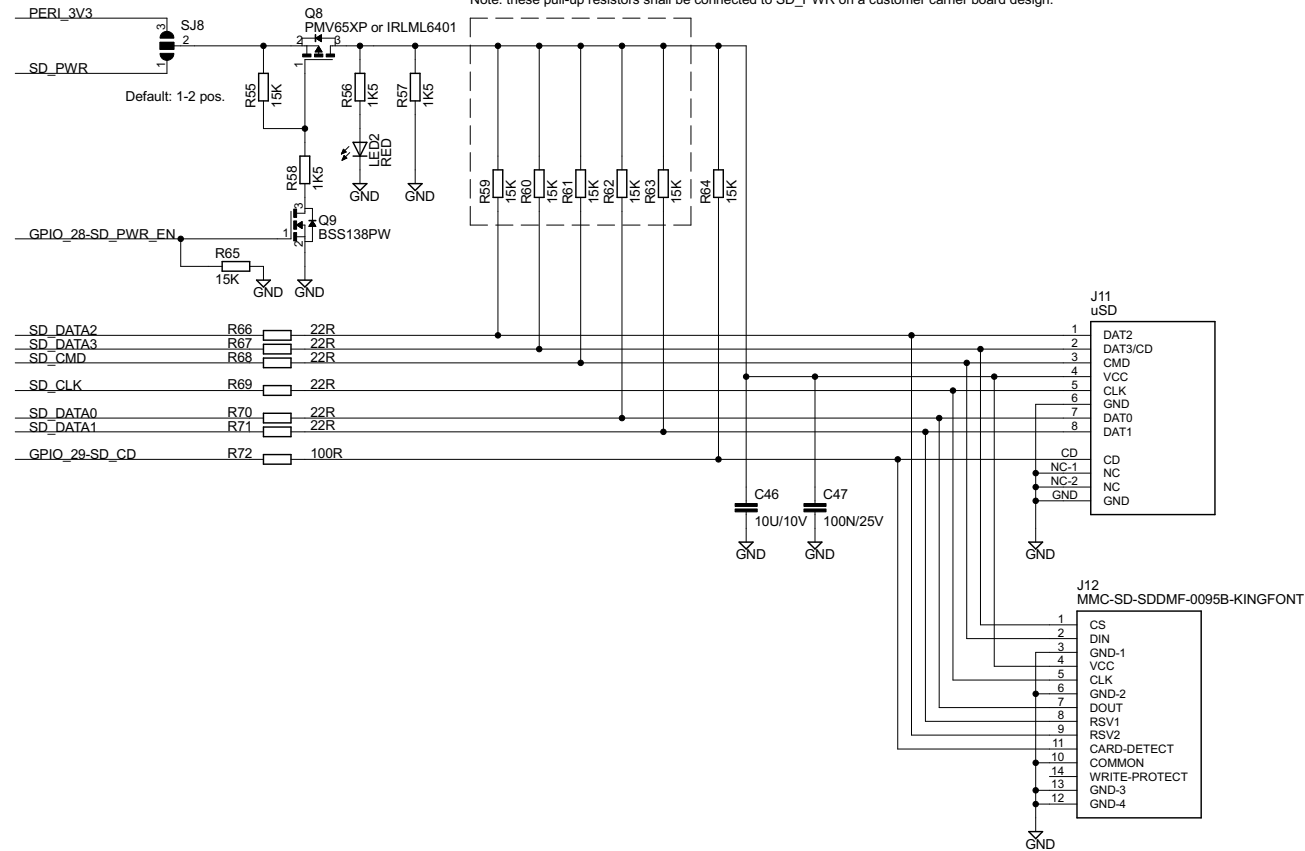
Date: 2018-04-27 10:58:37

Sheet: 6/19

uSD Memory Card Interface

Note: the board is shipped with position 1-2 shorted.
This is not correct for customer carrier boards.
The SD/MMC card shall be powered by PERI_3V3.

Note: these pull-up resistors shall be connected to SD_PWR on a customer carrier board design.



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

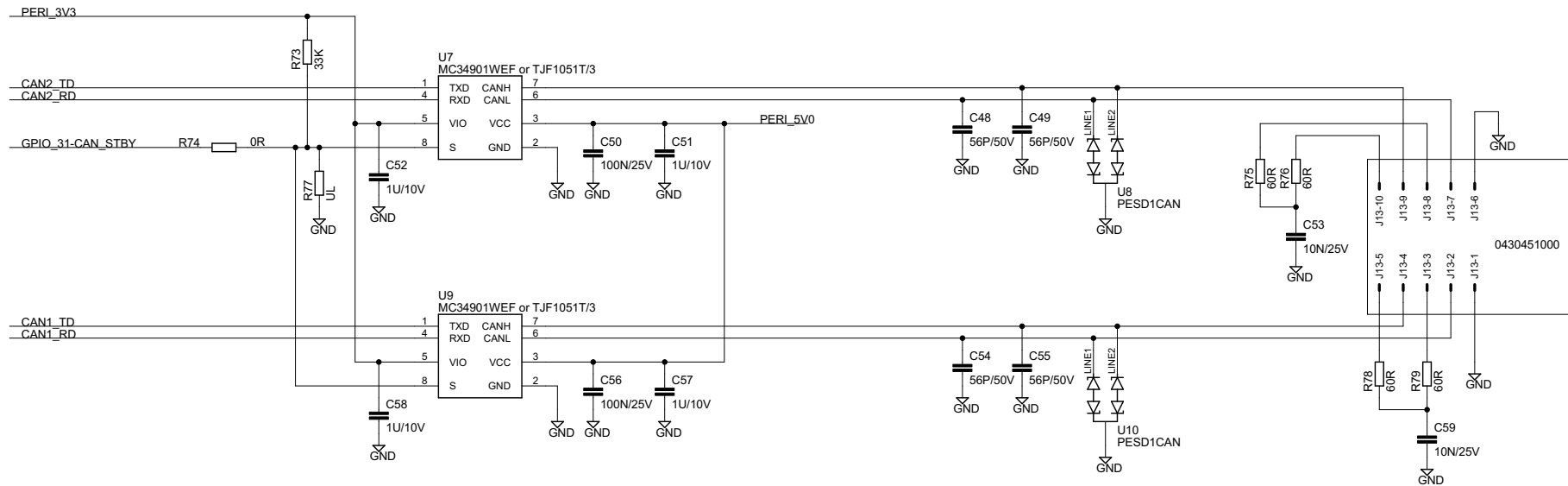
Document Number:

Date: 2018-04-27 10:58:37

Sheet: 7/19

CAN Interfaces

CAN transceivers



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

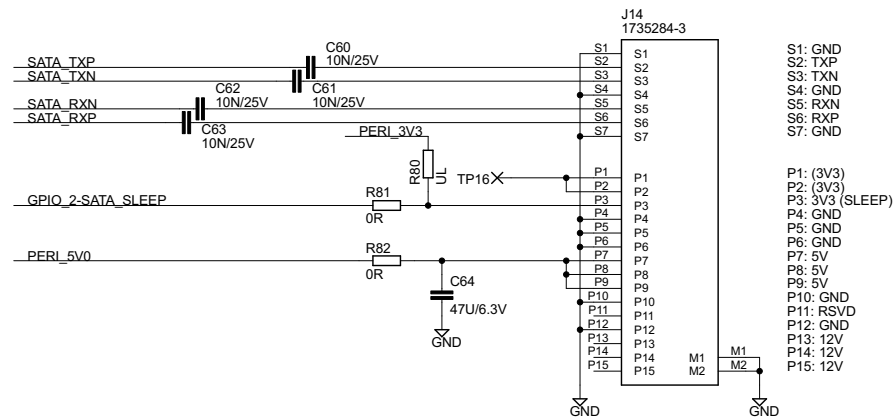
Document Number:

Date: 2018-04-27 10:58:37

Sheet: 8/19

SATA Interface

22 pos SATA Connector



(C) Embedded Artists AB

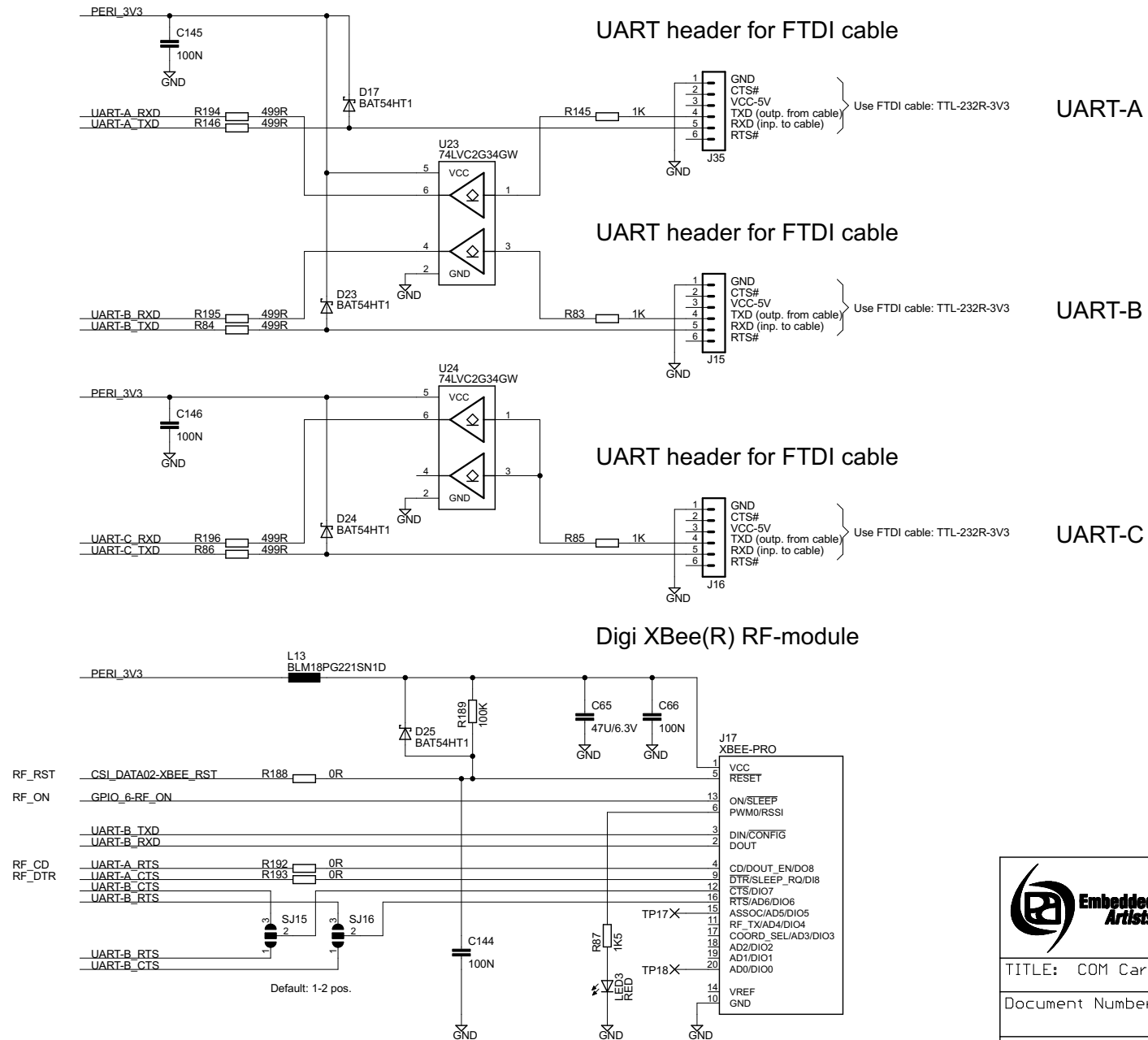
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 9/19

UART Interfaces



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

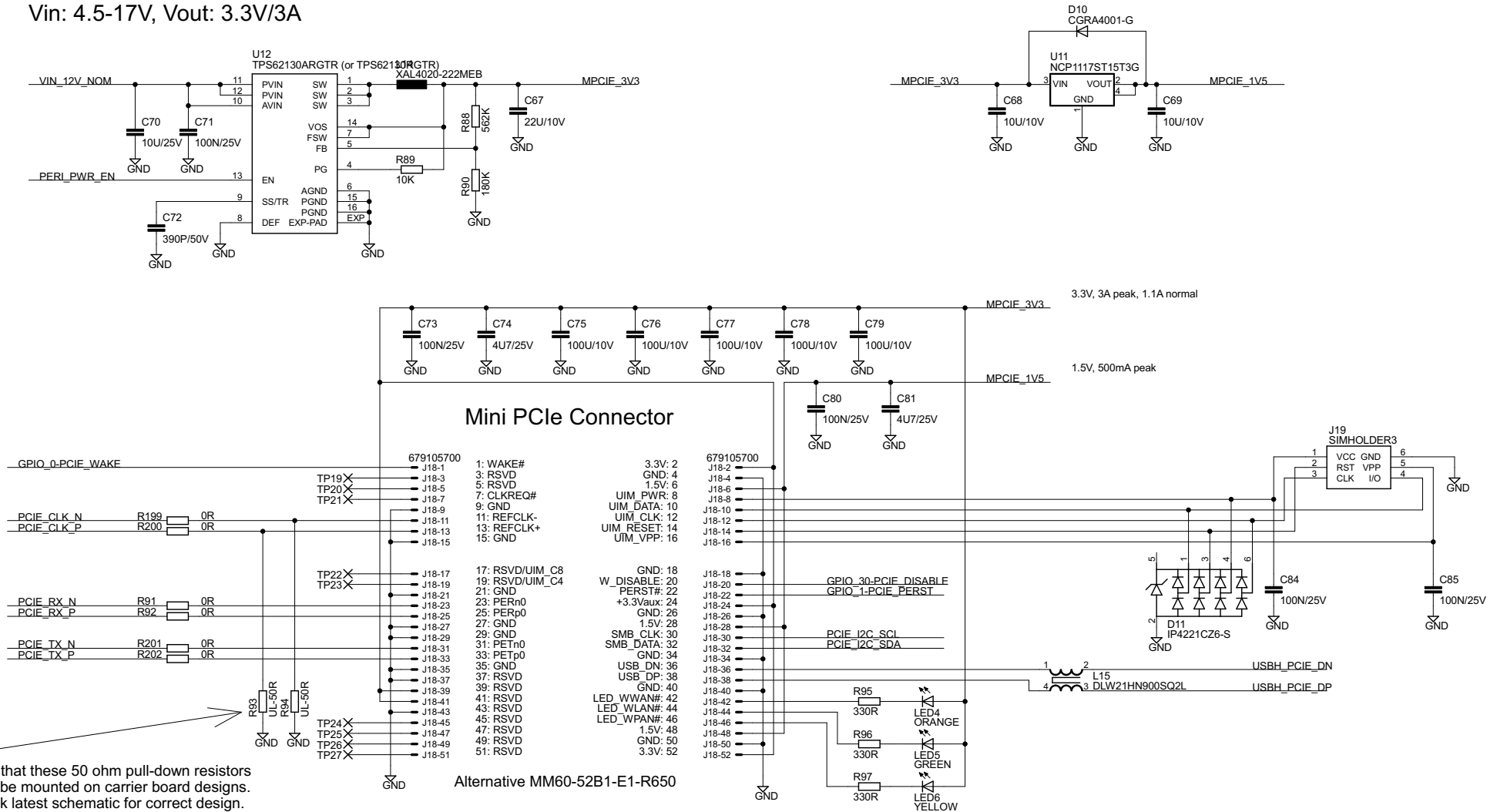
Document Number:

Date: 2018-04-27 10:58:37

Sheet: 10/19

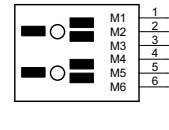
PCIe Interface

Vin: 4.5-17V, Vout: 3.3V/3A



Mini PCIe board fastening

H10
MM60-EZH059-B5-R650



Alternative: Molex 0480995701



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

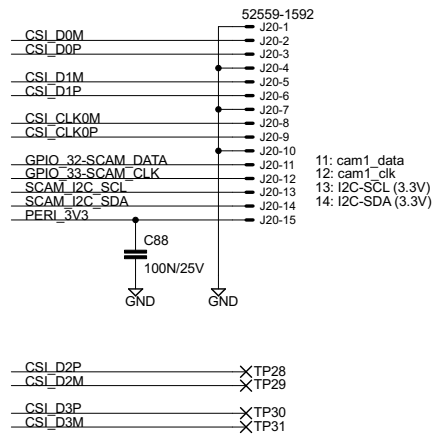
Document Number:

Date: 2018-04-27 10:58:37

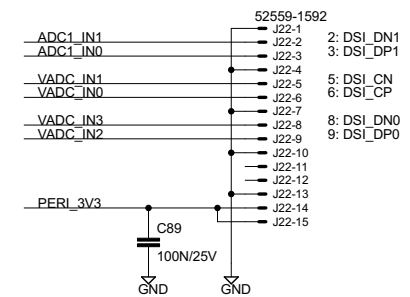
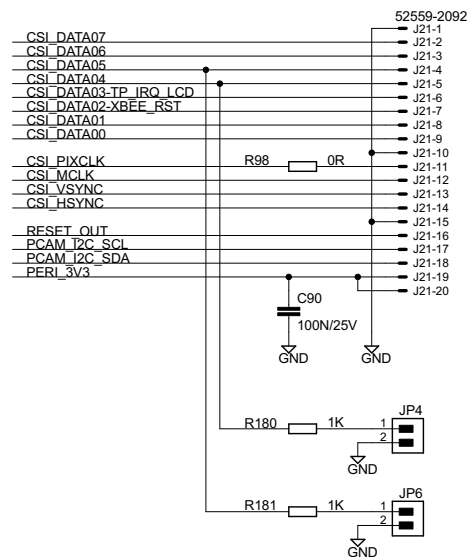
Sheet: 11/19

Camera / Display Interfaces

RPI serial camera (MIPI)



Parallel camera interface (+3.3V logic levels) RPI serial display (MIPI) or VADC signals



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

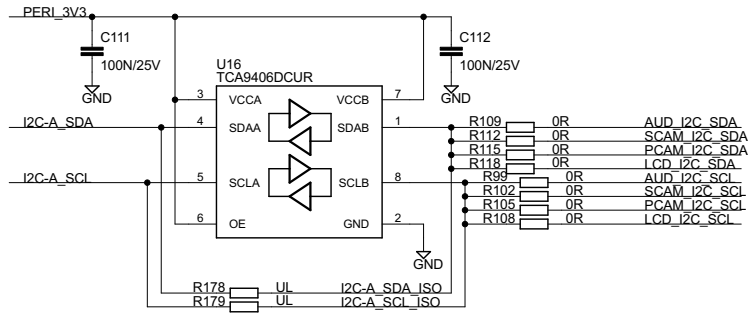
Document Number:

Date: 2018-04-27 10:58:37

Sheet: 12/19

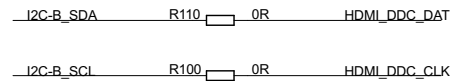
I2C Connections

I2C-A

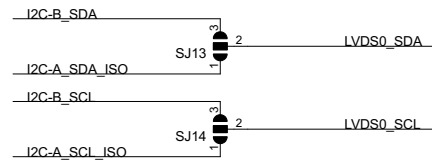


Audio codec: WM8731SEDS
8-bit I2C address (0x34/0x35): 0.0.1.1.0.1.0.RW
7-bit I2C address (0x1A): 0.0.1.1.0.1.0

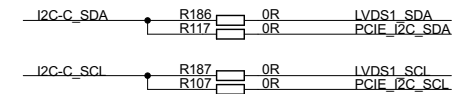
I2C-B



LVDS#0 connected to I2C-A (default) or I2C-B



I2C-C



© Embedded Artists AB

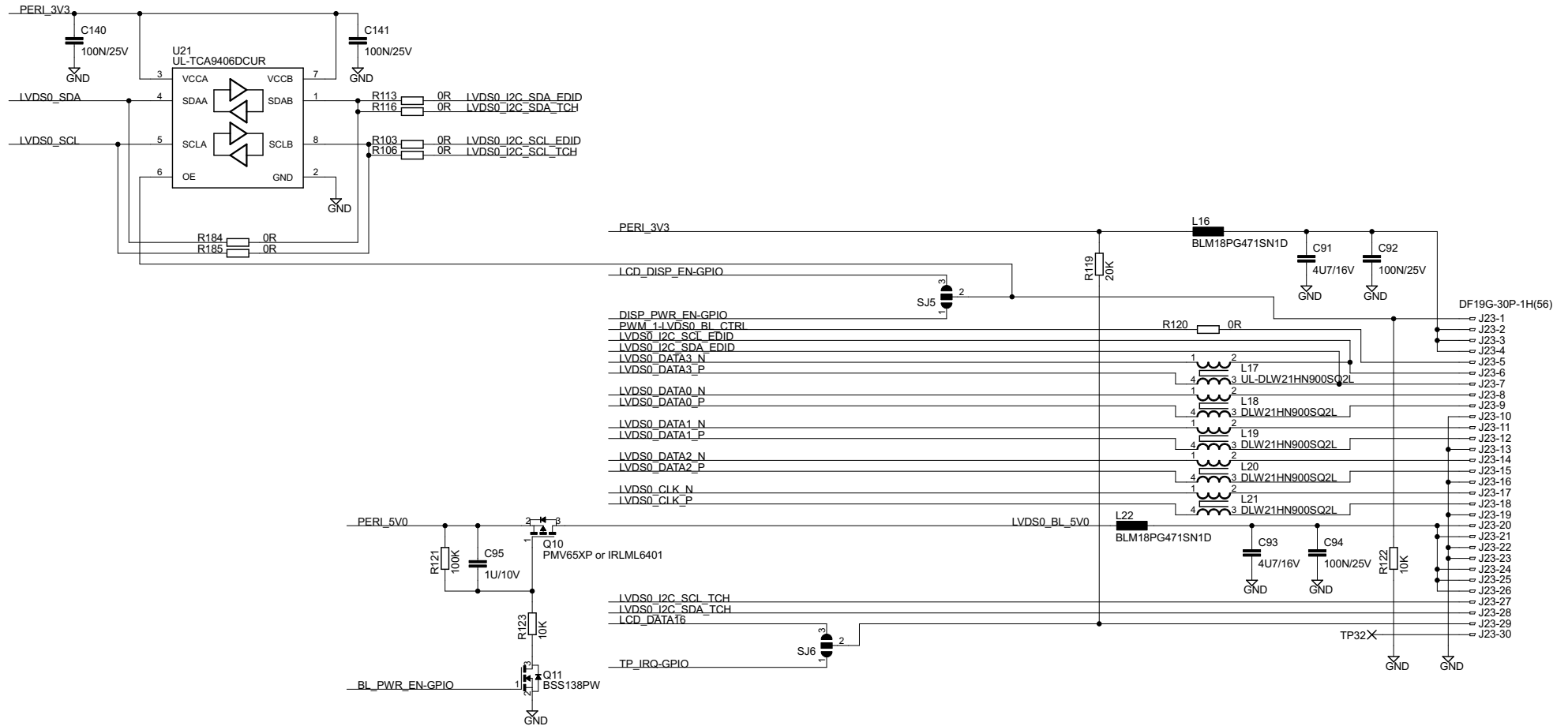
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 13/19

LVDS Interface #0



(C) Embedded Artists AB

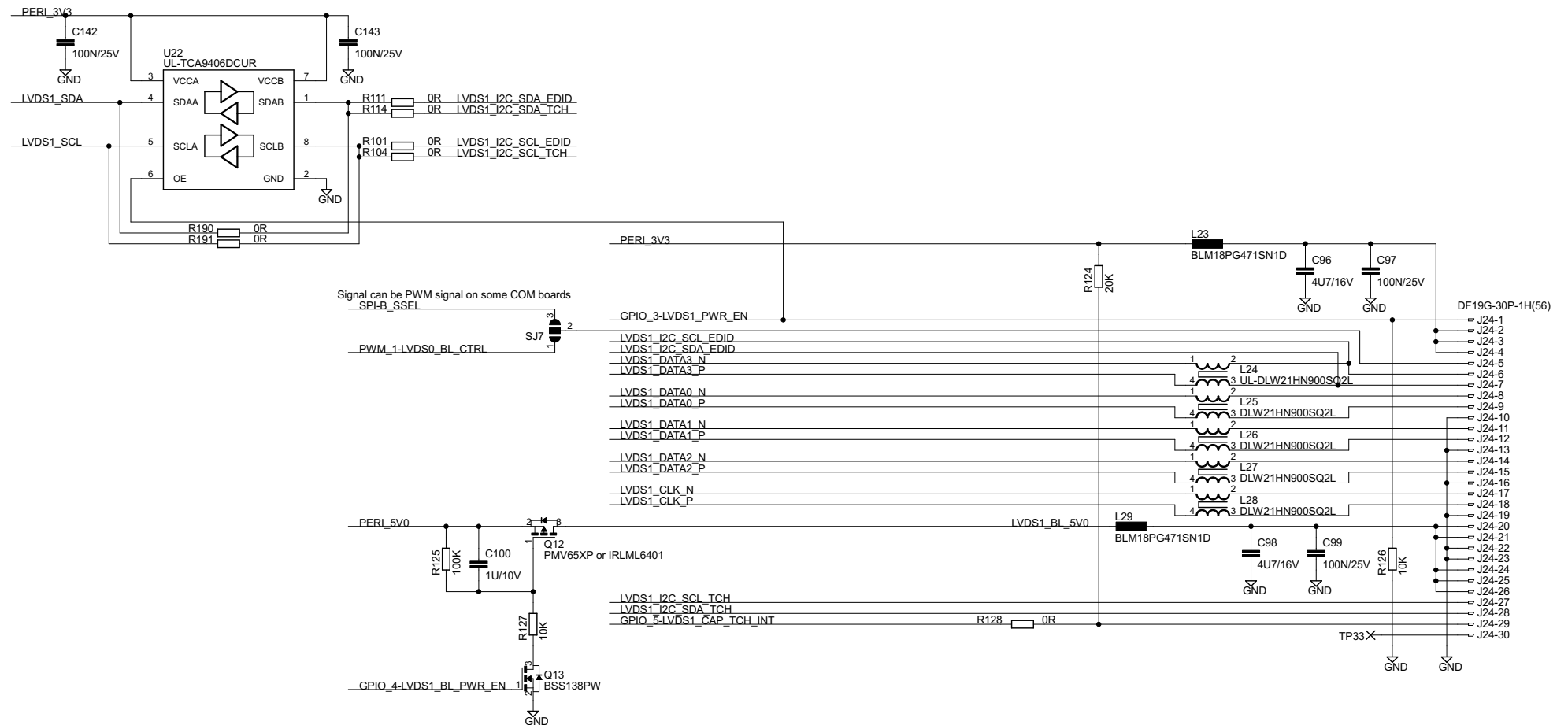
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 14/19

LVDS Interface #1



(C) Embedded Artists AB

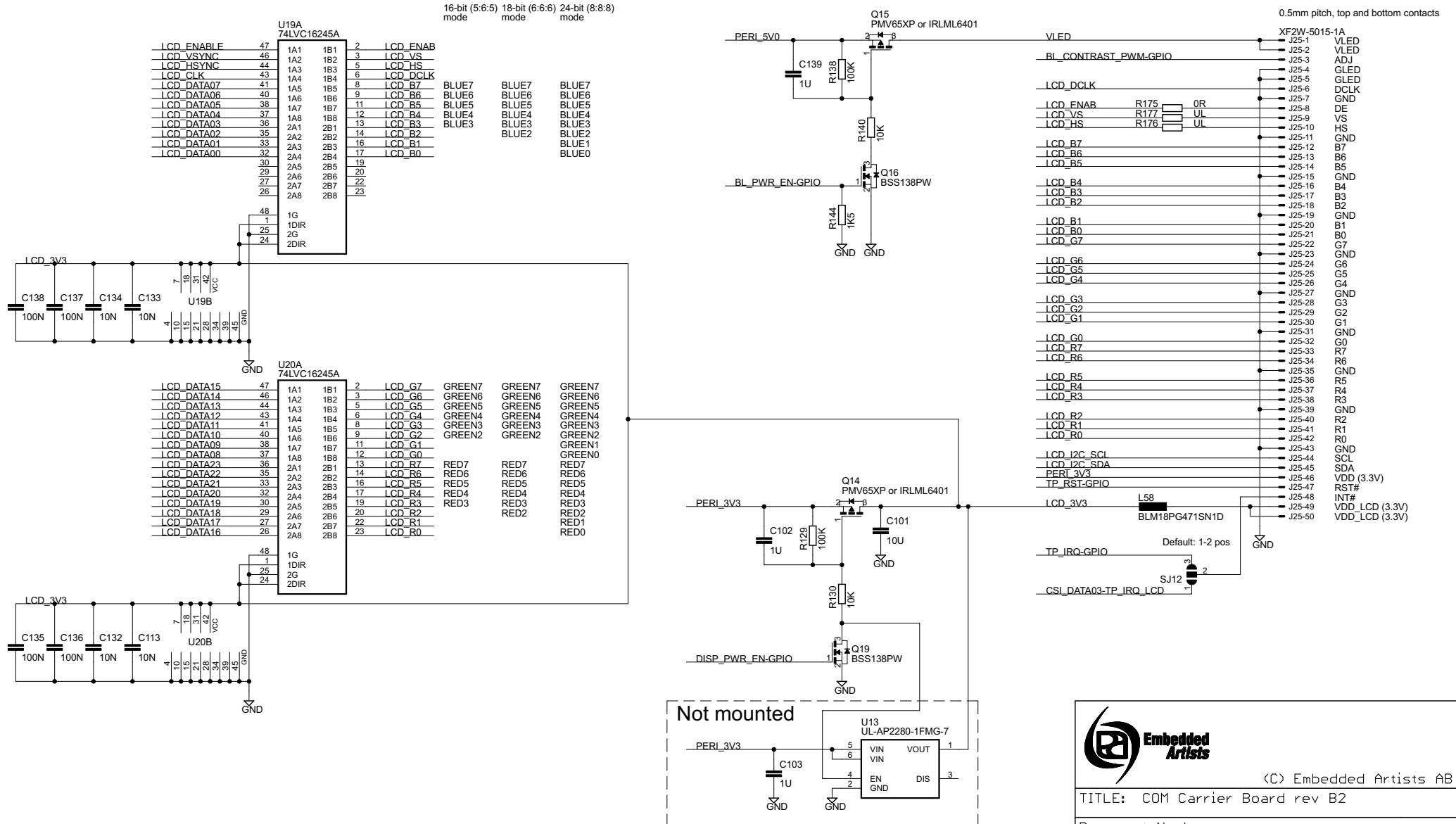
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 15/19

Parallel LCD Interface



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

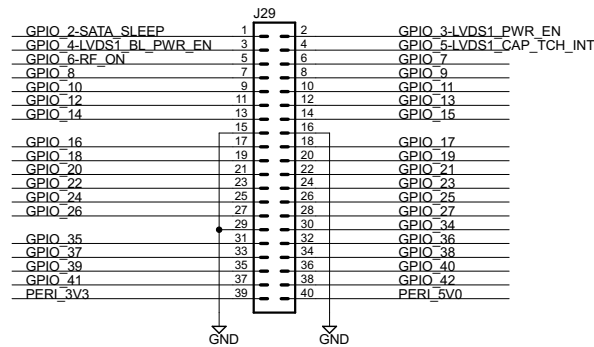
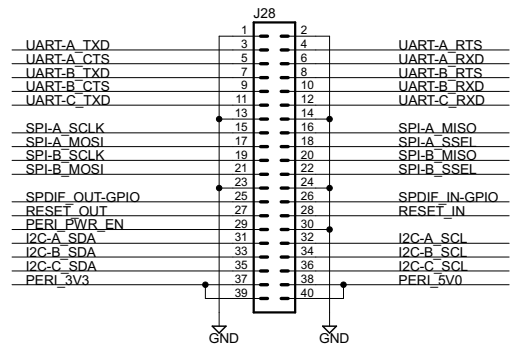
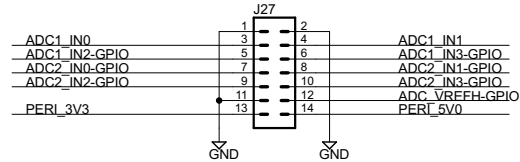
Document Number:

Date: 2018-04-27 10:58:37

Sheet: 16/19

Expansion Connectors

Expansion Connectors (50mil pitch)



(C) Embedded Artists AB

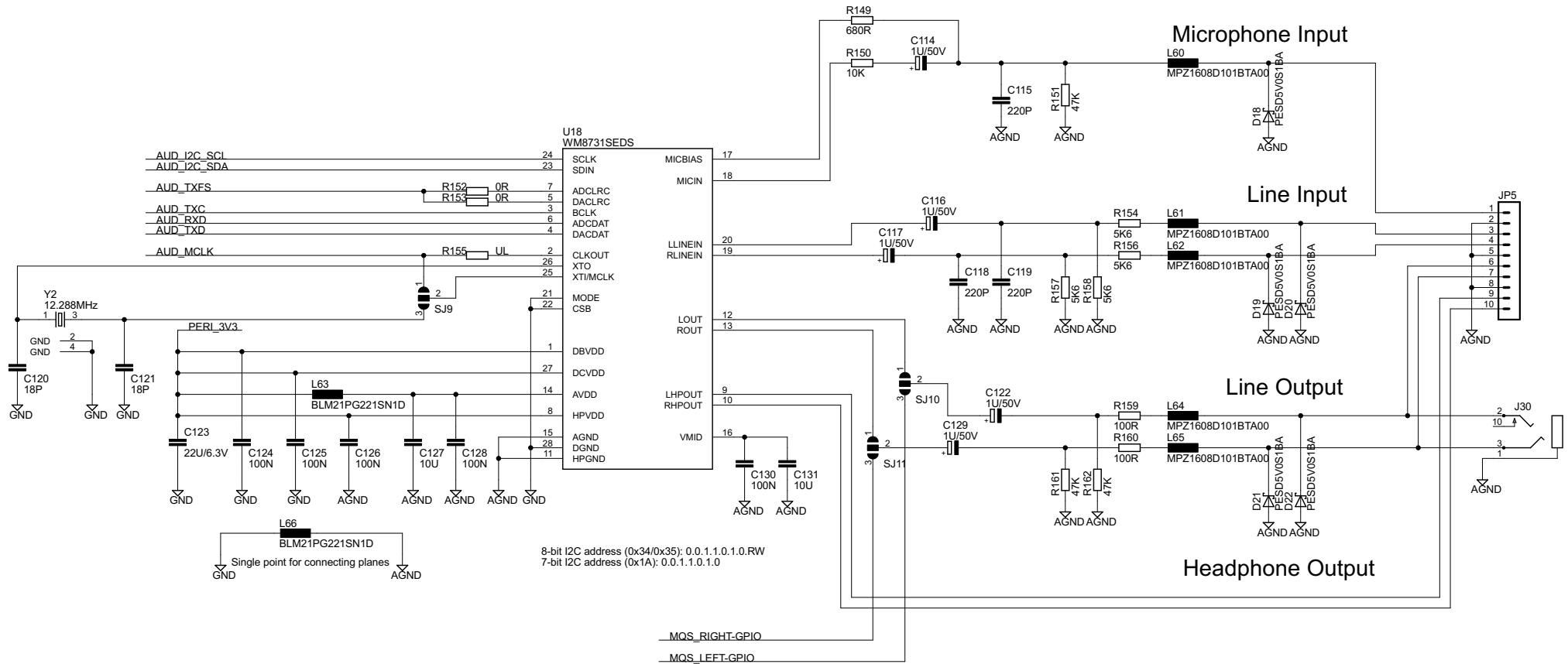
TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 17/19

Audio Interface



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

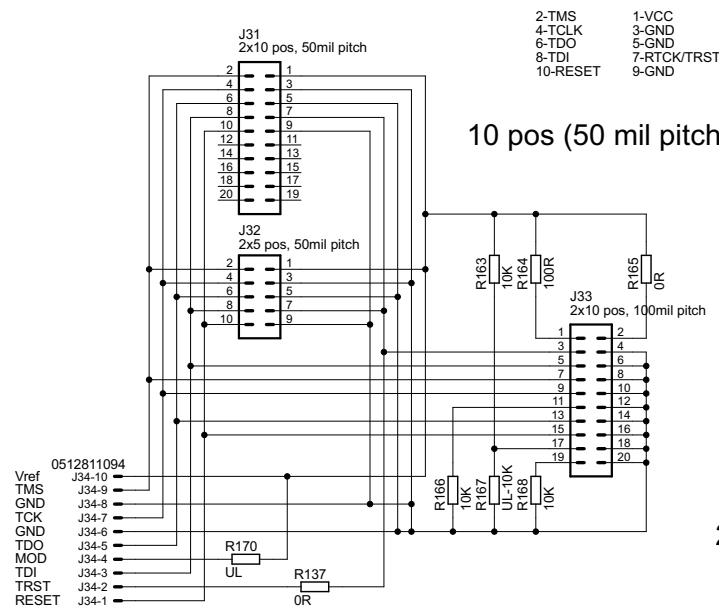
Document Number:

Date: 2018-04-27 10:58:37	Sheet: 18/19
---------------------------	--------------

Sheet: 18/19

Debug Interfaces

JTAG Debug Interfaces ARM 10-pin interface JTAG Mode



(C) Embedded Artists AB

TITLE: COM Carrier Board rev B2

Document Number:

Date: 2018-04-27 10:58:37

Sheet: 19/19