## Page 2

LPC3154 Powering and Unused parts

## Page 3

LPC3154 Digital I/O

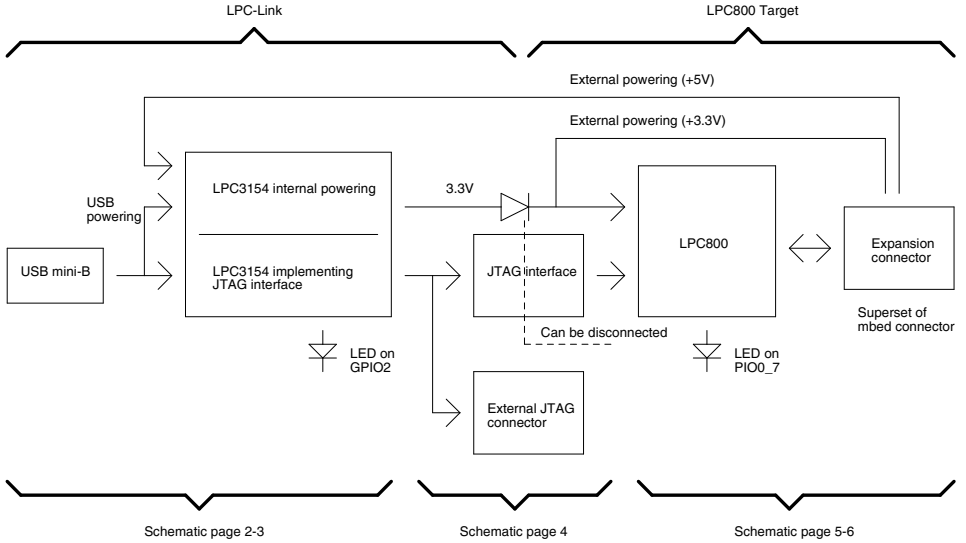
## Page 4

JTAG Interface

## Page 5

LPC800 with Expansion connector

## Design Overview




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.

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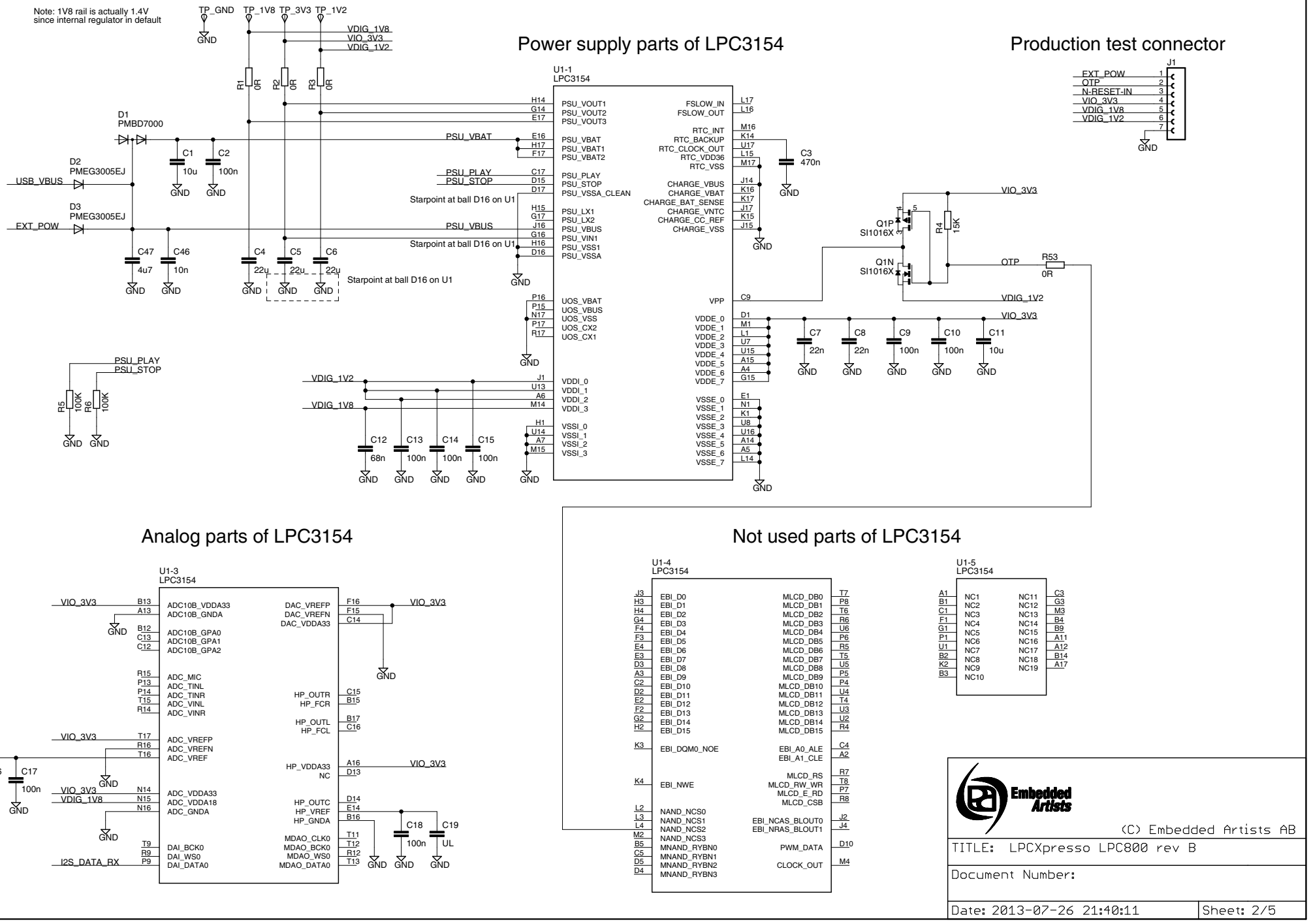
Note: 1V8 rail is actually 1.4V since internal regulator in default
Power supply parts of LPC3154
Production test connector
Analog parts of LPC3154
Not used parts of LPC3154
U1-1 LPC3154
U1-3 LPC3154
U1-4 LPC3154
U1-5 LPC3154
J1
TP_GND TP_1V8 TP_3V3 TP_1V2
VDIG_1V8 VIO_3V3 VDIG_1V2
R1 0R R2 0R R3 0R
D1 PMBD7000
D2 PMEG3005EJ
D3 PMEG3005EJ
USB_VBUS
EXT_POW
C1 10u C2 100n
C47 4u7 C46 10n
C4 22u C5 22u C6 22u
Starpoint at ball D16 on U1
PSU_VBAT PSU_PLAY PSU_STOP PSU_VBUS
PSU_VOUT1 PSU_VOUT2 PSU_VOUT3 PSU_VBAT PSU_VBAT1 PSU_VBAT2 PSU_PLAY PSU_STOP PSU_VSSA_CLEAN PSU_LX1 PSU_LX2 PSU_VBUS PSU_VIN1 PSU_VSS1 PSU_VSSA
FSLOW_IN FSLOW_OUT RTC_INT RTC_BACKUP RTC_CLOCK_OUT RTC_VDD36 RTC_VSS CHARGE_VBUS CHARGE_VBAT CHARGE_BAT_SENSE CHARGE_VNTC CHARGE_CC_REF CHARGE_VSS
C3 470n
UOS_VBAT UOS_VBUS UOS_VSS UOS_CX2 UOS_CX1
VPP VDDE_0 VDDE_1 VDDE_2 VDDE_3 VDDE_4 VDDE_5 VDDE_6 VDDE_7
VDDI_0 VDDI_1 VDDI_2 VDDI_3
VSSE_0 VSSE_1 VSSE_2 VSSE_3 VSSE_4 VSSE_5 VSSE_6 VSSE_7
VSSI_0 VSSI_1 VSSI_2 VSSI_3
C7 22n C8 22n C9 100n C10 100n C11 10u
C12 68n C13 100n C14 100n C15 100n
Q1P SI1016X Q1N SI1016X R4 15K
R5 100K R6 100K
VIO_3V3 VDIG_1V2 VIO_3V3
OTP R53 0R
FEXT_POW OTP N-RESET-IN VIO_3V3 VDIG_1V8 VDIG_1V2
ADC10B_VDDA33 ADC10B_GNDA ADC10B_GPA0 ADC10B_GPA1 ADC10B_GPA2
ADC_MIC ADC_TINL ADC_TINR ADC_VINL ADC_VINR
ADC_VREFP ADC_VREFN ADC_VREF
ADC_VDDA33 ADC_VDDA18 ADC_GNDA
DAI_BCK0 DAI_WS0 DAI_DATA0 I2S_DATA_RX
DAC_VREFP DAC_VREFN DAC_VDDA33
HP_OUTR HP_FCR HP_OUTL HP_FCL
HP_VDDA33 NC
HP_OUTC HP_VREF HP_GNDA
MDAO_CLK0 MDAO_BCK0 MDAO_WS0 MDAO_DATA0
C16 UL C17 100n
C18 100n C19 UL
EBI_D0 EBI_D1 EBI_D2 EBI_D3 EBI_D4 EBI_D5 EBI_D6 EBI_D7 EBI_D8 EBI_D9 EBI_D10 EBI_D11 EBI_D12 EBI_D13 EBI_D14 EBI_D15
EBI_DQM0_NOE EBI_NWE
NAND_NCS0 NAND_NCS1 NAND_NCS2 NAND_NCS3 MNAND_RYBN0 MNAND_RYBN1 MNAND_RYBN2 MNAND_RYBN3
MLCD_DB0 MLCD_DB1 MLCD_DB2 MLCD_DB3 MLCD_DB4 MLCD_DB5 MLCD_DB6 MLCD_DB7 MLCD_DB8 MLCD_DB9 MLCD_DB10 MLCD_DB11 MLCD_DB12 MLCD_DB13 MLCD_DB14 MLCD_DB15
EBI_A0_ALE EBI_A1_CLE MLCD_RS MLCD_RW_WR MLCD_E_RD MLCD_CSB
EBI_NCAS_BLOUT0 EBI_NRAS_BLOUT1 PWM_DATA CLOCK_OUT
NC1 NC2 NC3 NC4 NC5 NC6 NC7 NC8 NC9 NC10 NC11 NC12 NC13 NC14 NC15 NC16 NC17 NC18 NC19
GND
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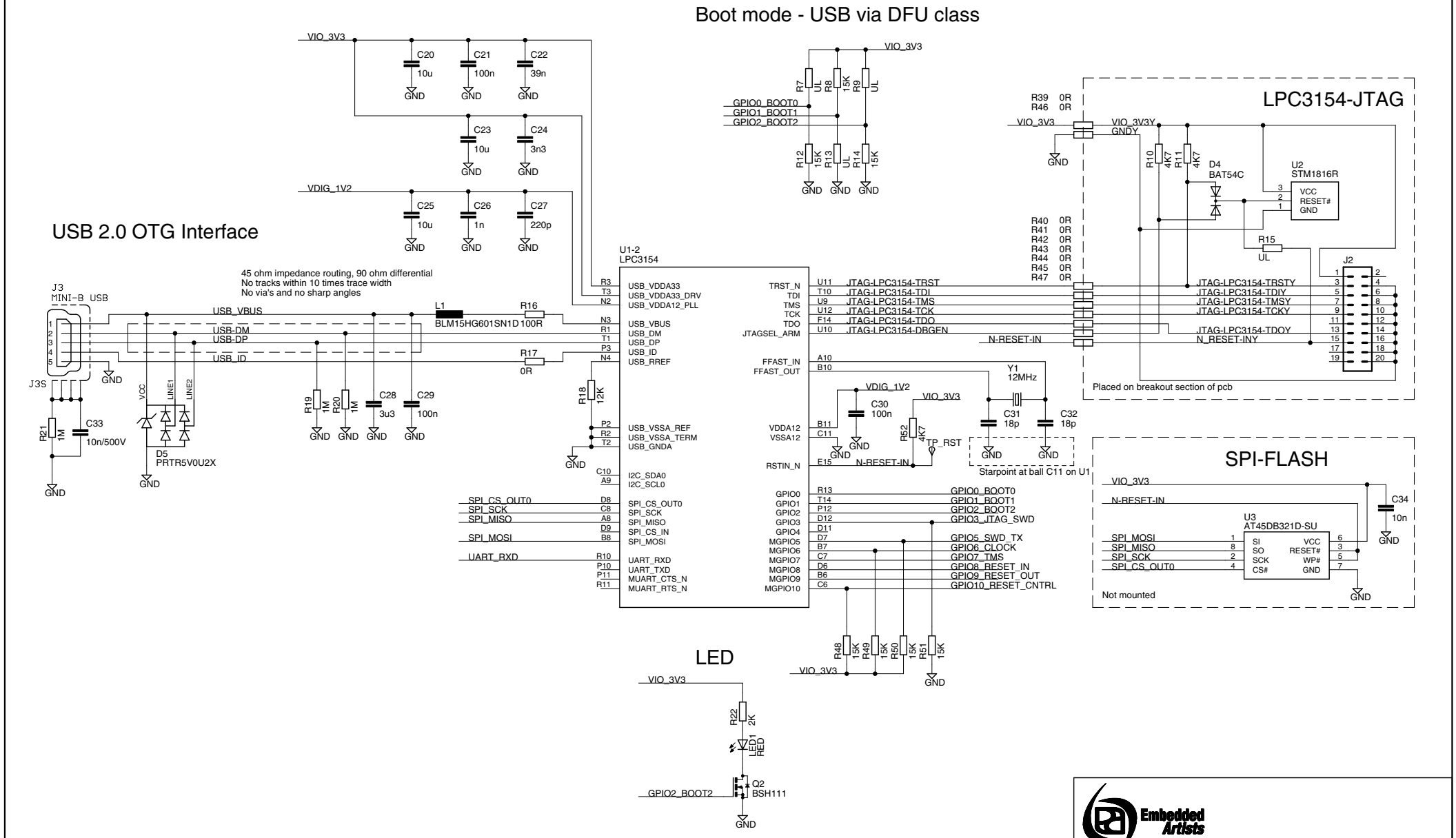
Boot mode - USB via DFU class
USB 2.0 OTG Interface
LPC3154-JTAG
SPI-FLASH
LED
U1-2
LPC3154
J3
MINI-B USB
45 ohm impedance routing, 90 ohm differential
No tracks within 10 times trace width
No via's and no sharp angles
Placed on breakout section of pcb
Starpoint at ball C11 on U1
Not mounted
D5
PRTR5V0U2X
BLM15HG601SN1D
U2
STM1816R
U3
AT45DB321D-SU
Y1
12MHz
D4
BAT54C
Q2
BSH111
LED1
RED
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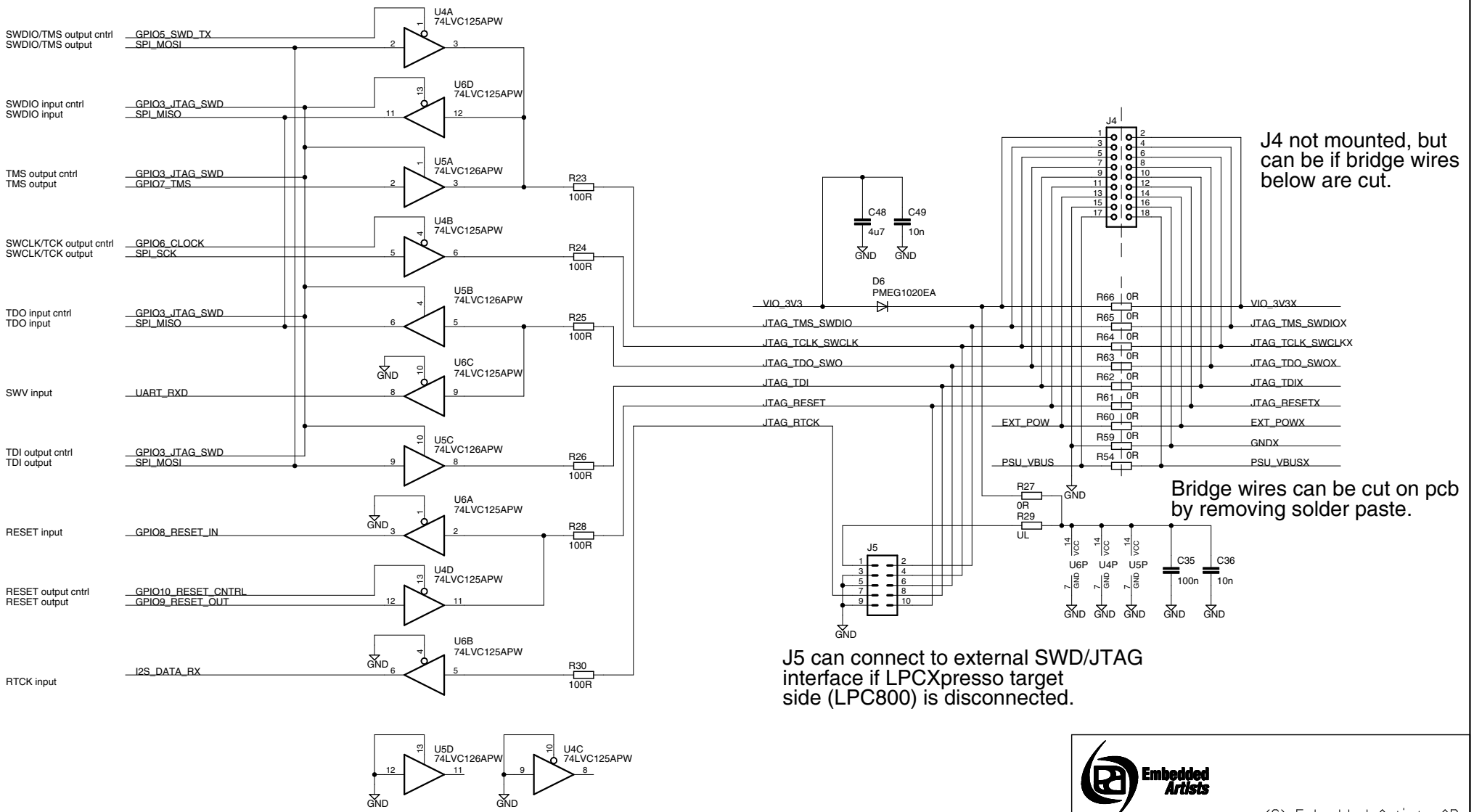
# SWD/JTAG Interface




J4 not mounted, but can be if bridge wires below are cut.

Bridge wires can be cut on pcb by removing solder paste.

J5 can connect to external SWD/JTAG interface if LPCXpresso target side (LPC800) is disconnected.

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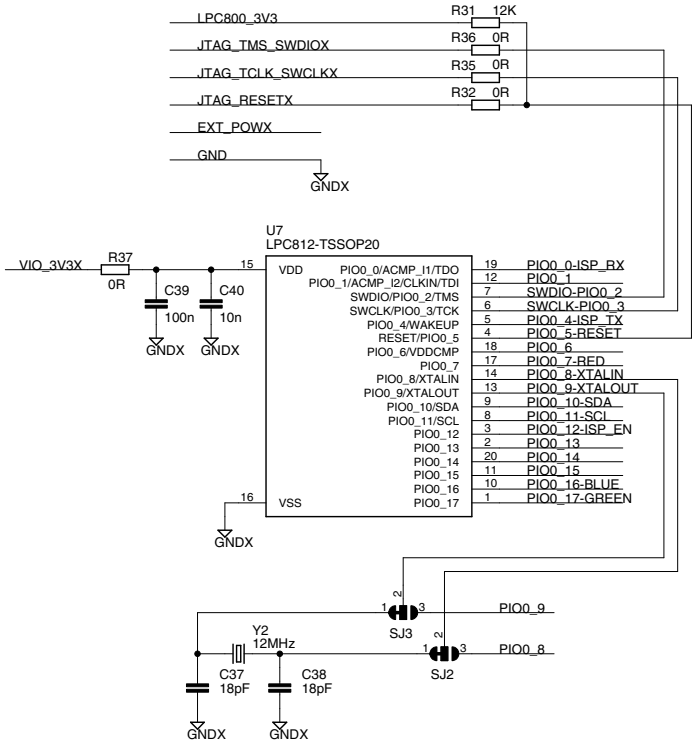
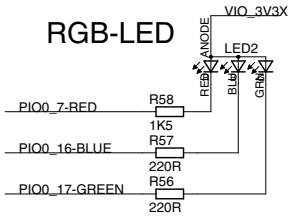
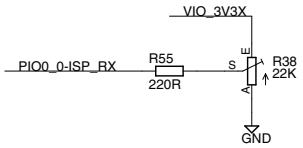
## From LPC-Link Side



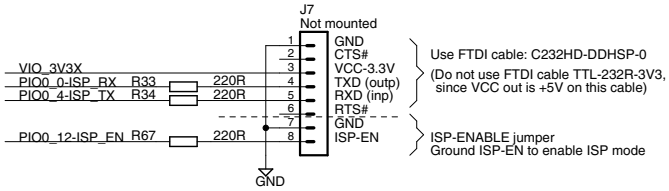

## RGB-LED




## Trimming pot.




## UART header




## LPC800 Target Side

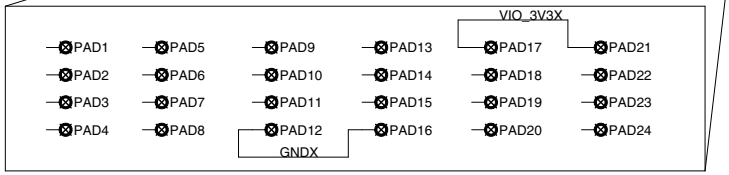
### LPC-Link side

### Expansion Connector (superset of mbed pinning)

Dual row holes (2x27), 100 mil spacing

| mbed | LPCXpresso | | LPC-Link side | | | LPCXpresso | | mbed |
|---|---|---|---|---|---|---|---|---|
| GND | GND | | GNDX | J6-1 | J6-28 | VOUT (+3.3V out) if self powered, else +3.3V input | | VOUT (3.3V out) |
| VIN (4.5-14V) | VIN (4.5-5.5V) | | EXT_POWX | J6-2 | J6-29 | not used | | VU (5.0V USB out) |
| VB (battery supply) | not used | | | J6-3 | J6-30 | not used | | IF+ |
| nR (reset) | PIO0_5 | RESET | PIO0_5-RESET | J6-4 | J6-31 | not used | | IF- |
| SPI1-MOSI | PIO0_14 | MOSI | PIO0_14 | J6-5 | J6-32 | not used | | RD- (Ethernet) |
| SPI1-MISO | PIO0_6 | MISO | PIO0_6 | J6-6 | J6-33 | not used | | RD+ (Ethernet) |
| SPI1-SCK | PIO0_12 | SCK | PIO0_12-ISP_EN | J6-7 | J6-34 | not used | | TD- (Ethernet) |
| GPIO | PIO0_13 | SSEL | PIO0_13 | J6-8 | J6-35 | not used | | TD+ (Ethernet) |
| UART1-TX / I2C1-SDA | PIO0_4 | TXD | PIO0_4-ISP_TX | J6-9 | J6-36 | not used | | D- (USB) |
| UART1-RX / I2C1-SCL | PIO0_0 | RXD | PIO0_0-ISP_RX | J6-10 | J6-37 | not used | | D+ (USB) |
| SPI2-MOSI | | | | J6-11 | J6-38 | PIO0_1 | | CAN-RD |
| SPI2-MISO | | | | J6-12 | J6-39 | PIO0_3 | | CAN-TD |
| SPI2-SCL / UART2-TX | | | | J6-13 | J6-40 | PIO0_10 | I2C-SDA | UART3-TX / I2C2-SDA |
| UART2-RX | | | | J6-14 | J6-41 | PIO0_11 | I2C-SCL | UART3-RX / I2C2-SCL |
| AIN0 | PIO0_15 | | PIO0_15 | J6-15 | J6-42 | PIO0_8 | | PWMOUT0 |
| AIN1 | PIO0_1 | AIN | PIO0_1 | J6-16 | J6-43 | PIO0_17 | | PWMOUT1 |
| AIN2 | PIO0_9 | | PIO0_9 | J6-17 | J6-44 | PIO0_16 | | PWMOUT2 |
| AIN3 / AOUT | PIO0_7 | | PIO0_7-RED | J6-18 | J6-45 | PIO2_3 | | PWMOUT3 |
| AIN4 | PIO0_2 | SWDIO | SWDIO-PIO0_2 | J6-19 | J6-46 | PIO2_6 | | PWMOUT4 |
| AIN5 | | | | J6-20 | J6-47 | not used | | PWMOUT5 |
| | | | | J6-21 | J6-48 | not used | | |
| | | | | J6-22 | J6-49 | PIO2_7 | | |
| | | | | J6-23 | J6-50 | PIO2_8 | | |
| | PIO0_3 | SWCLK | SWCLK-PIO0_3 | J6-24 | J6-51 | not used | | |
| | | | | J6-25 | J6-52 | PIO2_10 | | |
| | | | | J6-26 | J6-53 | not used | | |
| | | | | J6-27 | J6-54 | GNDX | | GND |

Prototype Area

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