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LPC3154 Powering and Unused parts

Page 3

LPC3154 Digital I/O

Page 4

JTAG Interface

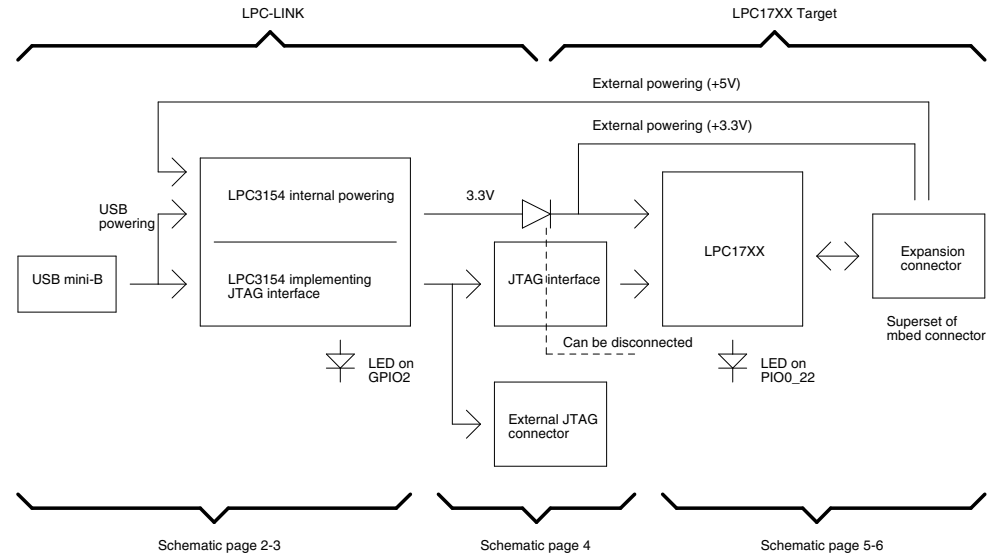
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LPC17XX with Expansion connector

Page 6

LPC17XX

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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TITLE: LPCXpresso LPC1768 rev A

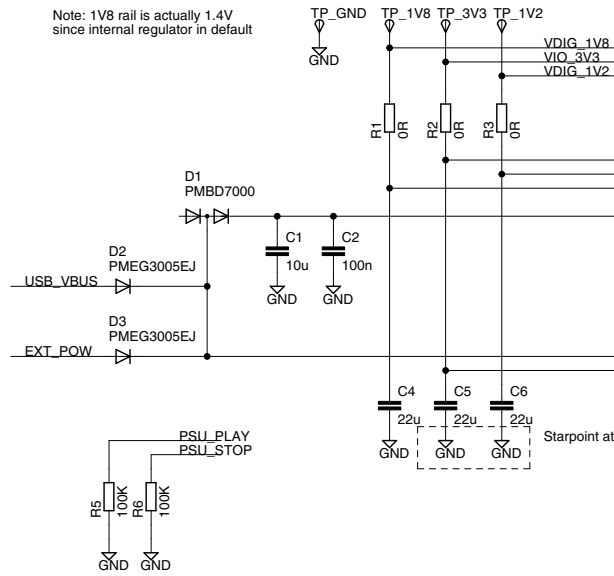
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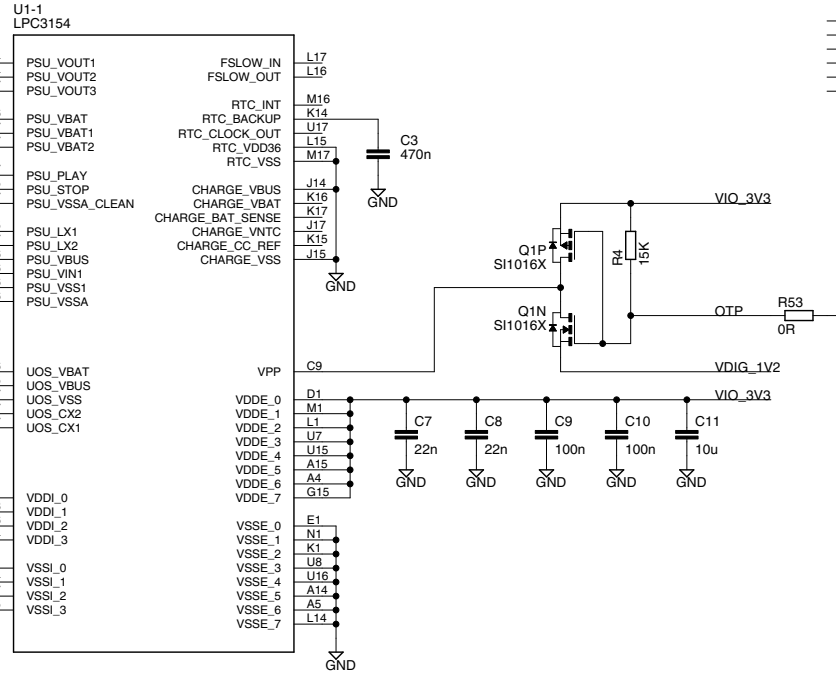
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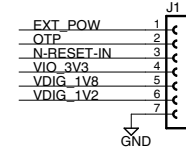
Note: 1V8 rail is actually 1.4V since internal regulator in default



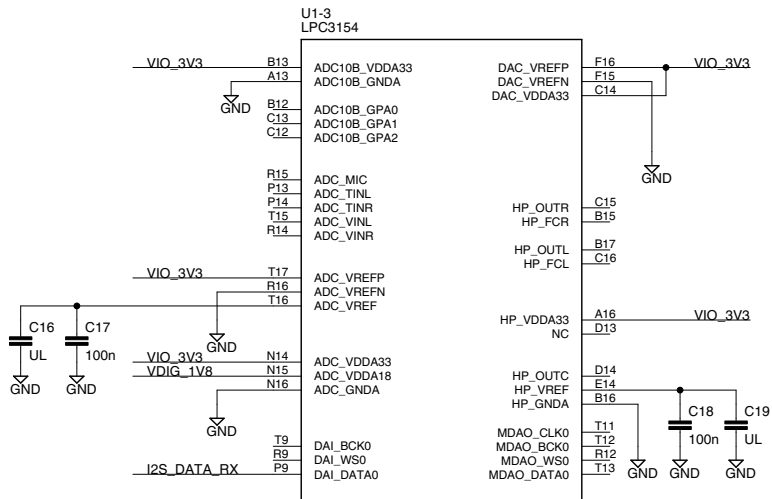
Power supply parts of LPC3154



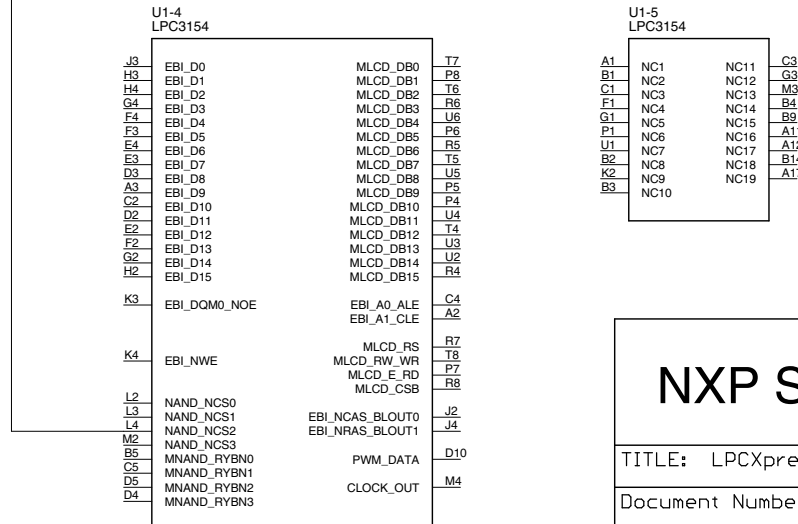
Production test connector



Analog parts of LPC3154



Not used parts of LPC3154



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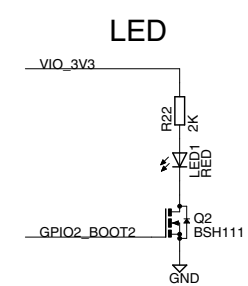
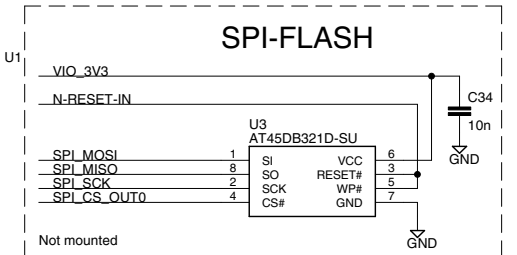
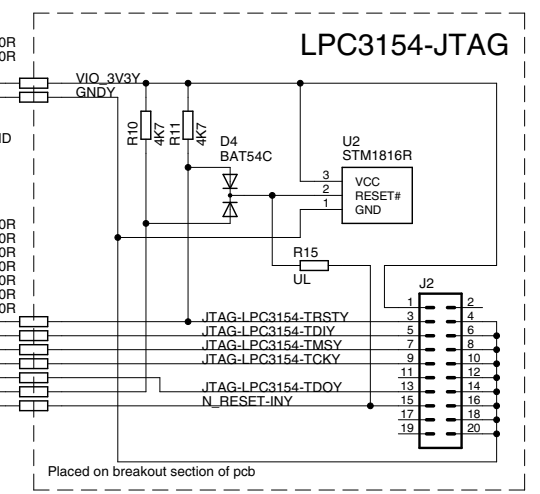
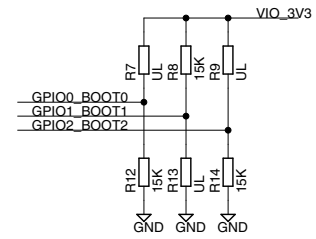
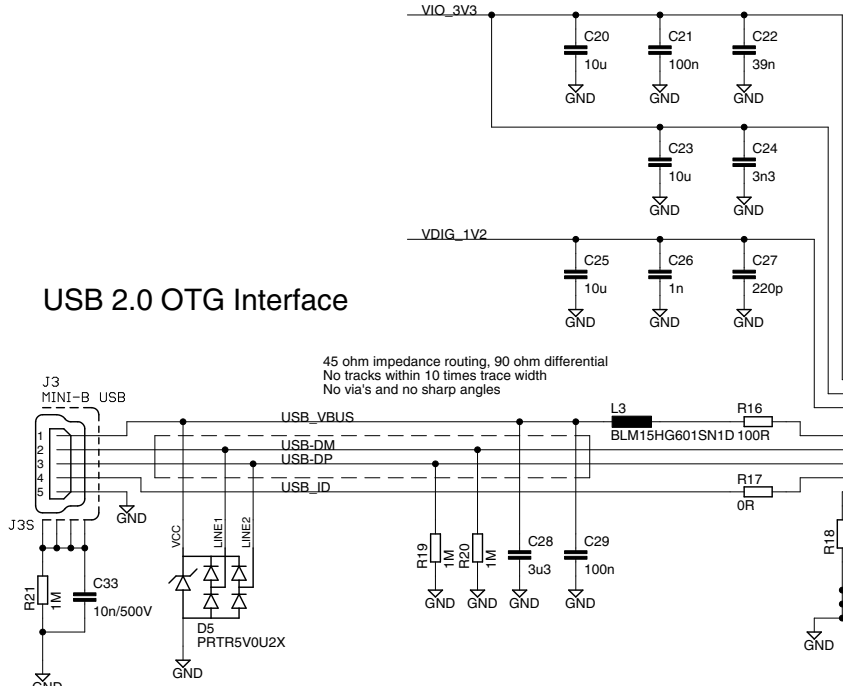
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Boot mode - USB via DFU class

USB 2.0 OTG Interface



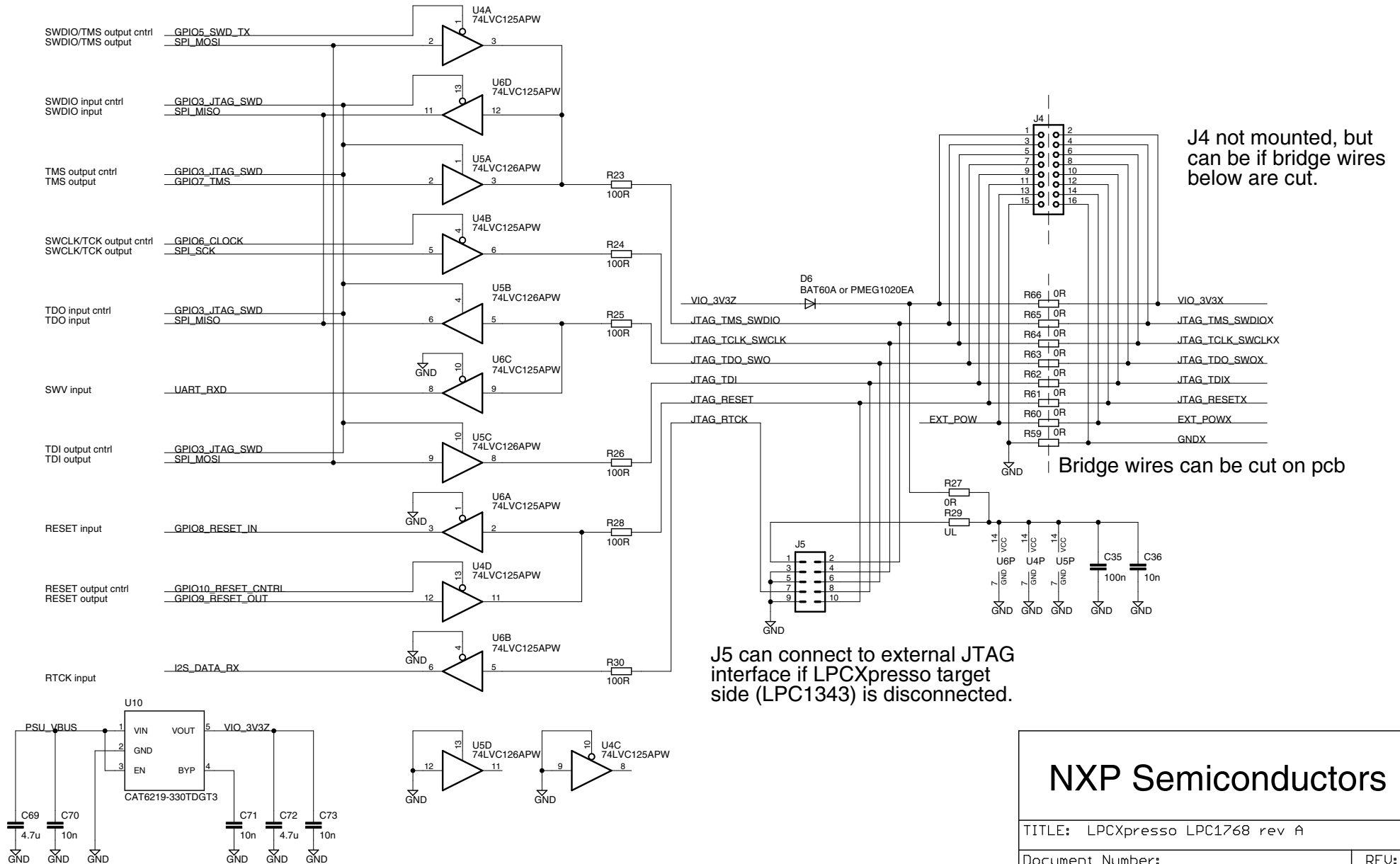
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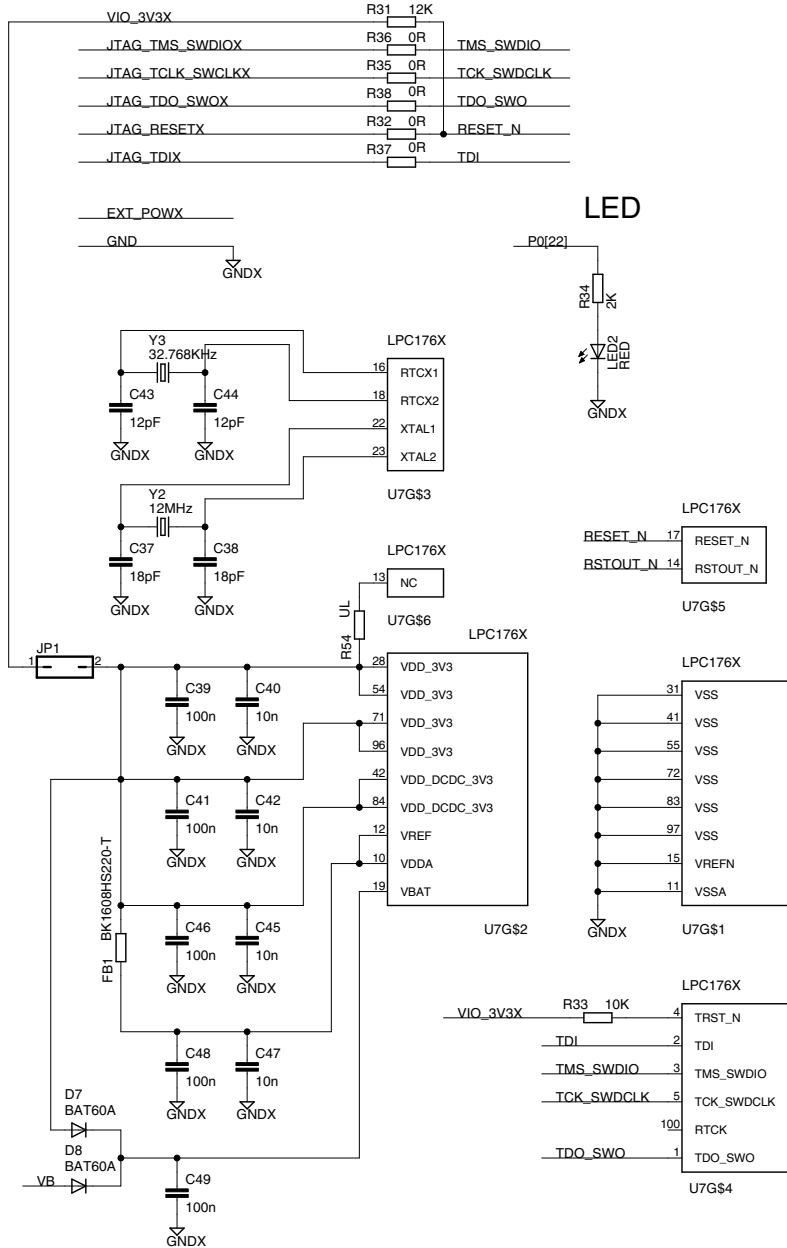
JTAG Interface



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From LPC-LINK Side

LPC1XXX Target Side



Expansion Connector (superset of mbed pinning)

| mbed | LPCXpresso |
|---------------------|---------------------|
| GND | GND |
| VIN (4.5-14V) | VIN (4.5-5.5V) |
| VB (battery supply) | VB (battery supply) |
| nR (reset) | RESET_N |
| SPI1-MOSI | P0.9 MOSI1 |
| SPI1-MISO | P0.8 MISO1 |
| SPI1-SCK | P0.7 SCK1 |
| GPIO | P0.6 SSEL1 |
| UART1-TX / I2C1-SDA | P0.0 TXD3/SDA1 |
| UART1-RX / I2C1-SCL | P0.1 RXD3/SCL1 |
| SPI2-MOSI | P0.18 MOSI0 |
| SPI2-MISO | P0.17 MISO0 |
| SPI2-SCL / UART2-TX | P0.15 TXD1/SCK0 |
| UART2-RX | P0.16 RXD1/SSEL0 |
| AIN0 | P0.23 AD0.0 |
| AIN1 | P0.24 AD0.1 |
| AIN2 | P0.25 AD0.2 |
| AIN3 / AOUT | P0.26 AD0.3/AOUT |
| AIN4 | P1.30 AD0.4 |
| AIN5 | P1.31 AD0.5 |
| | P0.2 |
| | P0.3 |
| | P0.21 |
| | P0.22 |
| | P0.27 |
| | P0.28 |
| | P2.13 |

Dual row holes (2x27), 100 mil spacing

| | | | |
|----------|-------|----------|-------|
| GNDX | J6-1 | VIO_3V3X | J6-28 |
| EXT_POWX | J6-2 | | J6-29 |
| VB | J6-3 | | J6-30 |
| RESET_N | J6-4 | | J6-31 |
| P0[9] | J6-5 | RD- | J6-32 |
| P0[8] | J6-6 | RD+ | J6-33 |
| P0[7] | J6-7 | TD- | J6-34 |
| P0[6] | J6-8 | TD+ | J6-35 |
| P0[0] | J6-9 | USB-D- | J6-36 |
| P0[1] | J6-10 | USB-D+ | J6-37 |
| P0[18] | J6-11 | P0.4 | J6-38 |
| P0[17] | J6-12 | P0.5 | J6-39 |
| P0[15] | J6-13 | P0.10 | J6-40 |
| P0[16] | J6-14 | P0.11 | J6-41 |
| P0[23] | J6-15 | P2[0] | J6-42 |
| P0[24] | J6-16 | P2[1] | J6-43 |
| P0[25] | J6-17 | P2[2] | J6-44 |
| P0[26] | J6-18 | P2[3] | J6-45 |
| P1[30] | J6-19 | P2[4] | J6-46 |
| P1[31] | J6-20 | P2[5] | J6-47 |
| P0[2] | J6-21 | P2[6] | J6-48 |
| P0[3] | J6-22 | P2[7] | J6-49 |
| P0[21] | J6-23 | P2[8] | J6-50 |
| P0[22] | J6-24 | P2[10] | J6-51 |
| P0[27] | J6-25 | P2[11] | J6-52 |
| P0[28] | J6-26 | P2[12] | J6-53 |
| P2[13] | J6-27 | GNDX | J6-54 |

| LPCXpresso | mbed |
|--|-------------------|
| VOUT (+3.3V out) if self powered, else +3.3V input | VOUT (3.3V out) |
| not used | VU (5.0V USB out) |
| not used | IF+ |
| not used | IF- |
| RD- | RD- (Ethernet) |
| RD+ | RD+ (Ethernet) |
| TD- | TD- (Ethernet) |
| TD+ | TD+ (Ethernet) |
| USB-D- | D- (USB) |
| USB-D+ | D+ (USB) |
| P0.4 | CAN_RX2 |
| P0.5 | CAN_TX2 |
| P0.10 | TXD2/SDA2 |
| P0.11 | RXD2/SCL2 |
| P2.0 | PWM1.1 |
| P2.1 | PWM1.2 |
| P2.2 | PWM1.3 |
| P2.3 | PWM1.4 |
| P2.4 | PWM1.5 |
| P2.5 | PWM1.6 |
| P2.6 | |
| P2.7 | |
| P2.8 | |
| P2.10 | |
| P2.11 | |
| P2.12 | |
| GND | |

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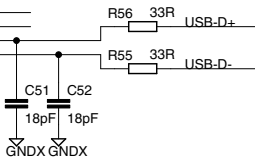
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| | | |
|------------------------------|----|--------|
| P0.0_RD1_TXD3_SDA1 | 46 | P0[0] |
| P0.1_TD1_RXD3_SCL1 | 47 | P0[1] |
| P0.2_TXD0_ADO.7 | 98 | P0[2] |
| P0.3_RXD0_ADO.6 | 99 | P0[3] |
| P0.4_I2SRX-CLK_RD2_CAP2.0 | 81 | P0[4] |
| P0.5_I2SRX-WS_TD2_CAP2.1 | 80 | P0[5] |
| P0.6_I2SRX-SDA_SSEL1_MAT2.0 | 79 | P0[6] |
| P0.7_I2STX-CLK_SCK1_MAT2.1 | 78 | P0[7] |
| P0.8_I2STX-WS_MISO1_MAT2.2 | 77 | P0[8] |
| P0.9_I2STX-SDA_MOSI1_MAT2.3 | 76 | P0[9] |
| P0.10_TXD2_SDA2_MAT3.0 | 48 | P0[10] |
| P0.11_RXD2_SCL2_MAT3.1 | 49 | P0[11] |
| P0.15_TXD1_SCK0_SCK | 62 | P0[15] |
| P0.16_RXD1_SSEL0_SSEL | 63 | P0[16] |
| P0.17_CTS1_MISO0_MISO | 61 | P0[17] |
| P0.18_DCD1_MOSI0_MOSI | 60 | P0[18] |
| P0.19_DSR1_SDA1 | 59 | P0[19] |
| P0.20_DTR1_SCL1 | 58 | P0[20] |
| P0.21_RI1_RD1 | 57 | P0[21] |
| P0.22_RTS1_TD1 | 56 | P0[22] |
| P0.23_ADO.0_I2SRX-CLK_CAP3.0 | 9 | P0[23] |
| P0.24_ADO.1_I2SRX-WS_CAP3.1 | 8 | P0[24] |
| P0.25_ADO.2_I2SRX-SDA_TXD3 | 7 | P0[25] |
| P0.26_ADO.3_AOUT_RXD3 | 6 | P0[26] |
| P0.27_SDA0_USB_SDA1 | 25 | P0[27] |
| P0.28_SCL0_USB_SCL1 | 24 | P0[28] |
| P0.29_USB-D+ | 23 | P0[29] |
| P0.30_USB-D- | 20 | P0[30] |

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LPC176X

| | | |
|---------------------------------|----|--------|
| P1.0_ENET-TXD0 | 95 | P1[0] |
| P1.1_ENET-TXD1 | 94 | P1[1] |
| P1.4_ENET-TX_EN | 93 | P1[4] |
| P1.8_ENET-CRS | 92 | P1[8] |
| P1.9_ENET-RXD0 | 91 | P1[9] |
| P1.10_ENET-RXD1 | 90 | P1[10] |
| P1.14_ENET-RX_ER | 89 | P1[14] |
| P1.15_ENET-REF_CLK | 88 | P1[15] |
| P1.16_ENET-MDC | 87 | P1[16] |
| P1.17_ENET-MDIO | 86 | P1[17] |
| P1.18_USB-UP-LED_PWM1.1_CAP1.0 | 32 | P1[18] |
| P1.19_MC0A_USB-PWR-N_CAP1.1 | 33 | P1[19] |
| P1.20_MCFB0_PWM1.2_SCK0 | 34 | P1[20] |
| P1.21_MCAOBORT_PWM1.3_SSEL0 | 35 | P1[21] |
| P1.22_MC0B_USB-PWRD_MAT1.0 | 36 | P1[22] |
| P1.23_MCFB1_PWM1.4_MISO0 | 37 | P1[23] |
| P1.24_MCFB2_PWM1.5_MOSI0 | 38 | P1[24] |
| P1.25_MC1A_MAT1.1 | 40 | P1[25] |
| P1.26_MC1B_PWM1.6_CAP0.0 | 43 | P1[27] |
| P1.27_CLKOUT_USB-OVPCR-N_CAP0.1 | 44 | P1[28] |
| P1.28_MC2A_PCAP1.0_MAT0.0 | 45 | P1[29] |
| P1.29_MC2B_PCAP1.1_MAT0.1 | 21 | P1[30] |
| P1.30_VBUS_ADO.4 | 20 | P1[31] |
| P1.31_SCK1_ADO.5 | 20 | P1[31] |

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| | | |
|-------------------------------|----|--------|
| P2.0_PWM1.1_TXD1 | 75 | P2[0] |
| P2.1_PWM1.2_RXD1 | 74 | P2[1] |
| P2.2_PWM1.3_CTS1_TRACEDATA[3] | 73 | P2[2] |
| P2.3_PWM1.4_DCD1_TRACEDATA[2] | 70 | P2[3] |
| P2.4_PWM1.5_DSR1_TRACEDATA[1] | 69 | P2[4] |
| P2.5_PWM1.6_DTR1_TRACEDATA[0] | 68 | P2[5] |
| P2.6_PCAP1.0_RI1_TRACECLK | 67 | P2[6] |
| P2.7_RD2_RTS1 | 66 | P2[7] |
| P2.8_TD2_TXD2 | 65 | P2[8] |
| P2.9_USB-CONNECT_RXD2 | 64 | P2[9] |
| P2.10_EINT0-N_NMI | 53 | P2[10] |
| P2.11_EINT1-N_I2STX-CLK | 52 | P2[11] |
| P2.12_EINT2-N_I2STX-WS | 51 | P2[12] |
| P2.13_EINT3-N_I2STX-SDA | 50 | P2[13] |

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LPC176X

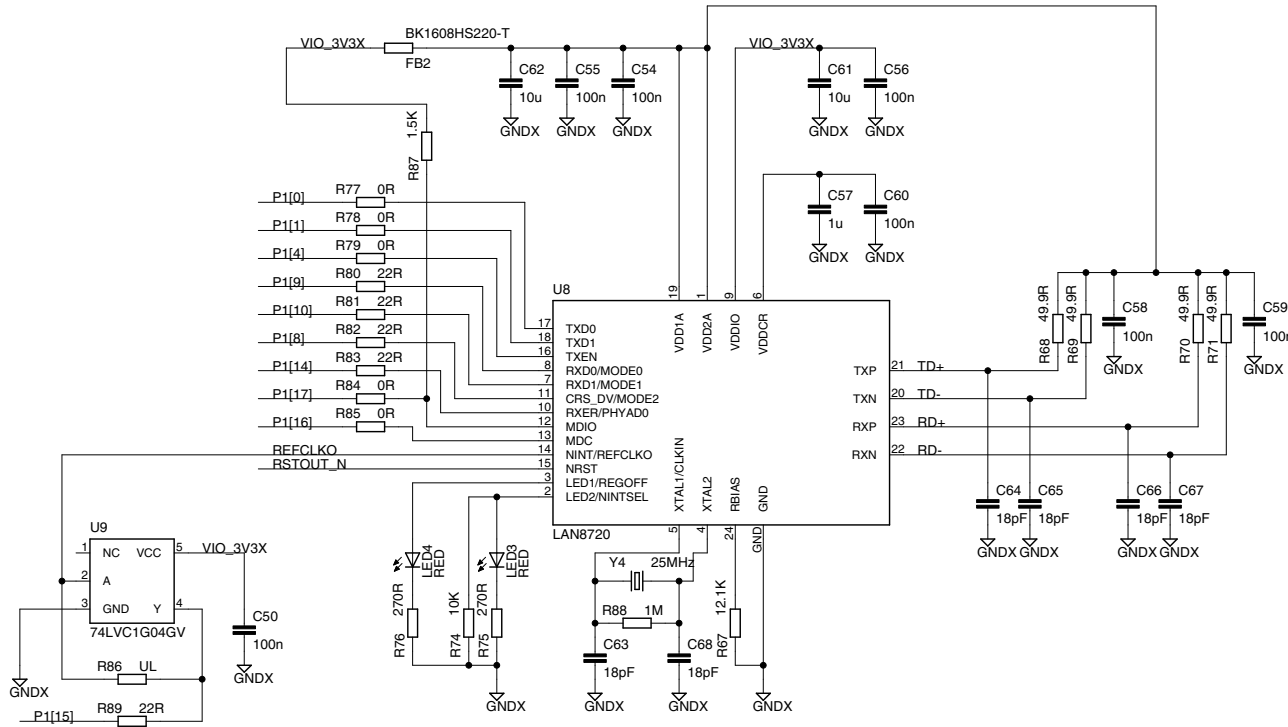
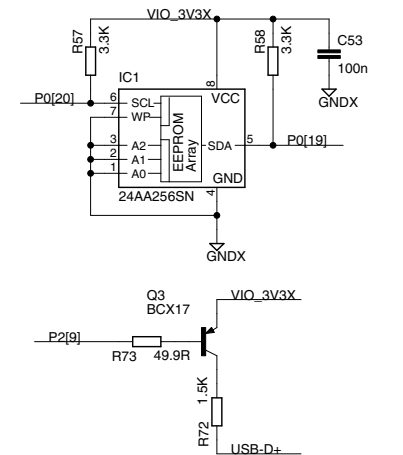
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|---------------------------|----|--------|
| P3.25_MAT0.0_PWM1.2 | 27 | P3[25] |
| P3.26_STCLK_MAT0.1_PWM1.3 | 26 | P3[26] |

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LPC176X

| | | |
|---------------------------|----|--------|
| P4.28_RX-MCLK_MAT2.0_TXD3 | 82 | P4[28] |
| P4.29_TX-MCLK_MAT2.1_RXD3 | 85 | P4[29] |

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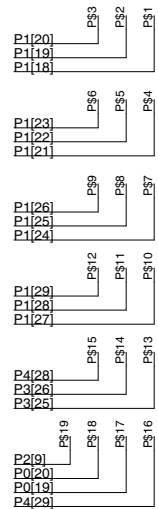
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