

Page 2

CPU, Reset, oscillators, jtag/swd/trace connectors

Page 3

Ethernet interface

Page 4

SDRAM and QSPI-FLASH

Page 5

RF interface socket and 4x LEDs

Page 6

USB interfaces

Page 7

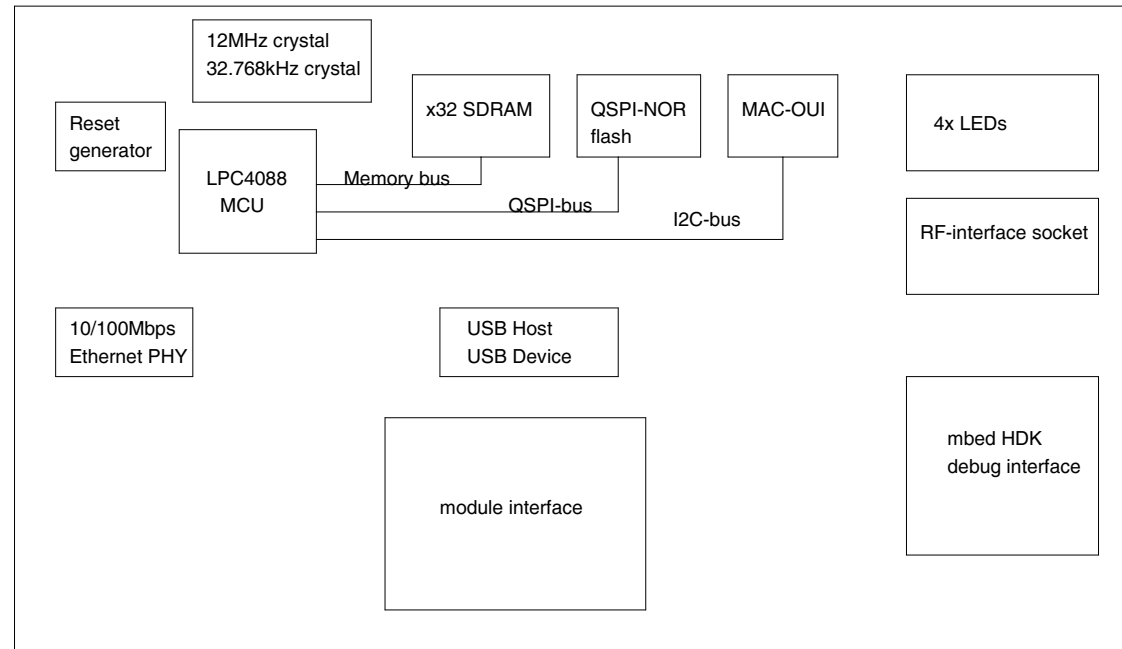
mbed HDK debug interface

Page 8

Supply voltages

Page 9

mbed and display 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 A

First release



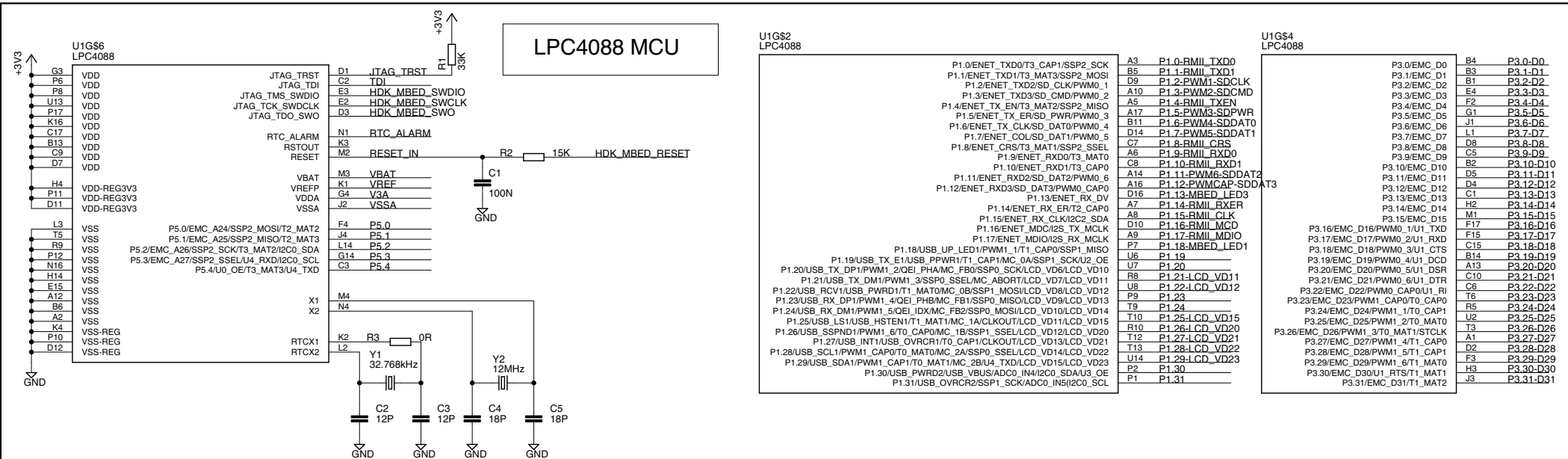
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Sheet: 1/9



U1G\$1 LPC4088

P0.0/CAN_RD1/U3_TXD/I2C1_SDA/U0_TXD	U15	P0.0
P0.1/CAN_TD1/U3_RXD/I2C1_SCL/U0_RXD	T14	P0.1
P0.2/U0_TXD/U3_TXD	G4	HDK_MBED_TX
P0.3/U0_RXD/U3_RXD	D6	HDK_MBED_RX
P0.4/I2S_RX_SCK/CAN_RD2/T2_CAP0/LCD_VD0	B12	P0.4-CD_VD0
P0.5/I2S_RX_WS/CAN_TD2/T2_CAP1/LCD_VD1	C12	P0.5-LCD_VD1
P0.6/I2S_RX_SDA/SSP1_SSEL/T2_MAT0/U1_RTS/LCD_VD8	D13	P0.6-LCD_VD8
P0.7/I2S_TX_CLK/SSP1_SCK/T2_MAT1/RTC_EV0/LCD_VD9	C13	P0.7-LCD_VD9
P0.8/I2S_TX_WS/SSP1_MISO/T2_MAT2/RTC_EV1/LCD_VD16	A15	P0.8-LCD_VD16
P0.9/I2S_TX_SDA/SSP1_MOSI/T2_MAT3/RTC_EV2/LCD_VD17	G14	P0.9-LCD_VD17
P0.10/U2_TXD/I2C2_SDA/T3_MAT0/LCD_VD5	T15	P0.10-LCD_VD5
P0.11/U2_RXD/I2C2_SCL/T3_MAT1/LCD_VD10	R14	P0.11-LCD_VD10
P0.12/USB_PPWR2/SSP1_MISO/ADC0_IN6	R1	P0.12
P0.13/USB_UP_LED2/SSP1_MOSI/ADC0_IN7	R2	P0.13-MBED_LED2
P0.14/USB_HSTEN2/SSP1_SSEL/USB_CONNECT2	T7	P0.14
P0.15/U1_TXD/SSP0_SCK/SPIFI_I02	J16	P0.15-SPIFI_I02
P0.16/U1_RXD/SSP0_SSEL/SPIFI_I03	J14	P0.16-SPIFI_I03
P0.17/U1_CTS/SSP0_MISO/SPIFI_I01	K17	P0.17-SPIFI_I01
P0.18/U1_DCD/SSP0_MOSI/SPIFI_I00	K15	P0.18-SPIFI_I00
P0.19/U1_DSR/SD_CLK/I2C1_SDA/LCD_VD13	L17	P0.19-LCD_VD13
P0.20/U1_DTR/SD_CMD/I2C1_SCL/LCD_VD14	M17	P0.20-LCD_VD14
P0.21/U1_RI/SP_PWR/U4_OE/CAN_RD1/U4_CLK	M16	P0.21
P0.22/U1_RTS/SD_DATA/U4_TXD/CAN_TD1/SPIFI_CLK	N17	P0.22-SPIFI_CLK
P0.23/ADC0_IN0/I2S_RX_CLK/T3_CAP0	H1	P0.23-AD_IN0
P0.24/ADC0_IN1/I2S_RX_WS/T3_CAP1	G2	P0.24-AD_IN1
P0.25/ADC0_IN2/I2S_RX_SDA/U3_TXD	F1	P0.25-AD_IN2
P0.26/ADC0_IN3/ADC0_OUT/U3_RXD	T1	P0.26-AD_IN3-DAC
P0.27/I2C0_SDA/U3_SDA1	R3	P0.27-SDA0
P0.28/I2C0_SCL/U3_SCL1	U4	P0.28-SCL0
P0.29/USB_D+1/EINT_0	U4	USB1-DP
P0.30/USB_D-1/EINT_1	R6	USB1-DM
P0.31/USB_D+2	T2	USB2-DP
USB_D-2	U1	USB2-DM

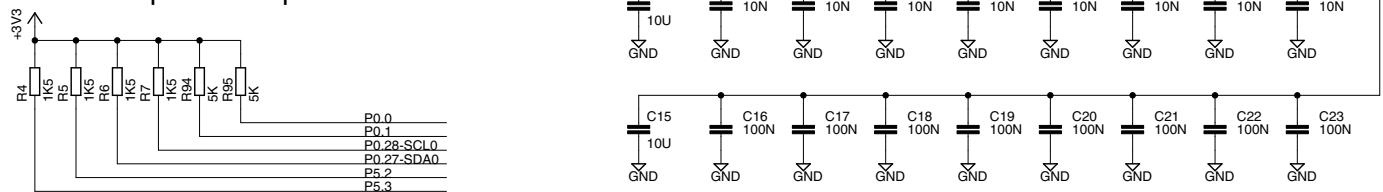
U1G\$3 LPC4088

P2.0/PWM1_1/U1_TXD/LCD_PWR	B17	P2.0-LCD_PWR
P2.1/PWM1_2/U1_RXD/LCD_LE	E14	P2.1-LCD_LE
P2.2/PWM1_3/U1_CTS/T2_MAT3/TRACEDATA3/LCD_DCLK	D15	P2.2-LCD_DCLK
P2.3/PWM1_4/U1_DCD/T2_MAT2/TRACEDATA2/LCD_FP	E16	P2.3-LCD_FP
P2.4/PWM1_5/U1_DSR/T2_MAT1/TRACEDATA1/LCD_ENA	D17	P2.4-LCD_ENA
P2.5/PWM1_6/U1_DTR/T2_MAT0/TRACEDATA0/LCD_LP	F16	P2.5-LCD_LP
P2.6/PWM1_CAP0/U1_RT2_CAP0/UE/TRACECLK/LCD_VD0/LCD_VD4	E17	P2.6-LCD_VD4
P2.7/CAN_RD2/U1_RTS/SPIFI_CS/LCD_VD1/LCD_VD5	G16	P2.7-SPIFI_CS
P2.8/CAN_TD2/U1_CTS/ENET_MDC/LCD_VD2/LCD_VD6	H15	P2.8-LCD_VD6
P2.9/USB_CONNECT1/U2_RXD/U4_RXD/ENET_MDIO/LCD_VD3/LCD_VD7	H16	P2.9-LCD_VD7
P2.10/EINT0/NMI	N15	P2.10
P2.11/EINT1/SD_DATA1/I2S_TX_CLK/LCD_CLKIN	T17	P2.11-LCD_CLKIN
P2.12/EINT2/SD_DATA2/I2S_TX_WS/LCD_VD4/3/8/18	N14	P2.12-LCD_VD18
P2.13/EINT3/SD_DATA3/I2S_TX_SDA/LCD_VD5/9/19	T16	P2.13-LCD_VD19
P2.14/EMC_CS2/I2C1_SDA/T2_CAP0	R12	P2.14-VBUS1
P2.15/EMC_CS3/I2C1_SCL/T2_CAP1	P13	P2.15-OVRCR1
P2.16/EMC_CAS	R11	P2.16-CAS
P2.17/EMC_RAS	R13	P2.17-RAS
P2.18/EMC_CLK0	U3	P2.18-CLKOUT0
P2.19/EMC_CLK1	R7	P2.19-MBED_LED4
P2.20/EMC_DYCS0	T8	P2.20-DYCS0
P2.21/EMC_DYCS1	U11	P2.21
P2.22/EMC_DYCS2/SSP0_SCK/T3_CAP0	U12	P2.22
P2.23/EMC_DYCS3/SSP0_SSEL/T3_CAP1	U5	P2.23
P2.24/EMC_CKE0	P5	P2.24-CKE0
P2.25/EMC_CKE1	R4	P2.25
P2.26/EMC_CKE2/SSP0_MOSI/T3_MAT1	T4	P2.26
P2.27/EMC_CKE3/SSP0_MOSI/T3_MAT1	P3	P2.27
P2.28/EMC_DQM0	P4	P2.28-DQM0
P2.29/EMC_DQM1	N3	P2.29-DQM1
P2.30/EMC_DQM2/I2C2_SDA/T3_MAT2	L4	P2.30-DQM2
P2.31/EMC_DQM3/I2C2_SCL/T3_MAT3	N2	P2.31-DQM3

U1G\$5 LPC4088

P4.0/EMC_A0	U9	P4.0-A0
P4.1/EMC_A1	T10	P4.1-A1
P4.2/EMC_A2	U16	P4.2-A2
P4.3/EMC_A3	R15	P4.3-A3
P4.4/EMC_A4	R15	P4.4-A4
P4.5/EMC_A5	R16	P4.5-A5
P4.6/EMC_A6	M14	P4.6-A6
P4.7/EMC_A7	L16	P4.7-A7
P4.8/EMC_A8	H17	P4.8-A8
P4.9/EMC_A9	H17	P4.9-A9
P4.10/EMC_A10	G17	P4.10-A10
P4.11/EMC_A11	F14	P4.11-A11
P4.12/EMC_A12	C16	P4.12-A12
P4.13/EMC_A13	B16	P4.13-A13
P4.14/EMC_A14	B15	P4.14-A14
P4.15/EMC_A15	U17	
P4.16/EMC_A16	P14	P4.17-RF_RST
P4.17/EMC_A17	P15	P4.18-RF_CD
P4.18/EMC_A18	P16	P4.19-RF_DTR
P4.19/EMC_A19	R17	P4.20-RF_CTS
P4.20/EMC_A20/I2C2_SDA/SSP1_SCK	M15	P4.21-RF_RTS
P4.21/EMC_A21/I2C2_SCL/SSP1_SSEL	K14	P4.22-RF_TXD
P4.22/EMC_A22/U2_TXD/SSP1_MISO	J15	P4.23-RF_RXD
P4.23/EMC_A23/U2_RXD/SSP1_MOSI	B8	
P4.24/EMC_OE	B9	P4.25-WE
P4.25/EMC_VE	L15	
P4.26/EMC_BL11	G15	
P4.27/EMC_BLS1	C11	P4.28-LCD_VD2
P4.28/EMC_BLS2/U3_TXD/T2_MAT0/LCD_VD6/I02	B10	P4.29-LCD_VD3
P4.29/EMC_BLS3/U3_RXD/T2_MAT1/I2C2_SCL/LCD_VD7/I1/3	B7	
P4.30/EMC_CS0	A4	
P4.31/EMC_CS1		

Pull-ups on I2C pins



Place at U1, pin G3, P6, P8, U13, P17, K16, C17, B13, C9, D7, H4, P11, D11

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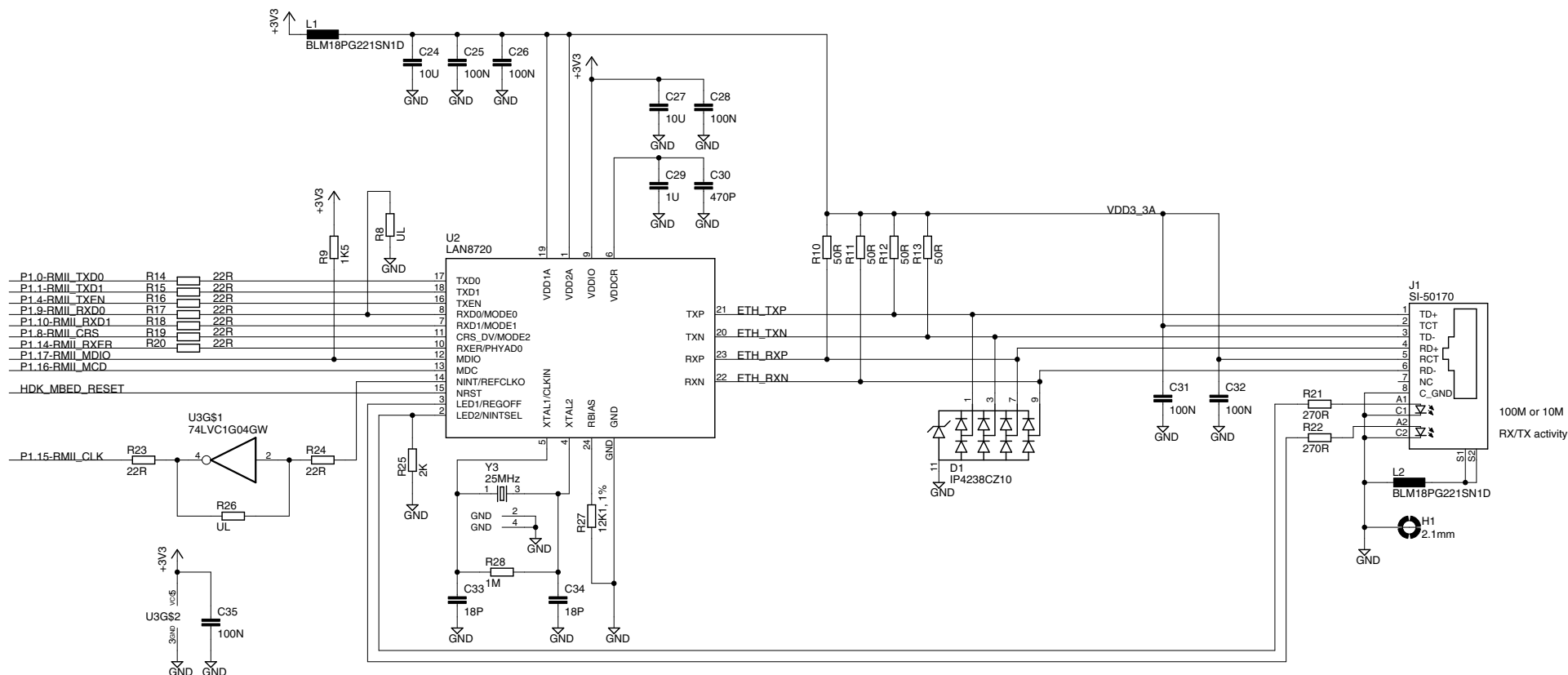
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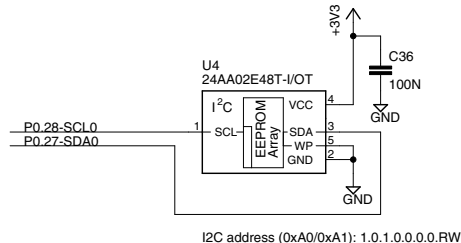
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Sheet: 2/9

100/10M Ethernet PHY

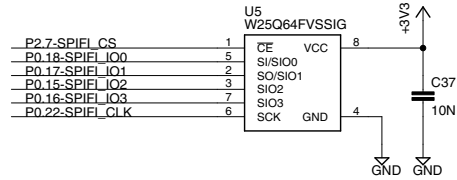


1Kbit I2C-E2PROM with EUI-48

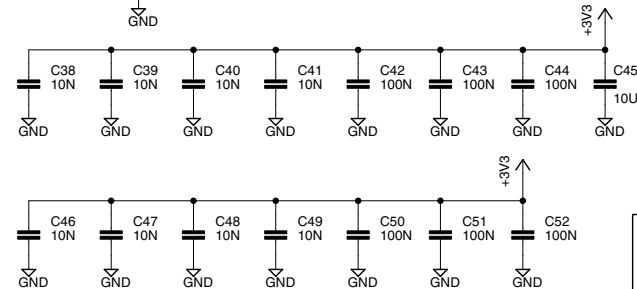
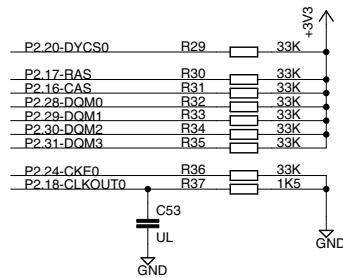
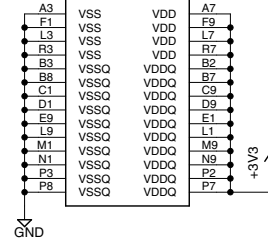
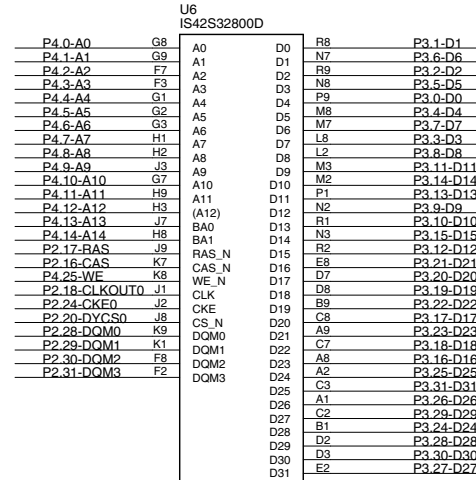



QSPI FLASH and SDRAM

64Mbit QSPI Flash (SPIFI)
(Address range: 0x2800 0000 - 0x28FF FFFF)



256Mbit (32MByte) SDRAM
(Address range: 0xA000 0000 - 0xAFFF FFFF)





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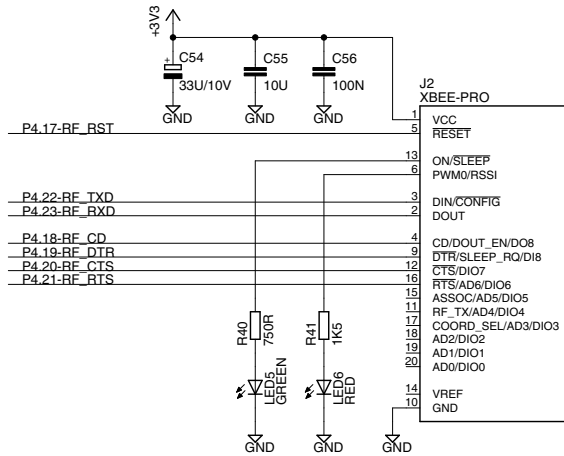
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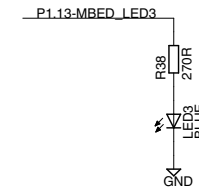
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XBee Interface, Push-button and LEDs

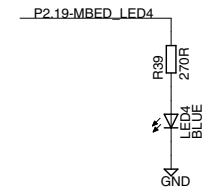
Digi XBee(R) RF-module



mbed LED3

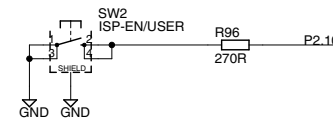


mbed LED4



mbed LED1 and LED2 can be found at USB interfaces

Push-button for ISP enable and User functionality



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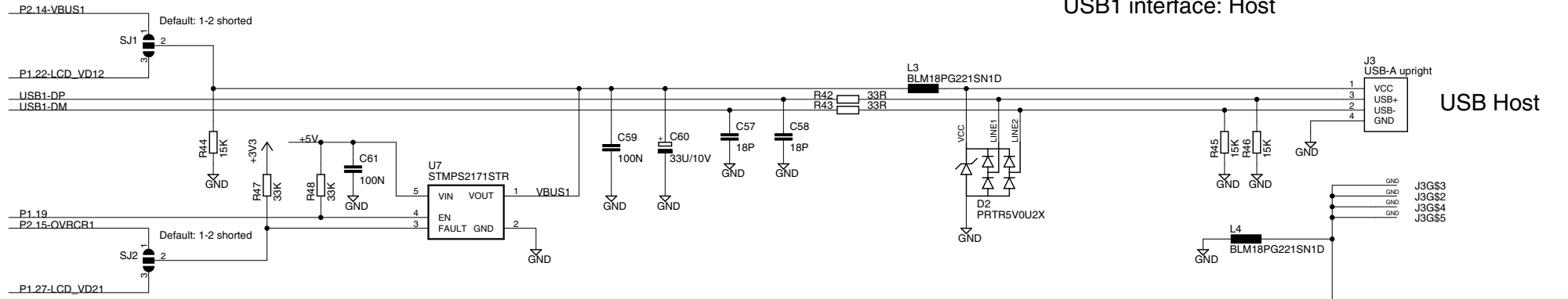
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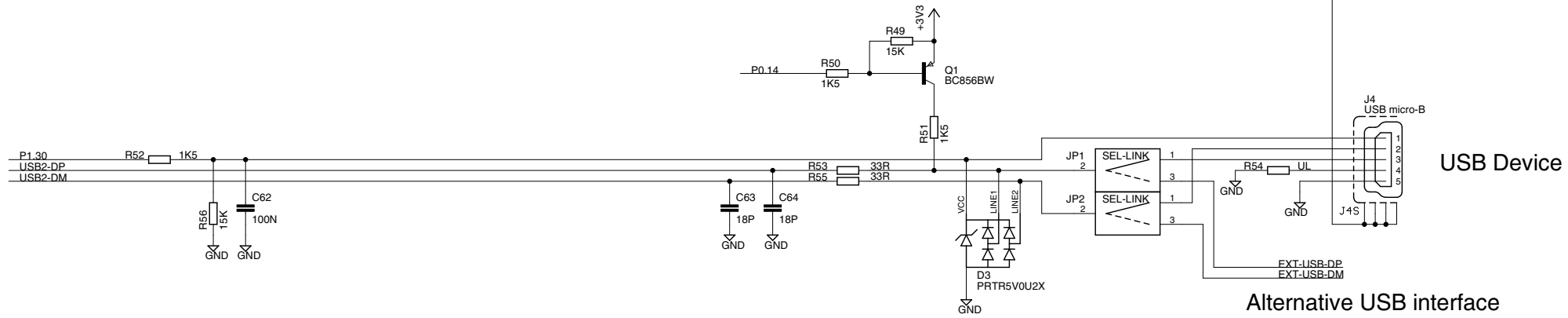
Sheet: 5/9

USB interfaces

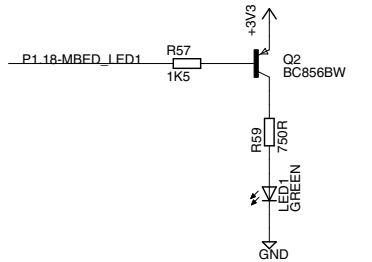
USB1 interface: Host



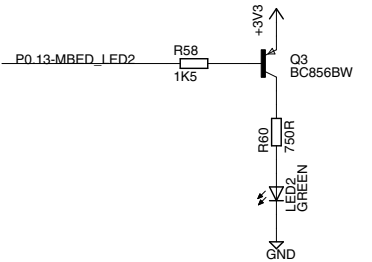
USB2 interface: Device (or external Host)



USB#1 UP and mbed LED1



USB#2 UP and mbed LED2



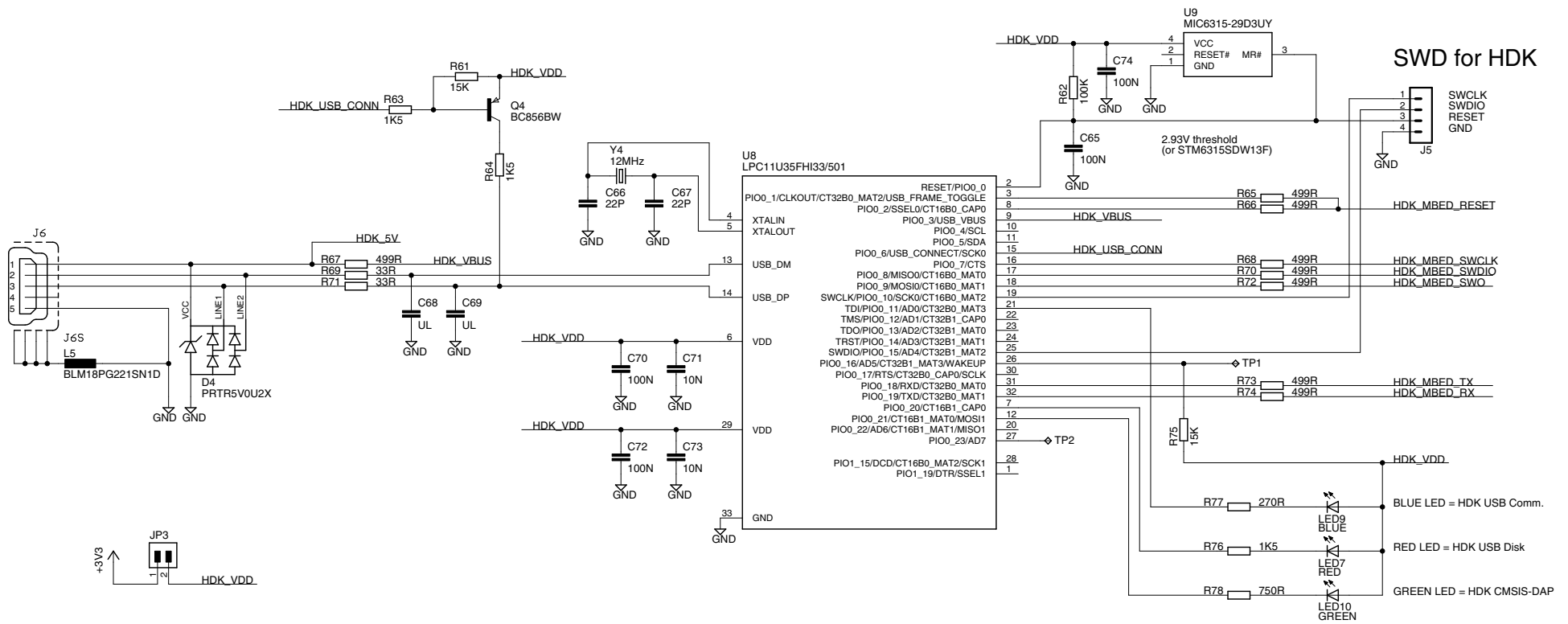
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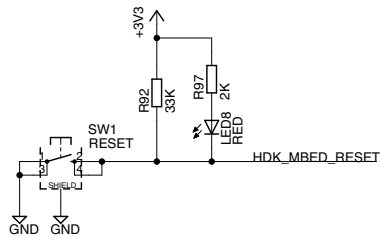
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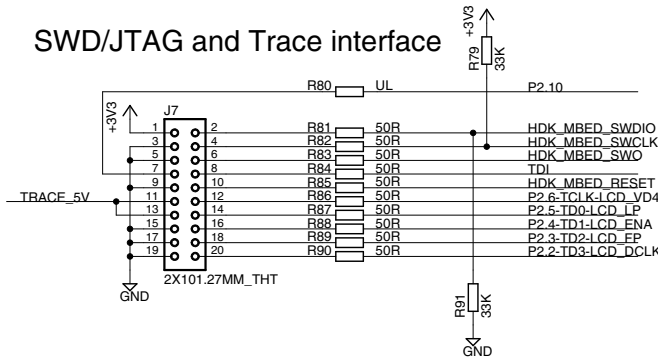
mbed HDK



Reset generation



SWD/JTAG and Trace interface



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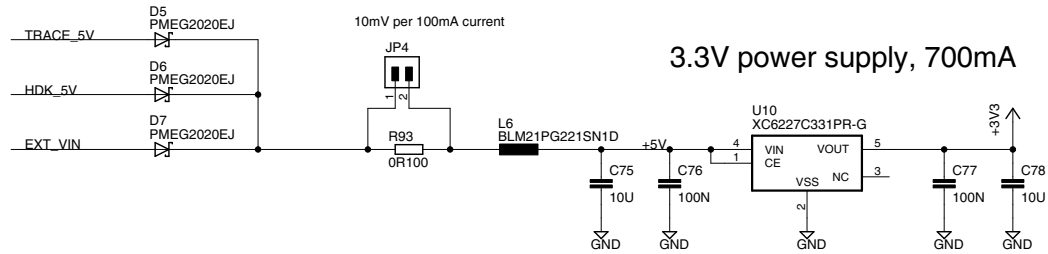
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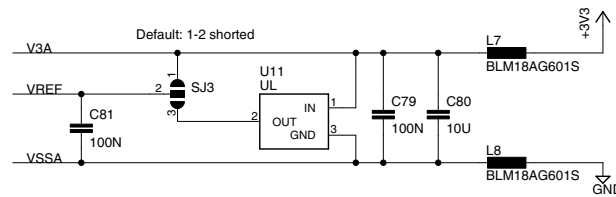
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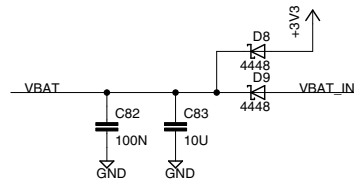
Power supplies



ADC supply and VREF voltage



VBAT supply



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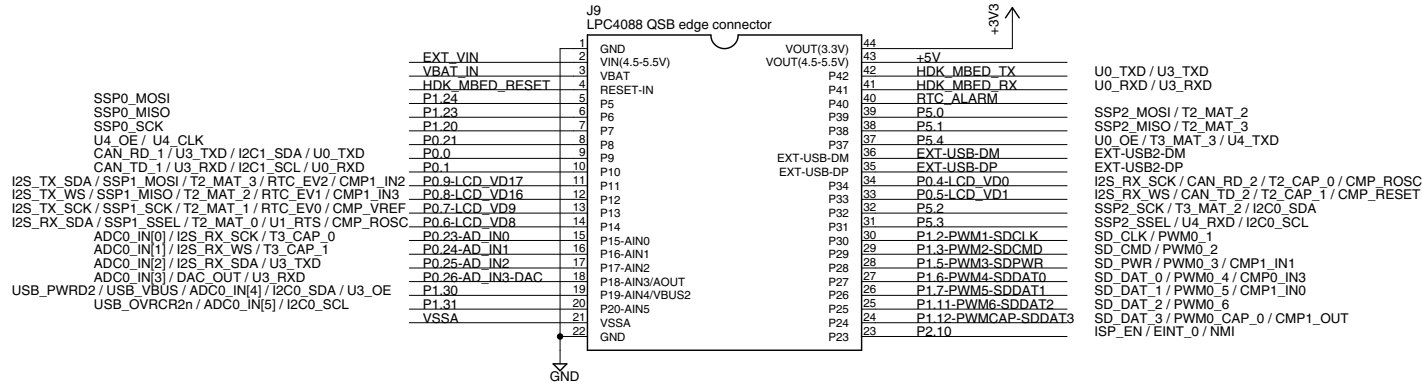
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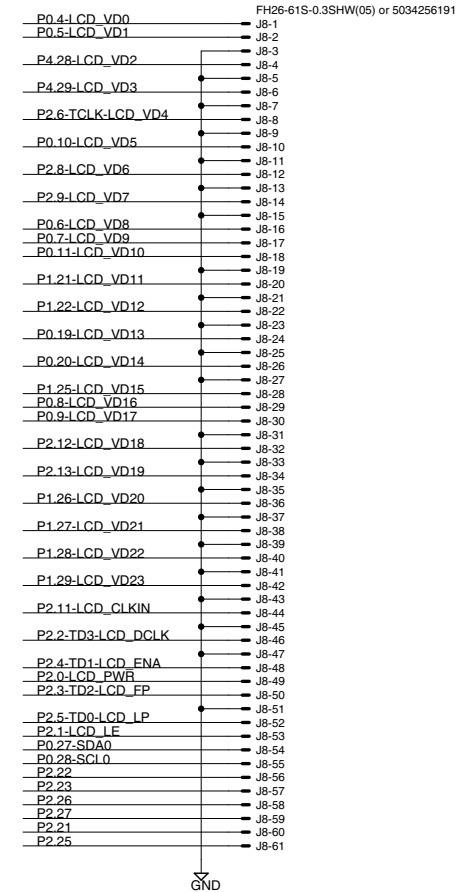
Sheet: 8/9

Expansion Connectors

mbed Interface



Display Interface



mbed LPC1768	LPC4088 QuickStart Board
GND	GND
VIN (4-11V)	VIN (4.5-5.5V) Note reduced voltage range!
VBAT	VBAT
RESET	RESET
SPI1-MOSI	SSP0_MOSI
SPI1-MISO	SSP0_MISO
SPI1-SCK	SSP0_SCK
GPIO	U4_OE / U4_CLK
UART1-TX/I2C1-SDA	CAN_RD_1 / U3_TXD / I2C1_SDA / U0_TXD
UART1-RX/I2C1-SCL	CAN_TD_1 / U3_RXD / I2C1_SCL / U0_RXD
SPI2-MOSI	I2S_TX_SDA / SSP1_MOSI / T2_MAT_3 / RTC_EV2 / CMP1_IN2
SPI2-MISO	I2S_TX_WS / SSP1_MISO / T2_MAT_2 / RTC_EV1 / CMP1_IN3
SPI2-SCK/UART2-TX	I2S_TX_SCK / SSP1_SCK / T2_MAT_1 / RTC_EV0 / CMP_VREF
UART2-RX	I2S_RX_SDA / SSP1_SSEL / T2_MAT_0 / U1_RTS / CMP_ROSC
AIN0	ADC0_IN[0] / I2S_RX_SCK / T3_CAP_0
AIN1	ADC0_IN[1] / I2S_RX_WS / T3_CAP_1
AIN2	ADC0_IN[2] / I2S_RX_SDA / U3_TXD
AIN3/AOUT	ADC0_IN[3] / DAC_OUT / U3_RXD
AIN4	USB_PWRD2 / USB_VBUS / ADC0_IN[4] / I2C0_SDA / U3_OE (Note: used by USB2 Device interface)
AIN5	USB_OVRCR2n / ADC0_IN[5] / I2C0_SCL
	VSSA
	GND

mbed LPC1768	LPC4088 QuickStart Board
VOUT 3.3V	VOUT 3.3V
VOUT 5V	VOUT 5V Note: not current limited!
NC	U0_TXD / U3_TXD
NC	U0_RXD / U3_RXD
ETH-RDN	RTC ALARM
ETH-RDP	SSP2_MOSI / T2_MAT_2
ETH-TDN	SSP2_MISO / T2_MAT_3
ETH-TDP	U0_OE / T3_MAT_3 / U4_TXD
USB-DM	EXT-USB2-DM
USB-DP	EXT-USB2-DP
CAN-RD	I2S_RX_SCK / CAN_RD_2 / T2_CAP_0 / CMP_ROSC
CAN-TD	I2S_RX_WS / CAN_TD_2 / T2_CAP_1 / CMP_RESET
UART3-TX/I2C2-SDA	SSP2_SCK / T3_MAT_2 / I2C0_SDA
UART3-RX/I2C2-SCL	SSP2_SSEL / U4_RXD / I2C0_SCL
PWMOUT0	SD_CLK / PWM0_1
PWMOUT1	SD_CMD / PWM0_2
PWMOUT2	SD_PWR / PWM0_3 / CMP1_IN1
PWMOUT3	SD_DAT_0 / PWM0_4 / CMP0_IN3
PWMOUT4	SD_DAT_1 / PWM0_5 / CMP1_IN0
PWMOUT5	SD_DAT_2 / PWM0_6
	SD_DAT_3 / PWM0_CAP_0 / CMP1_OUT
	ISP_EN / EINT_0 / NMI



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Date: 2013-09-06 12:07:35

Sheet: 9/9