Page 2

LPC-Xpresso connector and Reset

Page 3

Expansion connectors

Page 4

Optional LPC1xxx and JTAG connectors

Page 5

USB, CAN, ETH, RS422/485 interfaces

Page 6

Direct digital I/O peripherals

Page 7

Analog peripherals

Page 8

I2C peripherals

Page 9

SPI peripherals

Page 10

Shared SPI/I2C peripherals

Page 11

USB-to-UART bridge, RF-module, power supply

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 B

Added J60/J61/R216/R217 (page 5) for USB Host i/f.
Added J62 (page 6) to support LPC17xx bootload.
Added J58 (page 10) to support spi i/f to OLED or mbed.

Rev A

First rev

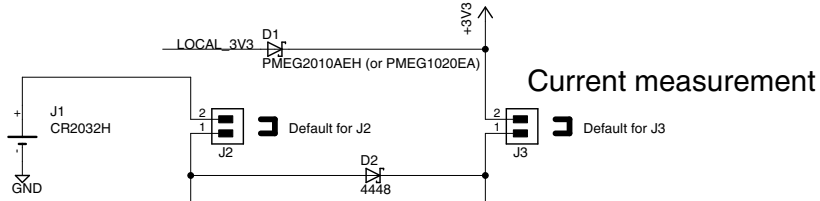
TITLE: LPCXpresso Base Board rev B

Document Number: | REV:

Date: 2010-03-31 10:42:18 | Sheet: 1/11

LPC-Xpresso and mbed connector
(pin naming follow LPC-Xpresso module)

Battery Connector
Note: battery not included!



Current measurement

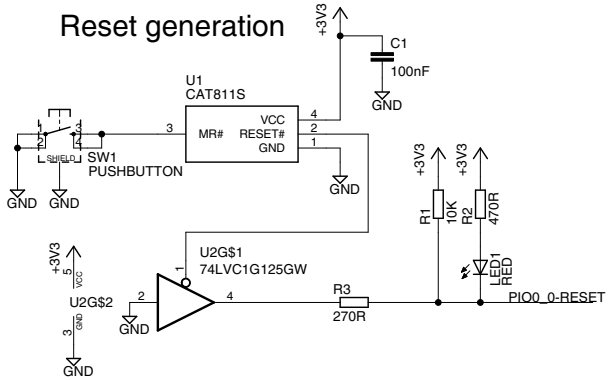
Dual row holes (2x27), 100 mil spacing

mbed module	LPC-Xpresso module
GND	GND
VIN (4.5-14V)	VIN (4.5-5.5V)
VB (battery supply)	not used
nR (reset)	Reset / PIO0_0
SPI1-MOSI	PIO0_9 / MOSI / CT16B0_MAT1 / SWO
SPI1-MISO	PIO0_8 / MISO/CT16B_MAT0
SPI1-SCK	PIO2_11 / SCK
GPIO	PIO0_2 / SSEL / CT16B0_CAP0
UART1-TX / I2C1-SDA	PIO1_7 / TXD / CT32B0_MAT1
UART1-RX / I2C1-SCL	PIO1_6 / RXD / CT32B0_MAT0
SPI2-MOSI	PIO0_7 / CTS
SPI2-MISO	PIO2_0 / DTR
SPI2-SCL / UART2-TX	PIO2_1 / DSR
UART2-RX	PIO2_2 / DCD
AIN0	TDI / PIO0_11 / AD0 / CT32B0_MAT3
AIN1	TMS / PIO1_0 / AD1 / CT32B1_CAP0
AIN2	TDO / PIO1_1 / AD2 / CT32B1_MAT0
AIN3 / AOUT	TRST / PIO1_2 / AD3 / CT32B1_MAT1
AIN4	SWDIO / PIO1_3 / AD4 / CT32B1_MAT2
AIN5	PIO1_4 / AD5 / CT32B1_MAT3 / WAKEUP
	PIO1_5 / RTS / CT32B0_CAP0
	PIO1_8 / CT16B1_CAP0
	PIO0_6 / USB_CONNECT / SCK
	SWCLK / PIO0_10 / SCK / CT16B0_MAT2
	PIO3_0
	PIO3_1
	PIO3_2

GND	J4-1	J4-28	VOUT (+3.3V out) if self powered, else +3.3V input
VIN	J4-2	J4-29	not used
VBAT	J4-3	J4-30	not used
PIO0_0-RESET	J4-4	J4-31	not used
PIO0_9-MOSI	J4-5	ETH_RXN J4-32	not used
PIO0_8-MISO	J4-6	ETH_RXP J4-33	not used
PIO2_11-SCK	J4-7	ETH_TXN J4-34	not used
PIO0_2	J4-8	ETH_TXP J4-35	not used
PIO1_7-TXD	J4-9	USB_DM J4-36	USB_DM PIO2_4 for LPC1114
PIO1_6-RXD	J4-10	USB_DP J4-37	USB_DP PIO2_5 for LPC1114
PIO0_7	J4-11	PIO0_1-BL_EN J4-38	PIO0_1 / CLKOUT / CT32B0_MAT2 / USB_FTOGGLE
PIO2_0	J4-12	PIO0_3-VBUS_SENSE J4-39	PIO0_3 / USB_VBUS
PIO2_1	J4-13	PIO0_5-SDA J4-40	PIO0_5 / SDA
PIO2_2	J4-14	PIO0_4-SCL J4-41	PIO0_4 / SCL
PIO0_11	J4-15	PIO1_9 J4-42	PIO1_9 / CT16B1_MAT0
PIO1_0	J4-16	PIO1_10 J4-43	PIO1_10 / AD6 / CT16B1_MAT1
PIO1_1	J4-17	PIO1_11 J4-44	PIO1_11 / AD7
PIO1_2	J4-18	PIO2_3 J4-45	PIO2_3 / RI
PIO1_3	J4-19	PIO2_4 J4-46	PIO2_4 PIO3_4 for LPC1114
PIO1_4-WAKEUP	J4-20	PIO2_5 J4-47	PIO2_5 PIO3_5 for LPC1114
PIO1_5	J4-21	PIO2_6 J4-48	PIO2_6
PIO1_8	J4-22	PIO2_7 J4-49	PIO2_7
PIO0_6-USB_CONNECT	J4-23	PIO2_8 J4-50	PIO2_8
PIO0_10	J4-24	PIO2_9 J4-51	PIO2_9
PIO3_0	J4-25	PIO2_10 J4-52	PIO2_10
PIO3_1	J4-26	PIO3_3 J4-53	PIO3_3
PIO3_2	J4-27	GND J4-54	GND

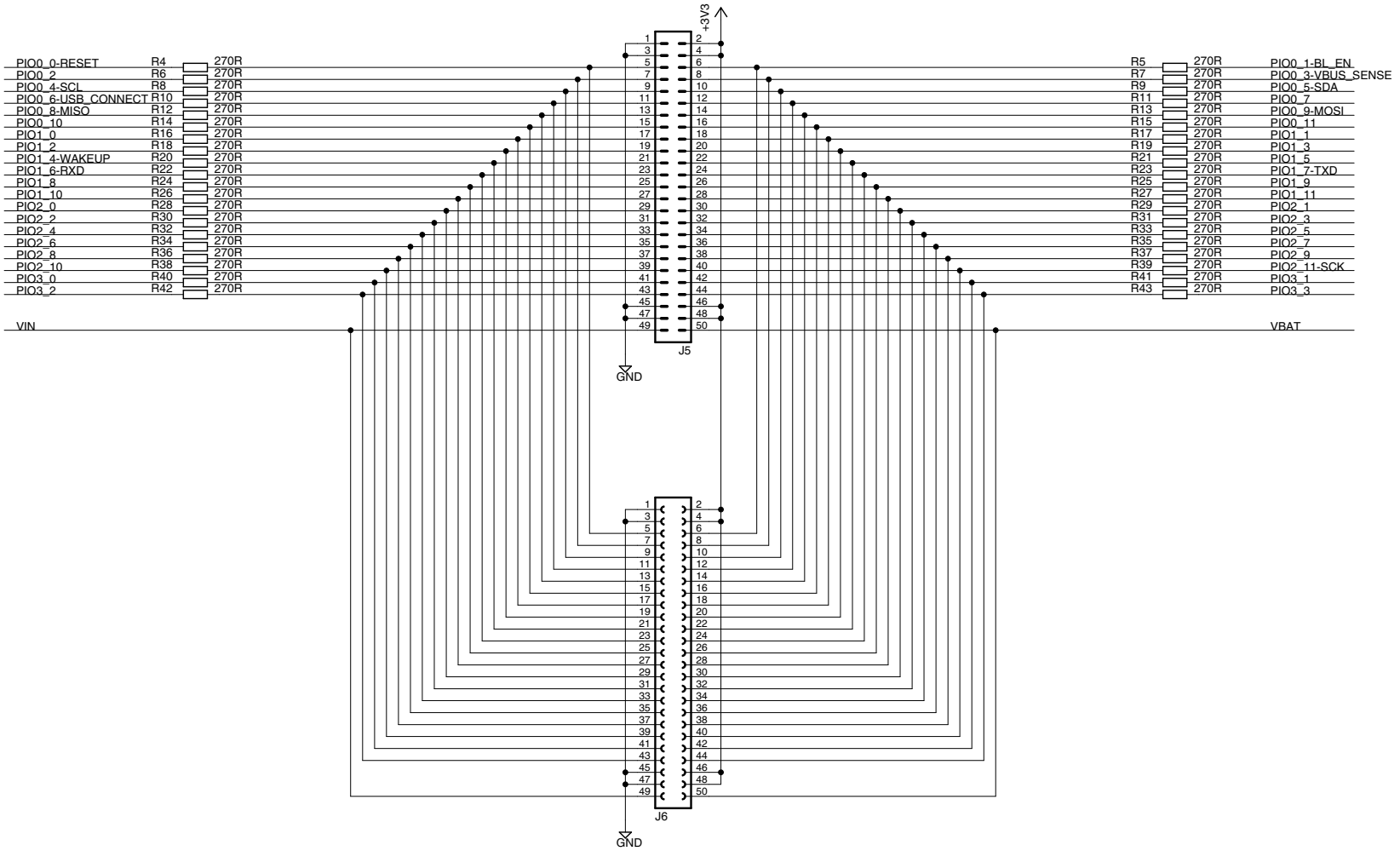
LPC-Xpresso module	mbed module
VOUT (+3.3V out) if self powered, else +3.3V input	VOUT (3.3V out)
not used	VU (5.0V USB out)
not used	IF+
not used	IF-
not used	RD- (Ethernet)
not used	RD+ (Ethernet)
not used	TD- (Ethernet)
not used	TD+ (Ethernet)
USB_DM PIO2_4 for LPC1114	D- (USB)
USB_DP PIO2_5 for LPC1114	D+ (USB)
PIO0_1 / CLKOUT / CT32B0_MAT2 / USB_FTOGGLE	CAN-RD
PIO0_3 / USB_VBUS	CAN-TD
PIO0_5 / SDA	UART3-TX / I2C2-SDA
PIO0_4 / SCL	UART3-RX / I2C2-SCL
PIO1_9 / CT16B1_MAT0	PWMOUT0
PIO1_10 / AD6 / CT16B1_MAT1	PWMOUT1
PIO1_11 / AD7	PWMOUT2
PIO2_3 / RI	PWMOUT3
PIO2_4 PIO3_4 for LPC1114	PWMOUT4
PIO2_5 PIO3_5 for LPC1114	PWMOUT5
PIO2_6	
PIO2_7	
PIO2_8	
PIO2_9	
PIO2_10	
PIO3_3	
GND	

Reset generation



TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 2/11

Expansion Connector

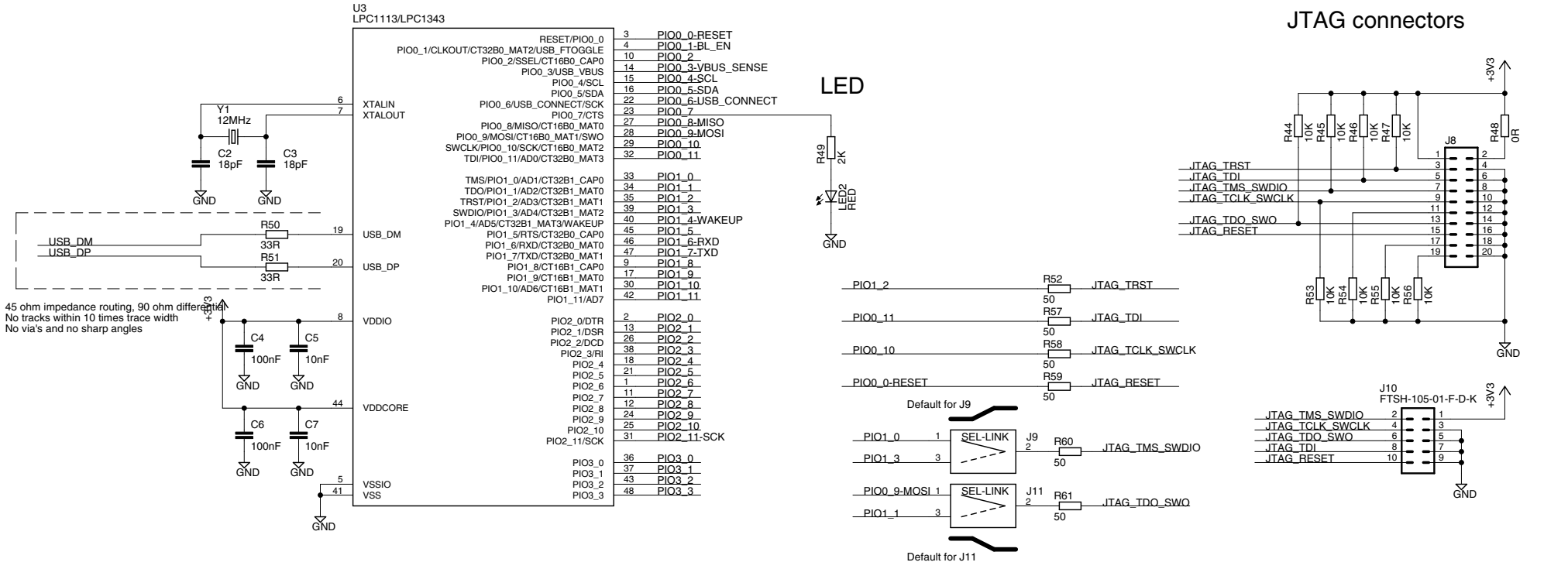


Expansion Connector for Breadboard

(C) Embedded Artists AB

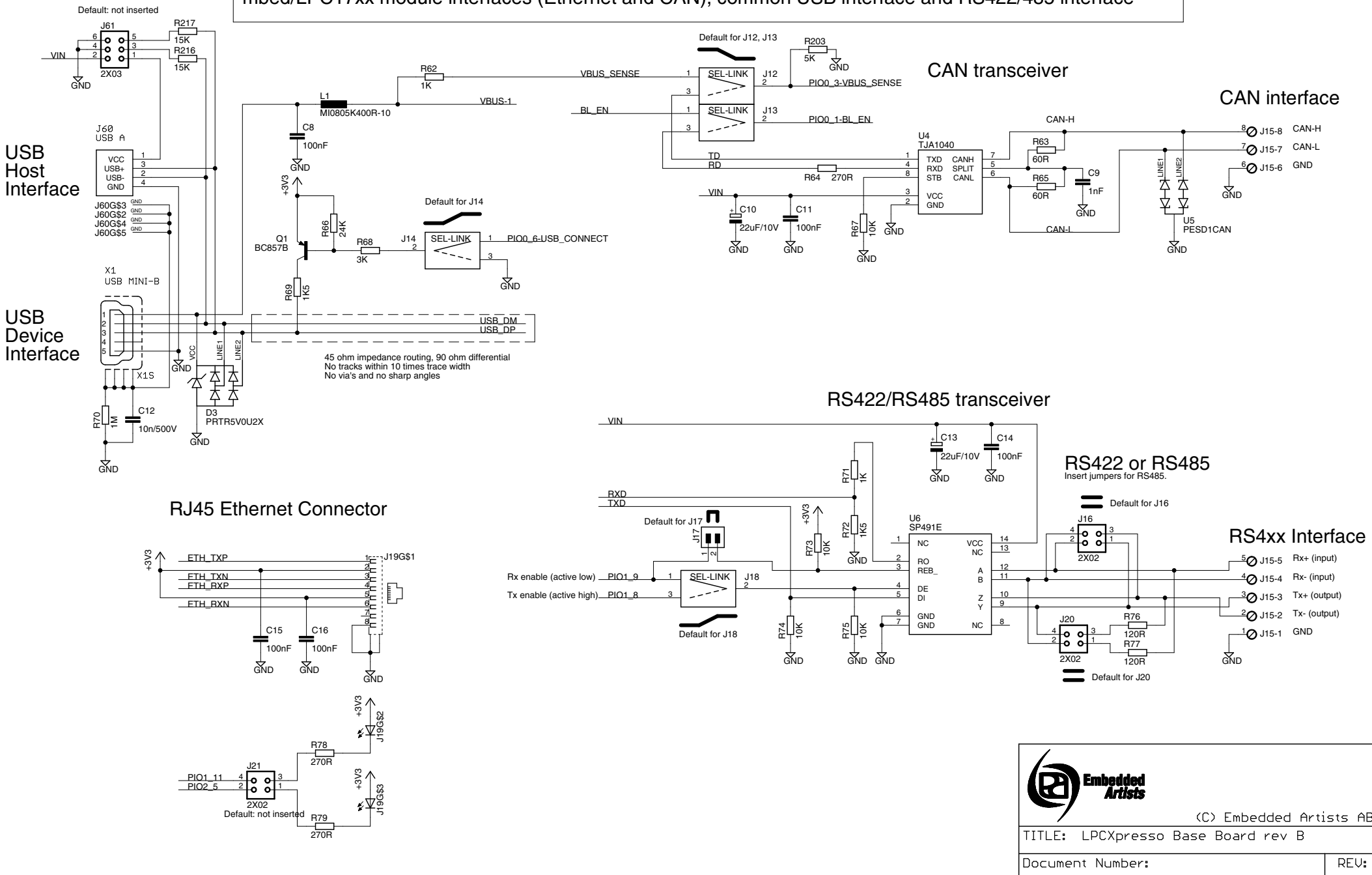
TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 3/11

Optional LPC1113/LPC1343 for standalone boards
(placed inbetween LPCXpresso/mbed connector)



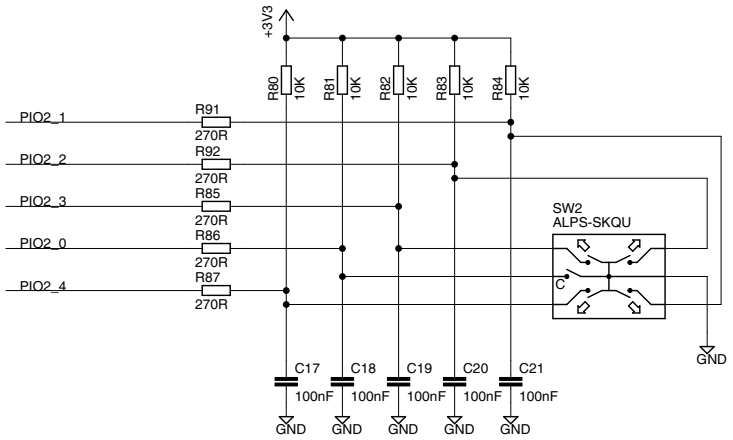
TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 4/11

mbed/LPC17xx module interfaces (Ethernet and CAN), common USB interface and RS422/485 interface

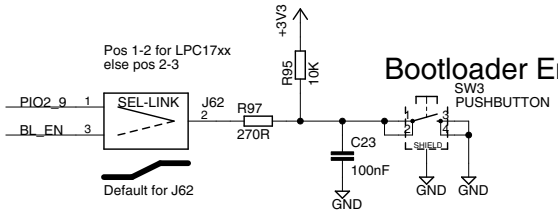


Direct Digital IO peripherals

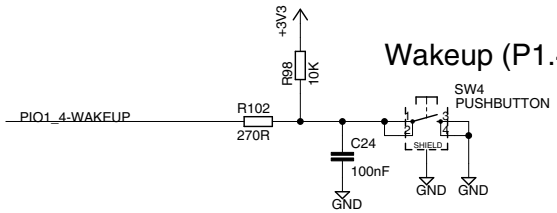
Joystick Switch



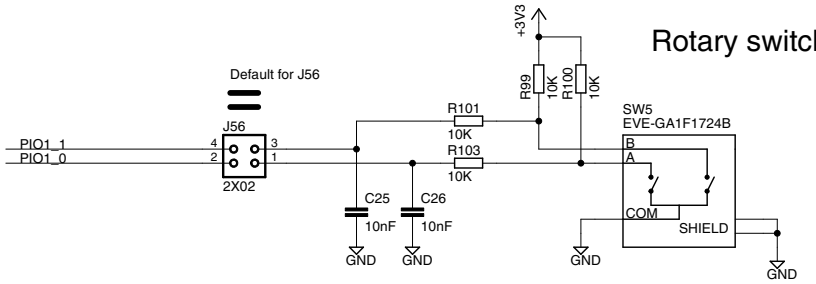
Bootloader Enable (P0.1)



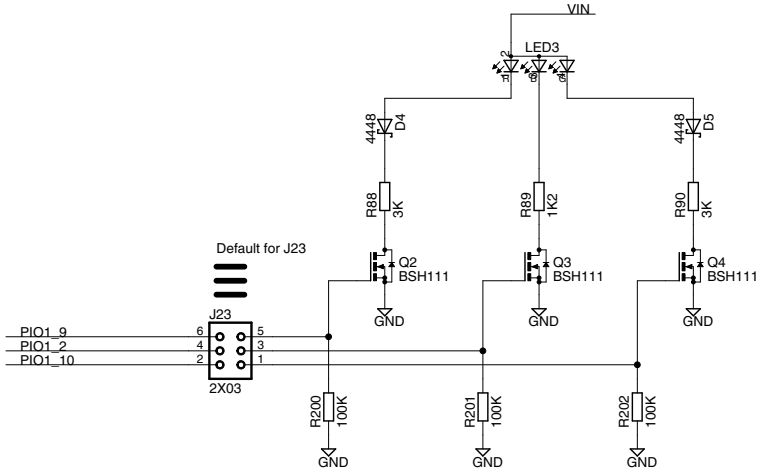
Wakeup (P1.4)



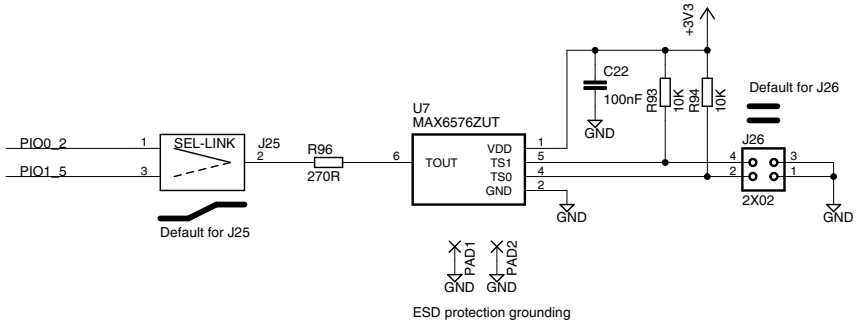
Rotary switch - Quadrature signals



RGB-LED



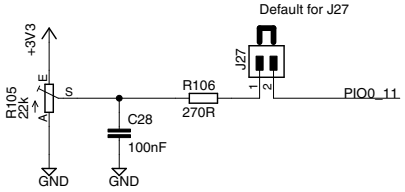
Temp sensor: MAX6576 (temp-to-period)



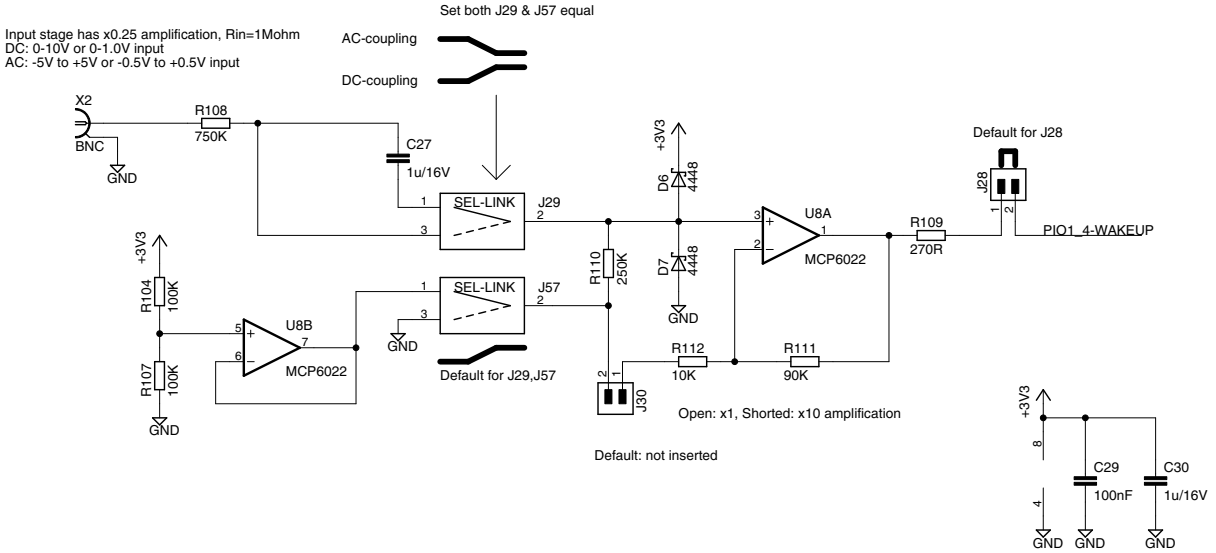
TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 6/11

Analog peripherals

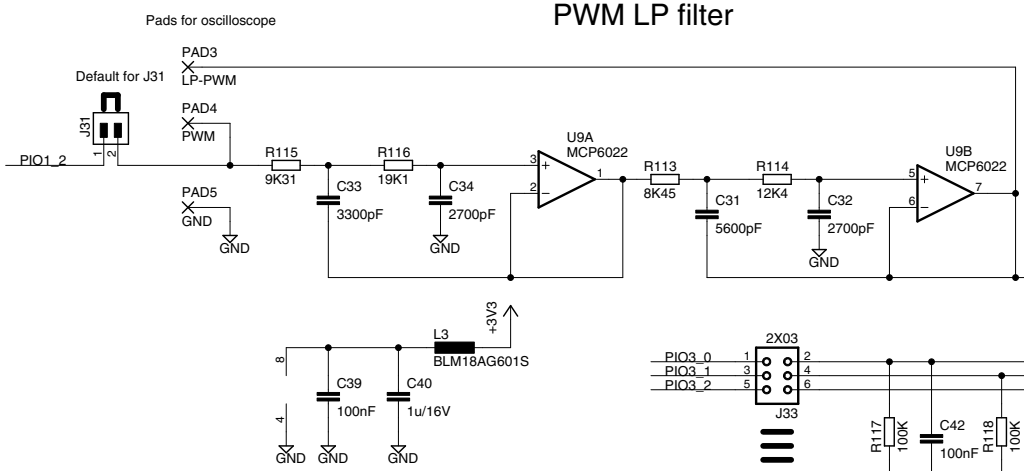
Analog Input



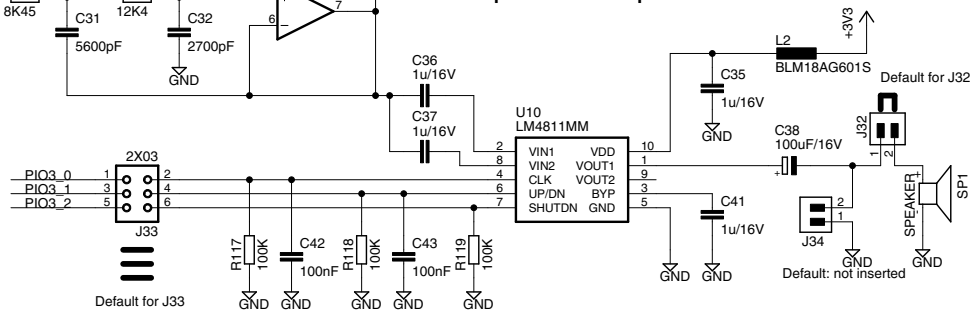
BNC input (oscilloscope probe)



PWM LP filter



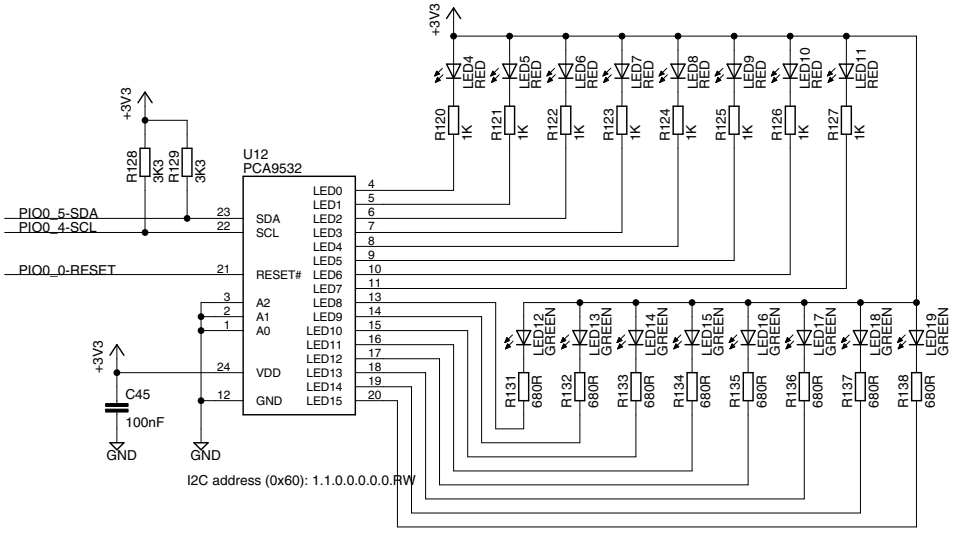
Speaker Amplifier



TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 7/11

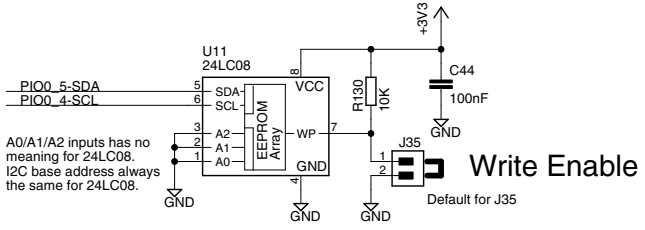
I2C peripherals

PCA9532 I2C 16-bit Port Expander



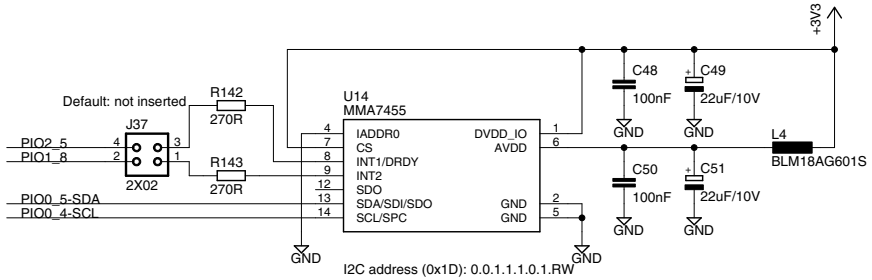
I2C address (0x60): 1.1.0.0.0.0.0.RW

8kbit I2C-E2PROM



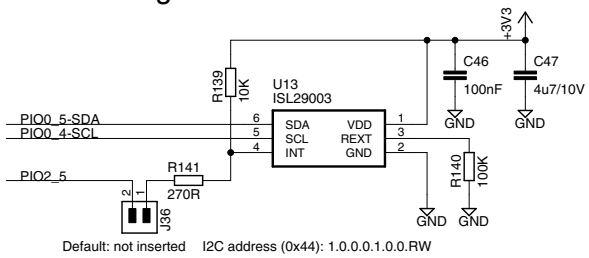
I2C address (0x50-0x53): 1.0.1.0.0.B1.B0.RW
B1 & B0 value depends on address of byte to access.

MMA7455 Accelerometer with I2C interface



I2C address (0x1D): 0.0.1.1.1.0.1.RW

Light Sensor - ISL29003

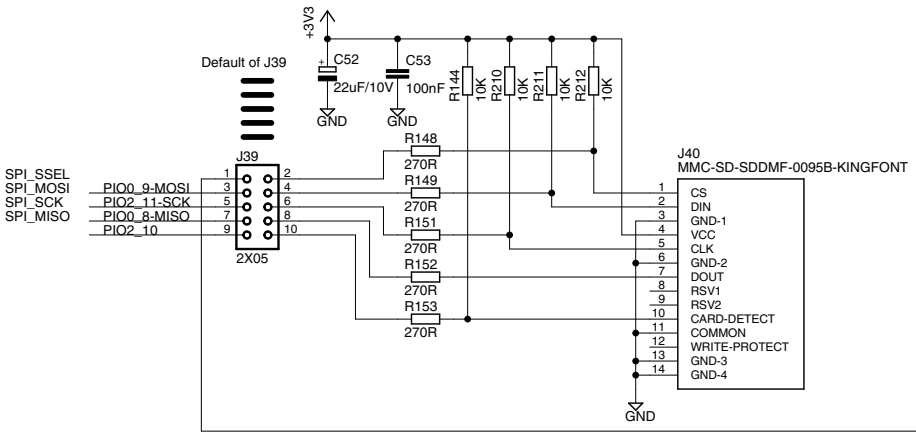


I2C address (0x44): 1.0.0.0.1.0.0.RW

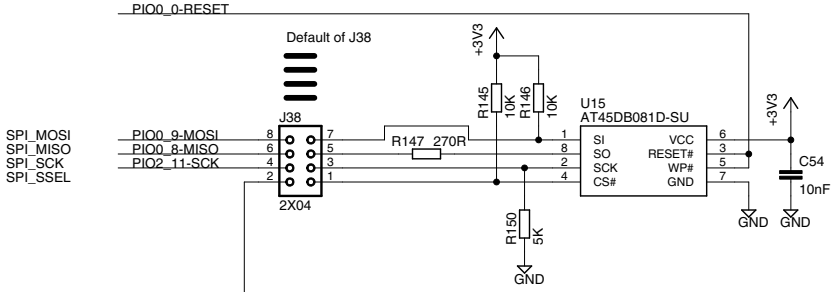
TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 8/11

SPI peripherals

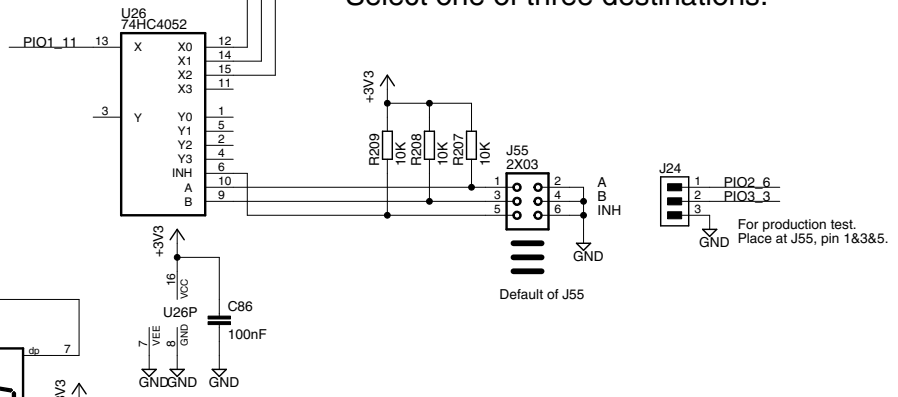
MMC/SD Memory Card Interface



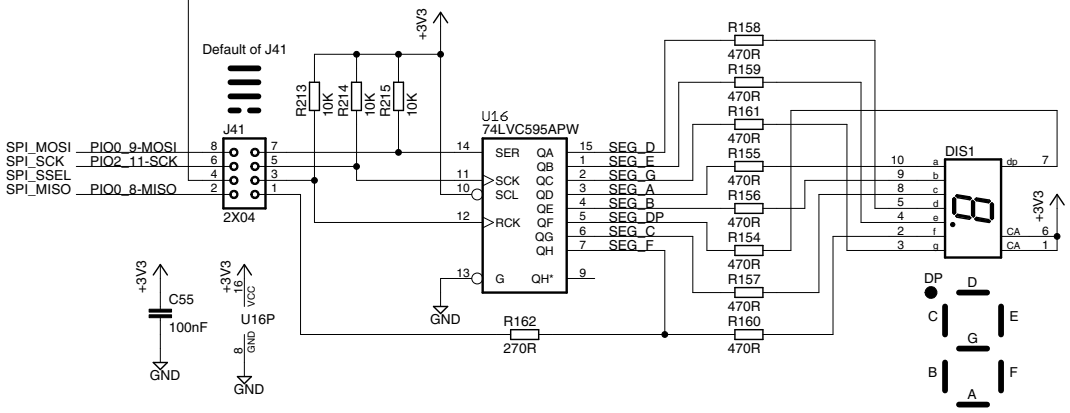
SPI-FLASH



PIO1_11 used as SSEL for all three circuits.
Select one of three destinations.



Shift register to 7-segment LED



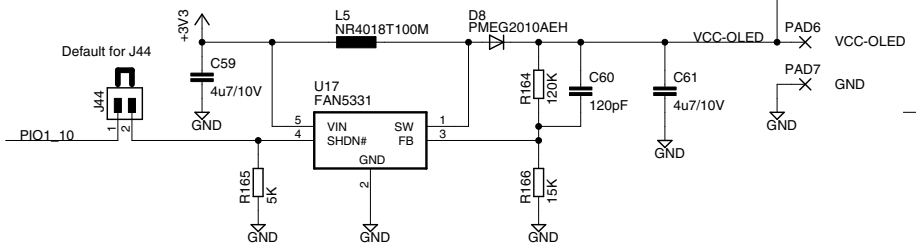
How display segments are positioned when looking at board with BNC connector facing towards you.

Embedded Artists

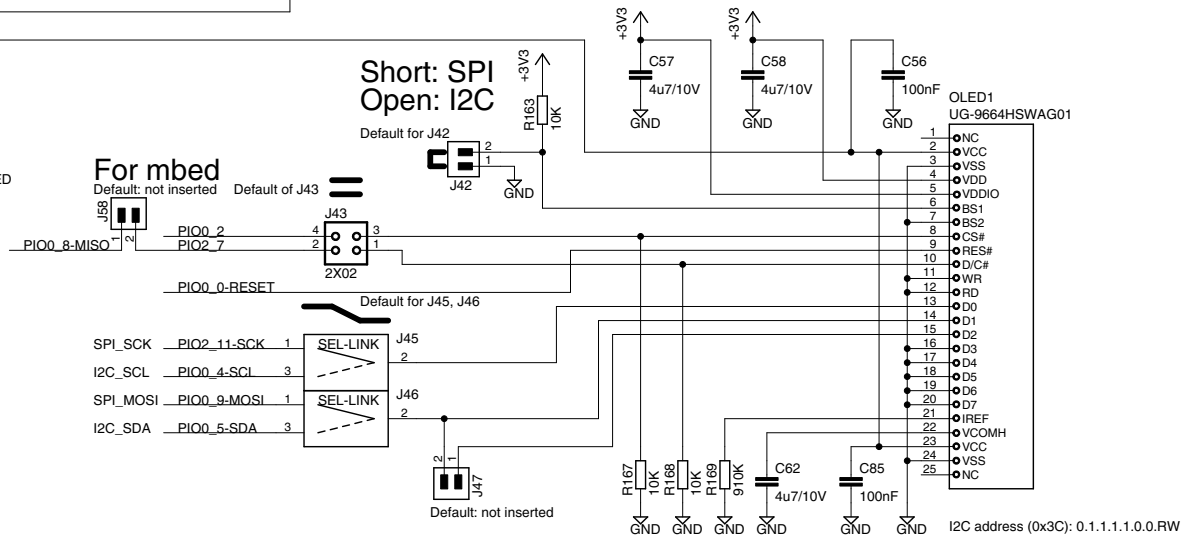
TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 9/11

Shared SPI/I2C peripherals

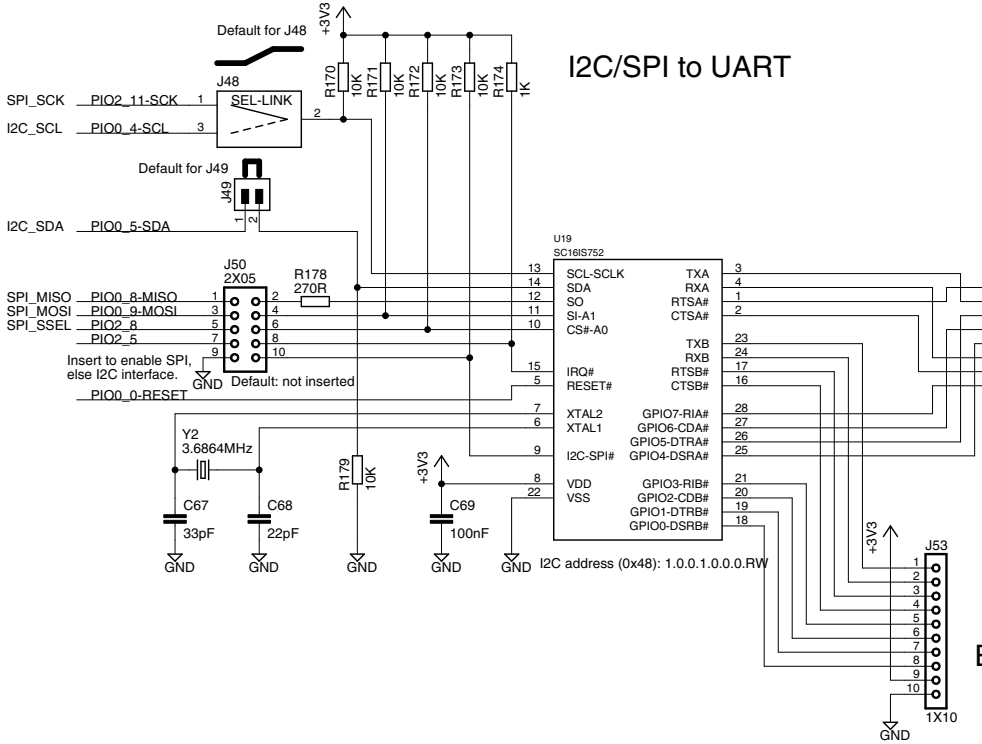
OLED voltage (11V)



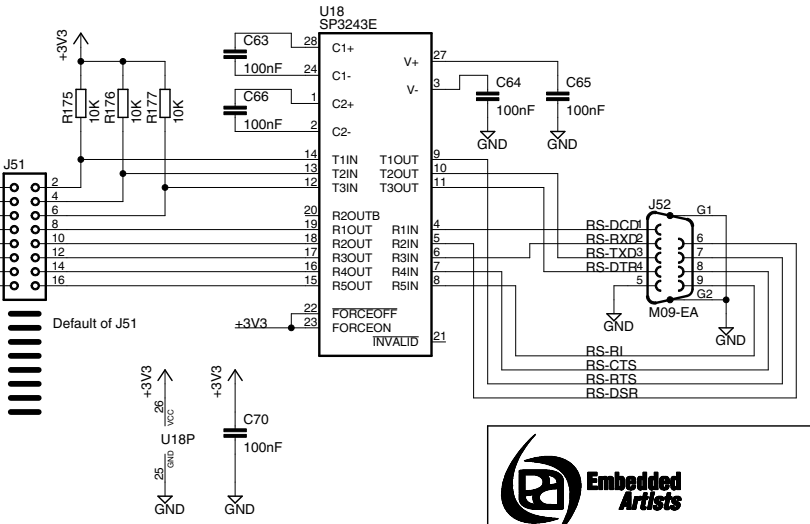
96x64 White OLED with I2C/SPI interface



I2C/SPI to UART

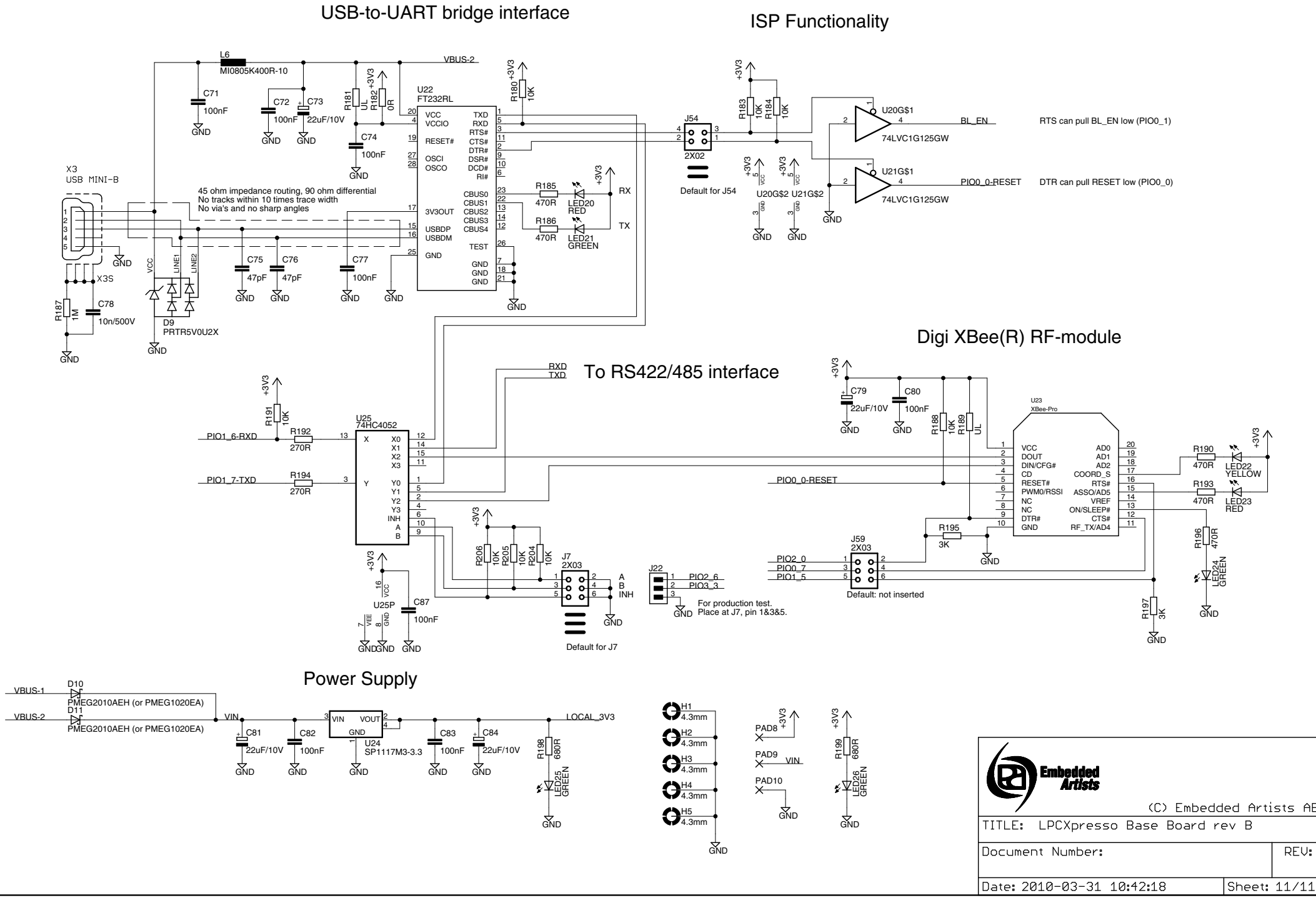


UART RS232 Full Modem



Expansion connector for second UART

TITLE: LPCXpresso Base Board rev B	
Document Number:	REV:
Date: 2010-03-31 10:42:18	Sheet: 10/11


USB-to-UART bridge interface
ISP Functionality
Digi XBee(R) RF-module
To RS422/485 interface
Power Supply
L6
MI0805K400R-10
VBUS-2
U22
FT232RL
X3
USB MINI-B
45 ohm impedance routing, 90 ohm differential
No tracks within 10 times trace width
No via's and no sharp angles
D9
PRTR5V0U2X
J54
2X02
Default for J54
U20G$1
U21G$1
74LVC1G125GW
BL_EN
PIO0_0-RESET
RTS can pull BL_EN low (PIO0_1)
DTR can pull RESET low (PIO0_0)
U23
XBee-Pro
U25
74HC4052
PIO1_6-RXD
PIO1_7-TXD
RXD
TXD
J7
2X03
Default for J7
J22
PIO2_6
PIO3_3
For production test.
Place at J7, pin 1&3&5.
J59
2X03
Default: not inserted
PIO2_0
PIO0_7
PIO1_5
U24
SP1117M3-3.3
VBUS-1
VBUS-2
PMEG2010AEH (or PMEG1020EA)
VIN
LOCAL_3V3
PAD8
PAD9
PAD10
H1
H2
H3
H4
H5
4.3mm
(C) Embedded Artists AB
TITLE: LPCXpresso Base Board rev B
Document Number:
REV:
Date: 2010-03-31 10:42:18
Sheet: 11/11