

Page 2

SODIMM-200 (to OEM board) connector and current measurement.

Page 3

Expansion connectors (one specifically for external memory bus).

Page 4

Parallel NOR FLASH and 16-bit registers (with LEDs) on external memory bus.

Page 5

Debug interfaces (JTAG/SWD/Trace).

Page 6

Ethernet interface connector, SD memory card interface and VBAT/ALARM handling.

Page 7

I2C-peripherals; config. e2prom, temp. sensor, 3-axis accel., port expander with pushbuttons and LEDs.

Page 8

Analog input, Push-button, Joystick and Serial Interface Expansion Connector and Jennic RF-module

Page 9

UART multiplexing, RS232 and RS422/485 interface.

Page 10

CAN and IrDA interfaces.

Page 11

USB-1 interface: OTG or Host.

Page 12

USB-2 interface: Host or Device or OTG.

Page 13

Power supply and UART-to-USB bridge.

Page 14

LCD Expansion Connector.

Page 15

I2S-Stereo Audio Codec.

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

Added info about LPC4357 OEM board pinning.

Rev B1

Added info about LPC4088 OEM board pinning.

Rev B

Just layout update. No schematic change from rev PB1.

Rev PB1

Added support for LPC3250 (JP34). Changed R163 to UL.
Better EMC filter on LCD expansion connector.

Rev A

First revision to release.



© Embedded Artists AB

TITLE: OEM Base Board rev B

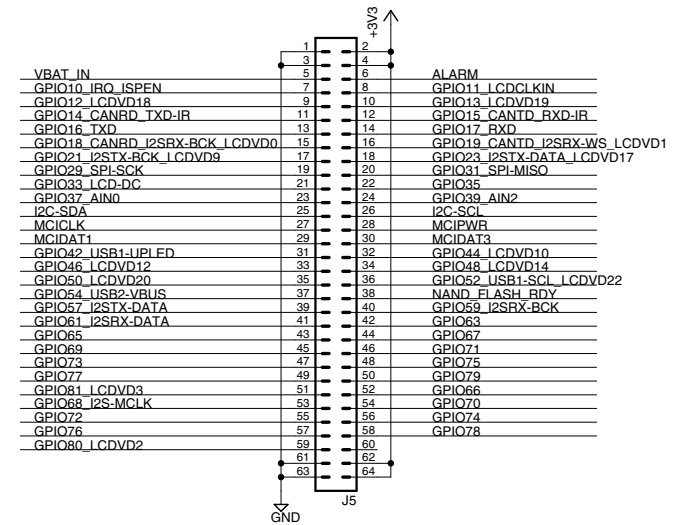
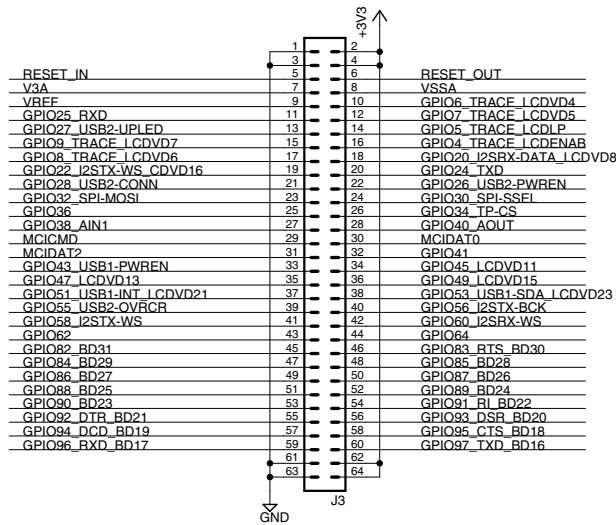
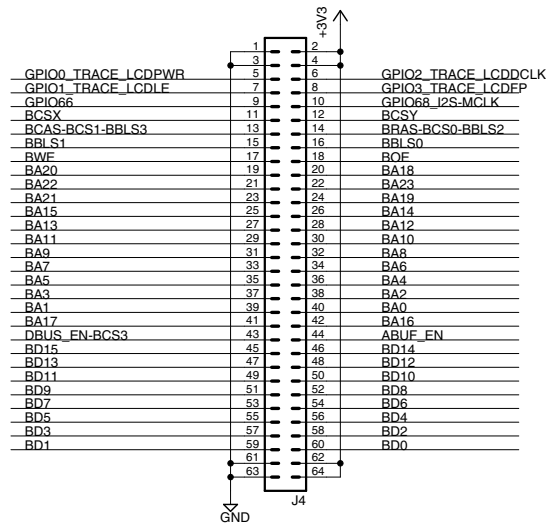
Document Number:

Date: 2013-01-23 22:47:22

Sheet: 1/15

Expansion Connectors

Expansion connector for external memory bus (16-bit)



Possible connectors to mount: AWHW64G-0202-T-R from Assmann Electronics Inc (Digikey: HRP64H-ND) or XG4C-6431 from Omron (Digikey: OR970-ND)



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

Document Number:

Date: 2013-01-23 22:47:22

Sheet: 3/15

External buffered memory bus

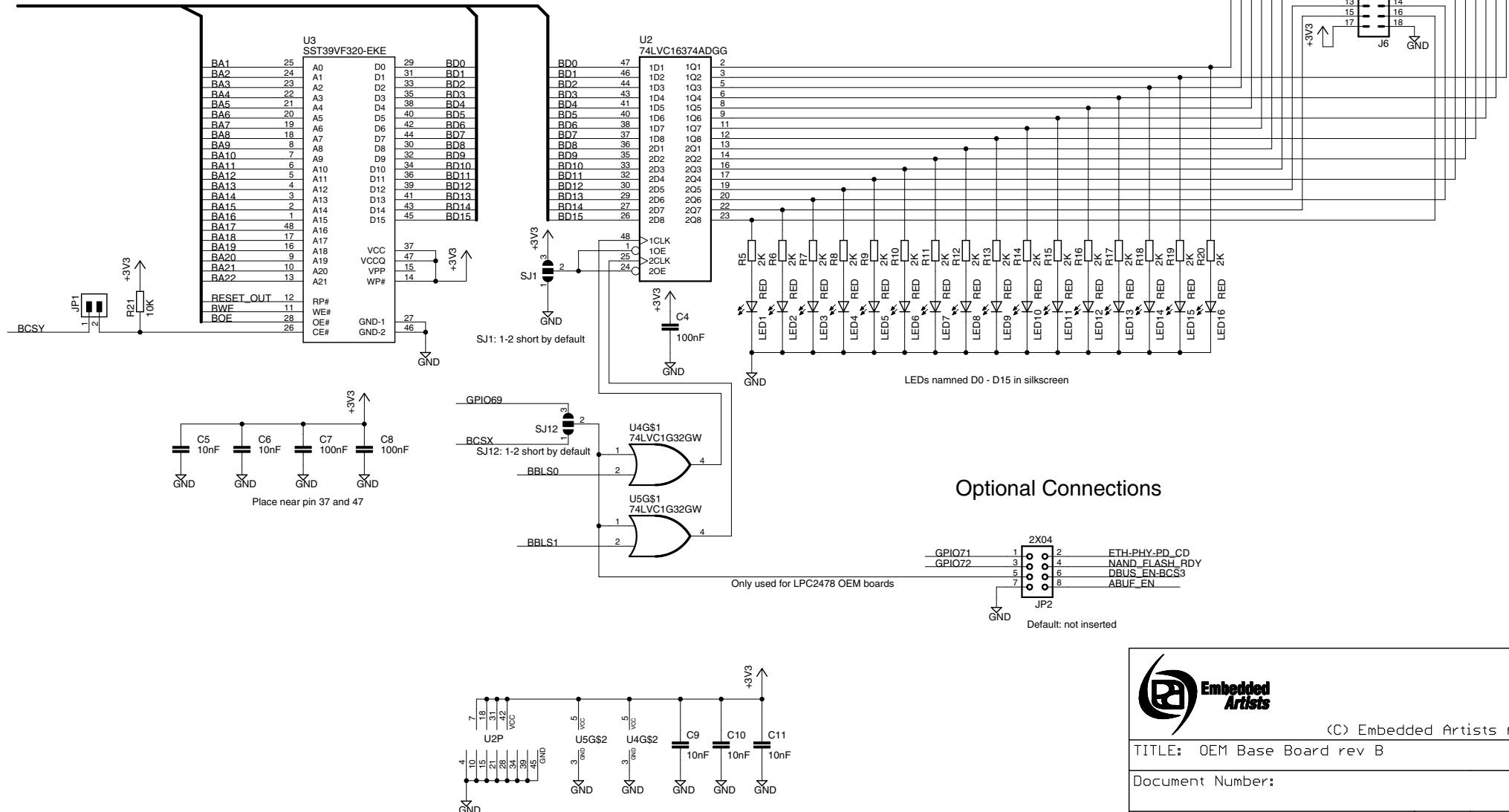
32Mbit (4MByte) NOR FLASH

(LPC1788: CS0 = 0x8000 0000 - 0x83FF FFFF)
 (LPC3250: CS2 = 0xE200 0000 - 0xE2FF FFFF)
 (LPC4088: CS0 = 0x8000 0000 - 0x83FF FFFF)
 (LPC4357: CS0 = 0x1C00 0000 - 0x1CFF FFFF)

8+8 bit register on external memory bus

(LPC1788: CS2 = 0x9800 0000 - 0x9BFF FFFF)
 (LPC3250: CS3 = 0xE300 0000 - 0xE3FF FFFF)
 (LPC4088: CS2 = 0x9800 0000 - 0x9BFF FFFF)
 (LPC4357: CS2 = 0x1E00 0000 - 0x1EFF FFFF)

16-bit parallel output for logging



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

Document Number:

Date: 2013-01-23 22:47:22

Sheet: 4/15

Debug Interfaces

ARM 10-pin interface Serial Wire Mode

1-VCC	2-SWDIO
3-GND	4-SWCLK
5-GND	6-SWO
7-N/U	8-N/U
9-GND	10-RESET

ARM 10-pin interface JTAG Mode

1-VCC	2-TMS
3-GND	4-TCLK
5-GND	6-TDO
7-RTCK	8-TDI
9-GND	10-RESET

ARM 20-pin interface Serial Wire Mode

1-VCC (Vtref)	2-N/C
3-N/U	4-GND
5-N/U	6-GND
7-SWDIO	8-GND
9-SWCLK	10-GND
11-N/U	12-GND
13-SWO	14-GND
15-RESET	16-GND
17-N/C	18-GND
19-N/C	20-GND

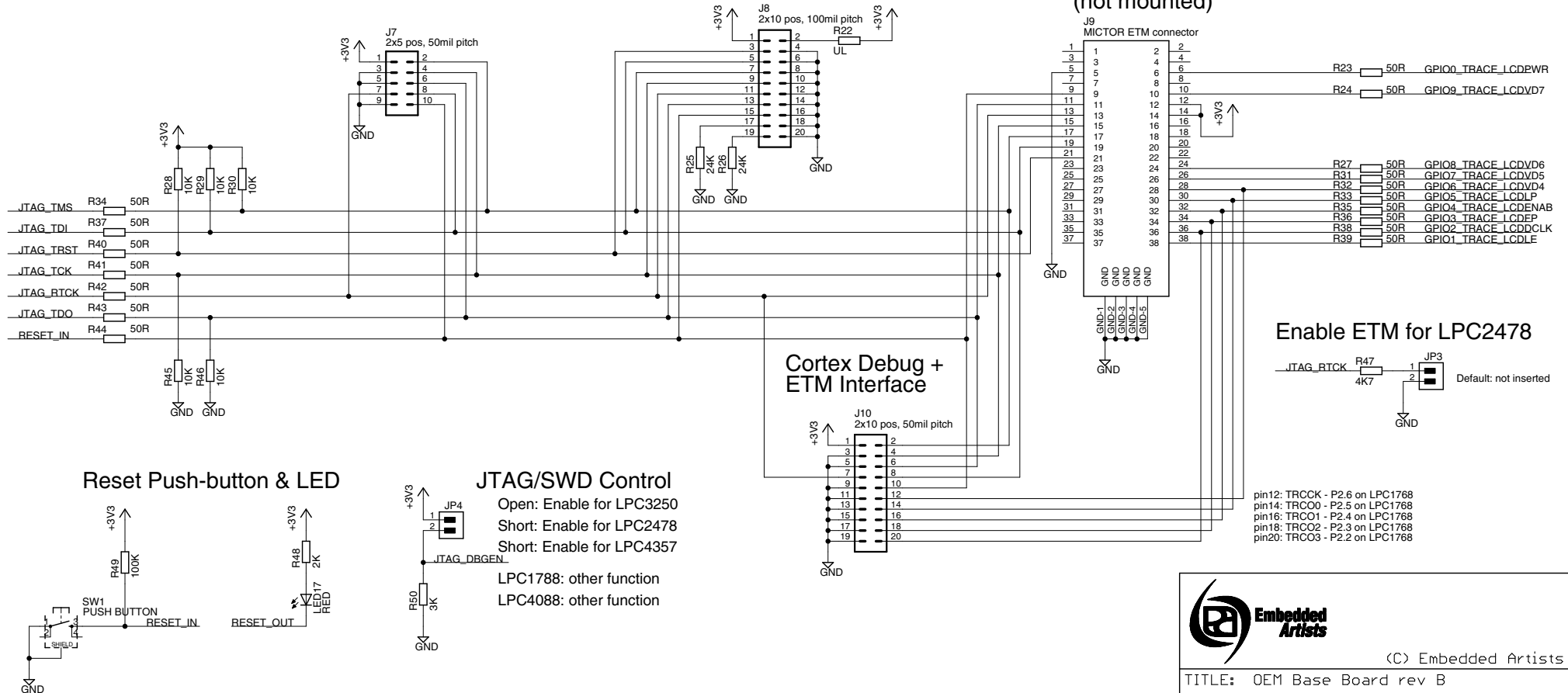
ARM 20-pin interface JTAG Mode

1-VCC (Vtref)	2-N/C
3-N/C (TRST)	4-GND
5-TDI	6-GND
7-TMS	8-GND
9-TCLK	10-GND
11-RTCK	12-GND
13-TDO	14-GND
15-RESET	16-GND
17-N/C	18-GND
19-N/C	20-GND

10 pos (50 mil pitch) connector

20 pos (100 mil pitch) connector

ETM Interface (not mounted)



Note: all JTAG/SWD and ETM signals routed with 50 ohm impedance, equal length and minimal stubs.



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

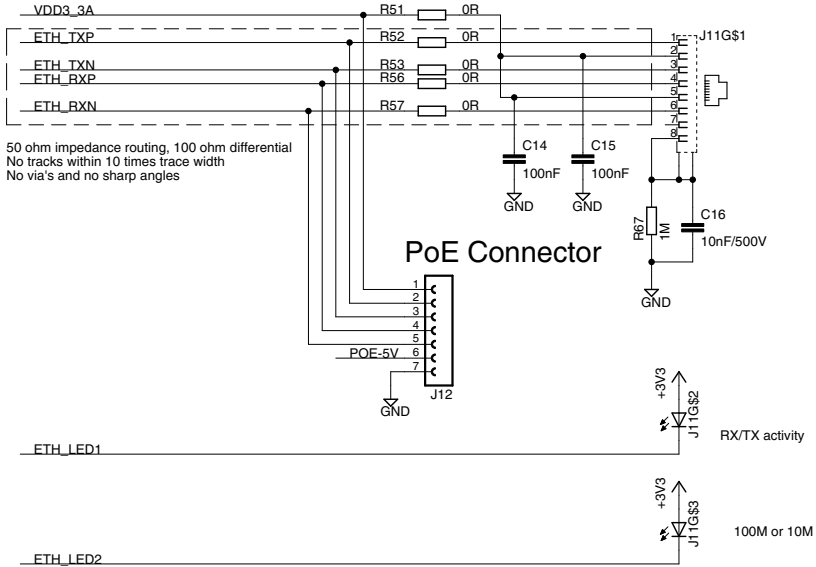
Document Number:

Date: 2013-01-23 22:47:22

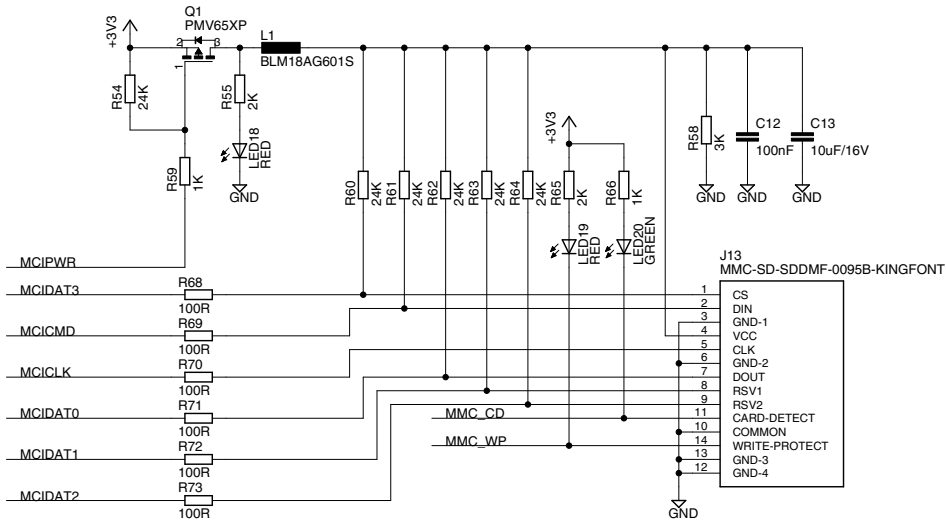
Sheet: 5/15

Ethernet and SD/MMC interfaces, VBAT and Alarm

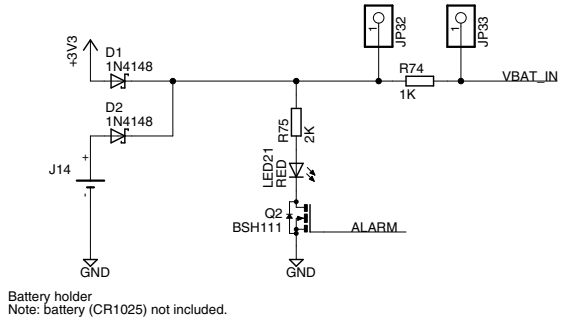
RJ45 Ethernet Connector



MMC/SD Memory Card I/F



VBAT and Alarm Handling



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

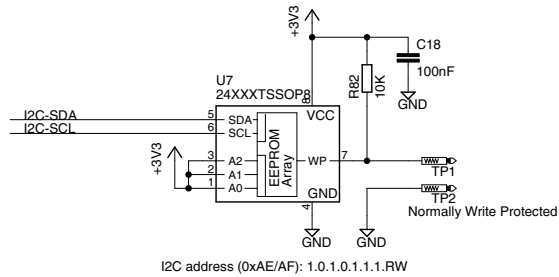
Document Number:

Date: 2013-01-23 22:47:22

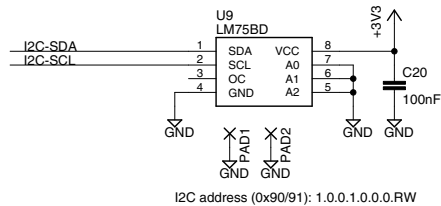
Sheet: 6/15

I2C-peripherals

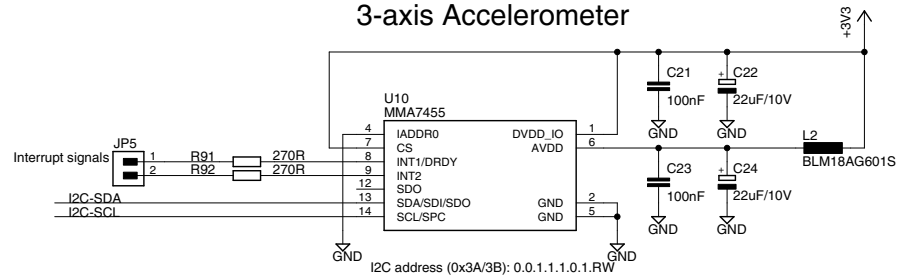
64kbit Configuration E2PROM (see User's Manual for details)



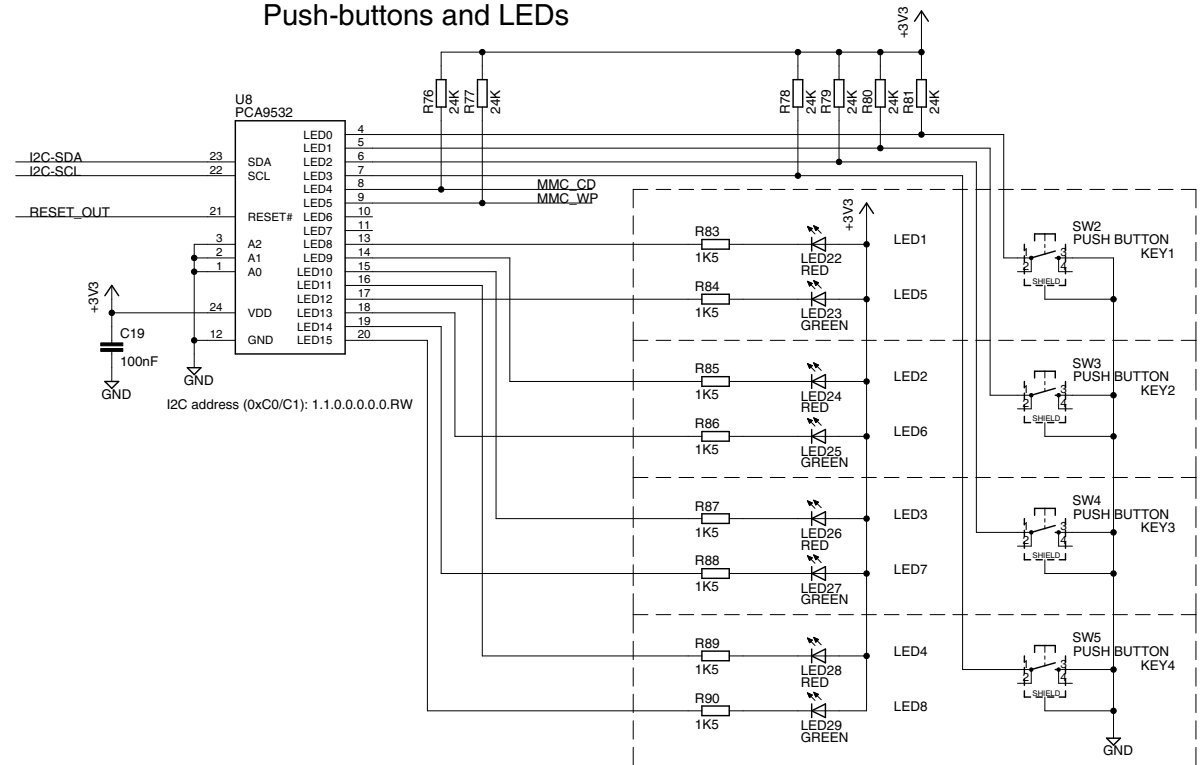
LM75 I2C Temperature Sensor



3-axis Accelerometer



Push-buttons and LEDs



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

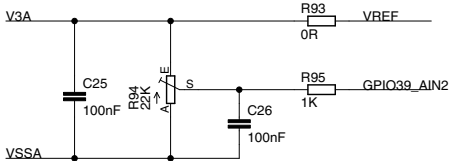
Document Number:

Date: 2013-01-23 22:47:22

Sheet: 7/15

Analog input, Push-button, Joystick and Serial Expansion Connector and Jennic RF-module

Analog Input

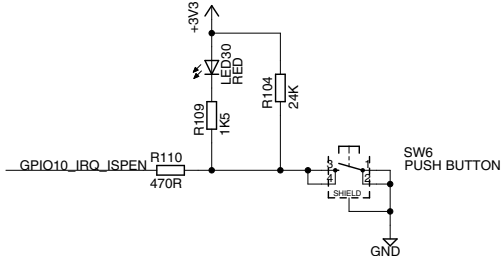


Interrupt Push-button

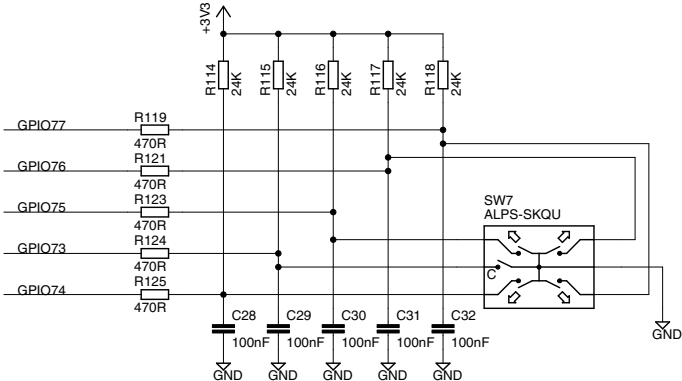
P2.10 on LPC1788/2478/4088

GPI_01 on LPC3250

ISP_EN on LPC4357

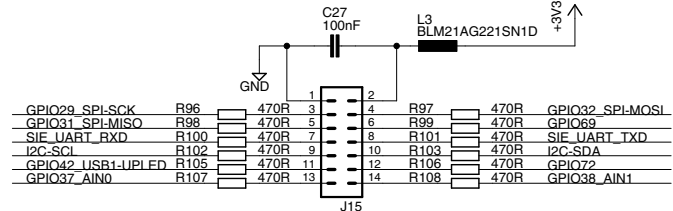


5-key Joystick Switch

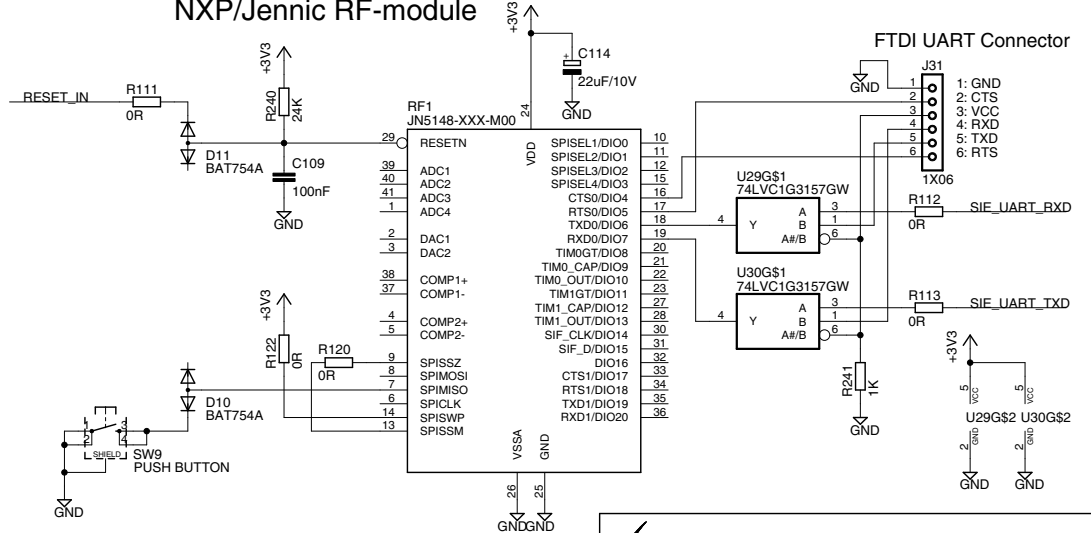


Serial Expansion Connector

1: GND	2: VCC (3.3V, max 250mA)
3: SPI-SCK (output)	4: SPI-MOSI (output)
5: SPI-MISO (input)	6: SPI-SSEL (output)
7: UART-RX (input)	8: UART-TX (output)
9: I2C-SCL (output)	10: I2C-SDA (bidirectional)
11: GPIO (bidirectional)	12: GPIO (bidirectional)
13: AIN0/GPIO (input)	14: AIN1/GPIO (input)



NXP/Jennic RF-module



Press key during reset to enter firmware download mode.



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

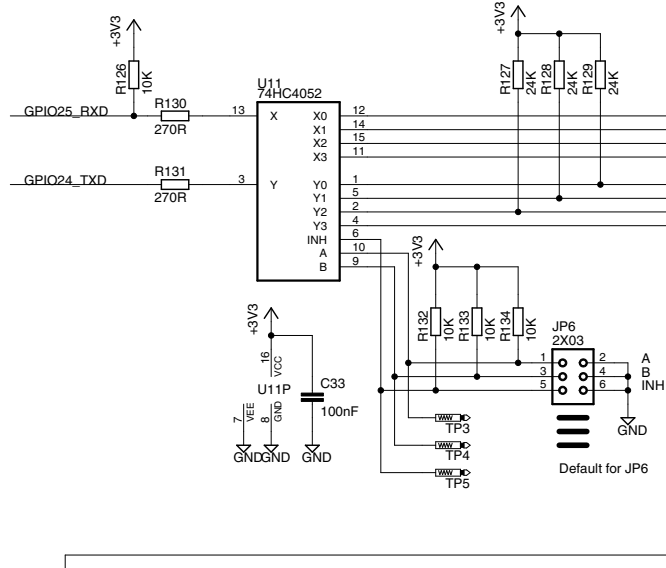
Document Number:

Date: 2013-01-23 22:47:22

Sheet: 8/15

UART multiplexing, RS232 and RS422/485 interface

UART multiplexing



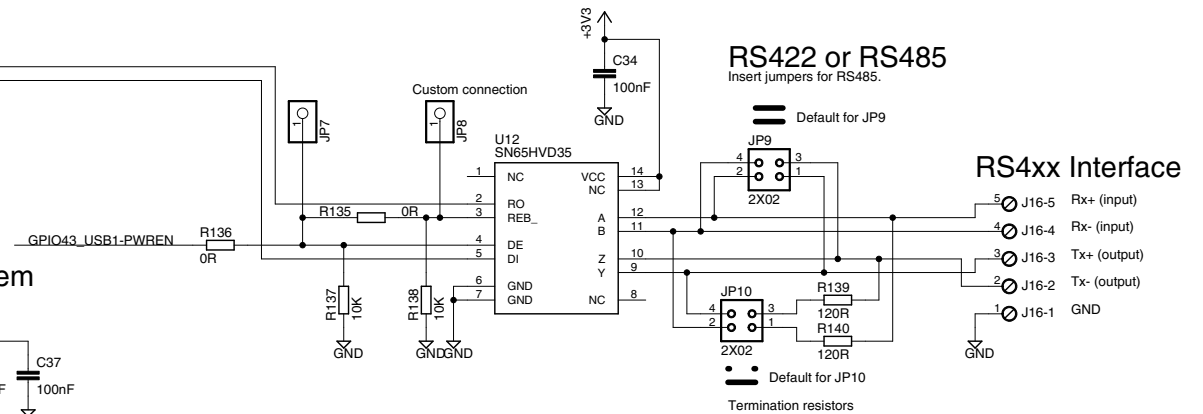
To Serial Interface Expansion Connector

SIE_UART_RXD
SIE_UART_TXD

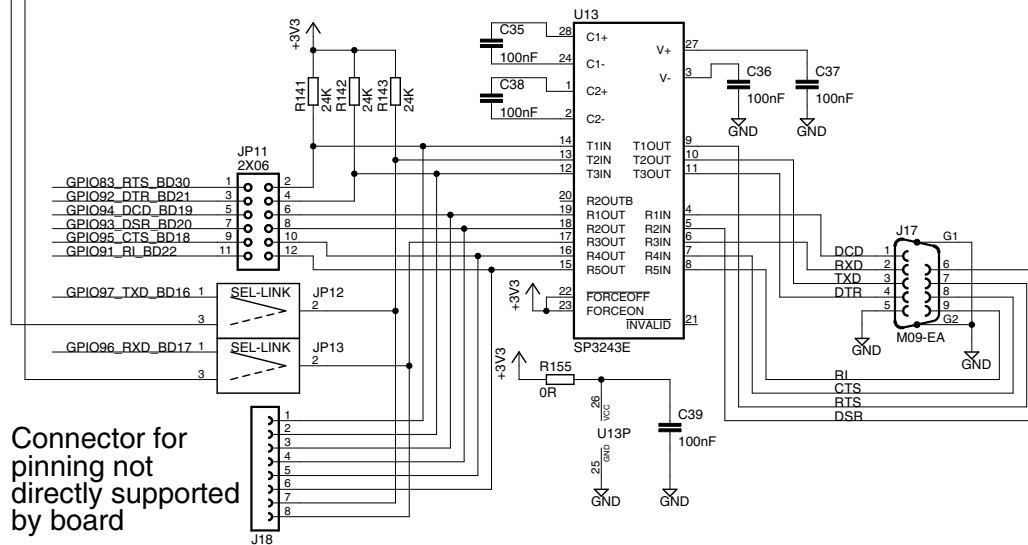
To LCD expansion interface

LCD_UART_RXD
LCD_UART_TXD

RS422/RS485 transceiver

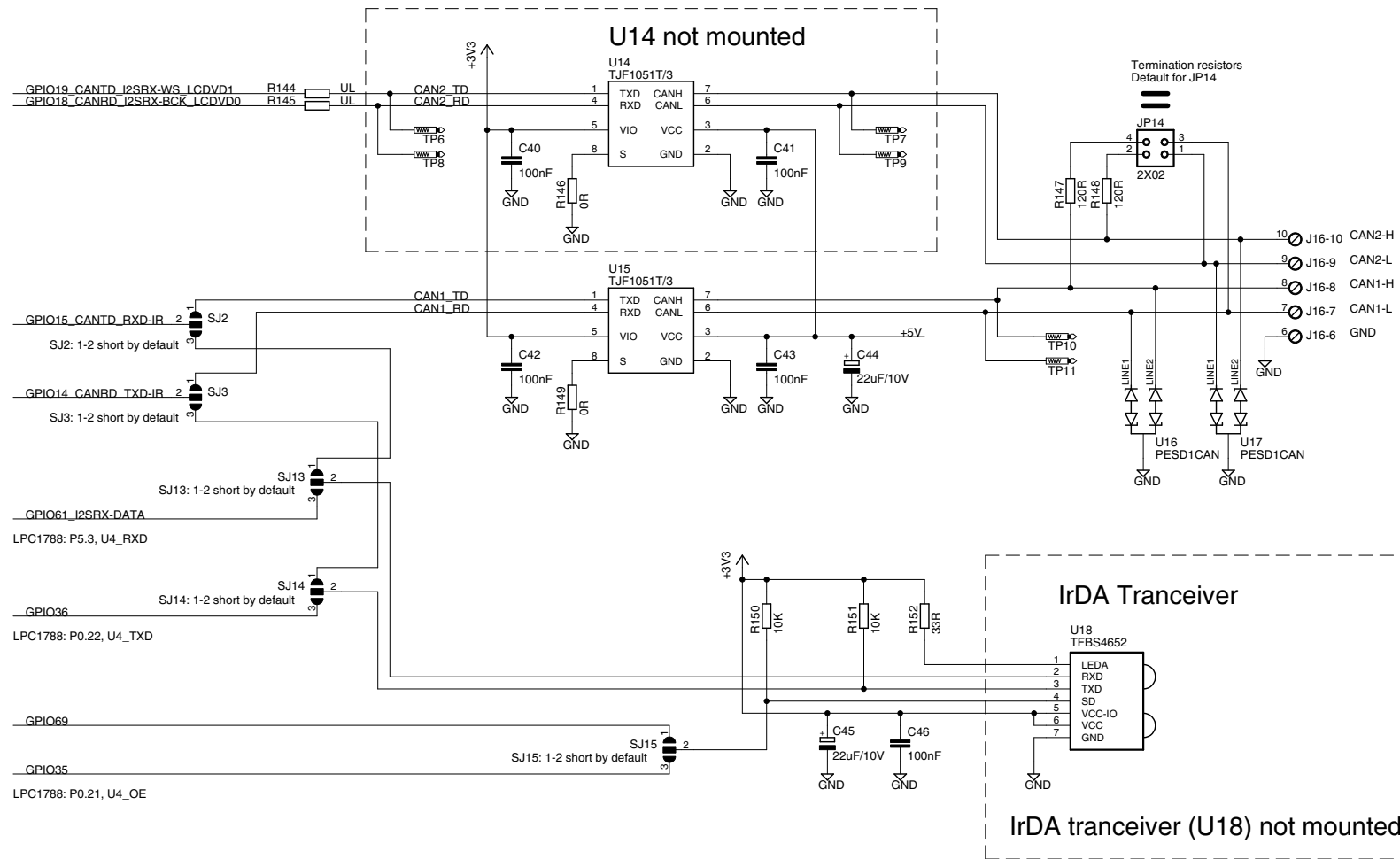


UART RS232 Full Modem



CAN and IrDA interfaces

CAN Transceivers



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

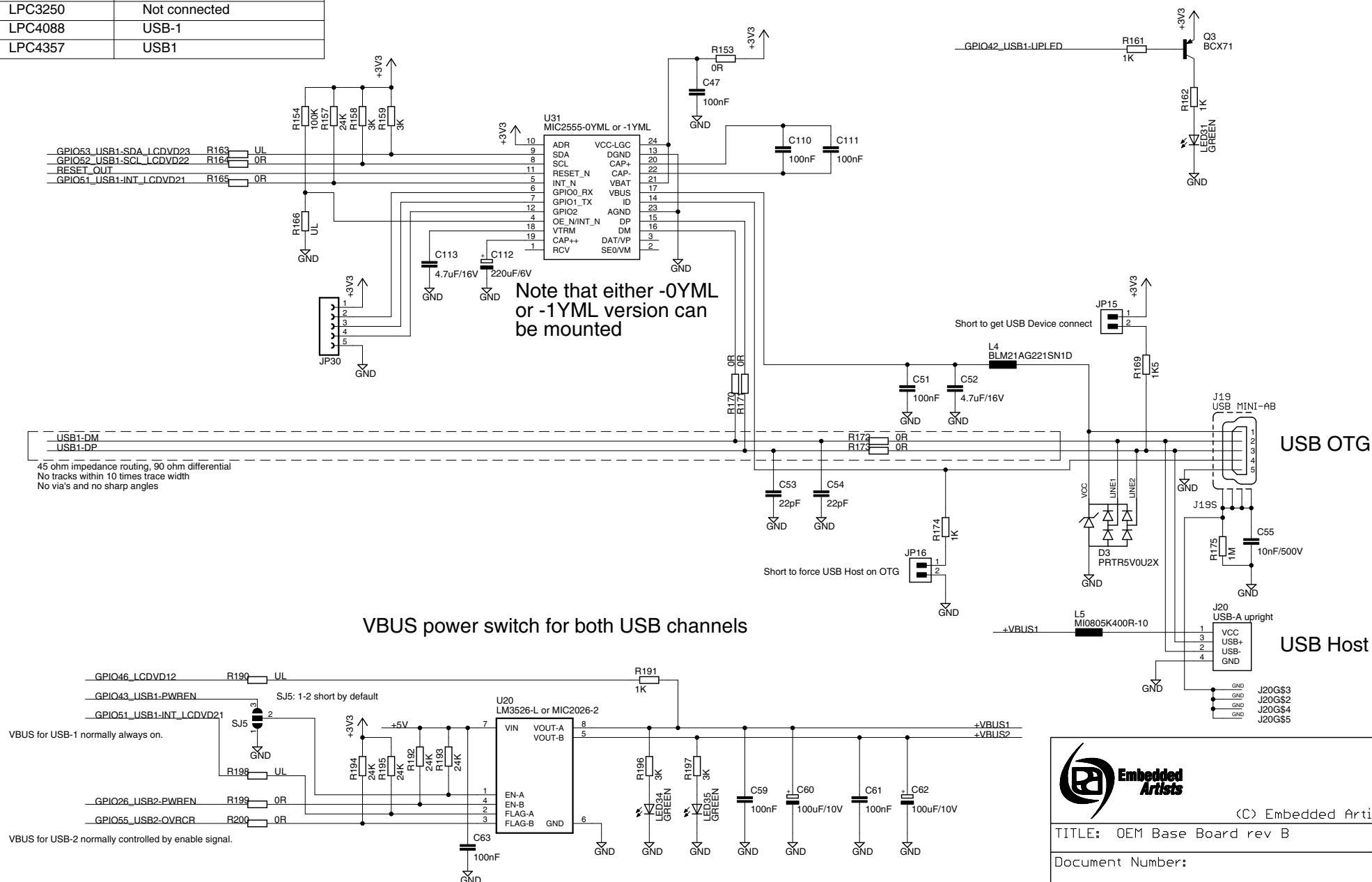
Document Number:

Date: 2013-01-23 22:47:22

Sheet: 10/15

OEM Board	USB interface on chip
LPC1788	USB-1
LPC2478	USB-1
LPC3250	Not connected
LPC4088	USB-1
LPC4357	USB1

USB-1 interface: OTG and Host



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

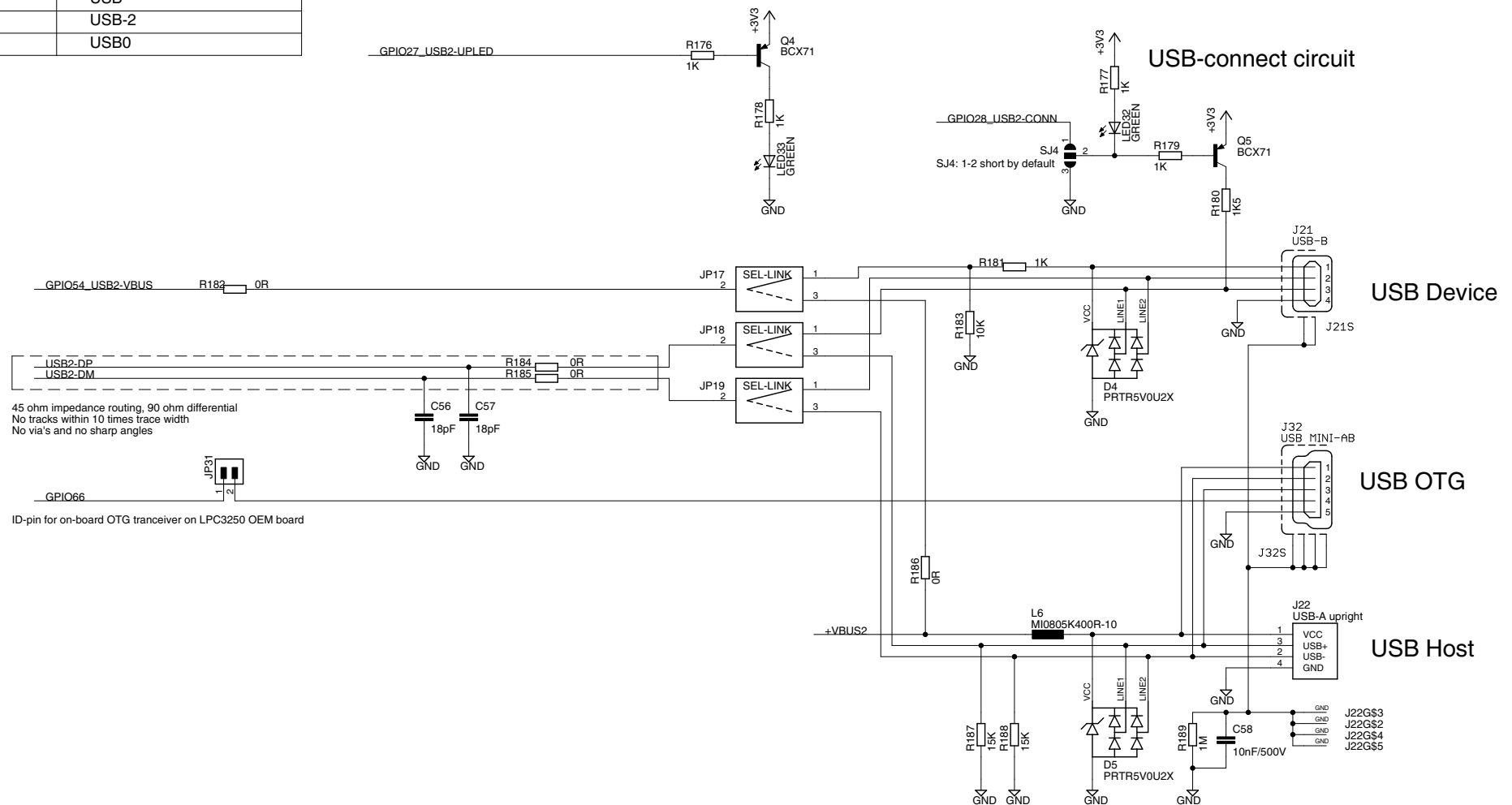
Document Number:

Date: 2013-01-23 22:47:22

Sheet: 11/15

OEM Board	USB interface on chip
LPC1788	USB-2
LPC2478	USB-2
LPC3250	USB
LPC4088	USB-2
LPC4357	USB0

USB-2 interface: Host or Device or OTG



(C) Embedded Artists AB

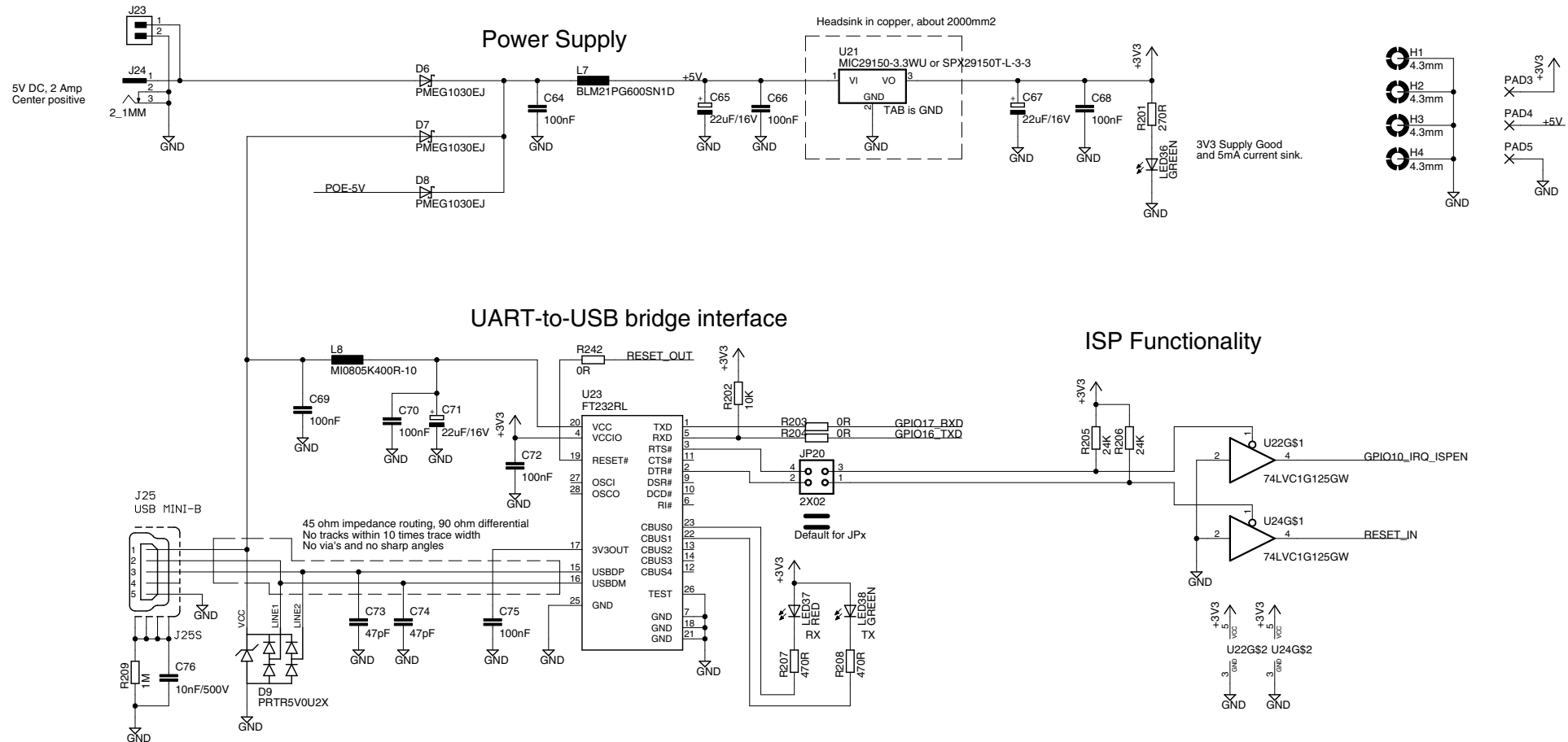
TITLE: OEM Base Board rev B

Document Number:

Date: 2013-01-23 22:47:22

Sheet: 12/15

Power supply and UART-to-USB bridge



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

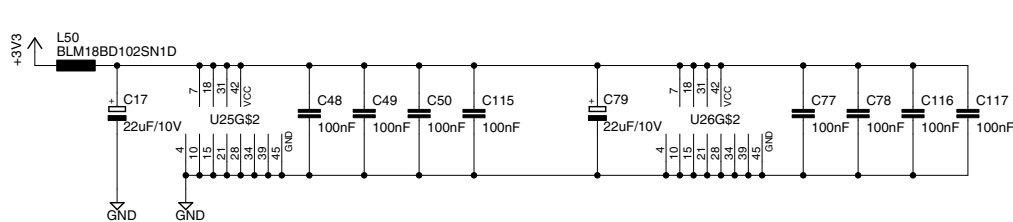
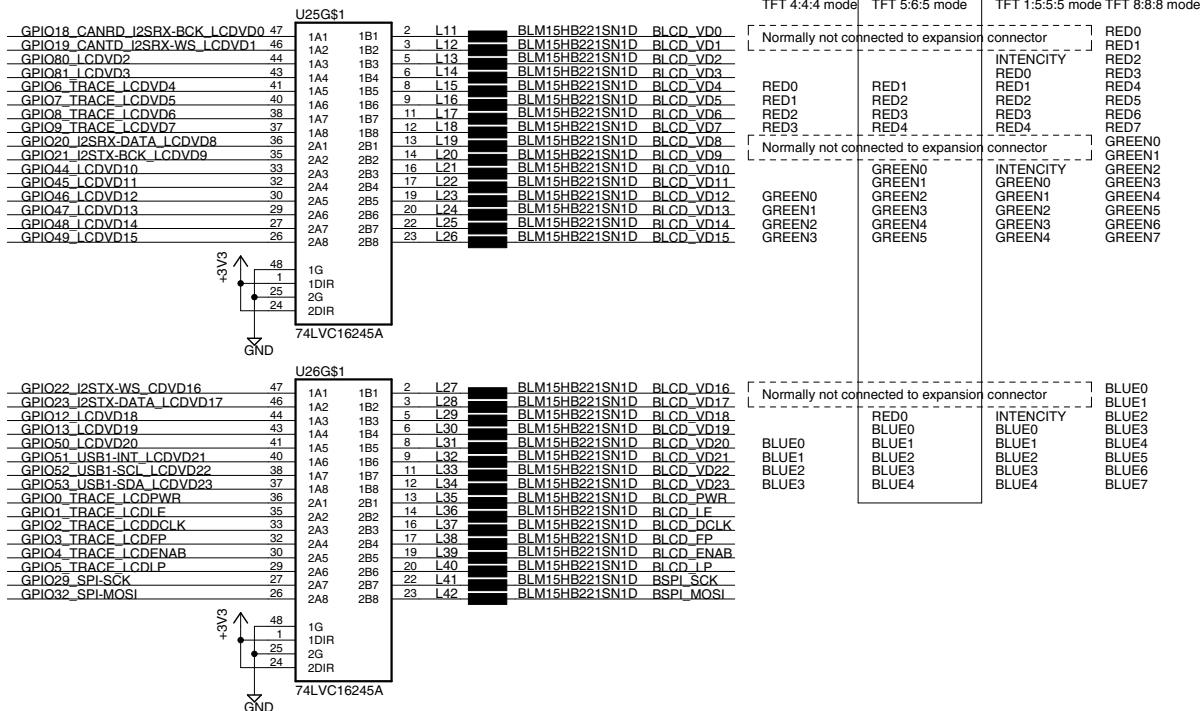
Document Number:

Date: 2013-01-23 22:47:22

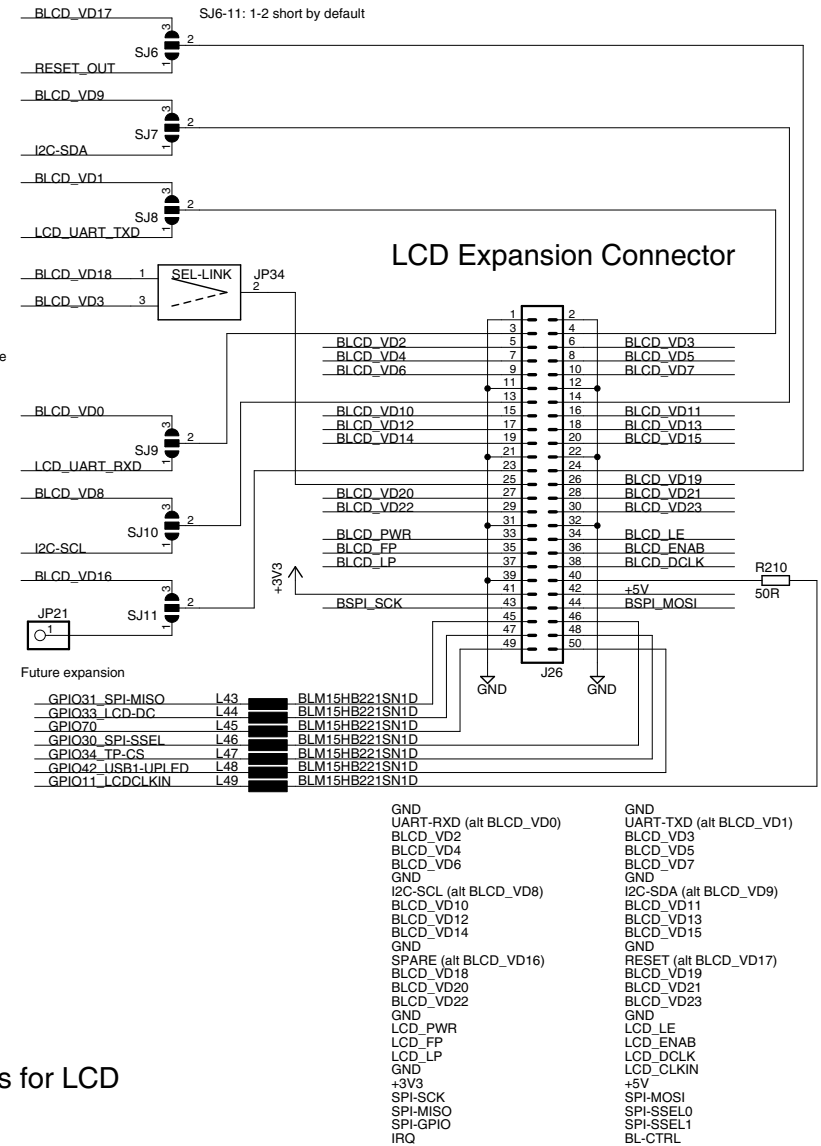
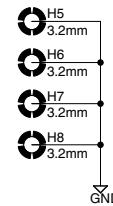
Sheet: 13/15

OEM Board	JP34 position
LPC1788	1-2
LPC2478	1-2
LPC3250	2-3
LPC4088	1-2
LPC4357	2-3

LCD Expansion Connector



Mounting holes for LCD



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

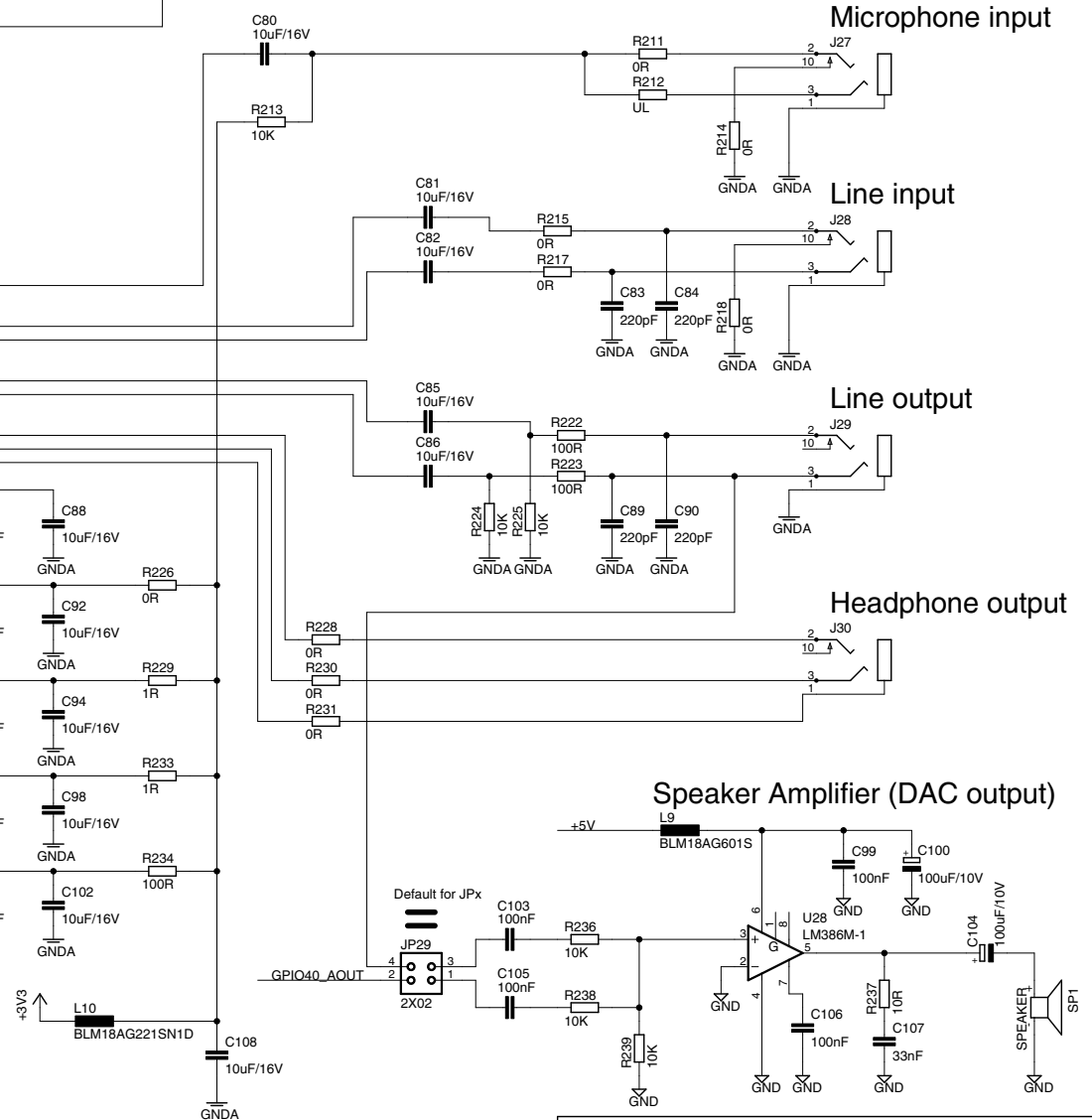
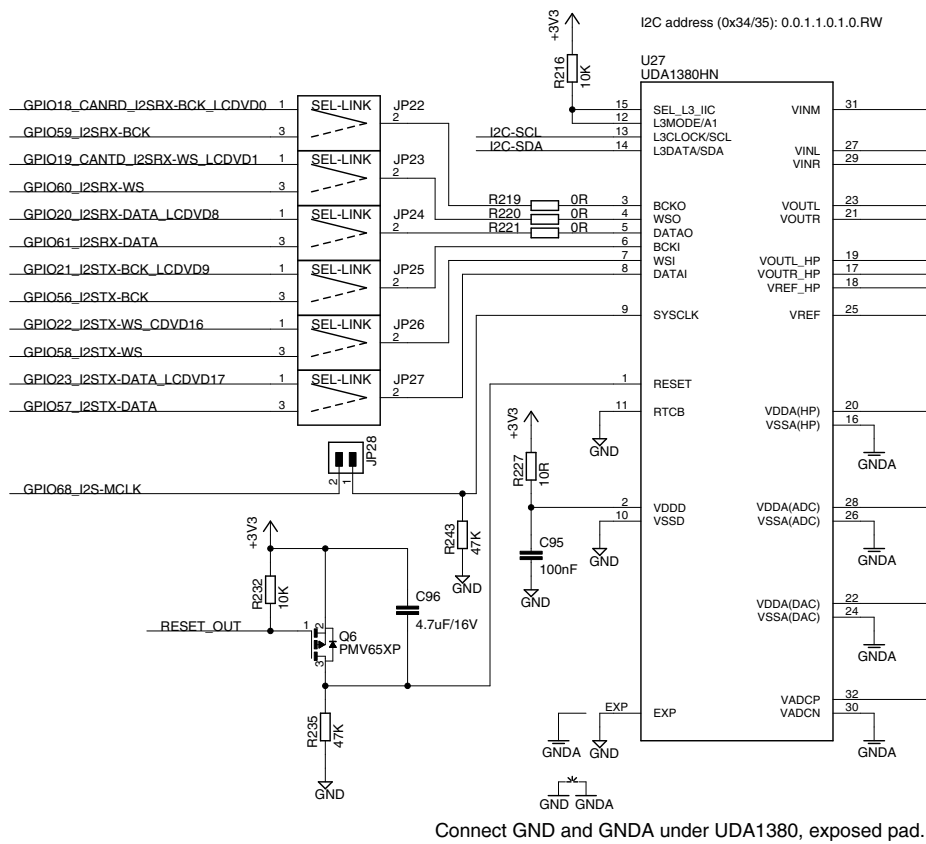
Document Number:

Date: 2013-01-23 22:47:22

Sheet: 14/15

I2S-Stereo Audio Codec

Alternative I2S interfaces



(C) Embedded Artists AB

TITLE: OEM Base Board rev B

Document Number:

Date: 2013-01-23 22:47:22

Sheet: 15/15