zbit:PiDapter Raspberry Pi to micro:bit GPIO Mapping - NMH, Innovations in Education, 17/11/16

Rpi P1 Pin	RPi Signal	micro:bit Signal	micro:bit Function	Notes
1	3V3	3V	3V	
2	5V0	(Y)	(AUX_PWR_Y)	Solder wire to Xspacer
3	GPIO3/SDA0_1K8_PullUp	(P20)	(I2C_SDA)	Enabled by fitting solder link
4	5V0	(Y)	(AUX_PWR_Y)	
5	GPIO5/SCL0_1K8_PullUp	(P19)	(I2C_SCL)	Enabled by fitting solder link
6	GND	GND	GND	
7	GPIO7/GCLK	P11	BUTTON_B	
8	UART_TXD0/GPIO8	P2	UART_RXD	Would connect without zbit:conn
9	GND	GND	GND	
10	UART_RXD0/GPIO10	P1	UART_TXD	Would connect without zbit:conn
11	GPIO11	P12	GPIO	
12	PWM/PCM_CLK/GPIO12	P0	SPEAKER	Could RPi PWM drive speaker? - see note
13	GPIO13	(P10)	(LED_COL3/ANALOG)	Enabled by fitting solder link
14	GND	GND	GND	
15	GPIO15	(P9)	(LED_COL7)	Enabled by fitting solder link
16	GPIO16	P8	GPIO	
17	3V3	3V	3V	
18	GPIO18	(P7)	(LED_COL8)	Enabled by fitting solder link
19	GPIO19/SPI_MOSI	P15	SPI_MOSI	Remap to MISO for Rpi-to-M:B SPI
20	GND	GND	GND	
21	GPIO21/SPI__MISO	P14	SPI_MISO	Remap to MOSI for Rpi-to-M:B SPI
22	GPIO22	(P6)	(LED_COL9)	Enabled by fitting solder link
23	GPIO23/SPI_SCLK	P13	SPI_CLK	
24	SPI_CE0_N/GPIO24	P16	SPI_CS	Any m:bit GPIO could be used for SPI_CS
25	GND	GND	GND	
26	SPI_CS1_N/GPIO26	P5	BUTTON_A	
27	ID_SD	N/C		
28	ID_SC	N/C		
29	GPIO	(P4)	(LED_COL2/ANALOG)	Enabled by fitting solder link
30	GND	GND	GND	
31	GPIO	(P3)	(LED_COL1/ANALOG)	Enabled by fitting solder link
32	PWM0/GPIO	N/C		
33	GPIO/PWM1	N/C		
34	GND	GND	GND	
35	GPIO/SPI_MISO	N/C		
36	GPIO	N/C		
37	GPIO	N/C		
38	SPI_MOSI/GPIO	N/C		
39	GND	GND	GND	
40	SPI_SCLK/GPIO	N/C		

RPi-to-micro:bit GPIO Mapping Notes

P0,P1,P2 will connect without zbit:connector. All other Px signals require zbit:connector for reliable connection

m:bit Px in brackets will not be connected by default but could be connected by adding a wire links

Reasons behind the mapping:-

Map RPi UART to m:bit P1 & P2 allowing possible RPi-to-m:bit UART comms using a 3 pin connector plugged into RPi pins 6(GND),8(TXD),10(RXD) connected using Banana Plugs/Croc Clips to m:bit GND,P2,P1

Map RPi I2C to m:bit I2C but not connected by default thus preventing any I2C conflicts unless the user chooses to add the links

Map RPi SPI to m:bit SPI with MOSI-to-MOSI & MISO-to-MISO so either RPi or mB:bit could access an SPI Slave on the bus

(To support direct RPi-to-m:bit communications over SPI - if possible - would require swapping m:bit MOSI & MISO pins in s/w)

Map RPi GPIO pin 12 (PWM) to m:bit P0 (default audio pin) so RPi could drive m:bit speaker using Pulse Width Modulation

(PWM can be mapped to pins 12, 32, 33 or 35. Connecting 12 to P0 for possible audio means it is compatible with RPi B)

Remaining m:bit GPIO are then allocated to RPi 26 way GPIO's with 2 spilling over onto the 40 way. Low numbered m:bit GPIO assigned to high numbered RPi GPIO to ease layou