PIC32MX274F256D

PIC32MX274F256D Bluetooth® Audio 44-pin to 100-pin TQFP Plug-In Module (PIM) (MA320022) Information Sheet

The PIC32MX274F256D Bluetooth® Audio PIM (MA320022) is designed to demonstrate the capabilities of the PIC32MX1XX/2XX family of devices using the PIC32 Bluetooth Audio Development Board.

Note: This PIM can only be used with the PIC32 Bluetooth Audio Development Board. To get started with development, please visit: http://www.microchip.com/pic32tools and click the PIC32 Bluetooth Audio Development Board (DV320032) product link.

The PIC32MX1XX/2XX family of devices are high-performance 32-bit microcontrollers in low-pin count packages.

Table 1 provides the mapping between the development board functions and the device pins.

The MCP23008 is an I²C bus expander, which was added to help maintain the most of the functionalities of the 100-pin device, see Figure 3. The I²C expander controls the on-board LEDs and charge management logic control lines. For flexibility, the I²C expander has a changeable slave address.

TABLE 1: 44-PIN TO 100-PIN PIM MAPPING

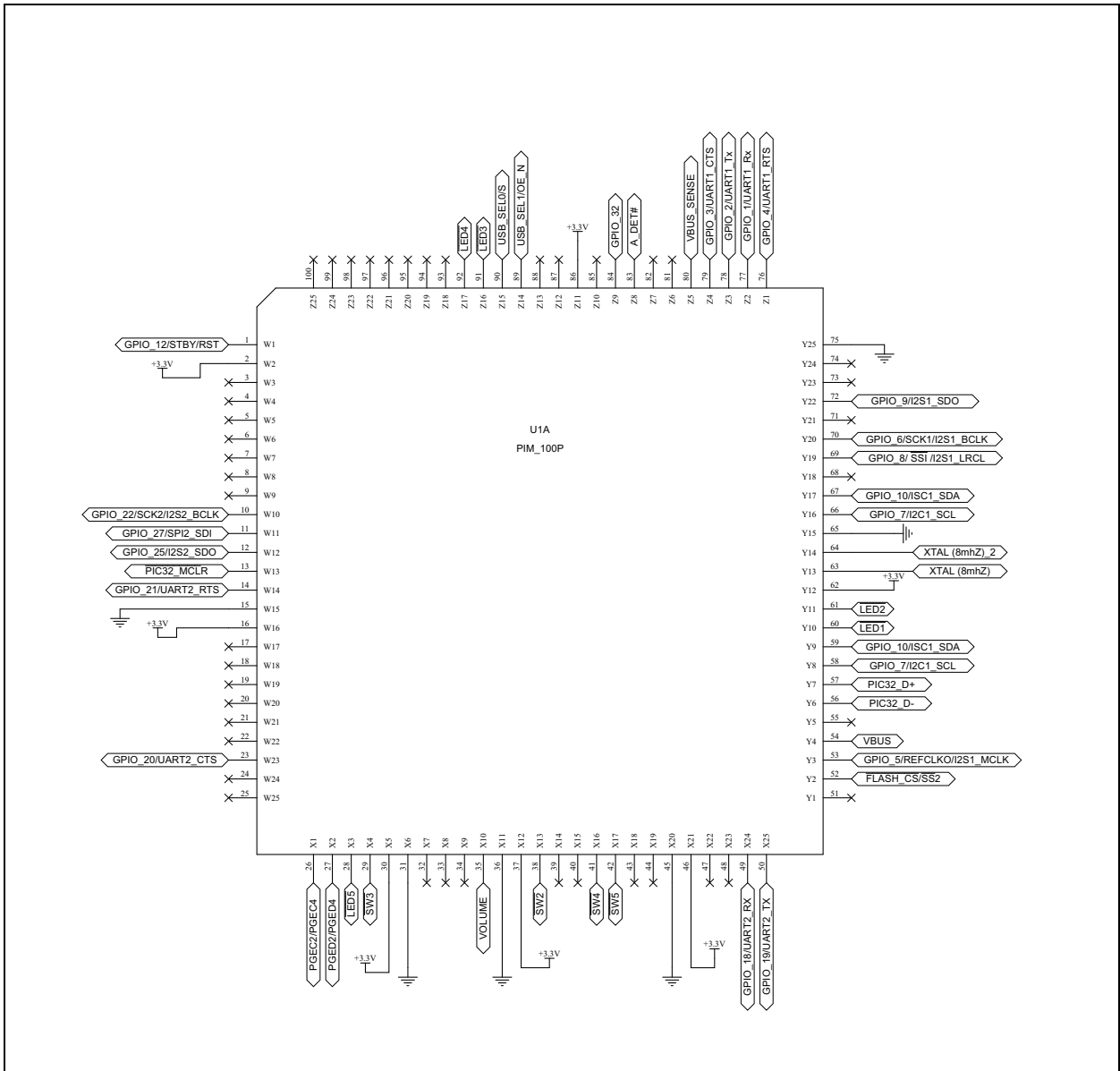| Device Pin #	PIC32MX274F256D Pin Name	PIM Pin #	Functional Description	I²C Expander (MCP23008)
1	RPB9/SDA1/CTED4/PMD3/RB9	59, 67	I2C SDA	2
2	RPC6/PMA1/RC6	77	UART1_RX	—
3	RPC7/PMA0/RC7	78	UART_TX	—
4	RPC8/PMA5/RC8	49	UART2_RX	—
5	RPC9/CTED7/PMA6/RC9	41	SW4	—
6	Vss	15, 31, 36, 45, 65, 75	GND	3, 5, 9
7	VCAP	2, 16, 30, 37, 46, 62, 86	3.3V/VCAP	—
8	PGED2/RPB10/D+/CTED11/RB10	57	USB D+	—
9	PGEC2/RPB11/D-/RB11	56	USB D-	—
10	VBUS3V3		3.3V	20
11	AN11/RPB13/CTPLS/PMRD/RB13	N/C	SPI2_SDI	—
12	PGED/TMS/PMA10/RA10	27	PGD4	—
13	PGEC/TCK/CTED8/PMA7/RA7	26	PGC4	—
14	CVREFOUT/AN10/C3INB/RPB14/VBUSON/SCK1/CTED5/RB14	70	I2S1_BCLK	—
15	AN9/C3INA/RPB15/SCK2/CTED6/PMCS1/RB15	10	SCK2	—
16	AVss	15, 31, 36, 45, 65, 75	GND	3, 5, 9
17	AVDD	2, 16, 30, 37, 46, 62, 86	3.3V	20
18	MCLR	13	MCLR#	—
19	PGED3/VREF+/CVREF+/AN0/C3INC/RPA0/CTED1/PMD7/RA0	35	VOLUME	—
20	PGEC3/VREF-/CVREF-/AN1/RPA1/CTED2/PMD6/RA1	80	VBUS_SENSE	—
21	PGED1/AN2/C1IND/C2INB/C3IND/RPB0/PMD0/RB0	52	SS2	—
22	PGEC1/AN3/C1INC/C2INA/RPB1/CTED12/PMD1/RB1	79	UART1_CTS#	—
23	AN4/C1INB/C2IND/RPB2/SDA2/CTED13/PMD2/RB2	17	SW1	—
24	AN5/C1INA/C2INC/RTCC/RPB3/SCL2/PMWR/RB3	38	SW2	—
25	AN6/RPC0/RC0	1	STBY/RS#	—

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TABLE 1:   44-PIN TO 100-PIN PIM MAPPING

Device Pin #	PIC32MX274F256D Pin Name	PIM Pin #	Functional Description	I²C Expander (MCP23008)
26	AN7/RPC1/RC1	53	I2S1_MCLK	—
27	AN8/RPC2/PMA2/RC2	76	UART_RTS#	—
28	VDD	2, 16, 30, 37, 46, 62, 86	3.3V	20
29	VSS	15, 31, 36, 45, 65, 75	GND	3, 5, 9
30	OSC1/CLKI/RPA2/RA2	63	OSC1	—
31	OSC2/CLKO/RPA3/RA3	64	OSC2	—
32	TDO/RPA8/PMA8/RA8	83	A_DET#	—
33	SOSCI/RPB4/RB4	69	I2S1_LRCL	—
34	SOSCO/RPA4/T1CK/CTED9/RA4	12	SDO2	—
35	TDI/RPA9/PMA9/RA9	72	I2S1_SDO	—
36	AN12/RPC3/RC3	23	UART2_CTS#	—
37	RPC4/PMA4/RC4	50	UART2_TX	—
38	RPC5/PMA3/RC5	29	SW3	—
39	VSS	15, 31, 36, 45, 65, 75	GND	3, 5, 9
40	VDD	2, 16, 30, 37, 46, 62, 86	3.3V	20
41	RPB5/USBID/RB5	42	SW5	—
42	VBUS	54	3.3V/VBUS	—
43	RPB7/CTED3/PMD5/INT0/RB7	14	UART2_RTS#	—
44	RPB8/SCL1/CTED10/PMD4/RB8	58, 66	I2C SCL	1

Figure 1 illustrates the 100-pin header schematics and Figure 2 illustrates the 44-pin device schematics.

FIGURE 1:   100-PIN HEADER SCHEMATICS

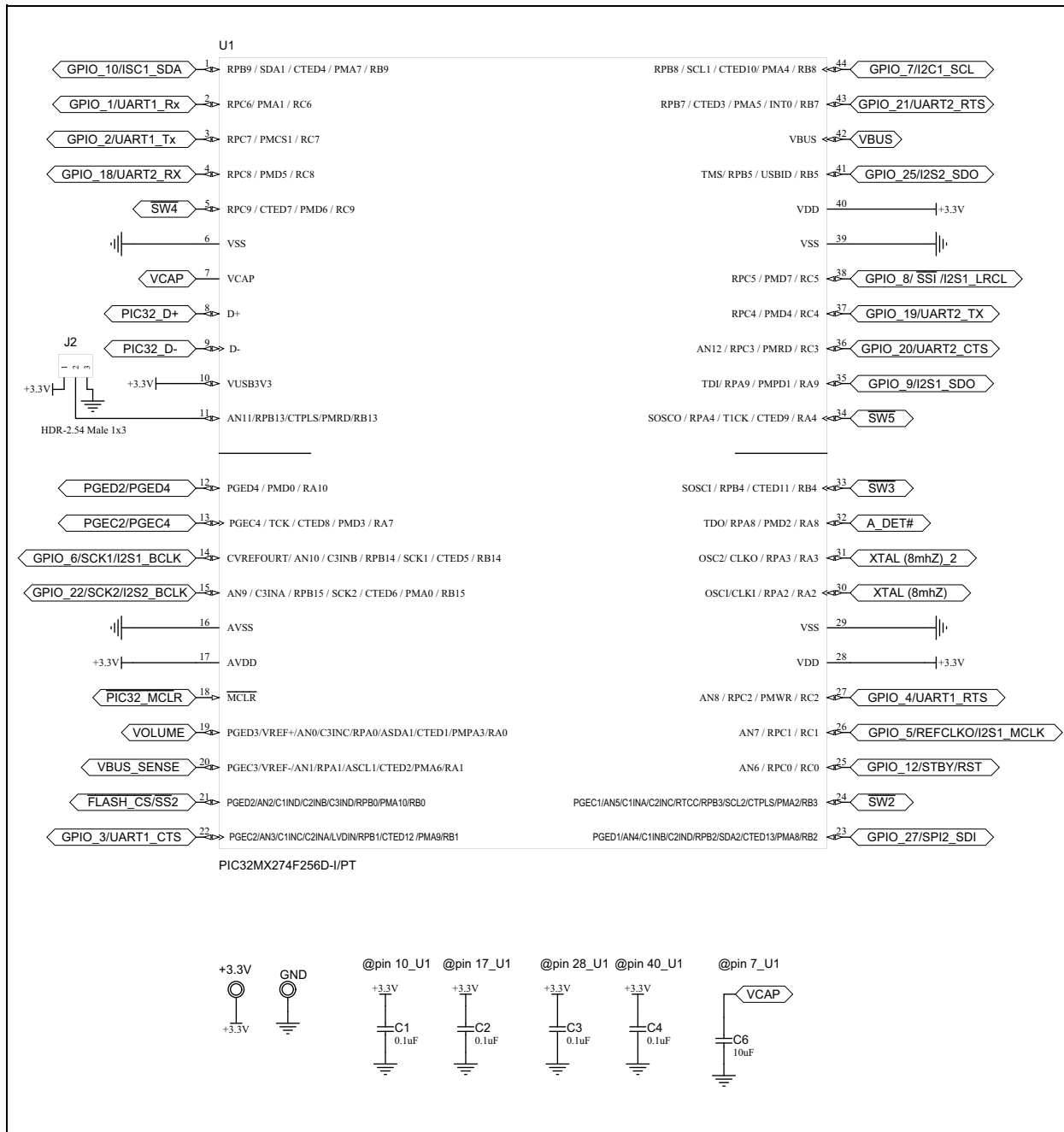# PIC32MX274F256D

FIGURE 2:   44-PIN DEVICE SCHEMATICS

U1

Left pins	Right pins
GPIO_10/ISC1_SDA — 1 — RPB9 / SDA1 / CTED4 / PMA7 / RB9	RPB8 / SCL1 / CTED10/ PMA4 / RB8 — 44 — GPIO_7/I2C1_SCL
GPIO_1/UART1_Rx — 2 — RPC6/ PMA1 / RC6	RPB7 / CTED3 / PMA5 / INT0 / RB7 — 43 — GPIO_21/UART2_RTS
GPIO_2/UART1_Tx — 3 — RPC7 / PMCS1 / RC7	VBUS — 42 — VBUS
GPIO_18/UART2_RX — 4 — RPC8 / PMD5 / RC8	TMS/ RPB5 / USBID / RB5 — 41 — GPIO_25/I2S2_SDO
SW4 — 5 — RPC9 / CTED7 / PMD6 / RC9	VDD — 40 — +3.3V
6 — VSS	VSS — 39
VCAP — 7 — VCAP	RPC5 / PMD7 / RC5 — 38 — GPIO_8/ SS1 /I2S1_LRCL
PIC32_D+ — 8 — D+	RPC4 / PMD4 / RC4 — 37 — GPIO_19/UART2_TX
PIC32_D- — 9 — D-	AN12 / RPC3 / PMRD / RC3 — 36 — GPIO_20/UART2_CTS
+3.3V — 10 — VUSB3V3	TDI/ RPA9 / PMPD1 / RA9 — 35 — GPIO_9/I2S1_SDO
11 — AN11/RPB13/CTPLS/PMRD/RB13	SOSCO / RPA4 / T1CK / CTED9 / RA4 — 34 — SW5
PGED2/PGED4 — 12 — PGED4 / PMD0 / RA10	SOSCI / RPB4 / CTED11 / RB4 — 33 — SW3
PGEC2/PGEC4 — 13 — PGEC4 / TCK / CTED8 / PMD3 / RA7	TDO/ RPA8 / PMD2 / RA8 — 32 — A_DET#
GPIO_6/SCK1/I2S1_BCLK — 14 — CVREFOURT/ AN10 / C3INB / RPB14 / SCK1 / CTED5 / RB14	OSC2/ CLKO / RPA3 / RA3 — 31 — XTAL (8mhZ)_2
GPIO_22/SCK2/I2S2_BCLK — 15 — AN9 / C3INA / RPB15 / SCK2 / CTED6 / PMA0 / RB15	OSCI/CLKI / RPA2 / RA2 — 30 — XTAL (8mhZ)
16 — AVSS	VSS — 29
+3.3V — 17 — AVDD	VDD — 28 — +3.3V
PIC32_MCLR — 18 — MCLR	AN8 / RPC2 / PMWR / RC2 — 27 — GPIO_4/UART1_RTS
VOLUME — 19 — PGED3/VREF+/AN0/C3INC/RPA0/ASDA1/CTED1/PMPA3/RA0	AN7 / RPC1 / RC1 — 26 — GPIO_5/REFCLKO/I2S1_MCLK
VBUS_SENSE — 20 — PGEC3/VREF-/AN1/RPA1/ASCL1/CTED2/PMA6/RA1	AN6 / RPC0 / RC0 — 25 — GPIO_12/STBY/RST
FLASH_CS/SS2 — 21 — PGED2/AN2/C1IND/C2INB/C3IND/RPB0/PMA10/RB0	PGEC1/AN5/C1INA/C2INC/RTCC/RPB3/SCL2/CTPLS/PMA2/RB3 — 24 — SW2
GPIO_3/UART1_CTS — 22 — PGEC2/AN3/C1INC/C2INA/LVDIN/RPB1/CTED12 /PMA9/RB1	PGED1/AN4/C1INB/C2IND/RPB2/SDA2/CTED13/PMA8/RB2 — 23 — GPIO_27/SPI2_SDI

PIC32MX274F256D-I/PT

J2
+3.3V
+3.3V
HDR-2.54 Male 1x3

+3.3V   GND

@pin 10_U1	@pin 17_U1	@pin 28_U1	@pin 40_U1	@pin 7_U1
+3.3V	+3.3V	+3.3V	+3.3V	VCAP
C1 0.1uF	C2 0.1uF	C3 0.1uF	C4 0.1uF	C6 10uF

Figure 3 illustrates the MCP23008 expander and Table 2 provides the MCP23008 expander pinout details.

FIGURE 3:   MCP23008 EXPANDER
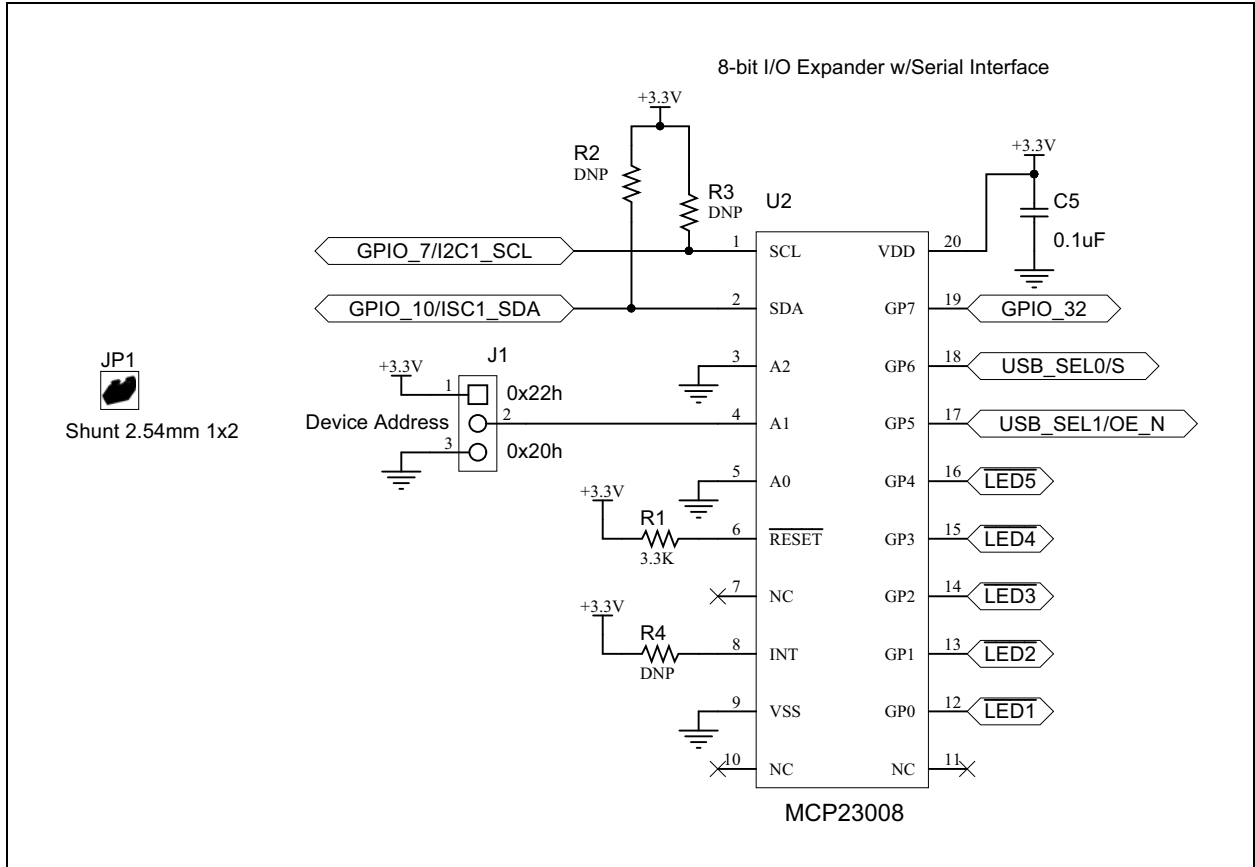
TABLE 2:   MCP23008 PINOUT

Pin #	Pin Name	PIM Pin #	Functional Description
12	GP0	60	LED1
13	GP1	61	LED2
14	GP2	91	LED3
15	GP3	92	LED4
16	GP4	28	LED5
17	GP5	89	USB_SEL/OE#
18	GP6	90	USB_SEL/S
19	GP7	84	GPIO_32

PIC32MX274F256D

REVISION HISTORY

Revision A (February 2017)

This is the initial released version of this document.

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