

PPS Stands for Peripheral Pin Select. PPS is an advanced feature that allows to map a function on a pin. Only digital functions are remappable, I2C excluded. Functions are divided in Input Functions and Output Functions.

This document covers only pin/functions available on PIC32MX suitable for ORbit16™ board: PIC32MX210F016B, PIC32MX220F032B, PIC32MX230F064B, PIC32MX250F128B.

On PIC32MX not all functions can be assigned to any remappable pin. Functions and Pins are grouped in 4 groups. Functions in a group can be remapped only on the remappable pins within the same group.

PIC32MX calls remappable pins as RPxy, where x is the bank letter (A or B) and y is the number of remappable pin. So, for example, RPA0 is the remappable pin on RA0 port; RPB7 is the remappable pin on RB7 port and so on.

Every pin on PIC32MX is remappable, so please don't consider the silkscreen on expansion headers of ORbit16™ since was made for PIC24F.

LOCK/UNLOCK PPS

For using illustrated functions you must include pplib.h:

```
#include <pplib.h>
```

First than remap a pin you must unlock the PPS registers with `PPSUnLock` macro. After you've remapped a pin, you must re-lock PPS registers with `PPSLock` macro.

INPUT FUNCTIONS

- Group 1 Functions: IC4, INT4, REFCLKI, SS1, T2CK
- Group 1 Pins: RPA0, RPB3, [RPB4], (RPB7), RPB15

- Group 2 Functions: IC3, INT3, SDI1, T3CK, U1CTS, U2RX
- Group 2 Pins: RPA1, RPB1, (RPB5), RPB8, [RPB11]

- Group 3 Functions: IC1, IC5, INT2, OCFB, SDI2, T4CK, U1RX, U2CTS
- Group 3 Pins: [RPA2], [RPA4], RPB2, RPB13

- Group 4 Functions: IC2, INT1, OCFA, SS2, T5CK
- Group 4 Pins: [RPA3], RPB0, RPB9, [RPB10], RPB14

Pins in square brackets are not available by default on ORbit16™. Pins in round brackets are used by internal features: on RPB7 there is the Button and on RPB5 there is the led.

Function to be used: **PPSInput(group, function, pin) ;**

You want UART1RX on RPB13 pin (BP13 on ORbit16™): **PPSInput(3, U1RX, RPB13) ;**

OUTPUT FUNCTIONS

- Group 1 Pins: RPA0, RPB3, [RPB4], (RPB7), RPB15
- Group 1 Functions: C2OUT, NULL, OC1, SS1, U1TX, U2RTS

- Group 2 Pins: RPA1, RPB1, (RPB5), RPB8, [RPB11]
- Group 2 Functions: OC2, NULL, SDO1, SDO2

- Group 3 Pins: [RPA2], [RPA4], RPB2, RPB13
- Group 3 Functions: OC4, OC5, REFCLKO, SDO1, SDO2

- Group 4 Pins: [RPA3], RPB0, RPB9, [RPB10], RPB14
- Group 4 Functions: C1OUT, NULL, OC3, SS2, U1RTS, U2TX

Pins in square brackets are not available by default on ORbit16TM. Pins in round brackets are used by internal features: on RPB7 there is the Button and on RPB5 there is the led.

Function to be used: **PPSOutput(group, pin, function);**

You want UART1TX on RPB15 pin (BP15 on ORbit16TM): **PPSOutput(1,RPB15,U1TX) ;**

Complete example

```
PPSUnlock; // unlock PPS registers
PPSInput(3,U1RX,RPB13); // set UART1 Receive on RPB13 pin (group 3 pin/function)
PPSOutput(1,RPB15,U1TX); // set UART 1 Transmit on RPB15 pin (group 1
pin/function)
PPSLock; // re-lock PPS registers
```