

Pin of PIC18F4585 and the uses for the SPARC system: PIN FUNCTIONS ASSIGNED

1 MCLR/Vpp/RE3 Reset button (Master clear) 2 RA0/AN0 On/Off Button 3 RA1/AN1	PIN	FUNCTIONS	ASSIGNED
3 RA1/AN1 4 RA2/AN2/VREF-/CVREF 5 RA3/AN3/VREF+ 6 RA4/TOCKL/CIOUT/RCV 7 RA5/AN4/SS/HLDVIN/C20UT 8 RE0/AN5/CK1SPP 9 RE1/AN6/CK2SPP 10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T10S0/T13CLK 16 RC1/T10SI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication RC5/D+/VP 26 RC7/RX/DT/SDO UART communication RD7/SPP5/P1B 27 RD4/SPP4	1	MCLR/Vpp/RE3	Reset button (Master clear)
## RAZ/ANZ/VREF-/CVREF ## RAJ/ANJ/VREF+ ## RAJ/ANJ/VREF+ ## RAJ/ANJ/VREF+ ## RAJ/ANJ/VREF+ ## RAJ/ANJ/VREF ## RAJ/ANJ/VREF ## RAJ/ANJ/VREPP ## RED/ANJ/CK1SPP ## RED/ANJ/OESPP ## Power ## VDD Power ## Power ## VSS Gnd ## OSC1/CLK1 ## OSC2/CLK0/RA6 ## RCJ/T10S0/T13CLK ## RCJ/T10SI/CCP2/UOE ## RCJ/CCP1/P1A ## VUSB ## PRD/SPP0 ## PRD/SPP1 ## RDJ/SPP1 ## RDJ/SSP2 ## RDJ/SSP3 ## RCJ/D+/VM ## RCJ/D+/VM ## RCJ/D+/VP	2	RA0/AN0	On/Off Button
5 RA3/AN3/VREF+ 6 RA4/TOCKL/CIOUT/RCV 7 RA5/AN4/SS/HLDVIN/C20UT 8 RE0/AN5/CK1SPP 9 RE1/AN6/CK2SPP 10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 16 RC1/T1OSI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 33 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	3	RA1/AN1	
6 RA4/TOCKL/CIOUT/RCV 7 RA5/AN4/SS/HLDVIN/C20UT 8 RE0/AN5/CK1SPP 9 RE1/AN6/CK2SPP 10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 16 RC1/T1OSI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	4	RA2/AN2/VREF-/CVREF	
7 RA5/AN4/SS/HLDVIN/C20UT 8 RE0/AN5/CK1SPP 9 RE1/AN6/CK2SPP 10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	5	RA3/AN3/VREF+	
8 RE0/AN5/CK1SPP 9 RE1/AN6/CK2SPP 10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 16 RC1/T1OSI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB	6	RA4/TOCKL/CIOUT/RCV	
9 RE1/AN6/CK2SPP 10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	7	RA5/AN4/SS/HLDVIN/C20UT	
10 RE2/AN7/OESPP 11 VDD Power 12 VSS Gnd 13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T10S0/T13CLK 16 RC1/T10SI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	8	RE0/AN5/CK1SPP	
VDD	9	RE1/AN6/CK2SPP	
12 VSS	10	RE2/AN7/OESPP	
13 OSC1/CLK1 14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 16 RC1/T1OSI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication RC7/RX/DT/SDO UART communication RC7/RX/DT/SDO UART communication RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA RB1/AN10/INT1/SCK/SCL Movement for Z piston RB2/AN8/INT2/VMO Step for Y1 stepper	11	VDD	Power
14 OSC2/CLK0/RA6 15 RC0/T1OSO/T13CLK 16 RC1/T1OSI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0	12	VSS	Gnd
15 RC0/T10SO/T13CLK 16 RC1/T10SI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	13	OSC1/CLK1	
16 RC1/T1OSI/CCP2/UOE 17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D	14	OSC2/CLK0/RA6	
17 RC2/CCP1/P1A 18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	15	RC0/T10S0/T13CLK	
18 VUSB 19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP	16	RC1/T1OSI/CCP2/UOE	
19 RD0/SPP0 20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	17	RC2/CCP1/P1A	
20 RD1/SPP1 21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	18	VUSB	
21 RD2/SSP2 22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	19	RD0/SPP0	
22 RD3/SSP3 23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA Movement for Z piston 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	20	RD1/SPP1	
23 RC4/D-/VM 24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	21	RD2/SSP2	
24 RC5/D+/VP 25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	22	RD3/SSP3	
25 RC6/TX/CK UART communication 26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	23		
26 RC7/RX/DT/SDO UART communication 27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper			
27 RD4/SPP4 28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper			
28 RD5/SPP5/P1B 29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	-		UART communication
29 RD6/SPP6/P1C 30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper			
30 RD7/SPP7/P1D 31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	-		
31 VSS Power 32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper	-		
32 VDD Gnd 33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper			
33 RB0/AN12/INT0/FLT0/SDI/SDA 34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper			
34 RB1/AN10/INT1/SCK/SCL Movement for Z piston 35 RB2/AN8/INT2/VMO Step for Y1 stepper			Gnd
35 RB2/AN8/INT2/VMO Step for Y1 stepper			
36 RR3/AN9/CCP2/VPO Direction for Y1 stepper			
	36	RB3/AN9/CCP2/VPO	Direction for Y1 stepper
37 RB4/AN11/KBI0/CSSP Step for X1 stepper			
38 RB5/KBI1/PGM Direction for X1 stepper			
39 RB6/KBI2/PGC Step for X2 stepper			
40 RB7/KBI3/PGD Direction for X2 stepper	40	RB7/KBI3/PGD	Direction for X2 stepper