PIC18F2455 28-Pin PDIP, SOIC PIC18F2550 Development Board using KiCAD

Description :

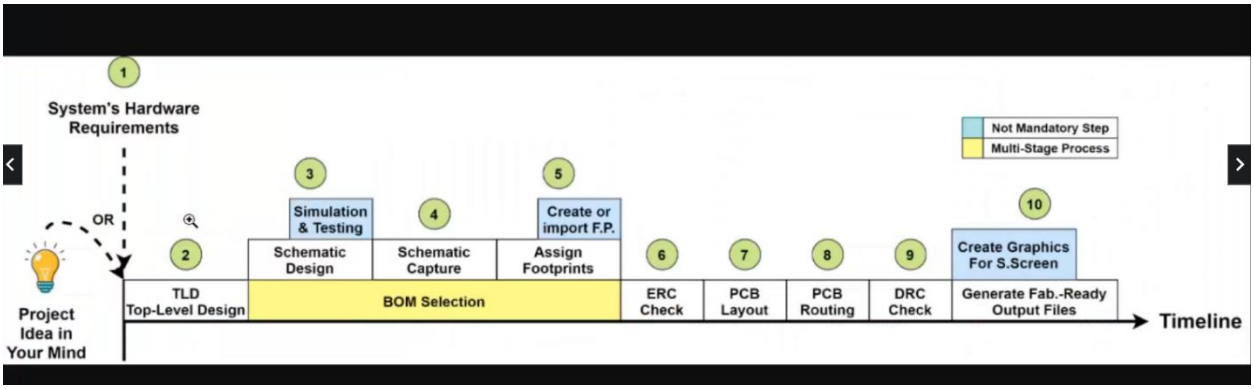
The PIC18F2550 Development Board is a hardware platform designed for the PIC18F2455 microcontroller in a 28-pin PDIP (Plastic Dual Inline Package) or SOIC (Small Outline Integrated Circuit) package. The development board serves as a convenient tool for prototyping and testing applications based on the PIC18F2455 microcontroller.

The board is designed using KiCAD, an open-source electronic design automation (EDA) software suite. KiCAD allows for the creation of schematic diagrams and printed circuit board (PCB) layouts, enabling the development board to be customized and modified according to specific project requirements.

The development board features a variety of components and peripherals to support the functionality of the PIC18F2455 microcontroller. These may include power supply circuitry, crystal oscillators for clock generation, reset circuitry, programming interfaces, LED indicators, push buttons, and connectors for input/output (I/O) interfacing.

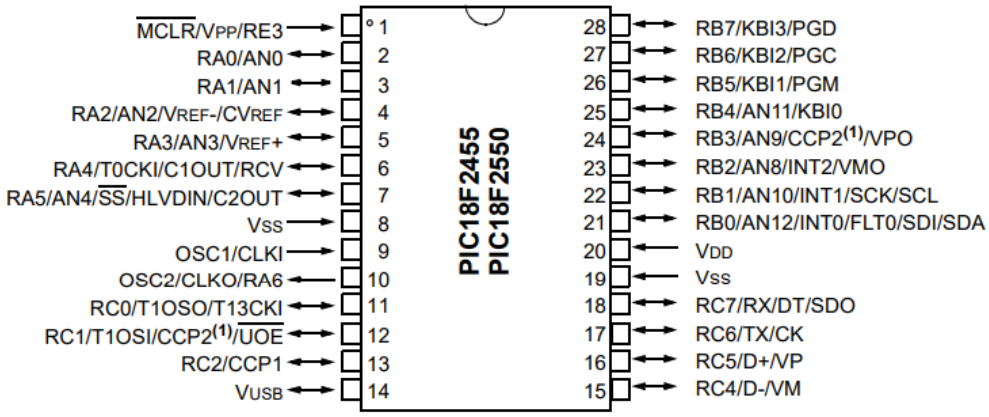
By utilizing the PIC18F2550 Development Board, developers can easily connect external devices, sensors, and actuators to the microcontroller, allowing for rapid prototyping and evaluation of various applications. The board provides an accessible platform for programming, debugging, and testing firmware using suitable programming tools and software.

Design Methodology Used



Step 1 :Systems Hardware Requirements

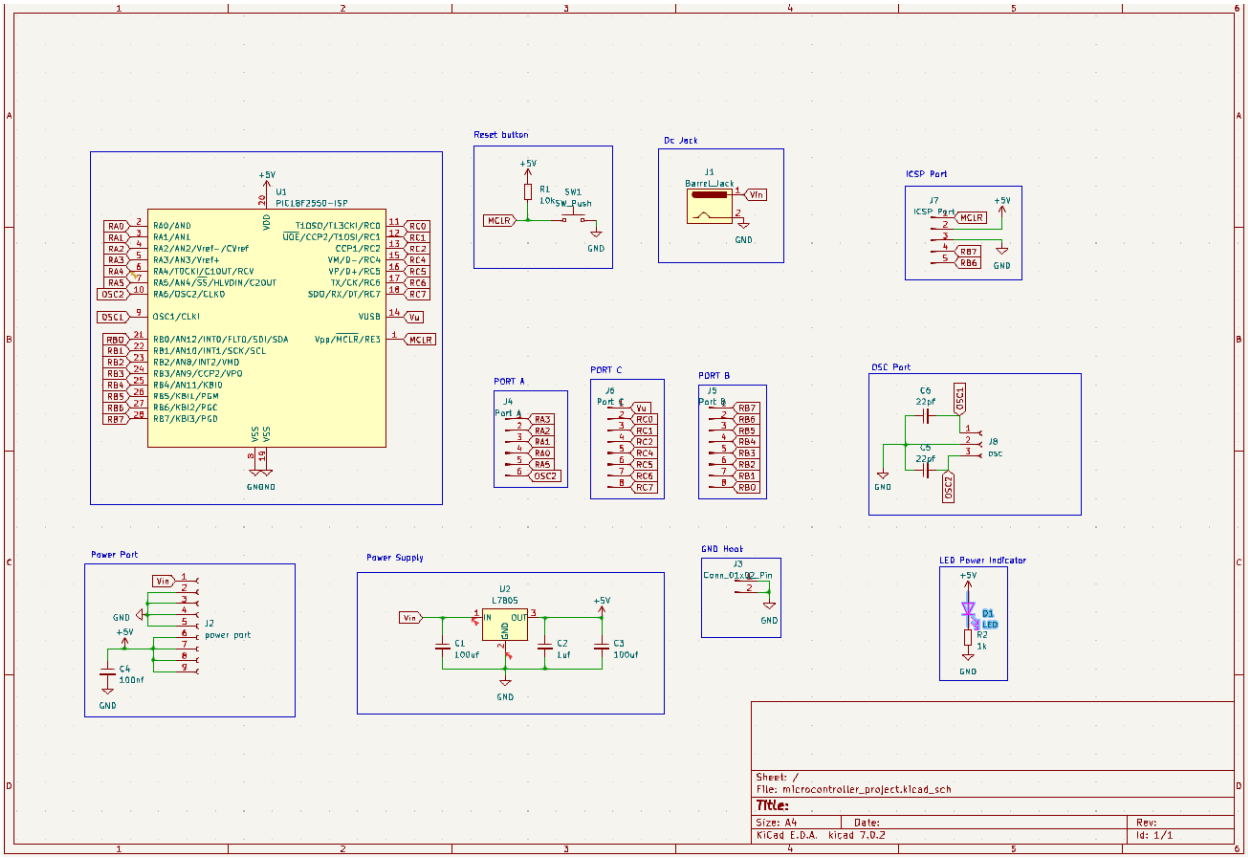
28-Pin PDIP, SOIC



- Functionally Description:
    1. The PCB Shall Breakout all MCU pins to female pi headers
    2. The Board shall have a female power pins header
    3. The Board Shall have a female 3 pin header for external switchale osciallator/resonator
    4. The Board Shall have a female 5 pin header for ICSP programmer connections

Top Level Design:

Schematic Design:

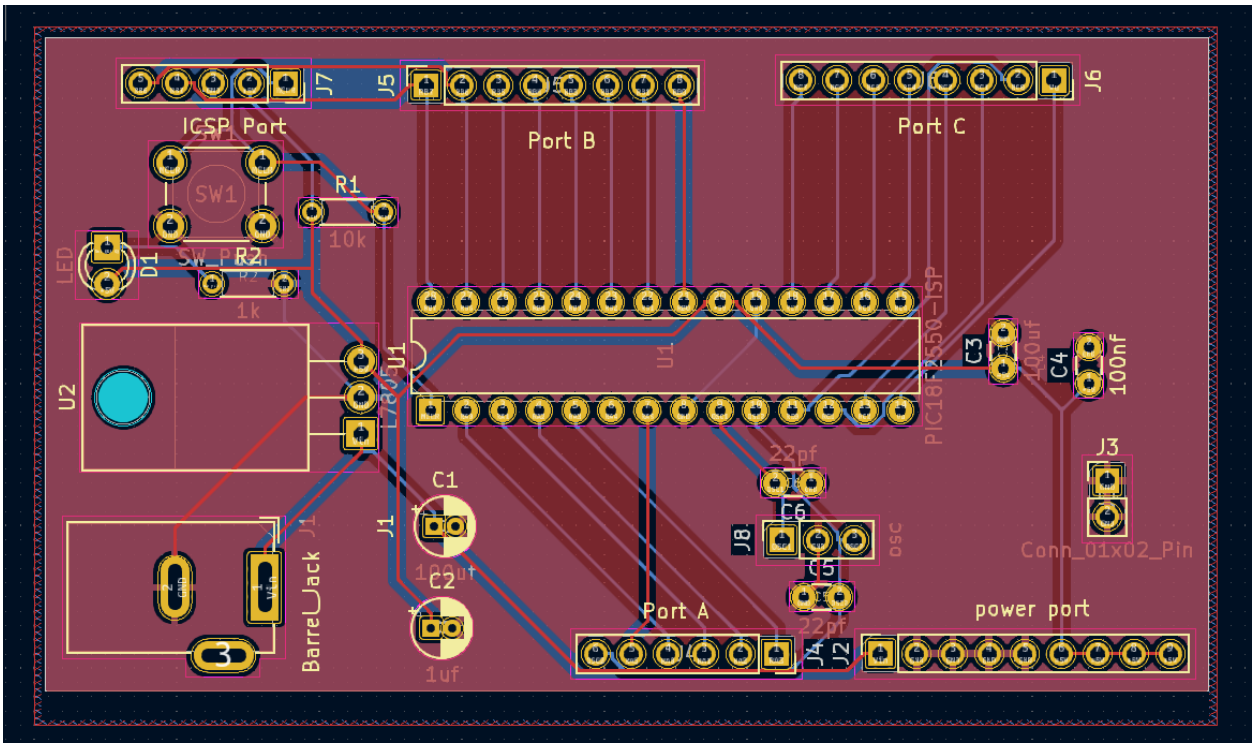


Footprint Assignment

Symbol : Footprint Assignments

1	C1 -	100uf	: Capacitor_THT:CP_Radial_D4.0mm_P1.50mm
2	C2 -	1uf	: Capacitor_THT:CP_Radial_D4.0mm_P1.50mm
3	C3 -	100uf	: Capacitor_THT:C_Disc_D3.0mm_W1.6mm_P2.50mm
4	C4 -	100nf	: Capacitor_THT:C_Disc_D3.0mm_W1.6mm_P2.50mm
5	C5 -	22pf	: Capacitor_THT:C_Disc_D3.0mm_W1.6mm_P2.50mm
6	C6 -	22pf	: Capacitor_THT:C_Disc_D3.0mm_W1.6mm_P2.50mm
7	D1 -	LED	: LED_THT:LED_D3.0mm
8	J1 -	Barrel_Jack	: Connector_BarrelJack:BarrelJack_GCT_DCJ200-10-A_Horizontal
9	J2 -	power port	: Connector_PinSocket_2.54mm:PinSocket_1x09_P2.54mm_Vertical
10	J3 -	Conn_01x02_Pin	: Connector_PinHeader_2.54mm:PinHeader_1x02_P2.54mm_Vertical
11	J4 -	Port A	: Connector_PinSocket_2.54mm:PinSocket_1x06_P2.54mm_Vertical
12	J5 -	Port B	: Connector_PinSocket_2.54mm:PinSocket_1x08_P2.54mm_Vertical
13	J6 -	Port C	: Connector_PinSocket_2.54mm:PinSocket_1x08_P2.54mm_Vertical
14	J7 -	ICSP Port	: Connector_PinSocket_2.54mm:PinSocket_1x05_P2.54mm_Vertical
15	J8 -	osc	: Connector_PinSocket_2.54mm:PinSocket_1x03_P2.54mm_Vertical
16	R1 -	10k	: Resistor_THT:R_Axial_DIN0204_L3.6mm_D1.6mm_P5.08mm_Horizontal
17	R2 -	1k	: Resistor_THT:R_Axial_DIN0204_L3.6mm_D1.6mm_P5.08mm_Horizontal
18	SW1 -	SW_Push	: Button_Switch_THT:SW_PUSH_6mm
19	U1 -	PIC18F2550-ISP	: Package_DIP:DIP-28_W7.62mm
20	U2 -	L7805	: Package_TO_SOT_THT:TO-220-3_Horizontal_TabDown

PCB Layout and Routing



Final 3D PCB Render