**SQUARE WAVEFORM GENERATION WITH 50% DUTY CYCLE USING 10 BIT DAC**

**AIM:**

To write the C program to generate a square wave form with 50% duty cycle using internal 10-bit DAC using LPC2148 ARM Micro controller.

**APPARATUS REQUIRED:**

1. LPC 2148 ARM Microcontroller Development board.
2. Keil µVision version 5
3. Flash Magic

**PROGRAM:**

#include <lpc214x.h>

void delay(unsigned int count); // Function for generating a delay

void generate\_square\_wave(void); // Function to generate square waveform

int main(void) {

// Initialize DAC on P0.25

PINSEL1 |= (1 << 19); // Configure P0.25 as DAC output

while (1) {

generate\_square\_wave(); // Generate square wave

delay(50000); // Small delay between waveform switching

}

}

void delay(unsigned int count) {

unsigned int i, j;

for (i = 0; i < count; i++) {

for (j = 0; j < 6000; j++); // Approximate delay

}

}

// Function to generate square waveform using DAC

void generate\_square\_wave(void) {

unsigned int high = 1023 << 6; // DAC value for maximum output

unsigned int low = 0 << 6; // DAC value for minimum output

for (int i = 0; i < 100; i++) {

DACR = high; // Set DAC to maximum (High)

delay(10000); // Hold for some time to create the high part of the square wave

DACR = low; // Set DAC to minimum (Low)

delay(10000); // Hold for some time to create the low part of the square wave

}

}