

Lab-10

Conceitos envolvidos:

- 1) Sensor de Temperatura DS1620
- 2) Display de LCD HD44780
- 3) Conversão BCD
- 4) Conversão ASCII

Utilizando o simulador MCU8051-IDE , desenvolver um programa em Assembly do 8051 que faça a medida de temperatura sobre um sensor DS1620 e mostre-a em um display LCD de 2 x 16 baseado no controlador HD44780. As conexões do DS1620 são da seguinte maneira:

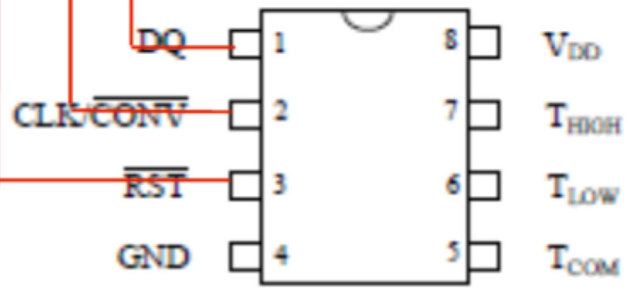
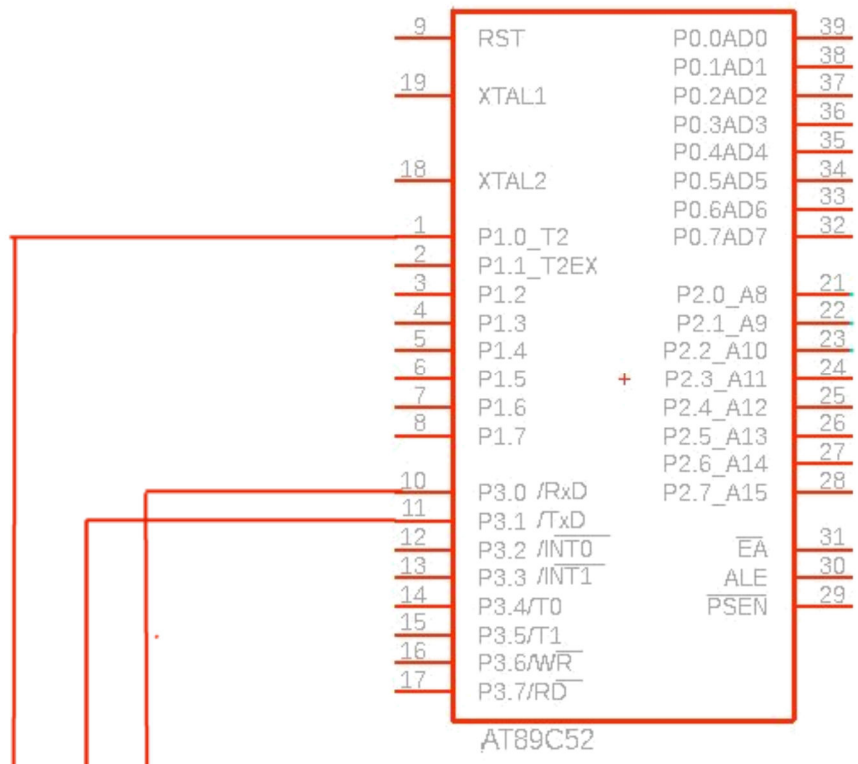
DQ	EQU	P3.0
CLK	EQU	P3.1
RST	EQU	P1.0

As conexões do Display de LCD são da seguinte maneira:

RS	EQU	P3.4
RW	EQU	P3.3
ENAB	EQU	P3.2
DAT	EQU	P2

O resultado da visualização da temperatura deve ser continuo no Display de LCD, conforme variação no sensor de temperatura:

The screenshot displays two windows from the MCU8051 IDE simulator. The top window, titled "DS1620 temperature sensor - Lab10 - MCU 8051 IDE", shows a circuit diagram of the DS1620 sensor connected to the microcontroller. The sensor's output is shown as a vertical bar graph with a value of 59.0°C (138.2°F). Below the graph, there are three rows of status indicators: TH (15.0°C), TL (10.0°C), and TEMP (59.0°C). The bottom window, titled "2 x 16 LCD display - Lab10 - MCU 8051 IDE", shows the LCD display with the text "TEMPERATURA" and "59.0°C" displayed. The display is connected to the microcontroller via a 4-bit data bus (D0-D3) and control lines (RS, RW, ENAB).



DS1620 8-Pin DIP (300-mil)