

Serial 7-Seg Display 8-Digit™

Manual

All Mikroelektronika's development systems feature a large number of peripheral modules expanding microcontroller's range of application and making the process of program testing easier. In addition to these modules, it is also possible to use numerous additional modules linked to the development system through the I/O port connectors. Some of these additional modules can operate as stand-alone devices without being connected to the microcontroller.

Additional Board

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Serial 7-Seg Display 8-Digit Additional Board

The *Serial 7-Seg Display 8-Digit* additional board features eight 7-segment displays used to display digits. Connection between the additional board and a development system is established via an IDC10 connector on the board and a 2x5 connector on one of the development system's ports. Communication between the additional board and a microcontroller is performed via a Serial Peripheral Interface (SPI), whereas eight 7-segment displays on the additional board are used to display digits. When connecting the board to a development system, it is necessary to set the appropriate switches on the DIP switch SW1 to the ON position.

In case EasyPIC, LV18F, EasyLV-18F, Easy24-33 and BigPIC development systems are used, the following switches on the DIP switch SW1 should be set to the ON position:

Switch 1 - MOSI
Switch 4 - SCK

For EasyAVR and Easy8051 development systems, the following switches on the DIP switch SW1 should be set to the ON position:

Switch 3 - MOSI
Switch 6 - SCK

For the EASYdsPIC development system, the following switches on the DIP switch SW1 should be set to the ON position:

Switch 2 - MOSI
Switch 5 - SCK

Switches 7 and 8 on the DIP switch SW1 can also be used for connecting the CS pin (Chip Select) on the additional board to a development system. Depending on the development system in use, CS lines will be connected to different I/O port pins. Accordingly, it is necessary to define in the program, to be loaded into the microcontroller, which pins will be used as the CS pin (Chip Select).

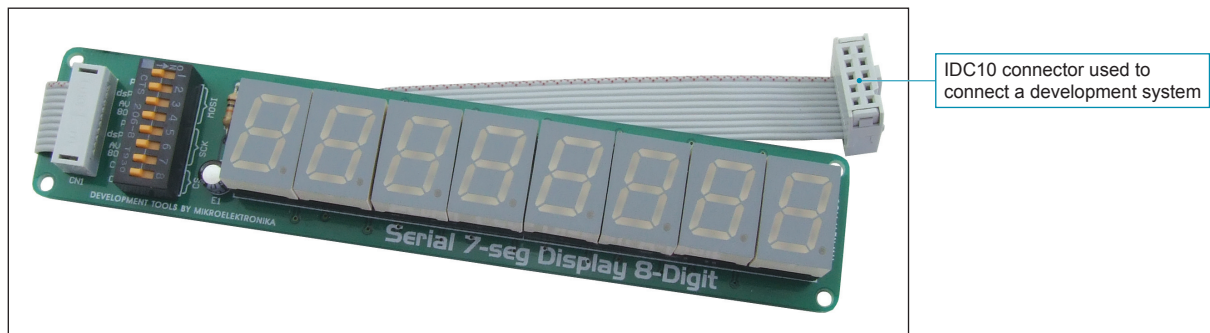


Figure 1: *Serial 7-Seg Display 8-Digit* additional board

Displaying digits is enabled by the time-division multiplexing. All the operations related to multiplexing and displaying digits are performed by using the MAX7219 circuit provided on the additional board. The time-division multiplexing of a 7-segment display is based on fast turning the display segments on/off in such a manner that one gets impression that all eight digits are active at the same time. The MAX7219 circuit feeds digit segments with a signal via pins marked SEGxx, whereas pins marked DIGx are used to select one of eight displays to show the appropriate number.

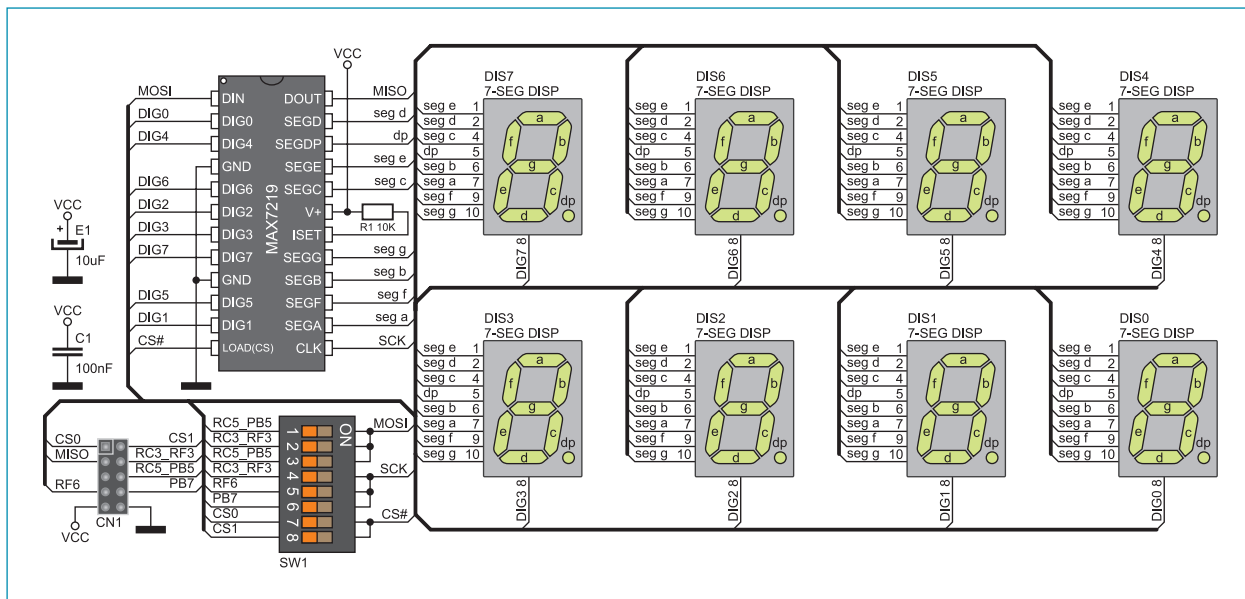


Figure 2: Serial 7-Seg Display 8-Digit additional board connection schematic

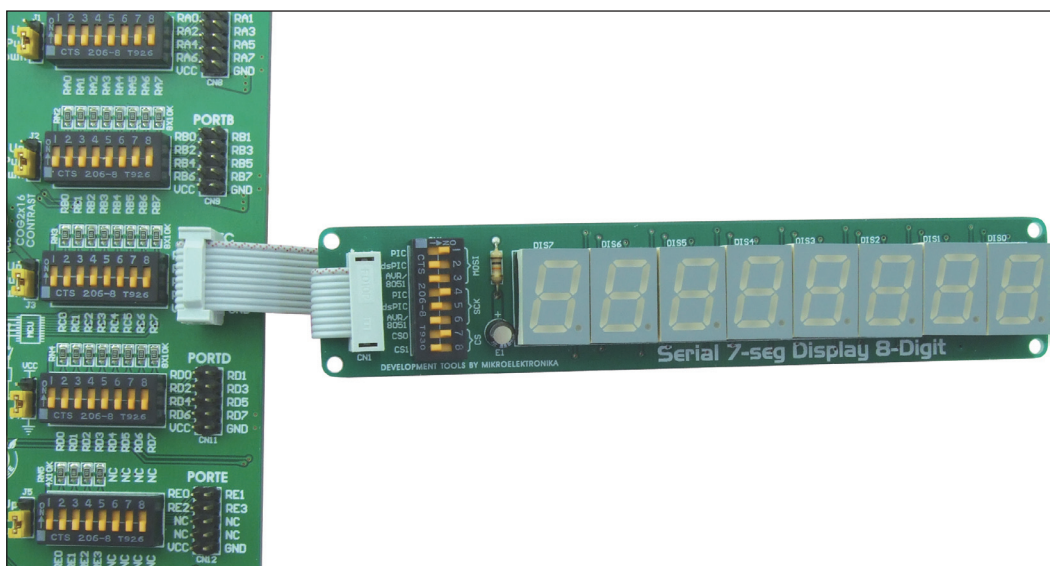


Figure 3: Serial 7-Seg Display 8-Digit additional board connected to a development system



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