

# DISCON



**S T A N D A R D**

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## Revision history:

Revision Number:	Revision Date:	Summary of changes:	Authors:
0.10	January, 2019	Initial draf of the document	U.C.
0.50	November, 2021	Thorough revision and redefinition of the standard	S.T, N.J.
1.00	October, 2022	Initial release	S.T, N.J.

# INTRODUCTION

The Display Board standard for 8th Generation Development Systems defines sockets [Display Board sockets] and display add-on boards [Display Boards] used for interfacing displays with development boards, microcontrollers, and peripheral modules.

The standard specifies functional and aesthetic requirements that must be respected in the development process. This includes the physical layout of the Display Board, communication and power supply pins, the size and the shape of the Display Board, and the silkscreen marking conventions for both add-on boards and sockets.

The purpose of the Display Board socket is to enable easy development of applications, facilitating the use of a great number of various Display Boards, each carrying different display models with various attributes and features [e.g. capacitive or resistive touch panel, OLED or TFT display technology, etc.]. Created by MikroElektronika, Display Board is an open standard - anyone can implement Display Board in their own hardware design, as long as the requirements set by this document are met.

More information at [www.mikroe.com/discon](http://www.mikroe.com/discon)

# DISPLAY BOARD SOCKET STANDARD

The **Display Board socket** consists of a 2x20-pin connector with a proprietary pin configuration and silkscreen markings. The connector is a female 2x20-pin device, on a standard 2.54mm pitch, such as the 22850222CWG1MYWR01, or equivalent. It may also have a polarization post for easier positioning of the Display Board. The pinout consists of four different groups of pins, along with power supply pins.

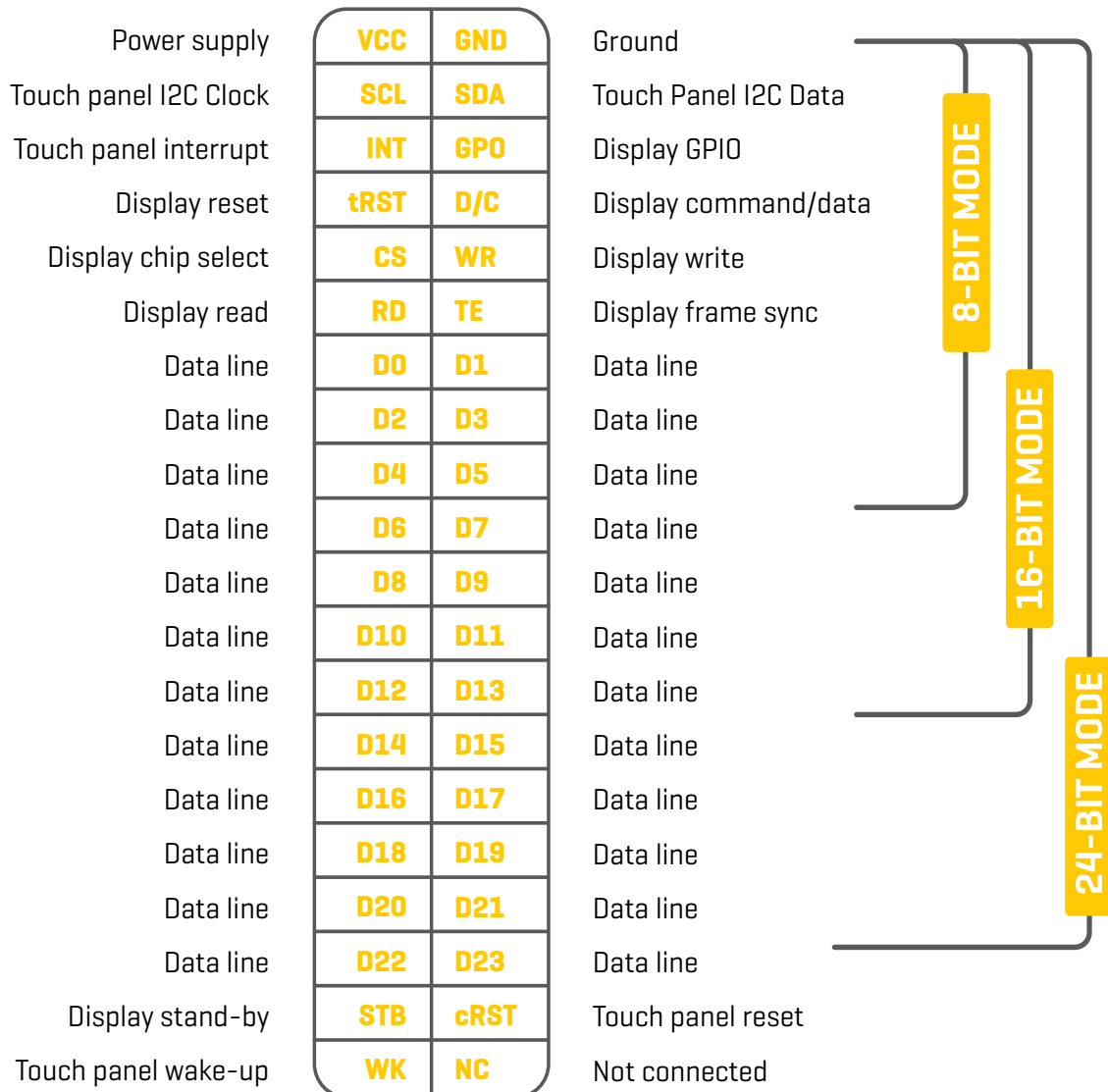
Those groups of pins are:

- **I2C pins:** pins that are used for the purpose of I2C communication.
- **GPIO pins:** pins that are used for the GPIO purpose.
- **Data pins:** pins that are used for the parallel data-port.
- **Optional control pins:** pins that are optional and can be used as GPIOs.

# Pinout Specification

Two pins are used for supplying the board, VCC and GND. Voltage level of the VCC pin is 3.3V and current rating should not exceed 1A.

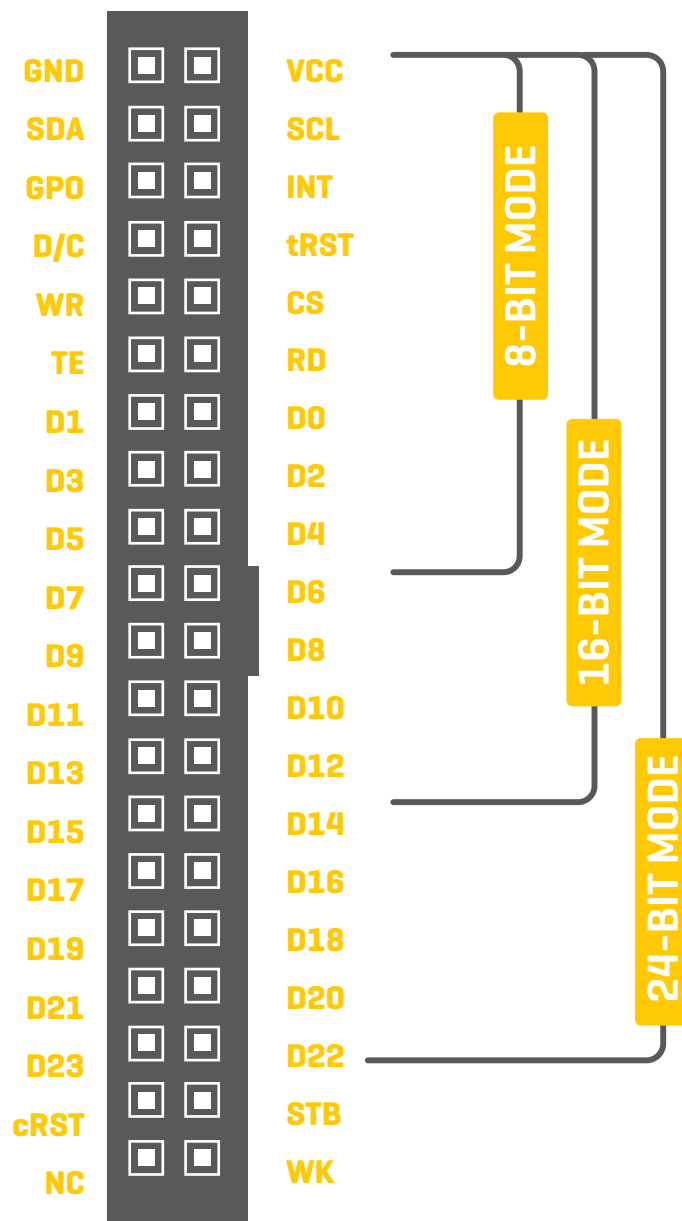
The I2C Interface consists of lines labeled as SCL and SDA (I2C Clock and I2C Data). GPIO pins are labeled as GPIO0, INT, D/C, tRST, WR, CS, TE, and RD in this example, but they can be used for any other GPIO function. Data pins can be used for parallel data-port communication, for up to 24-bit data-port size. Optional pins can be used as GPIO pins. They are assumed to have some default states defined on the Display Board.



## Silkscreen markings

There are two silk colors: yellow, and white.

The pins on the socket are labeled with yellow colored text, while the white color is used to specify which pins are used for 8-bit, 16-bit and 24-bit mode, in parallel data-port communication.



# DISPLAY BOARD STANDARD

**Display Board** can carry TFT, OLED, e-INK, or any other type of display. It has a male 2x20-pin connector with a proprietary pin configuration, compatible with the Display Board socket. The connector is a shrouded male 2x20-pin connector, on a standard 2.54mm pitch, such as the 321040MGOEBK00R02, or equivalent. The connector should have an opening for the polarization post so that the Display Board can't be inserted conversely. The pinout consists of 4 different groups of pins, along with the power supply pins.

Those groups of pins are:

- **I2C pins:** pins that are used for the purpose of I2C communication.
- **GPIO pins:** pins that are used for the GPIO purpose.
- **Data pins:** pins that are used for the parallel data-port.
- **Optional control pins:** pins that are optional and can be used as GPIOs.



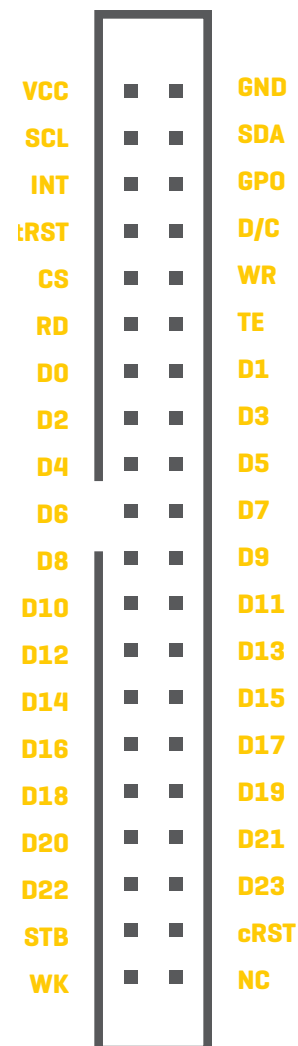
## Pinout Specification

The pinout of the Display Board connector corresponds with the display that is on the board, not the target mainboard. As such, some pins are left unused. The I2C interface consists of lines labeled as SCL and SDA [I2C Clock and I2C Data].

GPIO pins are labeled as GPIO0, INT, D/C, tRST, WR, CS, TE, and RD in this example, but they can be used for any other GPIO function.

Data pins can be used for parallel data-port communication, for up to 24-bit data-port size. Optional pins can be used as GPIO pins. They are assumed to have some default states defined on the Display Board.

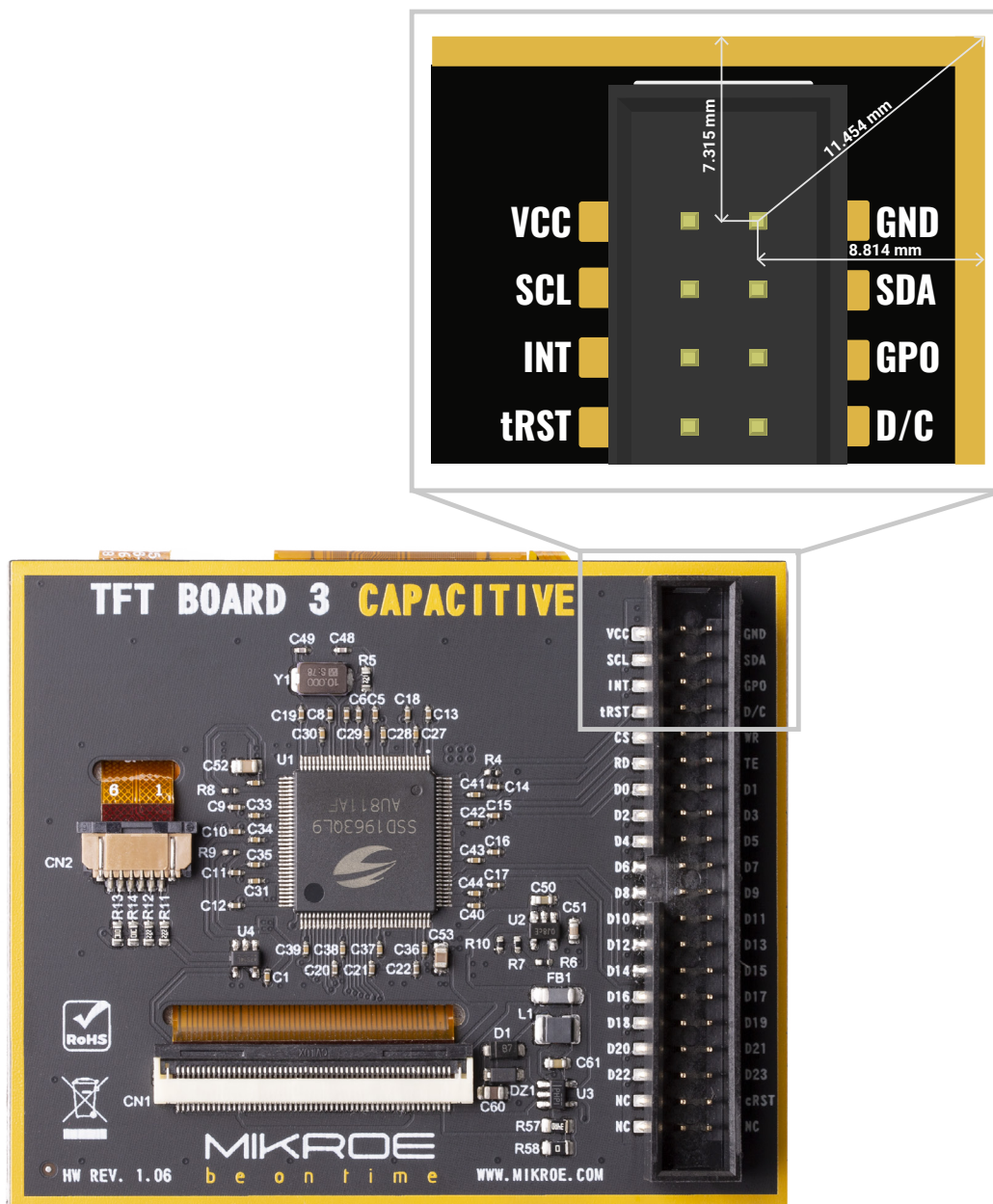
There are also power rails routed on the Display Board. VCC and GND are the first two pins of the connector. Consequently, the connector must be rated such that it can withstand the specific current required by the Display Board itself.



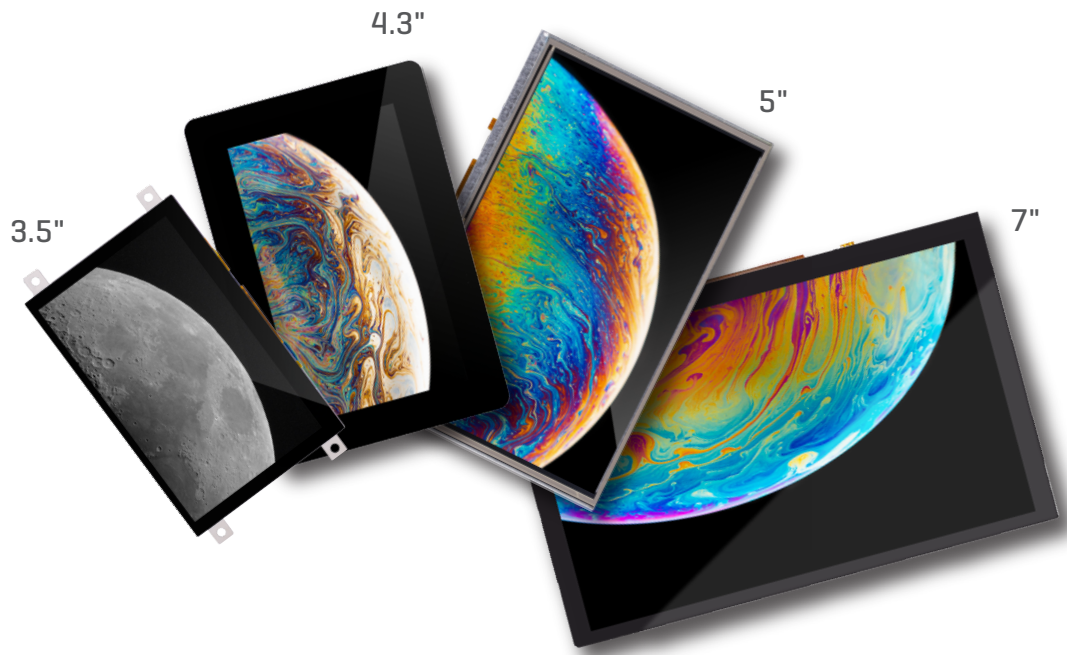
# Dimensions, placement and silkscreen markings

Dimensions of the Display Board can vary depending on the size of the display chosen.

Only the position of the connector must be strictly defined, measured from top right pin in regard to the top and right edge of the Display Board:



The Display Board socket supports various display types and sizes:



The actual name of the specific Display Board can be formed by combining the type of the display, its size, and the type of the touch panel if there is one included on the display.

## TFT BOARD 5 CAPACITIVE

For example, a Display Board that is carrying a 5" TFT display with capacitive touch panel, will be named as TFT Board 5 Capacitive, combining the type of the display [TFT], the size [5], and the type of the touch panel [Capacitive].

As for the placement of the Display Board name, it all depends on the size and the shape of the Display Board, so it can be chosen arbitrarily. The type and the size of the Display Board are printed with white-colored text, while the type of the touch panel [if any] is printed with yellow color.

# DISCON LOGO USAGE

All DISCON display boards not designed by MIKROE require a DISCON compatible logo.

In case of a **light background**, use the logo below:



In case of a **dark background**, use the logo below:



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If you have any questions, comments or business proposals, do not hesitate to contact us at [office@mikroe.com](mailto:office@mikroe.com)

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