User's Guide
180-Pin ControlCARD Docking Station Information Guide

TEXAS INSTRUMENTS

ABSTRACT

The 180-pin controlCARD Docking Station from Texas Instruments (TI) is intended to work with various controlCARDs, specifically the HSEC180 controlCARDs. It also supports controlCARDs in the HSEC120 format. This user's guide describes the hardware details of the Docking Station.

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1 Introduction
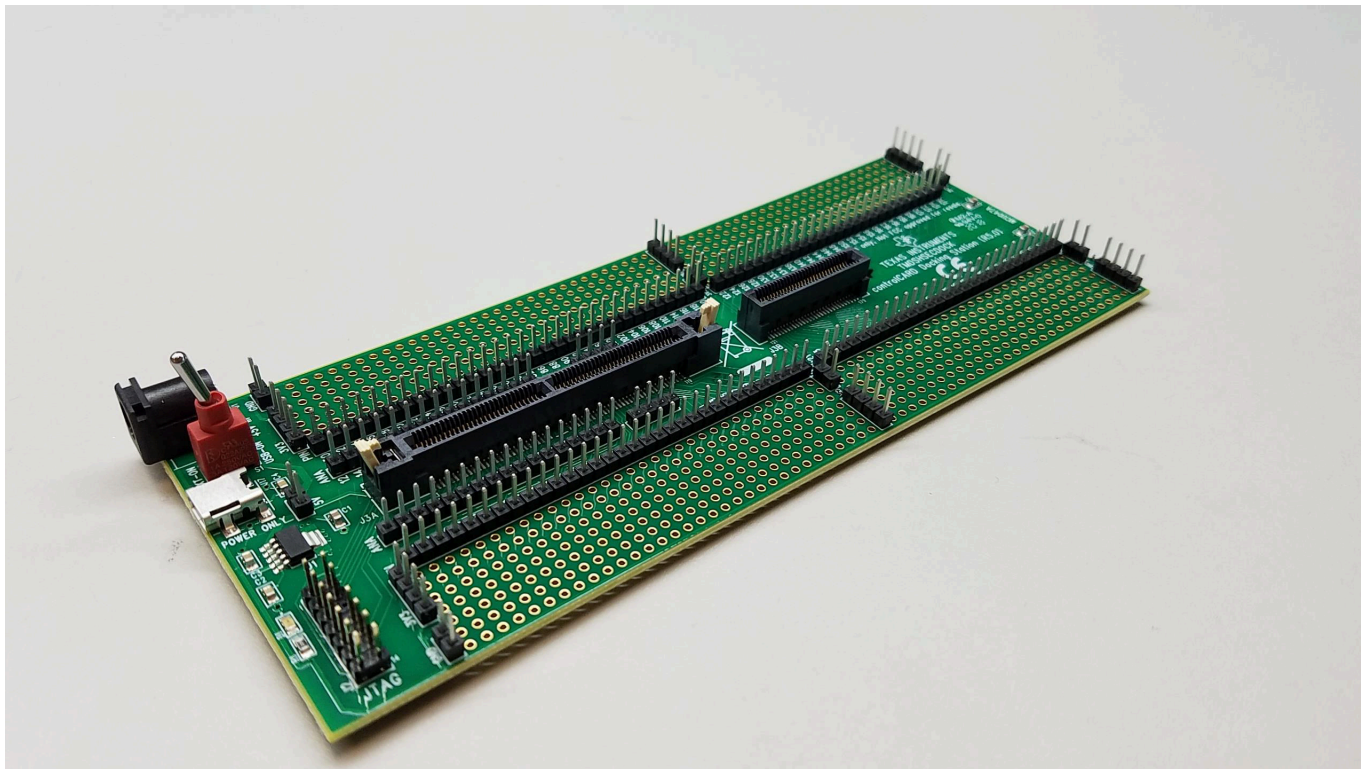
Figure 1-1. 180-Pin controlCARD Docking Station (Revision 5.0 shown)

The 180-pin controlCARD Docking Station from Texas Instruments (TI) employing a 180HSEC controlCARD connector provides a robust platform to learn and experiment with several C2000 controlCARDs that conform to the 180-pin and 120-pin connector footprint. This document describes the hardware details and explains the functions, locations of headers, and connectors present on the board.

Each docking station comes with a full set of files necessary to understand the features of the board. These files can be found in C2000Ware and include:

- Schematics – Latest revision designed in Altium Designer
- Bill of Materials (BOM)
- Layout PCB files – Latest revision designed in Altium Designer
- Gerber files

This Docking Station can be obtained by ordering:

- TMDSHSECDOCK – Docking station, and cables necessary for evaluation

2 Getting Familiar With the Docking Station
2.1 HSECDOCK Docking Station Features

- **180-pin HSEC8 Edge Card Interface** – Allows for compatibility with all of C2000's 120 or 180-pin controlCARDs. Some controlCARDs have 180 pins/fingers and connect to both connectors on the Docking Station. Others have 120 pins/fingers and connect only to the bigger connector.
- **Key Signal Breakout** – Most GPIO, ADC and other key signals are routed from the 180-pin HSEC8 connector to header pins (J4, J5 for Analog; J6, J7, J8, J9 for GPIO; J27 for FSI prototyping is available on revision F and forward.). The HSECDOCK also features through-hole prototyping vias

2.2 Assumed Operating Conditions

This kit is assumed to run at standard room conditions. It should run at approximately Standard Ambient Temperature and Pressure (SATP) with moderate-to-low humidity.

2.3 Using the Docking Station

For the docking station to work, it must be powered. This could be accomplished in two ways:

- By inputting 5VDC through J1. Switch SW1 must be toggled to the EXT-ON side.
- By connecting a USB cable to J17. Switch SW1 must be toggled to the USB-ON side. Note that this USB connector is used solely to power the board and does not support any emulation function.

Note that the only active component on the board is the 5 V to 3.3 V LDO Linear Regulator. Both 5V and 3.3 V are supplied to the docked controlCARD.

2.4 Design Files

The design files are located in C2000ware in the <C2000WARE_INSTALL_DIR>\boards\ExperimenterKits\DockingStation_ HSEC_120or180pin\Rev_F directory. Note that the exact path name depends on the C2000ware revision and installation directory. Note that the exact path name could change based on the C2000ware version. 180_HSEC8_DV_pinout_R1_1.pdf shows GPIO mapping.

3 Hardware References

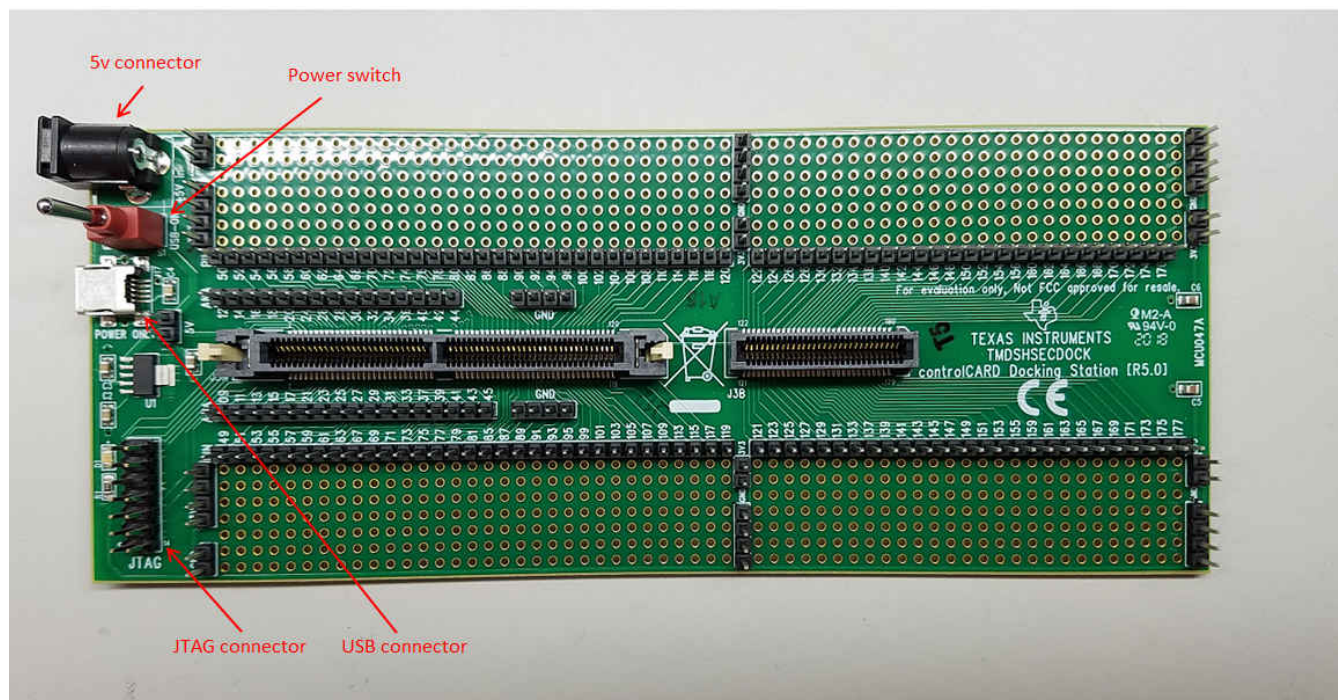Figure 3-1 illustrates the locations of the important components on the board.

Figure 3-1. Key Components on the Docking Station (Revision 5.0 shown)

Table 3-1. Hardware References

Hardware References	
Switches	
S1	Power switch. Determines whether the board is powered by the external 5 V supply or by the USB connector.
LEDs	
D1	Indicates presence of power to the board.
Connectors	
J1	+5 V DC power-supply connector
J2 and J3 [1]	14-pin and 20-pin JTAG connectors [1]
J17	USB connector
Headers	
J16	5 V
J14, J15, J19, J21, J23, J25	3.3 V
J10, J11, J12, J13, J18, J20, J22, J24	GND
J4, J5	Analog
J6, J7, J8, J9	GPIO
J27	FSI (revision F and forward)

(1)   20-pin JTAG connector available only on revision F and forward.

4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision * (June 2018) to Revision A (January 2022)   **Page**

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