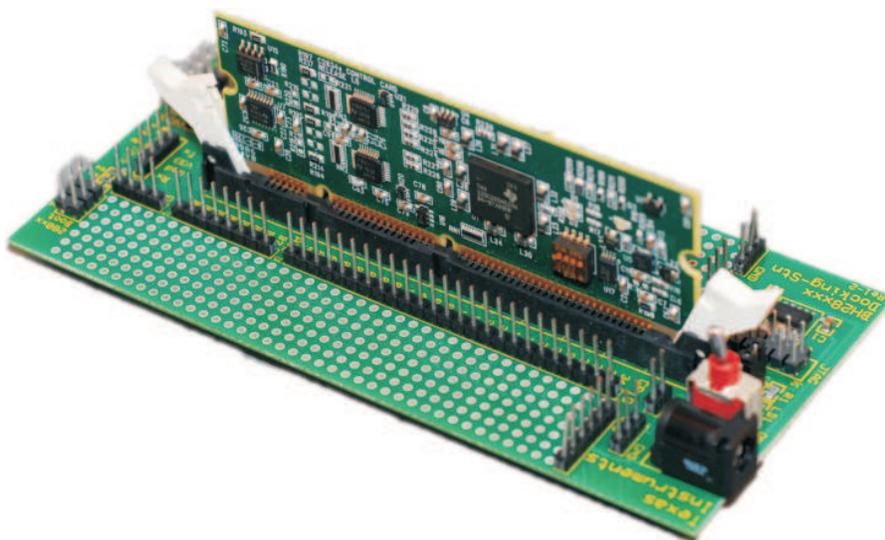


TMS320C28343 Experimenter's Kit Overview



The C28343 Experimenter's Kit is a quick, easy, and low-cost way to evaluate the TMS320C2834x family of devices. It consists of a DIM100 docking station and a C28343 DIM100 controlCARD. The docking station is a small mother board which accepts a DIM100 style controlCARD. It provides the required 5V power supply and provides access to many of the GPIO signals. Additionally, it provides two prototyping areas (one on each side of the DIM100 connector) with an array of 0.1" space that is plated through holes for wire-wrapping and soldering. Other features of the docking station include:

- UART communications header connector
- Boot jumpers for all boot modes covered by C2834x devices
- 5.0 V supply for prototyping area
- 3.3 V supply for prototyping area
- All key signals accessible via clearly labeled header pins

The Delfino™ C28343 controlCARD™ is based on the standard DIM100 controlCARD form factor and is compatible with existing C2000 controlCARD-based application development boards. It is based around the 179-pin 200MHz TMS302C28343ZHH controller and the card provides access to most signals. The external memory interface (XINTF) and external ADC interface (ADCSOC) signal are not accessible using the C28343 controlCARD. These signals can be accessed using the C28346 DIM168 controlCARD, which is not compatible with C2000 application development boards.

In order to maintain compatibility with existing DIM100-based C2000 application development boards, the C28343 controlCARD has two onboard ADCs. The two TI ADS7865 modules are connected to the external ADC interface and use the external memory interface to transfer data at high speeds. They are capable of sampling 12 bits at 2MSPS and provide 6 ADC channels each, for a total of 12 ADC channels. This allows the C28343 controlCARD to be used with existing kits. However the software will need to be modified to utilize the external ADCs.

The controlCARD™ features include:

- 200MHz TMS320C28343ZHH based DIM100 style controlCARD
- Compatible with existing C2000 controlCARD based application development boards

- Two ADS7865 ADC modules on the controlCARD
 - 12-bit, 2 MSPS, 6 channel ADC modules
 - 12 channels total
- 64KB EEPROM for non volatile program storage
- All necessary support for C28343 on controlCARD
 - Single 5V supply for full operation

Both the controlCARD and docking station include a hardware developer's package and a set of soft collateral files which make copying or deploying this technology very easy. These files include:

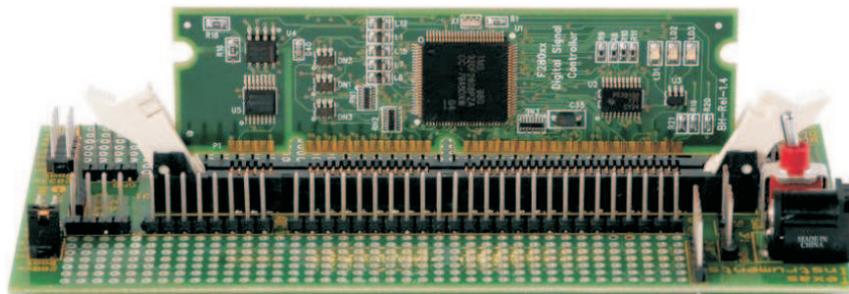
- Schematics (source or .PDF files)
- Bill of materials (BOM)
- Gerber files to freely use or modify
- Pin-out table, showing all key signals at the 168-pin connector
- DIMM168 pin / socket mechanical details
- PCB files written in popular Freeware tool for easy modification (Docking Station only)
- Template mother board PCB file created in a popular freeware tool – great way to begin a new prototype design

1 Getting Started

This kit contains all the hardware needed to get started except a JTAG emulator (suggested emulators are listed at the end of this document). Please follow the steps below to set up the hardware:

- Unpack the DIM style controlCARD
- Spread open the winged retaining clips on connector J1
- Sit the DIM card loosely in the connector slot. Make sure to align the two keyed notches and position the card bottom corners inside the retaining clips (see picture below)
- Pushdown vertically using even pressure from both ends of the card until the clips snap and lock. (Note: To remove or eject the card simply use your thumbs to spread open the retaining clips)
- Connect the 5V power supply to power jack JP1; ensure that switch 1 (SW1) is in the OFF position
- Depending on your emulator, place the Jumper at J8 to either the 3.3V or 5V position
- Connect the JTAG emulator cable to connector J2
- Once you have downloaded the TI Software or are ready to run your own project, turn on the board's power.

For full details (schematics, pin-out table, etc.) of the hardware, refer to the Hardware Developer's package, DockingStnHWdevPkg.



2 Software Setup

Note: IMPORTANT: The C2834x requires an update to Code Composer Studio. Please visit www.ti.com/c2000tools to download the update.

Getting started software, latest header files, Simple C framework code example, and other useful soft collateral can all be found on the TI website. If you already have your own software project and don't require this collateral, skip this section and start up your emulator / CCS environment.

To download the free TI software collateral, follow these steps:

1. On an Internet browser, type: <http://www.ti.com/c2000tools>
2. At the C2000 Tools and Software page, download the baseline software for the C28343 Experimenter's Kit (TMDXDOCK28343)
3. Save the .zip file to the directory of your choice
4. Unzip the file and run the install program Baseline Software Setup
The installer will create the following default directories:
 - C:\TI_F28xxx_SysSW
 - ~Docs
 - ~GeneralPurposeGUI
 - ~SupportFiles
 - FlashingLeds
 - DIM100FlashingLeds
 - C:\TI_F28xxx_SysHW
 - CC280xxHWdevPkg
 - CC2833xHWdevPkg
 - DIM100CC2834xHWdevPkg
 - DockingStnHWdevPkg
 - DIM100DockingStnHWdevPkg
5. If you have emulation tools and Code Composer Studio (CCS) already installed and active, load the project file "FlashingLeds.pjt" found in:
C:\TI_F28xxx_SysSW\FlashingLeds\
 - C:\TI_F28xxx_SysSW\FlashingLeds\
6. Right-click the project name in the project window and select the proper configuration you will use for your controlCARD
7. Compile, load, and run the code on the target. If the target, emulator, and downloaded software are working properly this project should flash an LED on the controlCARD.

3 Emulators

The following companies provide low-cost, full-featured emulators designed specifically for C2000 controllers:

Blackhawk™

- USB2000 Controller (part number BH-USB-2000)
- <http://www.blackhawk-dsp.com>
- \$299

Spectrum Digital

- XDS510LC JTAG Emulator
- <http://www.spectrumdigital.com>
- \$249

4 References

System Framework Overview - presents more information on the system framework found in all F28xxx EVM projects.

C:\TI_28xxx_SysSW\~Docs\SystemFrameworkOverview.pdf

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331