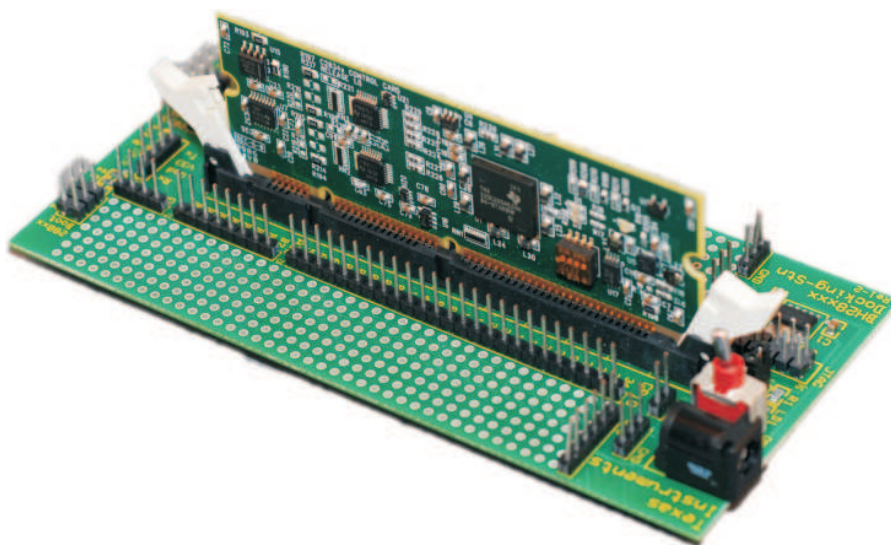


TMS320C28343 Experimenter's Kit Overview



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:

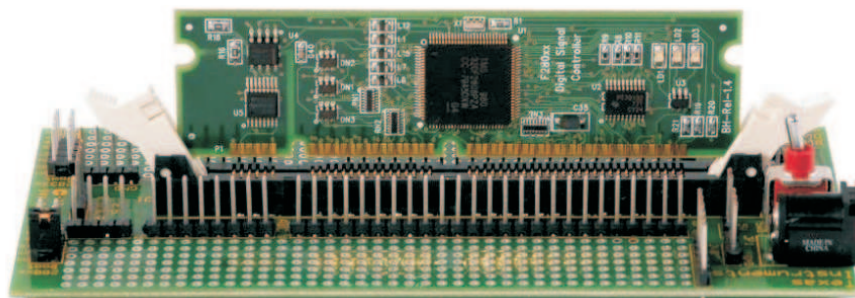
- Schematics (source or .PDF files)
- Bill of materials (BOM)
- Gerber files to freely use or modify
- Pin-out table, showing all key signals at the 168-pin connector
- DIMM168 pin / socket mechanical details
- PCB files written in popular Freeware tool for easy modification (Docking Station only)
- 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\
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

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf

Applications

Audio	www.ti.com/audio
Automotive	www.ti.com/automotive
Broadband	www.ti.com/broadband
Digital Control	www.ti.com/digitalcontrol
Medical	www.ti.com/medical
Military	www.ti.com/military
Optical Networking	www.ti.com/opticalnetwork
Security	www.ti.com/security
Telephony	www.ti.com/telephony
Video & Imaging	www.ti.com/video
Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2009, Texas Instruments Incorporated