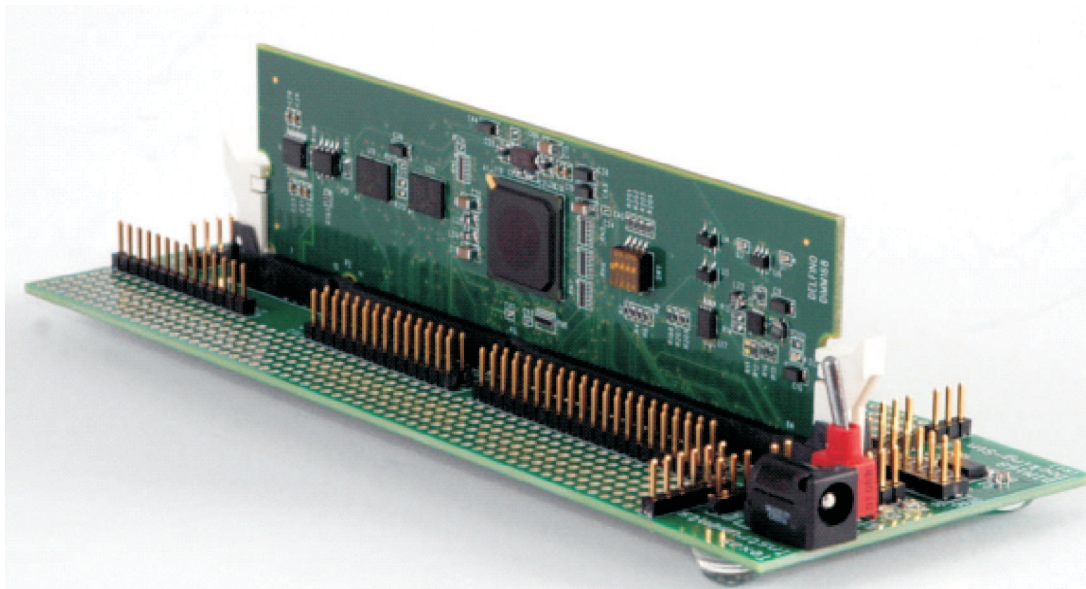


## **TMS320C2000™ DIM168 Experimenter's Kit Overview**

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The C2000™ DIM168 Experimenter's Kit is a quick, easy, low cost way to evaluate the TMS320C2834x family of devices. It consists of a DIM168 docking station and a C28346 DIM168 controlCARD™. The docking station is a small mother board which accepts a DIM168 style controlCARD. It provides the required 5-V power supply and gives the user access to many of the GPIO signals. Additionally, it also provides two prototyping areas (one on each side of the DIM168 connector) with an array of 0.1" spaced plated through holes for wire-wrapping and soldering. Other features of the Docking Station include:

- UART communications header connector
- Switches 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

DIM168 ControlCARDS are small 168-pin Dual In Line Module (DIM) style vertical plug-in boards based on the TMS320C2834x. These controlCARDS have all the necessary support circuitry (clock, supply LDO, decoupling, pull-ups, etc.) to provide reliable operation for the MCU devices. The board design is very robust and meant for operation in noisy electrical environments. The DIM168 is not compatible with DIM100 C2000 tools, although TI does offer a C2834x based DIM100 controlCARD. The DIM168 includes the following features:

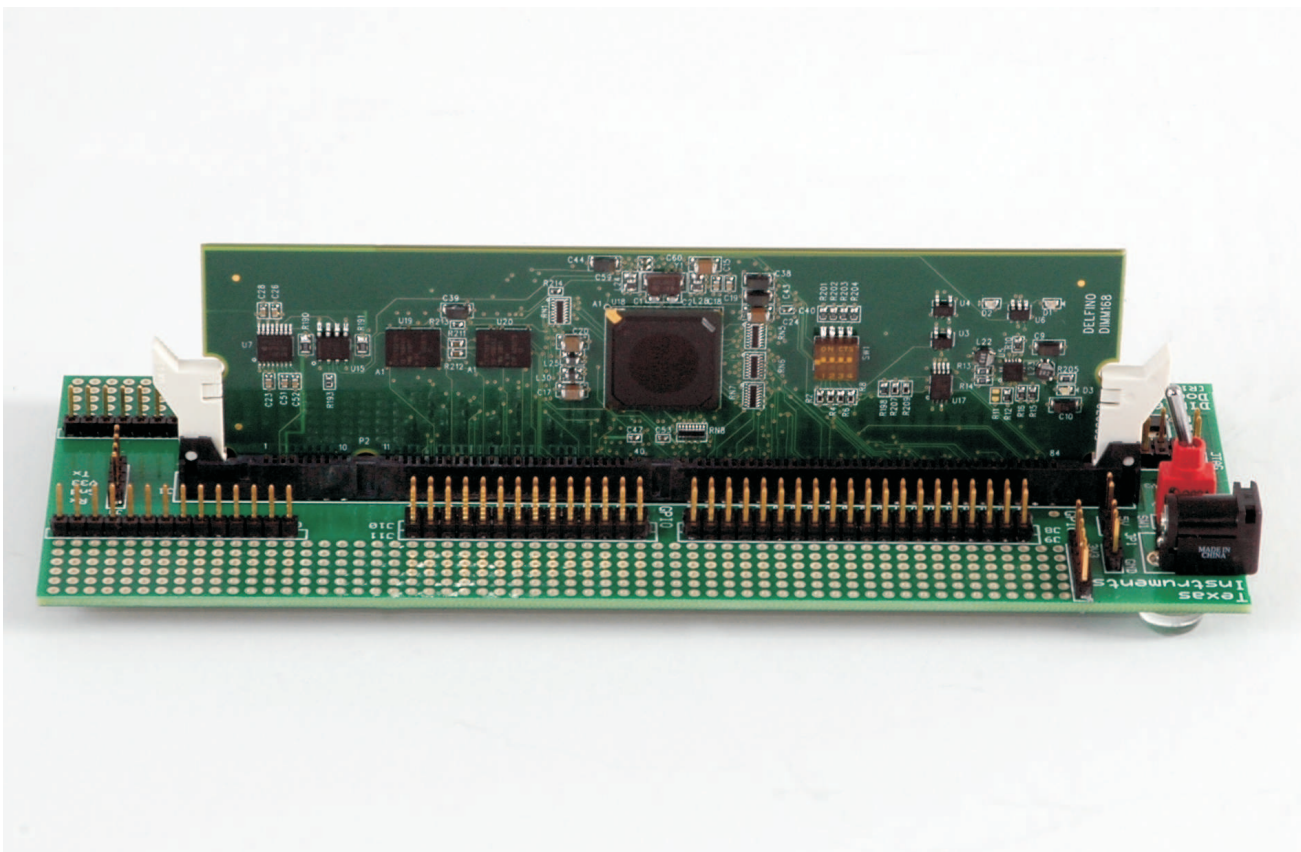
- All GPIO and other signals routed to gold edge connector fingers
- Extensive supply pin decoupling with L+C close to pins
- Ground plane
- Isolated UART communications using RS232 translator + ISO7221 isolators
- Two 128KB external RAM memories connected through the C28346 external memory interface
- 64KB EEPROM for non volatile program storage

## 1 Hardware Setup

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 setup 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 2 keyed notches and position the card bottom corners inside the retaining clips (see [Figure 1](#))
- Push vertically down using even pressure from both ends of the card until the clips snap and lock. (note: to remove or eject the card simply spread open the retaining clips with thumbs)
- Connect the 5-V power supply to power jack JP1, ensure switch 1 (SW1) is in off position
- Place jumper a J12 for 3.3-V emulator reference voltage
- 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 power.
- For full details (schematics, pin-out table, etc.) of the Hardware please refer to the Hardware Developer's package, DockingStnHWdevPkg

**Figure 1. Retaining Clips**



## 2 Software Setup

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**Note:** The C2834x requires an update to Code Composer Studio™. Please visit [www.ti.com/f28xkits](http://www.ti.com/f28xkits) to download the update.

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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 startup your emulator/CCS environment.

To download the free TI software collateral follow these steps:

- On an Internet browser type: <http://www.ti.com/f28xkits>
- At the C2000 Tools and Software page choose the "C28346 DIM168 Experimenter's Kit" link
- Save the .zip file to the directory of your choice
- 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
  DIM168FlashingLeds
C:\TI_F28xxx_SysHW
  CC280xxHWdevPkg
  CC2833xHWdevPkg
  DIM168CC2834xHWdevPkg
  DockingStnHWdevPkg
  DIM168DockingStnHWdevPkg
  
```

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\DIM168FlashingLeds\
```

Right-click the project name in the project window and select the proper configuration you will use for your controlCARD. Next, 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 TMDSEMU2000U)
  http://www.blackhawk-dsp.com
Spectrum Digital
  http://www.spectrumdigital.com
  
```

### 4 References

For more information please see the following guide:

- 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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DSP	<a href="http://dsp.ti.com">dsp.ti.com</a>
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Digital Control	<a href="http://www.ti.com/digitalcontrol">www.ti.com/digitalcontrol</a>
Medical	<a href="http://www.ti.com/medical">www.ti.com/medical</a>
Military	<a href="http://www.ti.com/military">www.ti.com/military</a>
Optical Networking	<a href="http://www.ti.com/opticalnetwork">www.ti.com/opticalnetwork</a>
Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
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