

Meet the TM4C Series TM4C129E

Crypto Connected LaunchPad Evaluation Kit

Part Number: EK-TM4C129EXL



A closer look at your new LaunchPad

Featured microcontroller: TM4C Series TM4C129E

This LaunchPad is ideal for...

- Applications such as IoT gateways, factory control & automation, smart grid & energy, Industrial control... and more
- Beginners & experienced developers with multiple points of entry into software development (Energia for beginners & industrial-grade tools like CCS, Keil, and IAR for more advanced designers)

What comes in the box?

TM4C129ENC PDT Microcontroller

- 32-bit ARM® Cortex™-M4 120-MHz CPU with floating point
- 1 MB Flash / 256 kB RAM / 6 kB EEPROM
- 8-/16-/32-bit EPI
- 12-bit SAR ADC (2MSPS), Comparators, Timers and DMA
- Crypto Hardware Accelerators
- Advanced connectivity integration:
 - 2 CAN Modules
 - QSSI/UART/2C
 - Integrated Full- & Low-speed USB 2.0
 - 10/100 Ethernet MAC + PHY

- This Quick Start Guide
- Micro-USB Cable
- Ethernet Cable
- Bread board connector

Software can be downloaded online @ www.ti.com/tool/ek-tm4c129exl

BoosterPack Ecosystem



Sensor Hub BoosterPack

- InvenSense MPU-9150 9-axis MEMS motion sensor
 - 3-axis gyroscope
 - 3-axis accelerometer
 - 3-axis compass
- Bosch Sensortec BMP180 pressure sensor
- Sensirion SHT32 humidity & ambient temperature sensor
- Intersil ISL29023 light & IR sensor
- TI TMP006 contactless temp sensor



Fuel Tank BoosterPack

- Untether your LaunchPad projects!
- Rechargeable 4.44Wh battery
- I²C fuel gauge
- LED charge-level indicator
- Provides 5V & 3.3V sources

>>> See them all @ ti.com/boosterpacks

Software Tools



Energia

A simple open-source & community-driven code editor based on the Wiring framework.

Robust collection of easy-to-use function calls, APIs, and examples to get you started quickly.

>>> www.energia.nu

Professional Software tools

LaunchPad is also supported by professional IDEs that provide industrial-grade features and full debug capability. Set breakpoints, watch variables & more with Connected LaunchPad.

Code Composer Studio™ IDE



>>> www.ti.com/ccs

Third party IDE options



EK-TM4C129EXL Overview

- Ethernet Port
- Reset Switch
- Wake Button
- USB Micro-A/-B Connector
- User Switch 1 (PJ0)
- User Switch 2 (PJ1)
- User LEDs 1:4 (PN1, PN0, PF4, PF0)
- 40-pin BoosterPack connector can accept both 20- & 40-pin BoosterPacks
- Power Select Jumper (JP1)
- 40-pin BoosterPack connector can accept both 20- & 40-pin BoosterPacks
- Debug USB Port for power and programming/ debugging
- TM4C129GH6PM for programming & debugging
- External debug connection
- Breadboard Connection Headers
- TM4C129ENC PDT MCU

Let's get started!

The out-of-box demo:



The EK-TM4C129EXL Crypto Connected LaunchPad features a TM4C129ENC PDT MCU device pre-programmed with a secure Internet of Things (IoT) application. This application records various information about the Crypto Connected LaunchPad and periodically reports it securely to a cloud server managed by Exosite, a third party.

1. Register with Exosite

Go to ti.exosite.com and create a Portal account. After activating your account, log in and click on the circled link under "Getting Started Guide" on the Home page to add your TM4C Series Crypto Connected LaunchPad to your Exosite Portal.

Add a new device to your Portal:
 1. Click here to add a new device to your Portal
 2. Once successfully added, the new device will be shown under "Device List," or navigate to the Portal Dashboard from here, select the device from top drop-down menu to see reported data.

- Setup Type:** Click "Select a supported device below" and select the "EK-TM4C129EXL Crypto Connected LaunchPad" from the drop-down menu. Click continue.
- Device Setup:** Enter the device MAC address, a device name, and a device location. Click continue. The device MAC address is on a sticker on the bottom of your board.
- Confirm:** Your Crypto Connected LaunchPad is now registered with Exosite! You can see your device on the Devices tab.

2. Connecting the Hardware

Connect the included Ethernet cable from the Ethernet port of a router to the Ethernet port on the Crypto Connected LaunchPad.

Verify that the Power Select Jumper (JP1) is in the "ICDI" position. Connect the included USB cable from a Windows[®]-enabled PC to the "Debug" USB port (top-right corner) on the Crypto Connected LaunchPad.

Note: If the "Found New Hardware" dialog box appears, ignore it until it is time to install the drivers.

3. Demo Application

Go to the Home tab on the far left of the TI Exosite webpage. Under "Device List," click on your device to see the data dashboard. Here you can find widgets that display data and interact with your Crypto Connected LaunchPad. For more details about this secure application, see the readme file located at the default file path `C:/ti/ek-tm4c129exl/secure_ilot`. Visit ti.exosite.com to watch the tutorial video.

Troubleshooting Notes: If you have trouble connecting or firewall issues, go to exosite.com/ti-faq. If your device is behind a proxy, connect to the Virtual COM Port (see step 4 below) and type 'setproxy help' in the terminal window for configuration information.

4. Connecting to the Virtual COM Port

The Debug USB Port provides debug and Virtual COM Port connectivity via the In-Circuit Debug Interface (ICDI). To use the Virtual COM port, install the Stellaris ICDI Drivers on your PC. The drivers and driver installation instructions can be found at www.ti.com/tool/stellaris_icdi_drivers. Once installed, you can view data from the secure application and troubleshoot using a terminal running at 115,200 baud, 8-N-1.

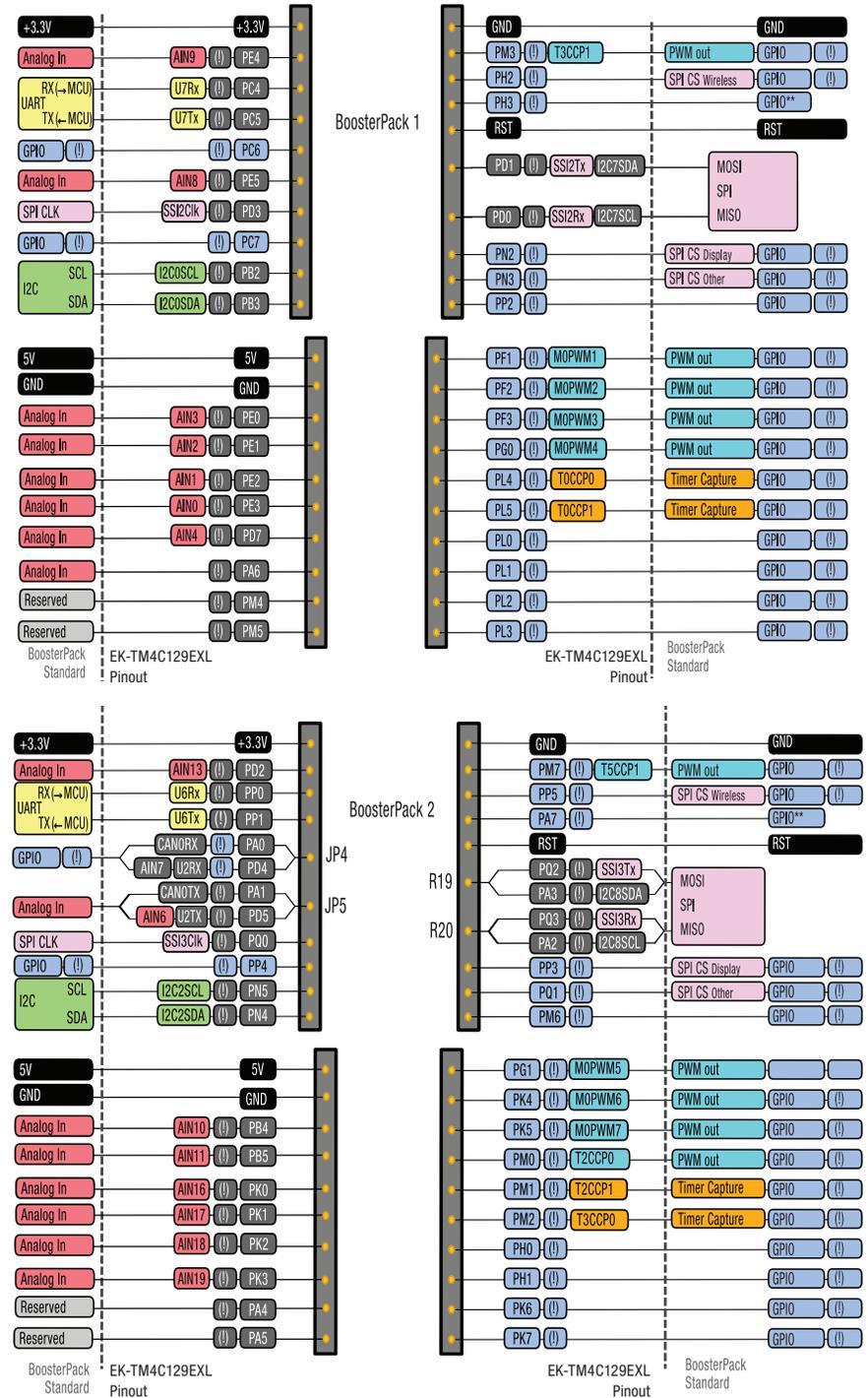
Where do I go next?

Software, Drivers, & Documentation

Go to www.ti.com/tool/ek-tm4c129exl. Here you will find links to the latest out-of-box demo software, TivaWare software, driver installation instructions, TM4C MCU-compatible compiler, debuggers and programmers, the PinMux Utility, a complete list of compatible devices, additional documentation including data sheets and user guides, and everything else you need to get started!

Project 0

When you are ready to take the next step, complete Project 0. For more information, go to www.ti.com/tiva-c-launchpad and click on the Project 0 link for the EK-TM4C129EXL.



(I) indicates a GPIO pin that is interrupt capable.
 ** indicates functionality that may not be present on all LaunchPads.

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