TEXAS INSTRUMENTS

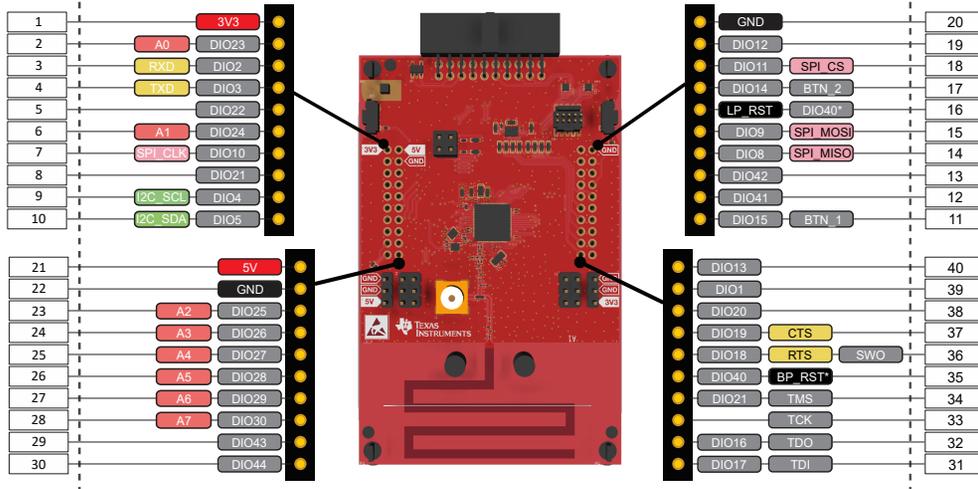Part Number: LP-EM-CC1314R10

Connect your LaunchPad to a computer
and visit dev.ti.com

LaunchPad™ Development Kit

Meet the CC1314R10

Software Tools

Professional Software tools
LaunchPads are supported by professional IDEs that provide industrial-grade features and full debug-capability. Set breakpoints, watch variables, profile code, inspect memory and more.

Code Composer Studio™ IDE

www.ti.com/ccs

SmartRF Studio
A powerful application to evaluate radio performance.

SimpleLink SDK and SimpleLink Academy
Advanced software and tutorials to easy ramp your development with your new LaunchPad.

BoosterPack Ecosystem

Sharp® 128x128 Memory LCD and microSD card BoosterPack
- 1.28 128 x 128 pixel LCD (LS013B7DH03)
- microSD card slot
- DCDC 3V to 5V converter
- Ultra-low-power operation

SimpleLink ULP Sense BoosterPack
- Flow meter measurements
- Ultra low power accelerometer
- Two cap touch buttons
- Analog Light Sensor
- Reed switch
- 0-200kΩ potentiometer

>>See them all @ ti.com/boosterpacks

The BoosterPack™ connector

The pinout to connect BoosterPack accessories (available separately) are shown below.

Pin	Signal			Signal		Pin
1	3V3			GND		20
2	A0	DIO23		DIO12		19
3	RXD	DIO2		DIO11	SPI_CS	18
4	TXD	DIO3		DIO14	BTN_2	17
5		DIO22		LP_RST	DIO40*	16
6	A1	DIO24		DIO9	SPI_MOSI	15
7	SPI_CLK	DIO10		DIO8	SPI_MISO	14
8		DIO21		DIO42		13
9	I2C_SCL	DIO4		DIO41		12
10	I2C_SDA	DIO5		DIO15	BTN_1	11

Pin	Signal			Signal		Pin
21	5V			DIO13		40
22	GND			DIO1		39
23	A2	DIO25		DIO20		38
24	A3	DIO26		DIO19	CTS	37
25	A4	DIO27		DIO18	RTS / SWO	36
26	A5	DIO28		DIO40	BP_RST*	35
27	A6	DIO29		DIO21	TMS	34
28	A7	DIO30			TCK	33
29		DIO43		DIO16	TDO	32
30		DIO44		DIO17	TDI	31

UART (DIO2, DIO3), **Reset** (LP_RST) and **JTAG** (TMS, TCK, TDO and TDI) are also present in the LP-EM Debug Connector. Power (**GND**, **3V3** and **5V**) is also provided.
*These functions are not connected to the LaunchPad connector by default.

XDS110 EnergyTrace™ Technology

The LP-EM-CC1314R10 is compatible with the EnergyTrace technology. EnergyTrace implements a new method for measuring MCU current consumption. It uses a DC-DC solution to measure the time density of charge pulses, allowing accuracy on ultra low power measurements. Its high dynamic range (700 nA to 400 mA) and fast sampling rate (256 kSPS) captures the complete operational profile of the wireless MCU.

EnergyTrace Profile
EnergyTrace Profile runtime and energy data for low power modes along with each function run during Active Mode.

Graphical Power Data in Code Composer Studio
These two tabs of the EnergyTrace Technology window show a graph over time of power and energy.
Available in the LP-XDS110ET Debug Probe and selected LaunchPads

Find more information at
ti.com/EnergyTrace

A closer look at your new LaunchPad Development Kit

Featured microcontroller: CC1314R10

This LaunchPad is great for...
- Battery-operated wireless applications operating in the Sub-1GHz ISM RF bands (868MHz and 915MHz)
- Add RF capabilities to your product using one of the supported protocols: IEEE 802.15.4g, Wi-SUN®, Wireless M-Bus, MIOTY® and proprietary protocols

What comes in the box?

LP-EM-CC1314R10 LaunchPad

QSG This Quick Start Guide

10-pin Debug Cable

2-wire Power Cable

CC1314R106 Microcontroller
- 48 MHz CPU
- 1 MB Flash, 256 kB RAM
- Programmable radio supporting various protocols and up to +14 dBm at 868MHz
- Low power consumption

- Four 32-bit or eight x 16-bit timers
- ADC with 8 channel, 12 bits and 200 ksamples/s
- DAC with 8 bits
- Serial communications: UART, SPI, I2C
- Two comparators
- Real-time clock

LP-EM-CC1314R10 Overview

LP-EM Debug Connector
Together with a LP-XDS110 or LP-XDS110ET, allows:
- Debugging and programming
- Communicate to the host via UART
- Powering the microcontroller

Button/Switch
BTN-1 (DIO15)

20-pin BoosterPack plug-in module connector
(J1, J2, J3 & J4)

CC1314R106T0RSK Wireless Microcontroller

10-pin Debug Connector
Allows using an external JTAG Debug Probe to debug/program the device

Button/Switch
BTN-2 (DIO14)

User LEDs
Red (DIO6)
Green (DIO7)

Antenna

Hardware setup

What do you need?
To use your new LaunchPad, you need to connect an external Debug Probe to either the 20-pin LP-EM Debug connector on the edge of the board or to the 10-pin Debug connector and supply power separately.

Option 1: Using the LP-EM Debug Connector
This is the easiest way to setup the hardware. It requires either an **LP-XDS110** or **LP-XDS110ET** Debug Probe (sold separately).
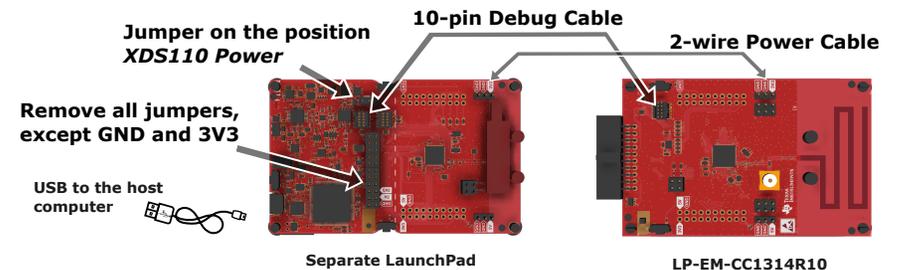
Simply connect the edge connector of the Debug Probe to the edge connector of the LaunchPad and connect the USB port of the Debug Probe to the host computer. A secondary UART communications channel will also be available and power to the LaunchPad will be provided directly.

USB to the host computer

LP-XDS110 or LP-XDS110ET
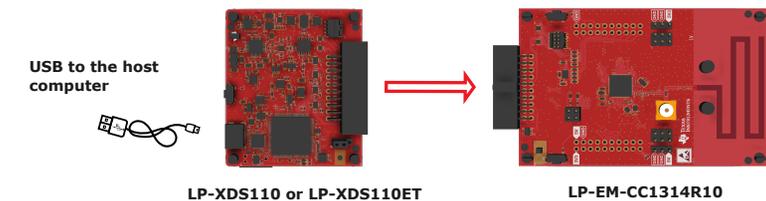
LP-EM-CC1314R10

Option 2: Using the 10-pin debug connector
Either a standalone debug probe or a separate LaunchPad with a built-in debug probe can be used.
Connect the two boards as shown in the picture below:

Jumper on the position XDS110 Power

10-pin Debug Cable

2-wire Power Cable

Remove all jumpers, except GND and 3V3

USB to the host computer

Separate LaunchPad

LP-EM-CC1314R10

For additional details, consult dev.ti.com/LP-EM-CC1314R10
When using the 10-pin debug connector, the UART communications channel must be wired separately (this connector does not carry UART signals).
If using a standalone Debug Probe, consult its documentation to see if it supports the ARM Cortex-M 10-pin standard.

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