SimpleLink[™] Microcontroller Platform



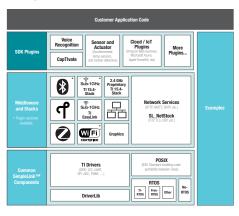
Key benefits

- Broadest portfolio of differentiated 32-bit Arm®-based MCUs
 - Industry-leading low-power consumption
 - On-chip dedicated, integrated security to reduce external security threats
 - Supports more than ten differentiated wired and wireless protocols
- Single software foundation for 100 percent software reuse
 - SDK based on common foundation of drivers, frameworks and libraries
 - Pre-integrated TI-RTOS kernel already deployed in thousands of products across multiple applications
 - POSIX-compliant API ensures compatibility with numerous third-party software components
- Faster development with unified tool chain, training and resources
 - One development environment across the whole portfolio of SimpleLink MCUs
 - Free cloud and offline tools with Code Composer Studio[™] Cloud and Desktop
 - SimpleLink Academy offers free, hands-on training
 - 24/7 support through the TI E2E™ community

TI's SimpleLink™ platform offers the broadest portfolio of 32-bit Arm-based microcontrollers (MCUs) with industry-leading features including low power and robustness, and integrated security to support more than ten differentiated wired and wireless protocols. Each device offers developers a number of features to uniquely solve their problems, whether capturing high-precision 16-bit analog signal, enabling more security, achieving a range of over 20 kilometers or making a coin cell last for several years.

However, when it comes to software development, these devices are developed around a single software foundation providing 100 percent code compatibility within the SimpleLink software development kits (SDKs). The SimpleLink MCU SDKs feature common components and device-specific middleware to speed up your time-to-market and provide a unified development experience across the entire SimpleLink MCU portfolio of wired and wireless devices. Intuitive and standardized APIs enable 100% application code portability.

SimpleLink MCU SDK



The SDK common foundation of drivers, frameworks and libraries enables developers to both access peripherals via portable and easy-to-use TI Drivers API as well as optimize via lower-level access with DriverLib hardware abstraction layer (HAL). Developers can leverage real-time and multi-tasking operations with the integrated TI-RTOS kernel, or tap into other APIs and OS/kernels with POSIX-compliant APIs. A wide range of plug-ins help developers realize additional connectivity and external functionalities. More information about SimpleLink SDK and code portability.

Software Tools

TI's <u>unified tool chain</u> delivers faster development with free software tools, training and support to get designs started immediately.

Code Composer Studio™ integrated development environment (IDE)

- · Free, unlimited license
- Powerful and efficient IDE
- Additional support for third-party IDEs and tools including IAR®, Keil and SEGGER.

Cloud-based tools

- Free access
- Seamless integration to traditional offline tools

SimpleLink Academy

- Dozen of highly curated workshops and chapters
- Help developers ramp quickly on SimpleLink Platform

SimpleLink MCU portfolio

	SimpleLink** Ethernet microcontroller TEXAS INSTRUMENTS	SimpleLink** Host microcontroller **TEXAS. IEXAS.	SimpleLink™ Wi-Fi® Wireless network processor TEXAS INSTRUMENTS AN INSTRUMENTS	SimpleLink™ Wi-Fi® Wireless microcontroller TEXAS INSTRUMENTS *** *** *** *** *** *** ** **	SimpleLink** Biuetooth* low energy Wireless microcontroller ## TEXAS INSTRUMENTS ALLEGATIONELES	SimpleLink™ Sub-1 GHz+ 2.4-GHz concurrency Wireless microcontroller TEXAS INSTRUMENTS	SimpleLink** Sub-1 GHz Wireless microcontroller TEXAS INSTRUMENTS	SimpleLink™ 2.4-GHz Multi-standard Wireless microcontroller TEXAS INSTRUMENTS ALEGATOWIELLS
Product	MSP432E4	MSP432P4	CC3120	CC3220	CC2642R CC2640R2F	CC1352P CC1352R CC1350	CC1312R CC1310	CC2652R
MCU type	Wired MCU	Host MCU	Network processor	Wireless MCU	Wireless MCU	Wireless MCU	Wireless MCU	Wireless MCU
Application	V	V	-	V	v	~	V	V
Wireless stack + RF	_	_	~	~	✓	~	~	~
Wireless and wired technology	Ethernet, USB, CAN and wireless connectivity with SDK plugins	Connectivity with SDK plugins	Wi-Fi®	Wi-Fi	Bluetooth® low energy	Sub-1 GHz + Bluetooth low energy, Zigbee, or Thread	Sub-1 GHz	Bluetooth low energy, Zigbee, Thread, or 2.4- GHz proprietary
Key differentiation	Integrated Ethernet MAC + PHY and advanced cryptography accelerators	Capture analog signals at up to 16 ENOB using ADC	Network processor with integrated Wi-Fi and Internet protocols	Wi-Fi CERTIFIED™ single-chip MCU with enhanced security	Lowest power BT4.2 and BT5 Flash-based solution	Option for integrated 20 dBm PA enabling longer range	Combine low power and longest range to achieve 20 kms on a coin cell	Future-proof designs with the lowest-power 2.4-GHz multi- standard platform
SimpleLink SDK compatible	V	V	~	~	~	V	V	V

SimpleLink portfolio development kits

	Ethernet MCU	Host MCU	Wi-Fi Wireless network processor	Wi-Fi Wireless MCU	Bluetooth low energy	Sub 1-GHz + 2.4-GHz concurrency	Sub 1-GHz	2.4-GHz multi- standard
Product	MSP432E4	MSP432P4	CC3120	CC3220	CC2642R CC2640R2F	CC1352P CC1352R CC1350	CC1312R CC1310	CC2652R
LaunchPad™	MSP-EXP432E401Y	MSP-EXP432P401R	CC3120B00ST	CC3220SF-LAUNCHXL	LAUNCHXL-CC26X2R1 LAUNCHXL-CC2640R2	LAUNCHXL-CC1352R1 LAUNCHXL-CC1350	LAUNCHXL-CC1312R1 LAUNCHXL-CC1310	LAUNCHXL- CC26X2R1

TI Resource Explorer	GUI Composer	<u>PinMux</u>	EnergyTrace™ technology	SmartRF™ Studio
Cloud-based repository featuring code examples, documentation, training and more	Build graphical interfaces to complement your application	Code-gen utility to generate pin, peripheral and driver configuration code	Optimize your application for the lowest possible power consumption	Utility to configure wireless SimpleLink devices

For more information on TI's SimpleLink MCU platform as well as software and hardware tools, please visit www.ti.com/simplelink

The platform bar, Code Composer Studio, E2E, EnergyTrace, LaunchPad, SimpleLink and SmartRF are trademarks of Texas Instruments. All other trademarks are the property of their respective owners.



IMPORTANT NOTICE FOR TI DESIGN INFORMATION AND RESOURCES

Texas Instruments Incorporated ('TI") technical, application or other design advice, services or information, including, but not limited to, reference designs and materials relating to evaluation modules, (collectively, "TI Resources") are intended to assist designers who are developing applications that incorporate TI products; by downloading, accessing or using any particular TI Resource in any way, you (individually or, if you are acting on behalf of a company, your company) agree to use it solely for this purpose and subject to the terms of this Notice.

TI's provision of TI Resources does not expand or otherwise alter TI's applicable published warranties or warranty disclaimers for TI products, and no additional obligations or liabilities arise from TI providing such TI Resources. TI reserves the right to make corrections, enhancements, improvements and other changes to its TI Resources.

You understand and agree that you remain responsible for using your independent analysis, evaluation and judgment in designing your applications and that you have full and exclusive responsibility to assure the safety of your applications and compliance of your applications (and of all TI products used in or for your applications) with all applicable regulations, laws and other applicable requirements. You represent that, with respect to your applications, you have all the necessary expertise to create and implement safeguards that (1) anticipate dangerous consequences of failures, (2) monitor failures and their consequences, and (3) lessen the likelihood of failures that might cause harm and take appropriate actions. You agree that prior to using or distributing any applications that include TI products, you will thoroughly test such applications and the functionality of such TI products as used in such applications. TI has not conducted any testing other than that specifically described in the published documentation for a particular TI Resource.

You are authorized to use, copy and modify any individual TI Resource only in connection with the development of applications that include the TI product(s) identified in such TI Resource. NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT OF TI OR ANY THIRD PARTY IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information regarding or referencing third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of TI Resources may require a license from a third party under the patents or other intellectual property of TI.

TI RESOURCES ARE PROVIDED "AS IS" AND WITH ALL FAULTS. TI DISCLAIMS ALL OTHER WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, REGARDING TI RESOURCES OR USE THEREOF, INCLUDING BUT NOT LIMITED TO ACCURACY OR COMPLETENESS, TITLE, ANY EPIDEMIC FAILURE WARRANTY AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY YOU AGAINST ANY CLAIM, INCLUDING BUT NOT LIMITED TO ANY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON ANY COMBINATION OF PRODUCTS EVEN IF DESCRIBED IN TI RESOURCES OR OTHERWISE. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, DIRECT, SPECIAL, COLLATERAL, INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES IN CONNECTION WITH OR ARISING OUT OF TI RESOURCES OR USE THEREOF, AND REGARDLESS OF WHETHER TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

You agree to fully indemnify TI and its representatives against any damages, costs, losses, and/or liabilities arising out of your non-compliance with the terms and provisions of this Notice.

This Notice applies to TI Resources. Additional terms apply to the use and purchase of certain types of materials, TI products and services. These include; without limitation, TI's standard terms for semiconductor products http://www.ti.com/sc/docs/stdterms.htm), evaluation modules, and samples (http://www.ti.com/sc/docs/sampterms.htm).

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265 Copyright © 2018, Texas Instruments Incorporated