

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.

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](#).

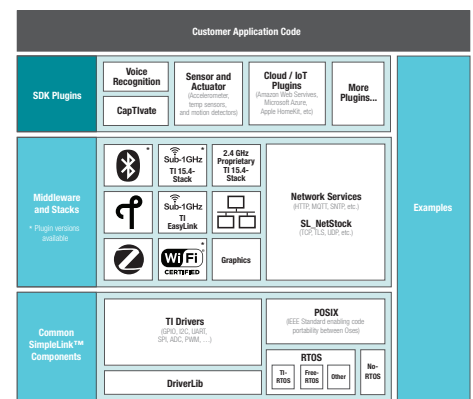
Software Tools

TI's [unified tool chain](#) 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.

SimpleLink MCU SDK



[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	SimpleLink™ Host microcontroller	SimpleLink™ Wi-Fi® Wireless network processor	SimpleLink™ Wi-Fi® Wireless microcontroller	SimpleLink™ Bluetooth® low energy Wireless microcontroller	SimpleLink™ Sub-1 GHz + 2.4-GHz concurrency Wireless microcontroller	SimpleLink™ Sub-1 GHz Wireless microcontroller	SimpleLink™ 2.4-GHz Multi-standard Wireless microcontroller
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	✓	✓	–	✓	✓	✓	✓	✓
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	✓	✓	✓	✓	✓	✓	✓	✓

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	CC3120BOOST	CC3220SF-LAUNCHXL	LAUNCHXL-CC26X2R1 LAUNCHXL-CC2640R2	LAUNCHXL-CC1352R1 LAUNCHXL-CC1350	LAUNCHXL-CC1312R1 LAUNCHXL-CC1310	LAUNCHXL-CC26X2R1

TI Resource Explorer	GUI Composer	PinMux	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

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