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## ABSTRACT

This application note covers the hardware differences between CC2674R10, CC2674P10 and other SimpleLink™ devices.

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## 1 Migrating From CC2640R2 to CC2674R10

The migration of CC2640R2 devices to the CC2674R10 device is a two-step process. First, see the [Hardware Migration From CC26x0 to CC26x2R Guide](#), then follow the steps in the next section. The CC2674R10 is a Core CPU, memory and peripherals upgrade of the CC2640R2 devices. The CC2674R10 device has 256 kB of RAM and 1024 kB of flash. The two devices are not pin to pin compatible and a PCB design made for the CC2640R2 devices must be redesigned for the CC2674R10 device.

## 2 Migrating From CC26x2R1 and CC26x2R7 to CC2674R10

The CC2674R10 is a Core CPU and memory upgrade of the CC26x2R1 and CC26x2R7 devices. The CC2674R10 device features an Arm® Cortex®-M33 processor core and has 256 kB of RAM and 1024 kB of Flash. The CC2674R10 has two package options that have different hardware migration paths.

### RGZ package 7×7 mm:

For this package, the two devices are pin to pin compatible and a PCB design made for the CC26x2R1 or CC26x2R7 devices can be reused for the CC2674R10 device.

For applications requiring a slow clock accuracy of  $< \pm 500$  PPM (such as *Bluetooth*® Low Energy applications), an external 32 kHz slow clock is required for use with the CC2674R10 device. For details, see the *Clock Accuracies and Bluetooth LE* section of the [SimpleLink™ CC13xx CC26xx SDK BLE5-Stack User's Guide](#). The only other update to the Bill of Materials (BOM) required is the wireless MCU itself.

### RGZ package 8×8 mm:

For this package, the two devices are physically different and a PCB design made for the CC26x2R1 or CC26x2R7 device has to be redesigned for the CC2674R10 device.

### Main differences:

- Larger physical size and overall number of pins (64 versus 48 of the RSK package)
- Smaller pin pitch, pad and via pattern designs
- 45 GPIO pins in contrast to 31 GPIO pins of the CC26x2R1 and CC26x2R7 devices
- Different RF filter and balun design

For more information, use the [LP-EM-CC1354P10-6 Design Files](#) and the packaging information section of the [CC2674P10 SimpleLink™ High-Performance Multiprotocol 2.4-GHz Wireless MCU with Integrated Power Amplifier Data Sheet](#) as references.

The **LP-EM-CC1354P10-6** contains two 2.4 GHz paths and one Sub-1 GHz RF path. To adapt the design to the CC2674R10 device, simply remove the parts and PCB routing of both the 2.4 GHz 10 dBm and the Sub-1 GHz 14 dBm RF paths.

For applications requiring a slow clock accuracy of  $< \pm 500$  PPM (such as Bluetooth Low Energy applications), an external 32 kHz slow clock is required for use with the CC2674R10 device. For details, see the *Clock Accuracies and Bluetooth LE* section of the [SimpleLink™ CC13xx CC26xx SDK BLE5-Stack User's Guide](#).

### 3 Migrating From CC26x2P1 and CC26x2P7 to CC2674P10

The CC2674P10 is a Core CPU and memory upgrade of the CC26x2P1 and CC26x2P7 devices. The CC2674P10 device features an Arm Cortex-M33 processor core and has 256 kB of RAM and 1024 kB of Flash. The CC2674P10 has two package options that have different hardware migration paths.

#### RGZ package 7×7 mm:

For this package, the two devices are pin to pin compatible and a PCB design made for the CC26x2P1 or CC26x2P7 devices can be reused for the CC2674P10 device.

For applications requiring a slow clock accuracy of  $< \pm 500$  PPM (such as Bluetooth Low Energy applications), an external 32 kHz slow clock is required for use with the CC2674P10 device. For details, see the *Clock Accuracies and Bluetooth LE* section of the [SimpleLink™ CC13xx CC26xx SDK BLE5-Stack User's Guide](#). The only other update to the Bill of Materials (BOM) required is the wireless MCU itself.

#### RSK package 8×8 mm:

For this package, the two devices are physically different and a PCB design made for the CC26x2P1 or CC26x2P7 device has to be redesigned for the CC2674P10 device.

#### Main differences:

- Larger physical size and overall number of pins (64 versus 48 of the RSK package)
- Smaller pin pitch, pad and via pattern designs
- 45 GPIO pins in contrast to 31 GPIO pins of the CC26x2P1 and CC26x2P7 devices
- Different RF filter and balun design

Use the [LP-EM-CC1354P10-6 Design Files](#) and the packaging information section of the [CC2674P10 SimpleLink™ High-Performance Multiprotocol 2.4-GHz Wireless MCU with Integrated Power Amplifier Data Sheet](#) as references.

The **LP-EM-CC1354P10-6** contains two 2.4 GHz paths and one Sub-1 GHz RF path. To adapt the design to the CC2674P10 device, simply remove the parts and PCB routing of the Sub-1 GHz 14 dBm RF path.

For applications requiring a slow clock accuracy of  $< \pm 500$  PPM (such as Bluetooth Low Energy applications), an external 32 kHz slow clock is required for use with the CC2674P10 device. For details, see the *Clock Accuracies and Bluetooth LE* section of the [SimpleLink™ CC13xx CC26xx SDK BLE5-Stack User's Guide](#).

### 4 Summary

While the CC2674R10 and CC2674P10 devices retain many of the same features as its predecessors and are mostly compatible with the devices with the same 7×7 mm package, the additional 8×8 mm package requires additional design changes. The availability of LaunchPad™ development kit reference designs for both types of packages greatly simplifies this process.

### 5 References

- Texas Instruments: [CC2674P10 SimpleLink™ High Performance Multiprotocol 2.4 GHz Wireless MCU with integrated Power Amplifier Data Sheet](#)
- Texas Instruments: [CC2674R10 SimpleLink™ High Performance Multiprotocol 2.4 GHz Wireless MCU Data Sheet](#)
- Texas Instruments: [LP-EM-CC1354P10-6 LaunchPad Design Files](#)
- Texas Instruments: [Hardware Migration From CC26x0 to CC26x2R](#)
- [SimpleLink™ CC13xx CC26xx SDK BLE5-Stack User's Guide](#)

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