

# CY4672 Reference Design Kit Release Notes

## CY4672 V1.0 Rev. \*A

### 1 Overview

The CY4672 Reference Design Kit provides the developer with the necessary intellectual property to build a wireless keyboard and mouse using the CYRF69213 and CYRF69103 PSoC LP Flash MCUs with integrated 2.4 GHz radio transceivers, as well as the CYRF6936 WirelessUSB LP 2.4 GHz radio transceiver. All builds are done using PSoC Designer 4.3.1884 with PD43SP1 and EP\_CYRF69xx3\_228.

Major Version: 01  
Minor Version: 00  
Build: \*A  
Development Environment: PSoC Designer 4.3.1884 with PD43SP1 and EP\_CYRF69xx3\_228  
PSoC Programmer Version 2.20.0.13  
Radio Driver: Version 1.0  
Radio Protocol: Version 2.1  
Software: WirelessUSB Version 0.0.9.2  
Bridge Hardware: PDC-9348 \*A 121-34801  
Keyboard Hardware: PDC-9265 \*B 121-26505\*\*  
Mouse Hardware: PDC-9347 \*A 121-34700\*A

### 2 Notes

#### 2.1 RDK Bridge:

Three USB library files have been modified for RDK Bridge. After generating the code via the PSoC Designer, please overwrite the generated *usb\_1.asm*, *usb\_1\_cls\_hid.asm* and *usb\_1\_drv.asm* with the one in the RDK Bridge. The following procedure should be followed:

- After the CY4672 RDK has been installed, copy the '`<installation directory>\CY4672 RDK\firmware\Source Code\Bridge\lib`' to '`<installation directory>\CY4672 RDK\firmware\Source Code\Bridge\COPY of lib`' to save the files.
- Generate Application.
- Copy the *usb\_1.asm*, *usb\_1\_cls\_hid.asm* and *usb\_1\_drv.asm* files from the 'copy of lib' folder to the 'lib' folder
- Build the Code.

##### 2.1.1 Standard Build

This is the default build with the shipping kit. For the standard build, the following value should be defined in the *config.h* file:

- MFG\_TEST\_CODE
- DAL\_ENABLE

The following values should be put into Project Settings → Compiler → Macro Defines.

- MASTER\_PROTOCOL
- PAYLOAD\_LENGTH=0x08
- KISS\_BIND
- BACK\_CHANNEL\_SUPPORT

### 2.1.2 Encrypt Build

Three files called encrypt.c, aes128common.asm and aes128decrypt.asm are necessary for this build, but are not included fully in the shipping CD. Contact Cypress Applications support for these files. After receiving these files, please copy them to the directory:

<installation directory>\CY4672 RDK\firmware\Source Code\Bridge to replace the original files.

One of the following values should be put into Project Settings → Compiler → Macro Defines.

- ENCRYPT\_TEA
- ENCRYPT\_AES (Set ENCRYPT\_AES in the aes128.inc also)

## 2.2 RDK Keyboard:

### 2.2.1 Standard Build

This is the default build with the shipping kit. For the standard build, the following value should be defined in the *config.h* file:

- KEYBOARD\_TEST\_MODES
- KEYBOARD\_BATTERY\_VOLTAGE\_SUPPORT
- KEYBOARD\_MULTIMEDIA\_SUPPORT
- MFG\_TEST\_CODE

The following values should be put into Project Settings → Compiler → Macro Defines.

- PAYLOAD\_LENGTH=0x08
- KISS\_BIND
- BACK\_CHANNEL\_SUPPORT

### 2.2.2 Encrypt Build

Three files called encrypt.c, aes128common.asm and aes128encrypt.asm are necessary for this build, but are not included fully in the shipping CD. Contact Cypress Applications support for these files. After receiving these files, please copy them to the directory:

<installation directory>\CY4672 RDK\firmware\Source Code\Keyboard to replace the original files.

One of the following values should be put into Project Settings → Compiler → Macro Defines.

- ENCRYPT\_TEA
- ENCRYPT\_AES (Set ENCRYPT\_AES in the aes128.inc also)

### 2.3 RDK Mouse:

PSoC™ Designer 4.3 generates warnings regarding “area ‘AreaName’ not defined in startup file”. The warning message can be safely ignored per the PSoC Designer 4.3 Release Notes.

There is only one build for RDK Mouse, and the following value should be defined in the *config.h* file:

- MOUSE\_BATTERY\_STATUS
- MOUSE\_TEST\_MODE
- MFG\_TEST\_CODE
- MFG\_TX\_MODES

The following values should be put into Project Settings → Compiler → Macro Defines.

- PAYLOAD\_LENGTH=0x03
- KISS\_BIND

### 2.4 Radio Protocol 2.1:

The CY4672 RDK uses radio protocol version 2.1, whereas the CY4636 RDK uses radio protocol 2.0. Protocol 2.1 has the following enhancements over protocol 2.0:

- Does not use zero CRC seed in the Data mode. The zero CRC seed is dedicated for the Bind and Ping mode. Therefore, when the CRC seed calculated from MID is 0, it will be set to 1.
- Supports enhanced KISSBind and unbind.
- Supports power bind.
- Supports back channel data.
- Supports AES encryption.

The first enhancement regarding zero CRC seed will affect the compatibility between CY4672 RDK and CY4636 RDK.

The CY4672 RDK and CY4636 RDK are not intended for mixed usage. If customers need to combine them together, they must do the compatibility testing and modify the firmware to reflect the first enhancement.

### 3 Enhancements and Issues Fixed

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- Rebuild the installer to resolve the product GUID issue. The CY4672 RDK will be able to co-exist with CY4636 RDK on the same PC. (Note that the two RDKs are not intended for mixed usage in the same design due to differences in protocol versions – see Section 2.4 for more information).
- Resolved the RSSI reading issue. Therefore, the bridge channel hopping will not be over sensitive.
- Resolved the checksum issue. After the bridge is programmed, the checksum will not change until a device is bound to this bridge.

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- N/A

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