EZ-PD™ CCGx USB-C Dock release notes

Version 4.0 build 20

About this document

Scope and purpose

Thank you for your interest in the CYPD7171-40LQXQ EZ-PD™ CCG7xC product family. This document contains release notes for the PMG1-S3 USB-C Dock platform firmware. It also describes key updates and known issues.

Intended audience

This document is intended for customers of PMG-1S3-based Dock Solutions who intend to develop their own docks based on the reference designs.

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1 Introduction

EZ-PD™ CCG7SC is a single-port USB Type-C controller that complies with the latest USB Type-C and USB Power Delivery (USB PD) standards along with analog and digital peripherals. It provides a complete single-port USB Type-C and USB PD port control solution targeted for power adapters and docking stations.

EZ-PD™ CCG7SC uses Infineon proprietary M0S8 technology with a 32-bit, 48 MHz ARM® Cortex®-M0 processor with 128 KB flash and integrates complete Type-C transceivers including the Type-C termination resistors RP and RD.

EZ-PD™ CCG7SC includes the following analog and digital peripherals:

- Analog-to-digital converters (ADCs)
- Pulse-width modulators (PWMs)
- I2C/SPI/UART interfaces
- Timers

2 Firmware information

2.1 Firmware features

The PMG1-S3 USB-C Dock Reference Design Kit (RDK) platforms use the CYPD7171-40LQXQ (CCG7SC) device as a USB PD controller. The firmware for the CCG7SC is available in binary form for distribution. The firmware supports the following key application-level features:

- Type-C port configuration and connection detection in the source role
- USB PD communication is compliant with the USB PD revision 3.1 version 1.7 specification
- Support for power protections such as the following:
  - VBUS overvoltage protection (VBUS OVP)
  - VBUS overcurrent protection (VBUS OCP)
  - VBUS short-circuit protection (VBUS SCP)
  - VCONN short-circuit protection (VCONN SCP)
  - VCONN overcurrent protection (VCONN OCP)
- Host processor interface (HPI) slave implementation for communication with the DMC controller
- Deep Sleep operation
- Supports configurability of USB Type C and USB PD features through the EZ-PD™ configuration tool

2.2 Default device configuration

Table 1 Default device configuration

Parameter	Supported settings
Source PDOs	5 V @ 3 A
Sink PDOs	N/A

2.3 Default SVDM response

The CYPD7171-40LQXQ device functions as a DFP.

2.3.1 DFP port

2.3.1.1 DISCOVER_ID response

The port acts as a DFP with USB communication capable as a PDUSB hub.

Response data: 0xFF00A041, 0x80C004B4, 0x00000000, 0xF6B10000, 0x21800003

VDM header		
B31..16	Standard or vendor ID (SVID)	0xFF00
B15	VDM type	1b
B14..13	Structured VDM version	01b
B12..11	Reserved	00b
B10..8	Object position	000b
B7..6	Command type	01b
B5	Reserved	0b
B4..0	Command	00001b
ID header		
B31	Data capable as USB host	1b
B30	Data capable as a USB device	0b
B29..27	Product type (UFP) is undefined	000b
B26	Modal operation supported	0b
B25..23	Product type (DFP) is PDUSB hub	001b
B22..21	Connector type (receptacles)	10b
B20..16	Reserved. Will be set to zero.	0x0
B15..0	16-bit USB vendor ID	0x04B4
Cert Stat VDO		
B31..0	32-bit unsigned integer, XID	0
Product VDO		
B31..16	USB product ID	0xF6B1
B15..0	bcdDevice	0x0000
DFP VDO		
B31…29	DFP VDO version 1.1	001b
B28…27	Reserved	00b
B26…24	Host capability (USB2.0 host capable)	001b
B23…22	Connector type (legacy)	10b
B21…5	Reserved	0x00
B4…0	Port number	00011b

2.3.1.2 DISCOVER_SVID response

No SVIDs supported. NAK response will be provided.

2.3.1.3 DISCOVER_MODES response

No SVIDs supported. NAK response will be provided.

3 Limitations and known issues

A few failures related to USB 3.1 terminations not being present were seen in the compliance tests. These failures were due to the compliance tester not issuing the appropriate USB requests to the hub.

4 Technical support

For assistance and reference Design Kit information, go to Infineon support.

4.1 Additional information

[1] For more information about the EZ-PD™ configuration utility, visit the EZ-PD™ Configuration Utility web page.

[2] For more information about the Type-C controller family, visit the USB-C Power Delivery Controllers web page.

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