

# **USB PD/Type-C Product Roadmap**

**September 2018**

***Confidential***

# USB Type-C PD Roadmap



**IO352DP**  
 PD3.0 Cert TID: 1060064

- Two Port (DRP, DFP, UFP)
- For Powerbank / 3-in-1 Adaptor
- Support Dead-Battery
- 64KB flash
- CC Port ESD 8KV
- QFN-40 (5x5mm)



**IO352DPR**  
 PD3.0 Cert TID: 1060064

- Two Port (DFP)
- For charger application
- 64KB flash
- CC Port ESD 8KV
- QFN-40 (5x5mm)



**IO358SP**  
 PD3.0 PPS TID: 1100007

- One port (DRP, DFP, UFP)
- QC4.0, MTK PE3.0
- Universal Fast Charging
- ISP via Type-C Port
- CV/CC Loop Control
- QFN-24 (4x4mm)/SOP-16



eMarker Cable

**IO362AF**  
 PD3.0 Cert TID: 1060065

- RT1710 Compatible
- CC Port ESD 8KV
- DFN-8 (2x3mm)

Alt Mode Adaptor



**IO363**



- Video Adaptor (No Billboard)
- DFN-8 (2x3mm)

USB Billboard MCU

**IO3742**

- USB 2.0 MCU for Billboard
- 8051 + 64KB flash
- ADC, DAC, LED
- QFN-32 (4x4mm)

# Product Portfolio Line-up

	Port	PD3.0	DFP	DFP/UFP/DRP Dead Battery	PKG
					
<b>IO352DP</b>	2	PD3.0		O	QFN40
<b>IO352DPR</b>	2	PD3.0	O		QFN40
<b>IO358SP</b>	1	PD3.0 PPS	O	O	QFN24/SOP16

- IO352 DPR
- IO358SP



# IO352DPR (PD 3.0 two ports)

USB-IF PD3.0 Certification TID: 1060064

## Features

- Support Type-C ports x2
- Built-in VCONN power switches with OCP, OVP, OTP
- Four voltage comparators for VBUS OVP and OCP detection
- Two I2C master/slave ports with up to 1MHz
- 64KB flash
- Operating VCC range: 3.0V~5.5V
- Operating temperature -40°C~85°C
- ESD HBM 8KV for CC pins
- QFN-40 5x5x0.75



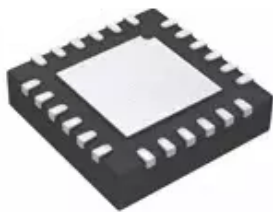
Two C Ports

# IO358SP PD3.0/QC4.0

USB-IF PD3.0 PPS Certification TID: 1100007

## Features

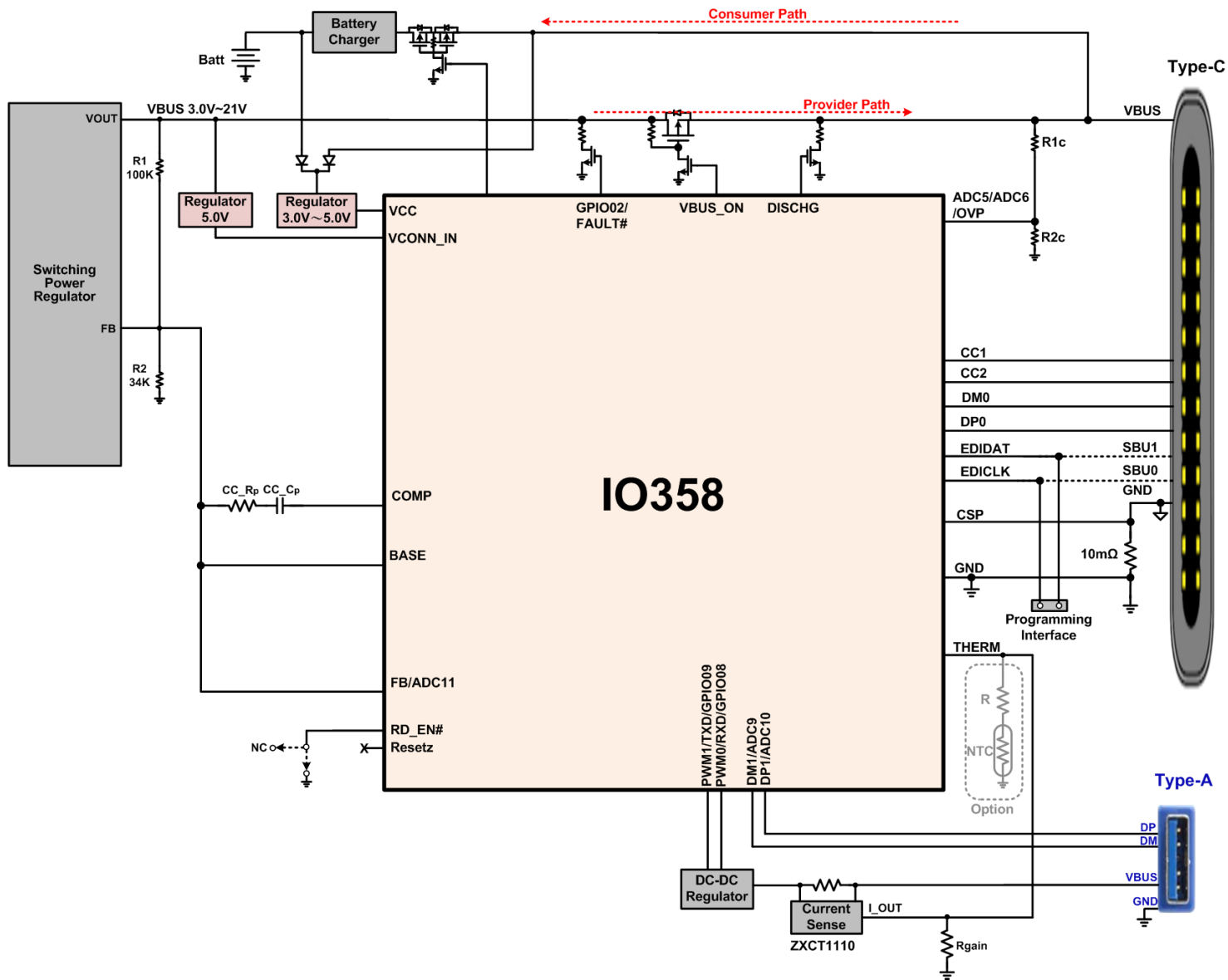
- One USB Type-C port configured as DFP, UFP or DRP with Universal Fast Charging
- Support USB **PD 3.0 PPS** and **Fast Role Swap (FRS)** as *Initial Sink*
- Another One USB Type-A port with Universal Fast Charging
- Compatible with QC4.0/QC3.0/QC2.0/BC1.2
- Compatible with universal fast charging include Apple 2.4A , MTK PE+2.0...etc
- Built-in current monitor for USB over-current protection (OCP)
- Support NTC thermistor for thermal alarm



Suitable for C+A Ports

# IO358SP : C+A Charger

DC-DC PD3.0 PPS CV/CC Power Brick Diagram with additional Type-A port



# Power Bank Series

- IO352 DP
- IO358 SP



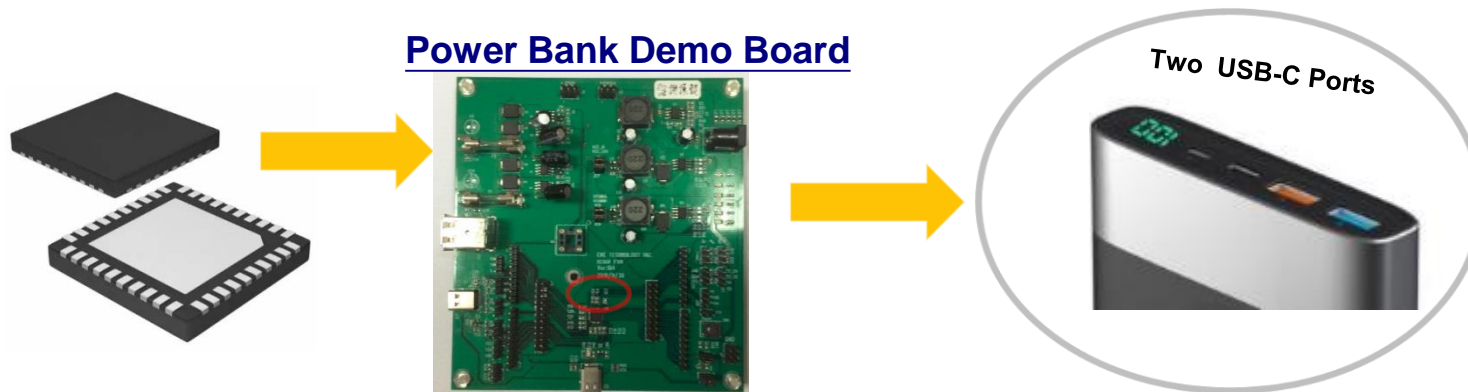


# IO352DP (PD 3.0 two ports)

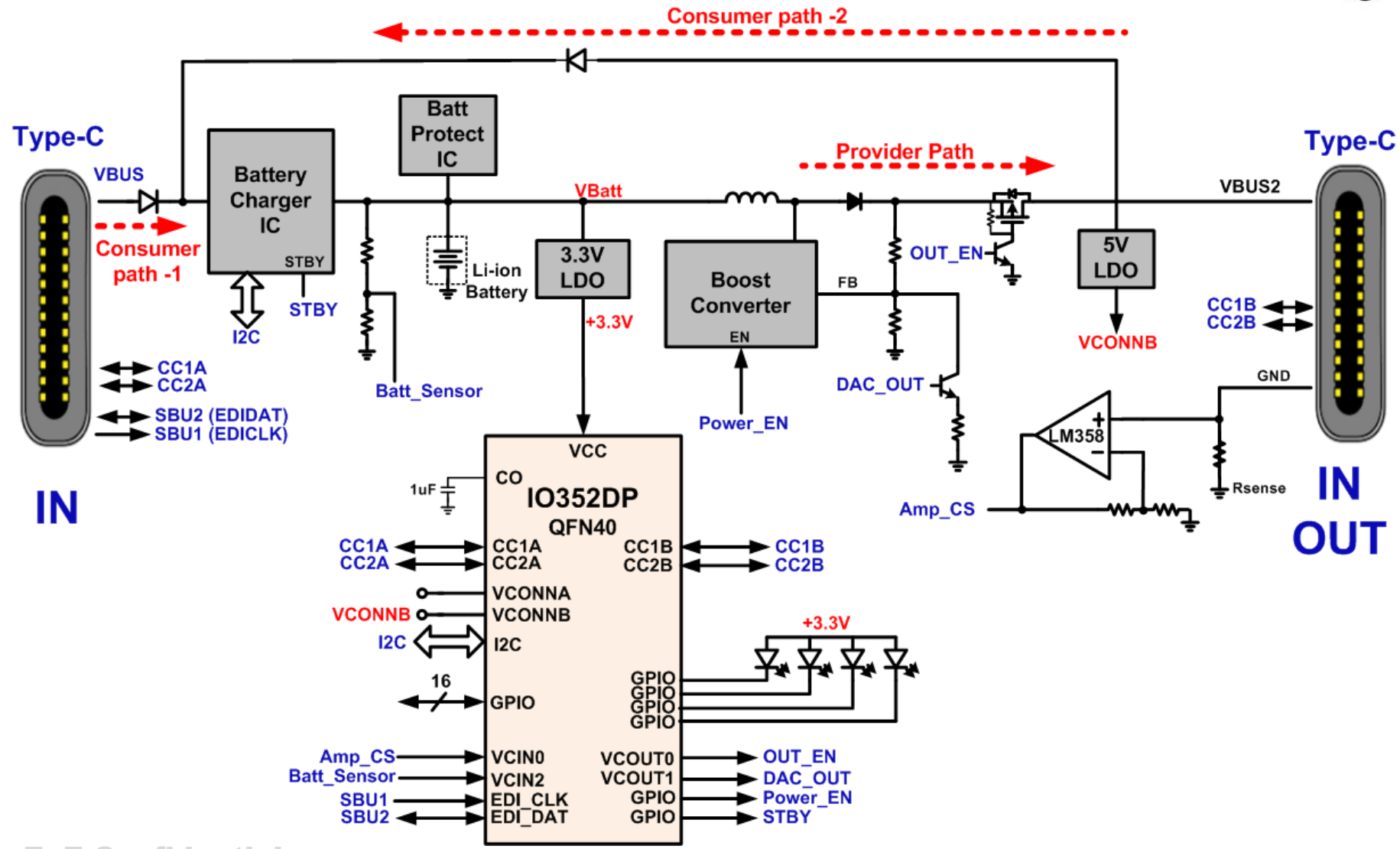
USB-IF PD3.0 Certification TID: 1060064

## Features

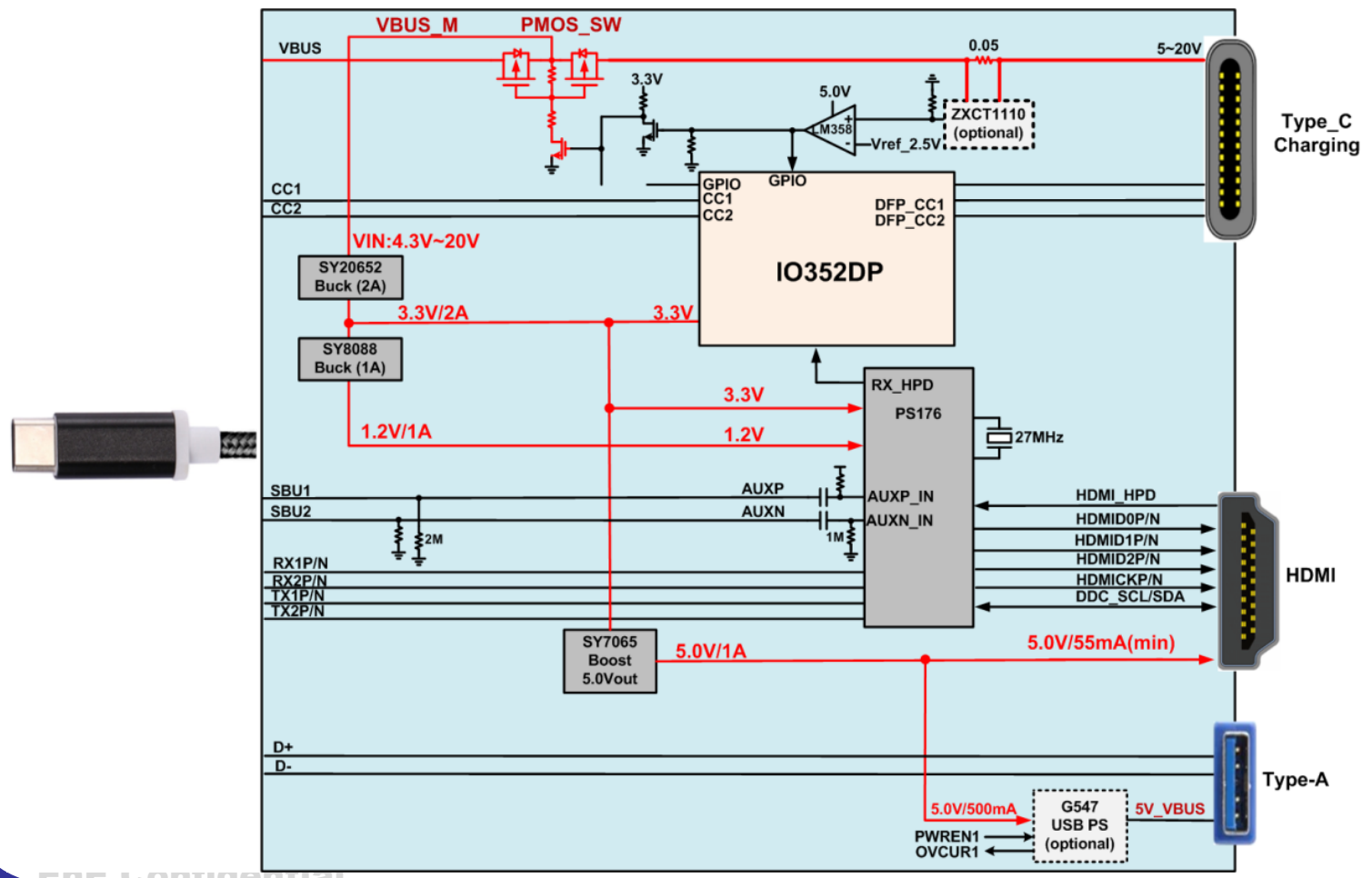
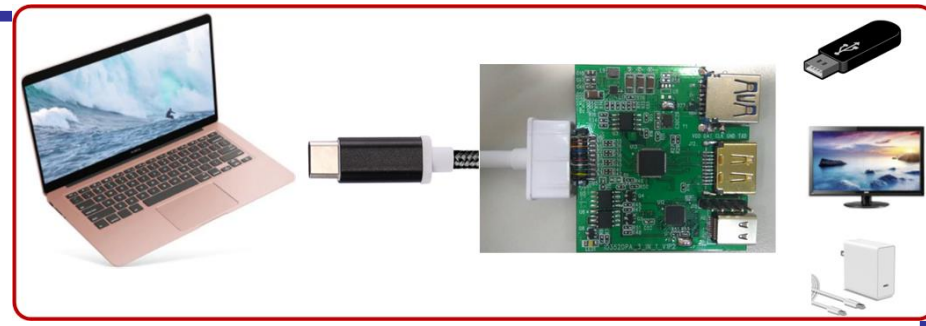
- Support Type-C ports x2 configured as DFP, UFP or DRP
- Support Dead Battery
- Built-in VCONN power switches
- Four voltage comparators for VBUS OVP and OCP detection
- Two I2C master/slave ports
- 64kB embedded flash
- Operating VCC range: 3.0V~5.5V
- Operating temperature -40°C~85°C
- ESD HBM 8KV for CC pins



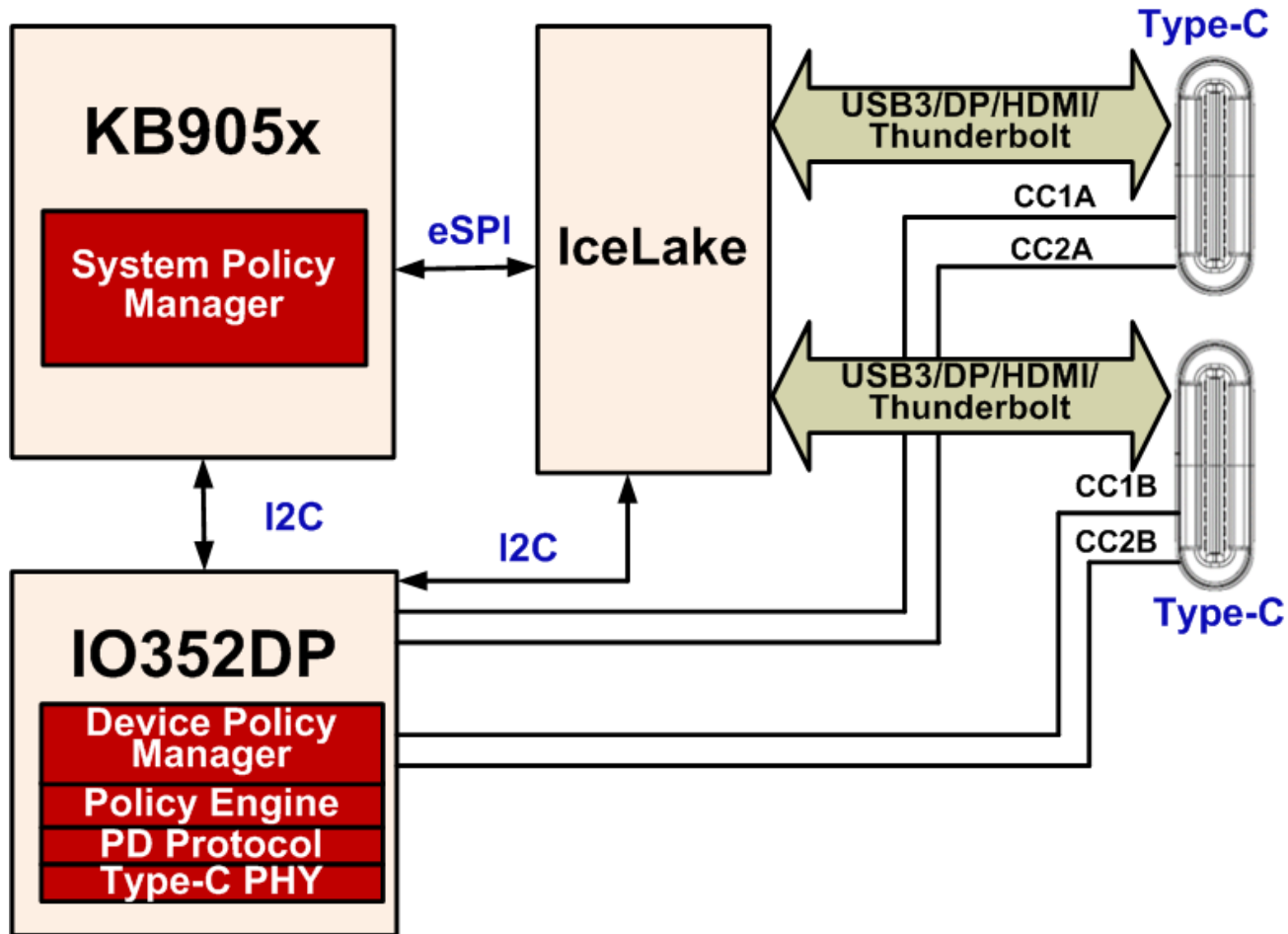
# IO352DP for PowerBank



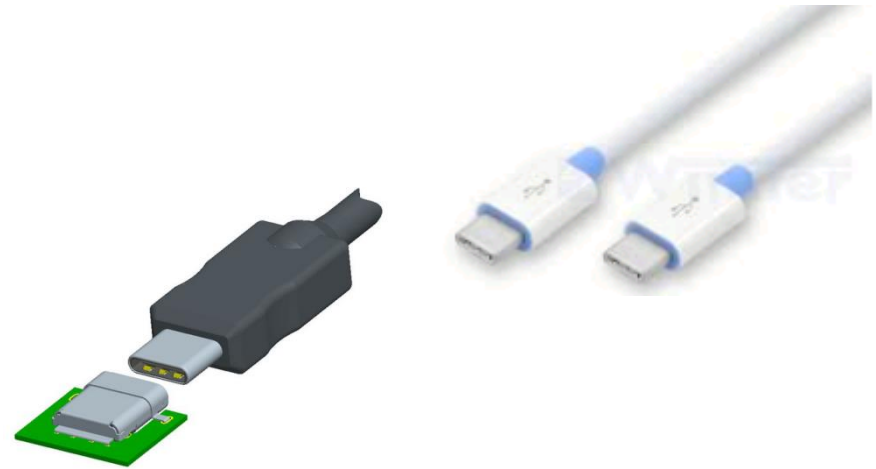
# IO352DP 3-in-1 Adaptor



# IO352DP+KB905x for NB Platform



- **IO362AF (E-Marker)**



- **IO363( Dongle)**



# IO362AF E-marker

USB-IF **PD3.0** Certification TID: 1060065

## Features

- Operating VCC range: 2.7V ~ 5.5V
- Pin Compatible with RT1710
- Built-in Diode x 2 and Ra x 2
- No External R/C required
- Operating Temperature Range: -40°C ~ 85°C
- Field Programmable via CC
- 8KV HBM ESD



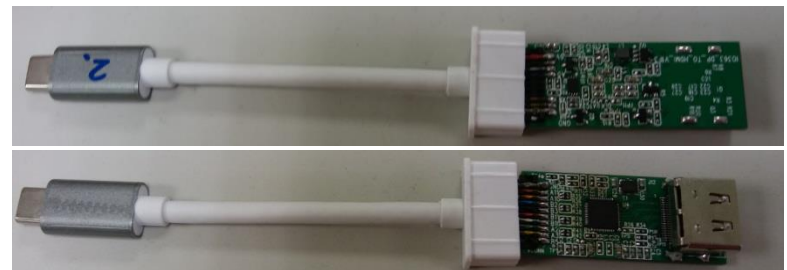
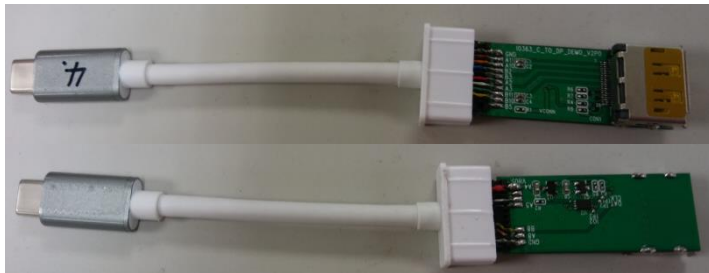
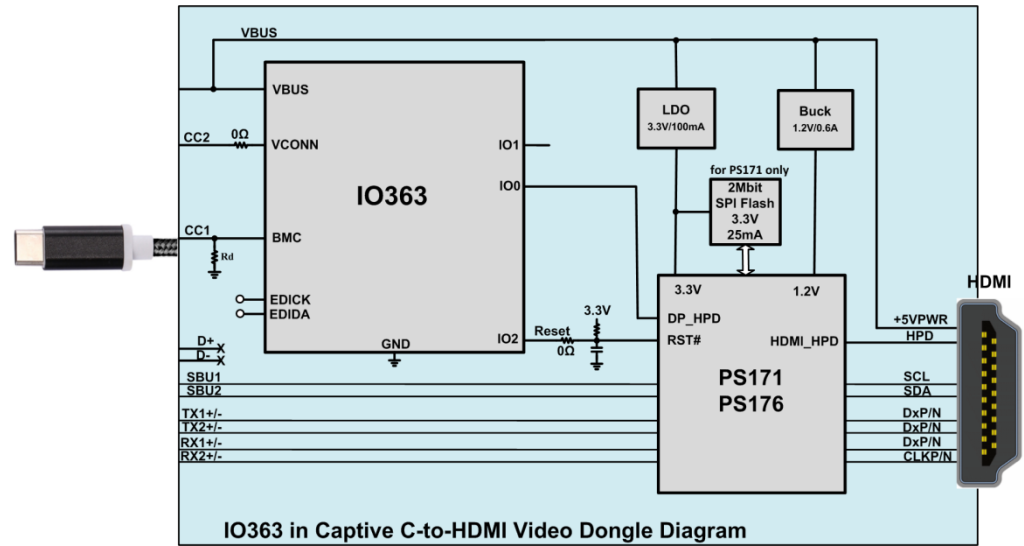
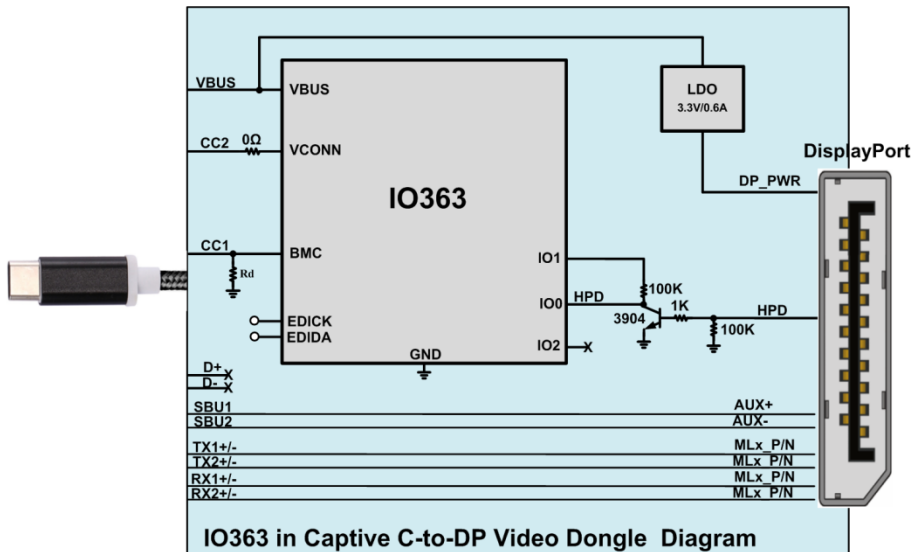
Part Number	Package	Outline
IO362 AF	DFN-8 2x3x0.75mm	<p>The Thermal Pad is GND</p>

# IO363 for Type-C Adaptor

## (Display Port, HDMI, VGA, DVI)

### Features

- Cost-optimized solution for Alt mode adaptor
- Support Alt Mode Captive Cable only
- Do not support Billboard Device (USB-IF Logo Certification may required)
- DFN- 2x3mm

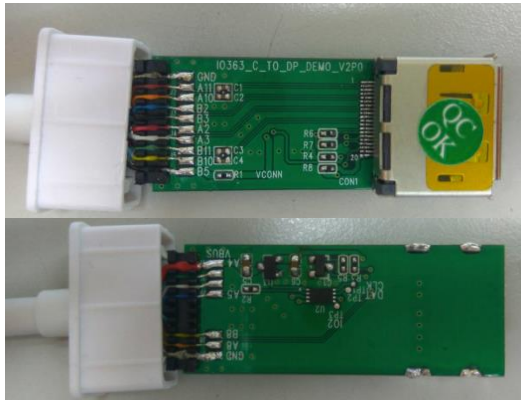


- **Development Board**
- **Copy Board for Factory Flash Programming**
- **Window-Based GUI Firmware Development Tool**



# ENE EVB Boards

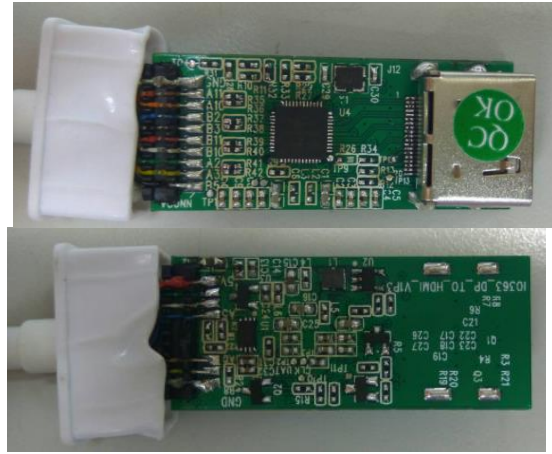
- IO363 (C-to-DP) Video Dongle



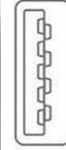
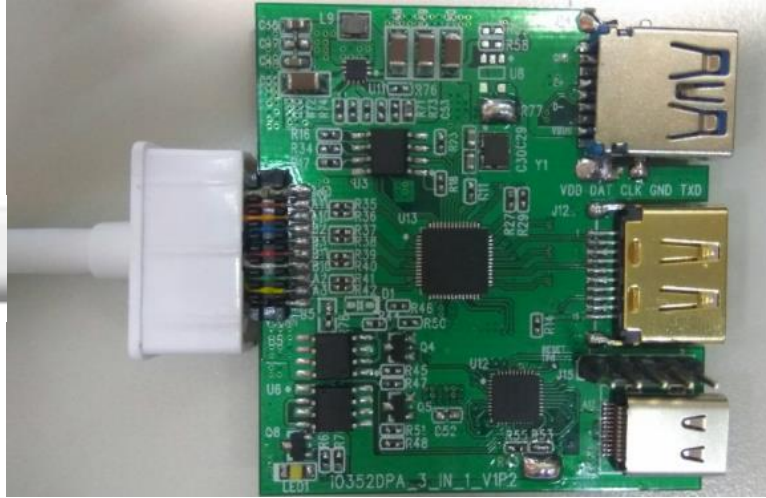
- IO362AF eMarker Cable Plug



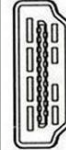
- IO363 (C-to-HDMI) Video Dongle



- IO352DP 3-in-1 Adaptor



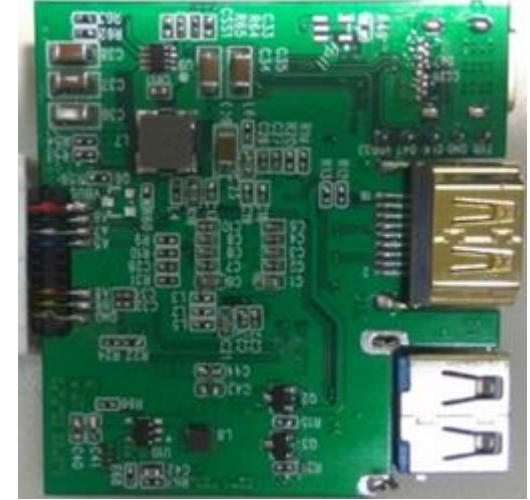
USB2.0



HDMI

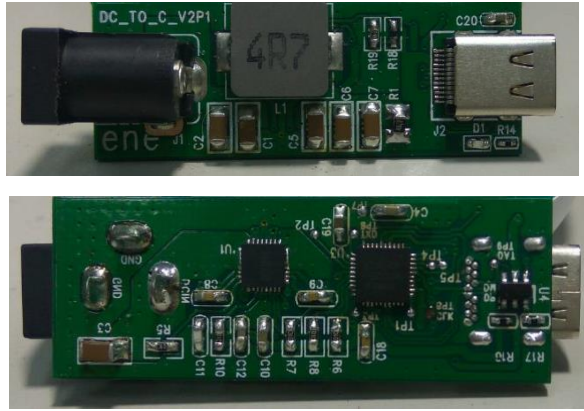


Type-C  
Charging



# ENE EVB Boards

- IO352 Car Charger (One Port)



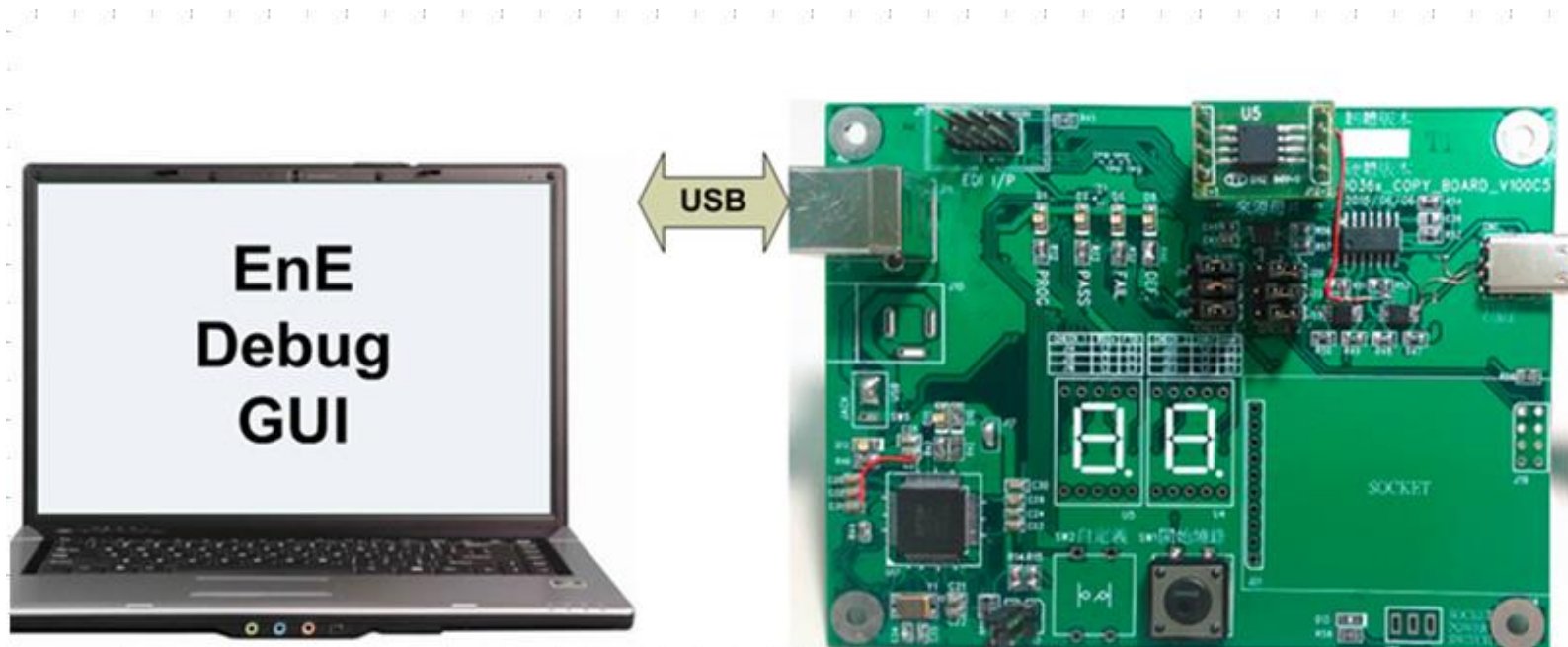
- IO352 Car Charger (Two Ports)



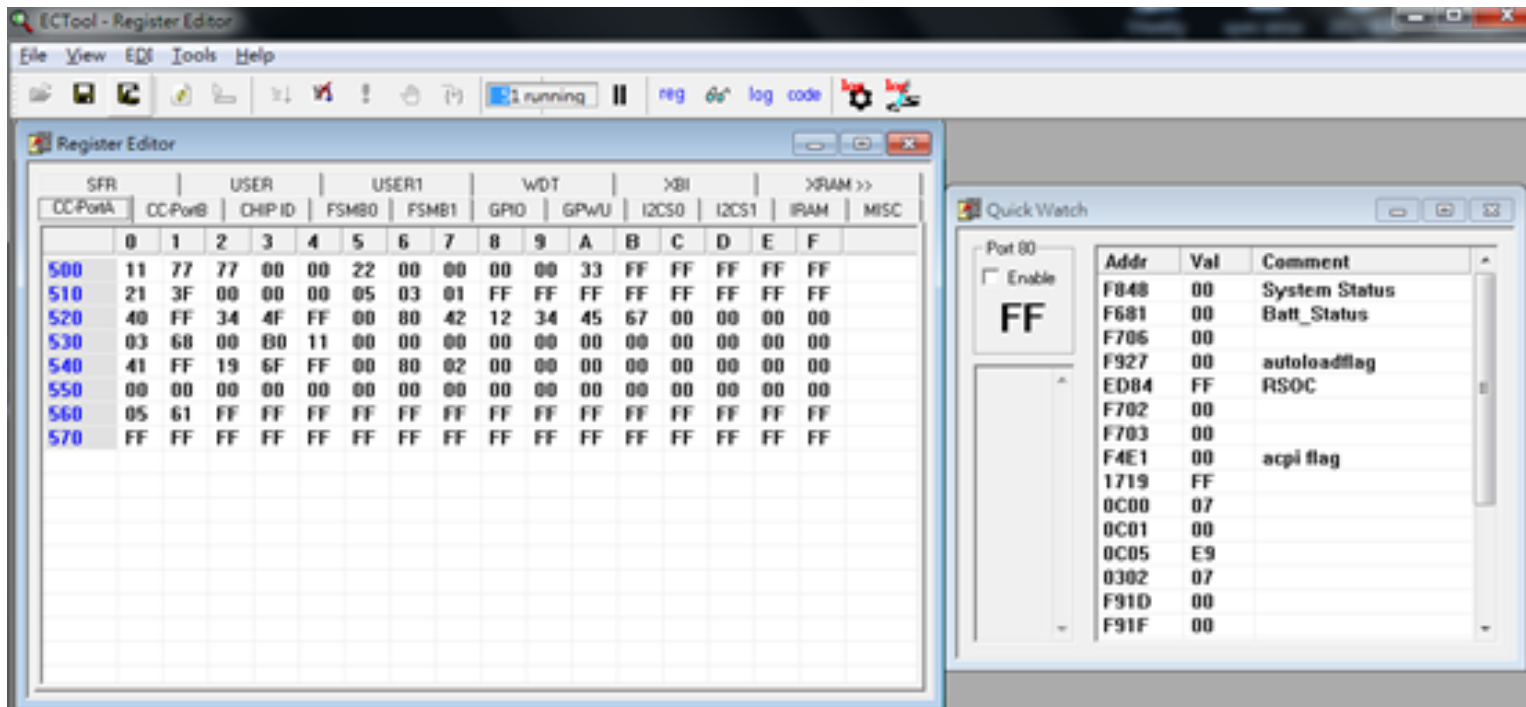
## *Facilitates Customer on-site Programming or Debugging*

### Features

- **USB-to-EDI card**
- **Support system debug and embedded flash programming**
- **Windows GUI Utility**



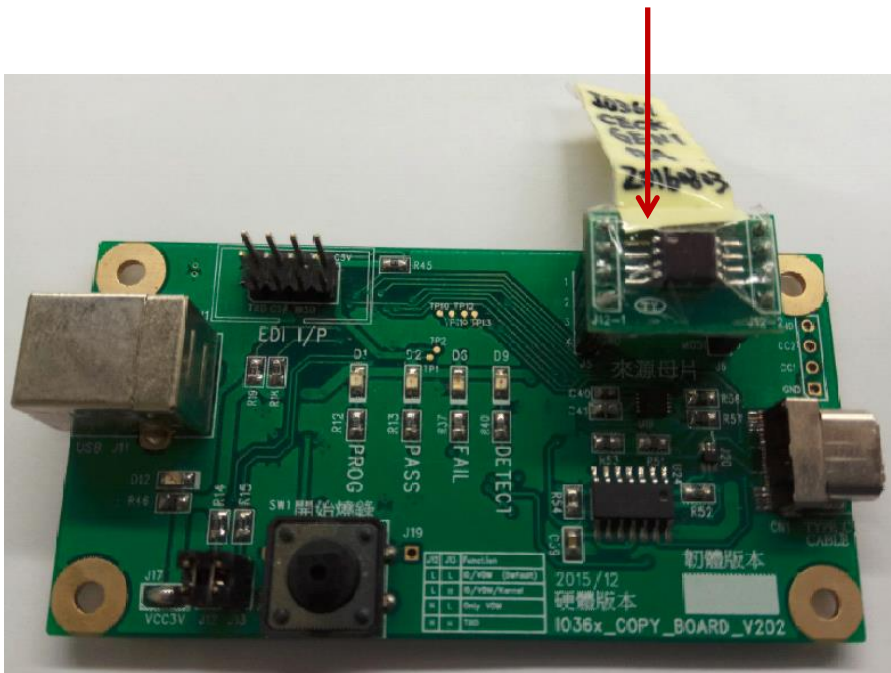
## *User Friendly Debug Interface*



# Copy Board for Flash Programming in Factory

*Expedites flash programming time in factory for mass production*

Flash Image In SPI flash



IO352/  
IO363/  
IO362AF

Flash Programming  
through  
Type-C SBU/CC signals

# EnE In-Lab USB PD Test Equipment (MQP) for USB-IF Compliant Certification

## USB Power Delivery Test Equipment

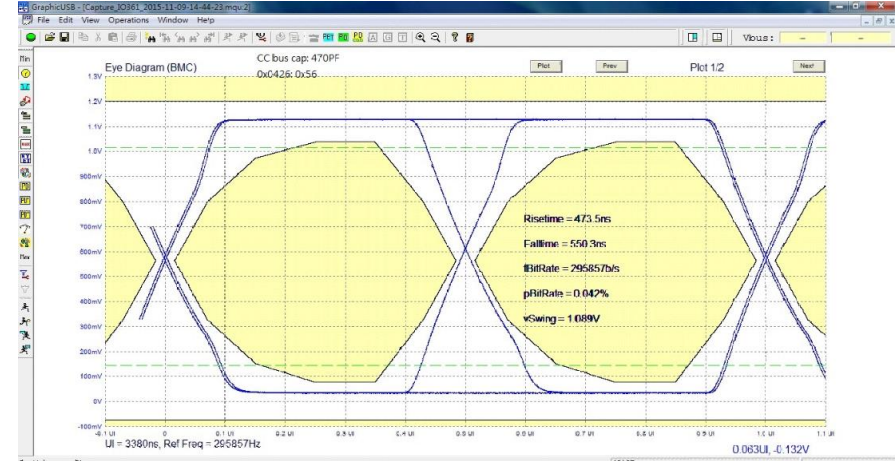


## Packet-Master USB-PDT

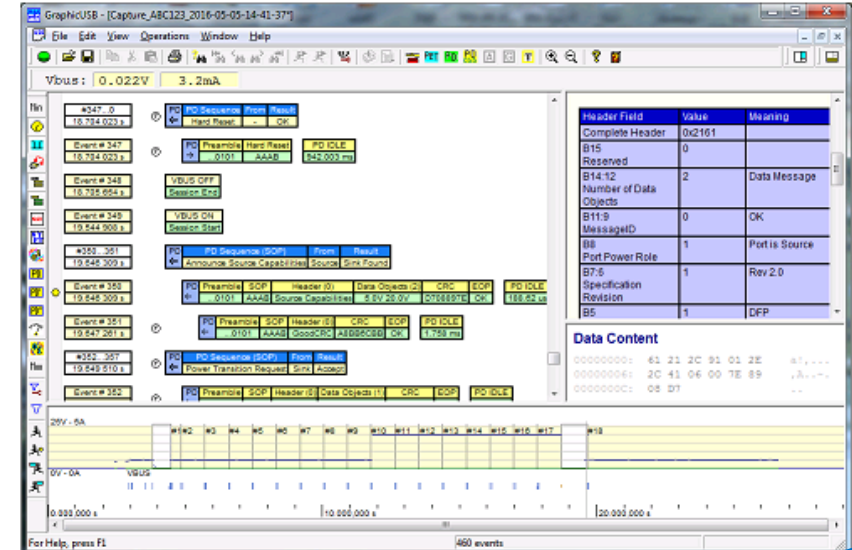
The USB-PDT is a Power Delivery Compliance tester.

It is capable of performing the complete suite of USB-IF Power Delivery Compliance Tests for both Cable E-Marker and PD Devices.

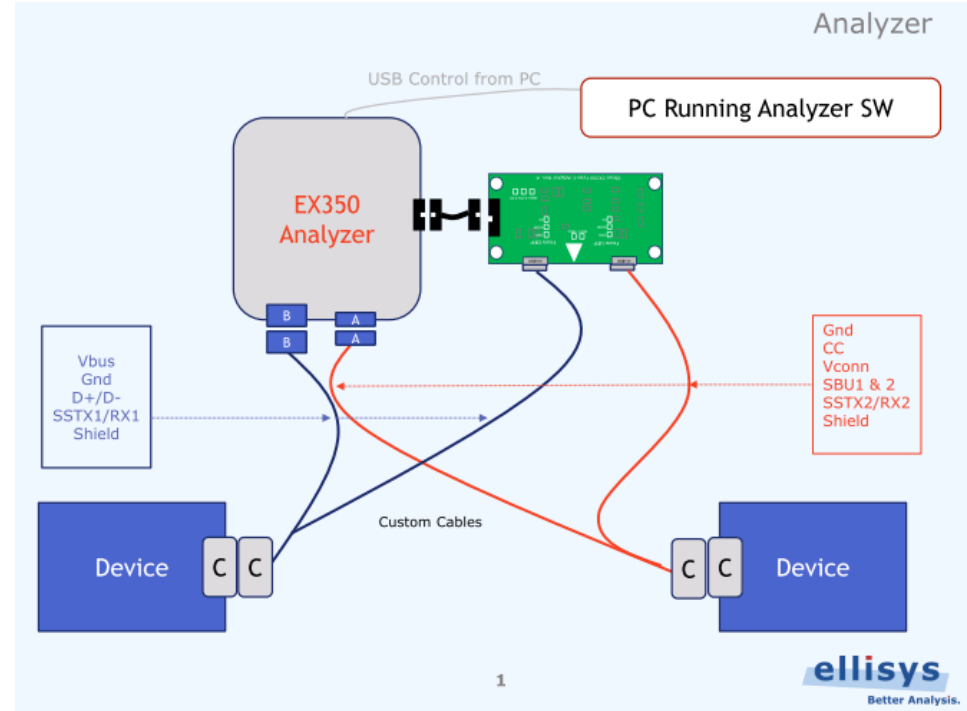
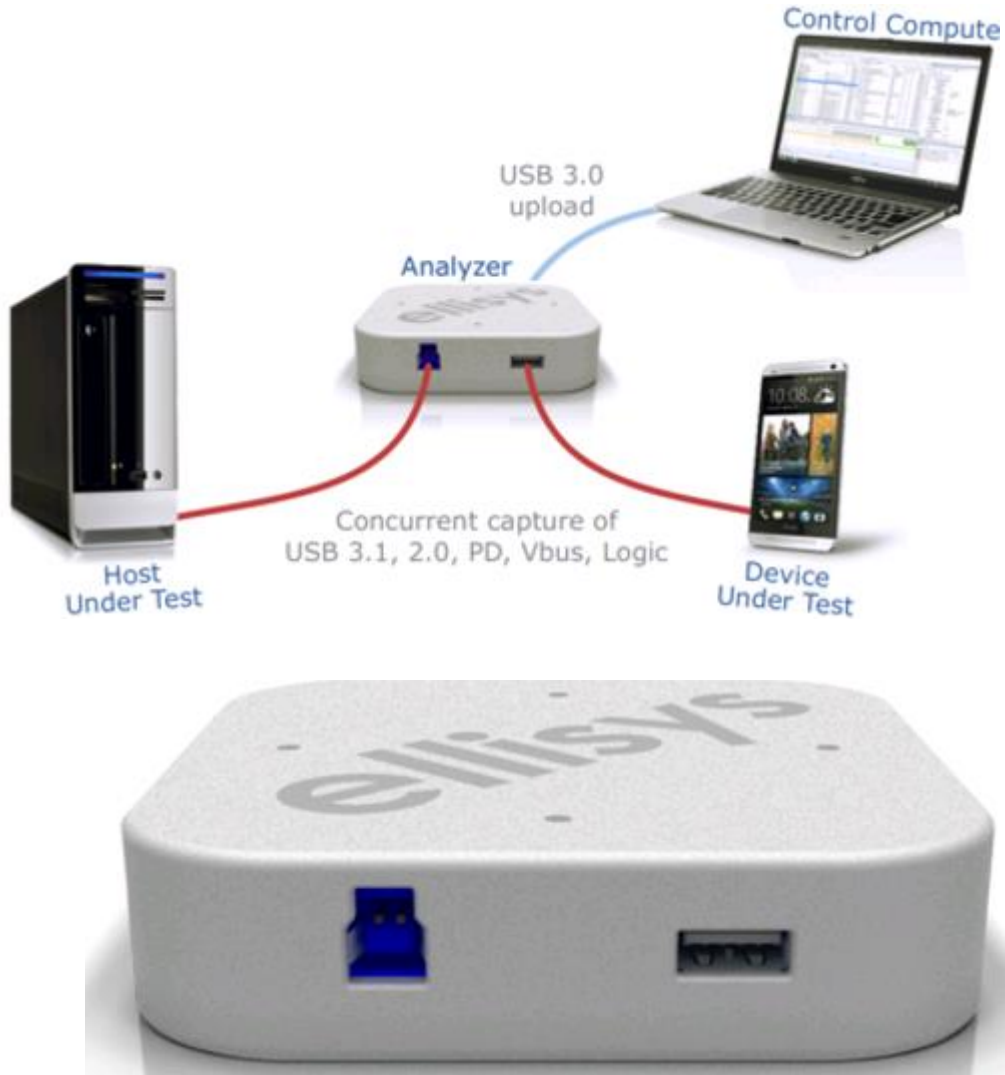
The USB-PDT is intended for use by compliance test houses and USB-IF workshops, and will also be found to be of great value to developers of Power Delivery Devices and E-markers, as it can save its cost many times over in potential failure of compliance testing done for the purpose of certification.



## Analyser Capture



# EnE In-Lab USB PD Test Equipment (Ellysis 350) for USB-IF Compliant Certification





# Customer Design Deliverables

- ✓ **Datasheet**
- ✓ **Firmware Programming Guide**
- ✓ **IO352 Evaluation board for development**
- ✓ **IO352 PowerBank Evaluation board**
- ✓ **Windows-based EnE Debug Utility (for debug & flash programming)**
- ✓ **IO362/IO352 Copy board (for factory-site flash programming)**
- ✓ **IO362AF Reference Design for Standard Type-C Cable**
- ✓ **IO363 Reference Design for C-to-DP and C-to-HDMI Dongle**

## **USB-IF Logo Certification Compliant Testing Tool**

- ✓ **MQP Tester**
- ✓ **Ellysis 350 Tester**