

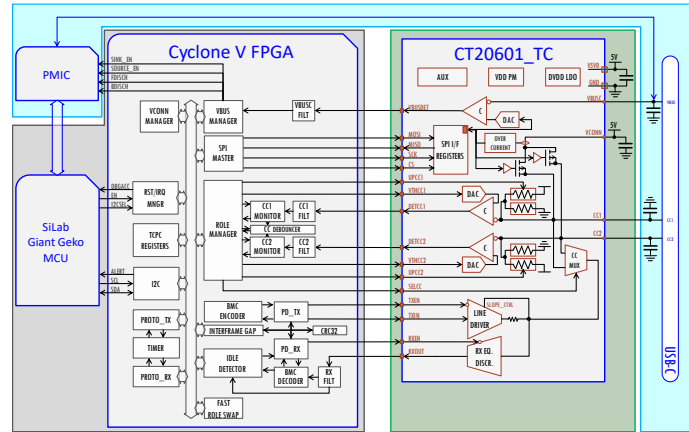
USB-C

Evaluation and Development boards

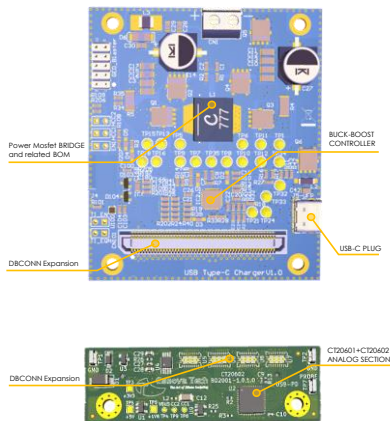
Description

BD1903 motherboard (grey box) together with the BD1901 expansion card (green box) and a custom PMIC board (light blue), form the Canova Tech USB Power Delivery evaluation system.

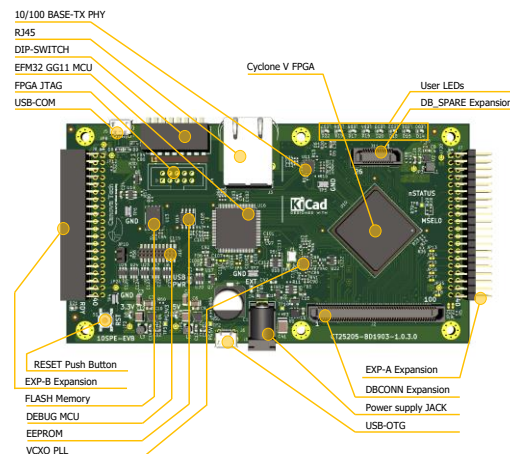
The evaluation system, which includes a demo USB-PD Protocol Stack that runs in the MCU that allows the possibility to configure, test and perform USB Power Delivery products (see next page), from simple e-Markers up to complex PD Controller.



BD1901 Daughterboard + custom PMIC board



BD1903 Motherboard



Features

- Test Chip integrating the Analog Sections of the CT20601 and the CT20602 is assembled on the BD1901 Daughterboard.
 - Digital Sections of the CT20601 and the CT20602 are hosted in the Cyclone V FPGA of the BD1903 and connected to the Test Chip via the DBCONN Expansion header.
- Custom PMIC board connected to the BD1901 and the BD1902 via the DBCONN Expansion header. The example board in the picture includes:
 - Bidirectional BUCK-BOOST Controller
 - External Power Mosfets BRIDGE and related Bill of Material
 - USB-C Plug
- available USB-PD Protocol Stack for testing purposes
 - It runs on the Silicon Lab MCU of the BD1903
 - Pre-compliance testing using USB-PD Ellisys tester
- Silicon Labs EFM32 Giant Gecko MCU
 - TQFP-100 package, 2048 kB Flash, 512 kB RAM
- Intel Cyclone V FPGA
 - 25 k Cells, 9434 LABs/CLBs, 2002944 RAM bits
- 0/+85 °C operating temperature range
- 100 pins DB expansion connector
- 2x40 pin expansion header
- Debugger/Programmer connectors for microcontroller and FPGA
- Power sources include USB and external supply from DB
- USB Micro-B connector usable as standard COM port
- USB Micro-B connector (host and device mode)
- 10/100 BASE-TX Ethernet PHY with standard RJ-45 connector
- 32 MB Flash Memory with SPI interface
- 2kbit EEPROM with I2C interface and 48bit Unique Node Address
- 25MHz Crystal connected to I2C progr. clock generator with VCXO
- 8 configuration dip-switches
- 8 user-defined LEDs

USB-C IPs

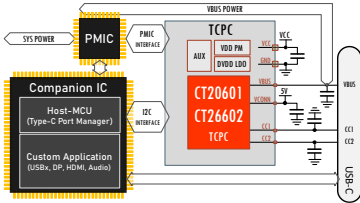
Frequently-Asked Questions

Q: Which kind of IC products I can develop using Canova Tech USB-C silicon IPs solution?

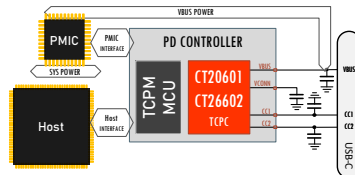
A: Among others, here're some product examples you can develop with our USB-C silicon IPs:

Type-C Port Controller (TCPC)

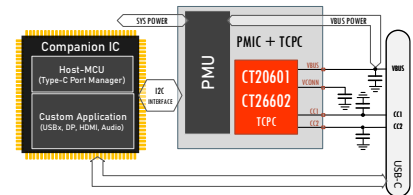
The bundle of the **CT20602** plus the **CT20602** can be used to develop a complete Type-C Port Controller (TCPC) Integrated Circuit. The USB-PD Protocol runs in the Type-C Port Manager MCU (TCPM) which can be integrated in the same IC (USB-PD Controller) or acts as companion IC. Other system related function like the Power Management IC (PMIC) or USB-C custom applications can be integrated in the same IC or in a companion IC.



USB-PD Controller

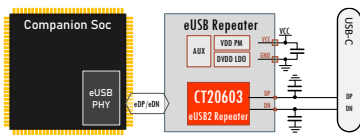


USB-PD PMIC



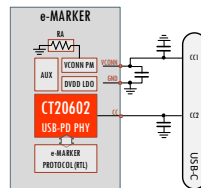
eUSB2 Repeater

The **CT20603** can be used to develop a single-chip eUSB2 Repeater which connects, on one side to the Companion SoC by means of the eUSB2 link and, on the other side to the USB-C plug.



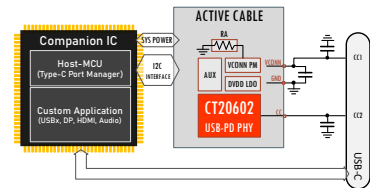
e-Marker

The **CT20602** can be used to develop a complete e-MARKER IC by adding a customized e-MARKER Protocol stack RTL core thus eliminating the need of a companion microcontroller in the system.



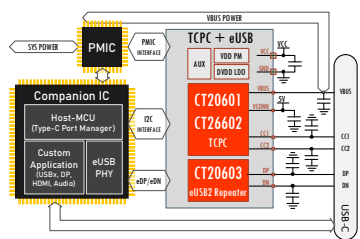
Active Cable

The **CT20602** can be used to develop an ACTIVE CABLE IC. The USB-PD Protocol runs in a microcontroller (TCPC) which can be integrated, together with the ACTIVE CABLE application in the same IC or as companion IC.



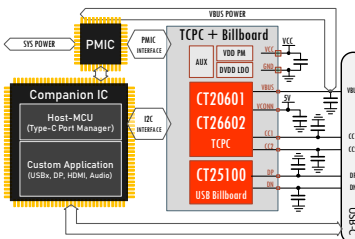
TCPC/USB-PD Ctrl/USB-PD PMIC + eUSB2 Repeater

Add on top of the TCPC, the USB-PD Ctrl or the USB-PD PMIC the **CT20603** if you need to connect with an eUSB port of a System-on-Chip.



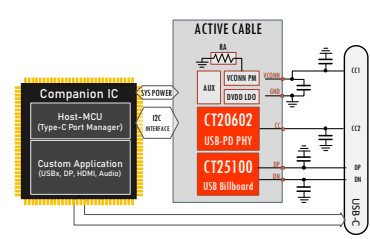
TCPC/USB-PD Ctrl/USB-PD PMIC + USB Billboard

Add on top of the TCPC, the USB-PD Ctrl or the USB-PD PMIC the **CT25100** if you need to perform an USB Billboard function without the use of a companion MCU running the USB stack.



Active Cable + USB Billboard

Add on top of the Active Cable the **CT25100** if you need to perform an USB Billboard function without the use of a companion MCU running the USB stack.



Q: May I ask Canova Tech to develop custom and dedicated analog and/or digital on top of the IPs?

A: Yes, you can. Our business model includes custom and dedicated Design Services to facilitate the integration of our IPs into your chip architecture. This business model includes the possibility for you to assign Canova the responsibility for design of a complete integrated circuit (GDS IP) based upon our IPs and your requirements.

Q: Which options do I have for licensing the Canova Tech USB-C silicon IPs solution?

A: You can have several licensing options which includes:

- **single-use/multiple-use license:** the IPs (single or in bundle) are delivered as object-code (or source-code + know-how transfer) and licensed for the use on a well-defined product code (single-use) or for unlimited product codes (multiple-use).
- **manufacturing license:** here Canova Tech can develop your entire product, based upon our IPs (single or in bundle) and your product specifications. The GDS IP is licensed and delivered to you (including all necessary documentation and support) for you to manufacture your product and brand it.

Q: What kind of Support and IP Maintenance will I get from Canova?

A: You will get all required Support and IP Maintenance to ensure proper IP integration into your products for 12 months following the IP licensing. You can then subscribe, at your option, annual renewals of the Support and Maintenance agreement.