

CT20601_TC

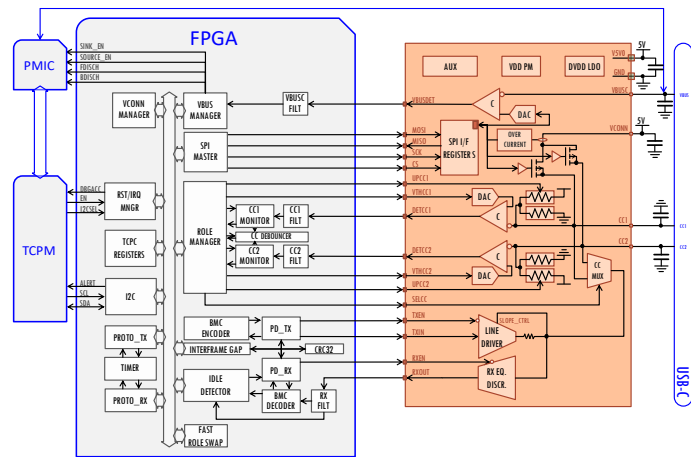
USB Type-C and Power Delivery Test Chip Vehicle

Description

CT20601_TC is the Analog Portion of a full featured USB Type-C and Power Delivery physical layer mixed signal IPs.

It includes all the analog section needed for implementing a Dual Role Port, a Sink or a Source Type-C controller and the physical layer of Power delivery, including slope-controlled transmitter and the receiver compliant with all the noise and offset specifications of the USB PD standard.

The digital part of the physical layer, to be synthesized on and FPGA, is also completed with a timing critical function of the protocol, the Auto GoodCRC and the Retry of transmitted messages, enabling interfacing with a low frequency microcontroller.



CT20601_TC Features

- C USB Power Delivery Compliant
- USB Type-C Compliant
- Analog PHY implements CMOS BaseBand Transceiver on Type-C
- Type-C Cable and Orientation Detection
- 5V single supply
- Standard M/S CMOS techno
- RTL of digital blocks
- C-code stack for the upper layers
- -40°C to 125°C Temp. range
- Experimental test chip not to be used in series production



48-pin QFN Package (7x7mm)

CT20601_TC Pinout

1	VTHCC1[2] CC1 Comparator Threshold	13	TXIN TX Input	25	ATEST Analog test IO	37	VDDIO Digital Core supply
2	VTHCC1[1] CC1 Comparator Threshold	14	RXEN RX enable	26	VTHCC2[0] CC2 Comparator Threshold	38	VSSIO Digital Core ground
3	VTHCC1[0] CC1 Comparator Threshold	15	RXOUT RX Output	27	VTHCC2[1] CC2 Comparator Threshold	39	VCONNCC2 VCONN switch on CC2
4	VSS1V8_CORE Digital Core ground	16	CC1_PD CC1 pin	28	VTHCC2[2] CC2 Comparator Threshold	40	CC2_C CC2 pin
5	VDD1V8_CORE Digital Core supply	17	CC2_PD CC2 pin	29	DWNCC2 CC2 Pull down resistor	41	CC2_C CC2 pin
6	MISO SPI output	18	VDD5_PD Analog supply	30	DETCC2 CC2 comparator output	42	VCONN VCONN Supply
7	MOSI SPI input	19	VSS5_PD Analog ground	31	UPCC2[0] CC2 Pull up resistor setting	43	VCONN VCONN Supply
8	SSN SPI slave select	20	VDD5_C Analog supply	32	UPCC2[1] CC2 Pull up resistor setting	44	VCONN VCONN Supply
9	SCK SPI clock	21	VSS5_C Analog ground	33	DETCC1 CC1 comparator output	45	VCONN_C CC1 pin
10	NPOR 1.8V Power On Reset	22	VBUS_C VBUS reference	34	UPCC1[0] CC1 Pull up resistor setting	46	CC1_C CC1 pin
11	SELCC CC Select	23	VDD5_REF References Analog supply	35	UPCC1[1] CC1 Pull up resistor setting	47	VCONNCC1 VCONN switch on CC1
12	TXEN TX enable	24	VSS5_REF References Analog ground	36	VBUSDET VBUS comparator output	48	DWNCC1 CC1 Pull down resistor

USB-C IPs

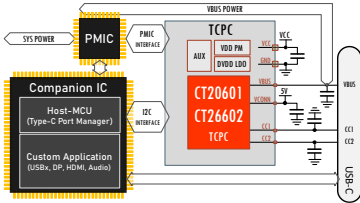
Frequently-Asked Questions

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

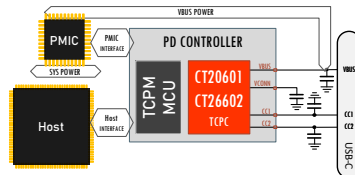
A: Among others, here're some product examples you can develop with our USB-C silicon IPs:

Type-C Port Controller (TCPC)

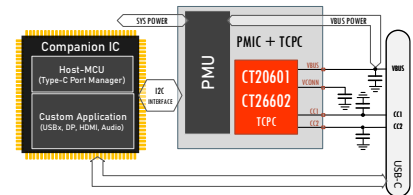
The bundle of the **CT20602** plus the **CT20602** can be used to develop a complete Type-C Port Controller (TCPC) Integrated Circuit. The USB-PD Protocol runs in the Type-C Port Manager MCU (TCPM) which can be integrated in the same IC (USB-PD Controller) or acts as companion IC. Other system related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

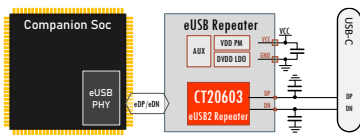


USB-PD PMIC



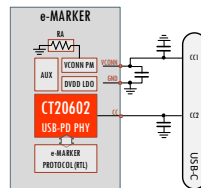
eUSB2 Repeater

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.



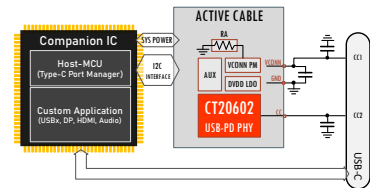
e-Marker

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.



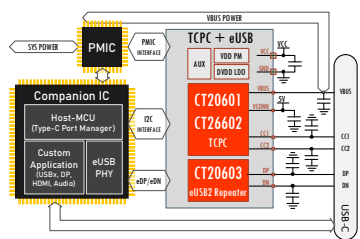
Active Cable

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



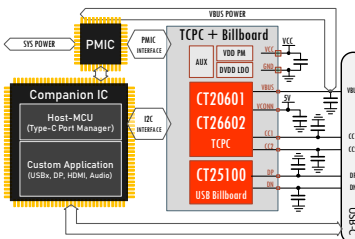
TCPC/USB-PD Ctrl/USB-PD PMIC + eUSB2 Repeater

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.



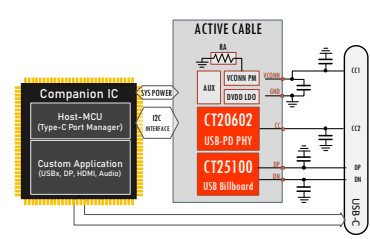
TCPC/USB-PD Ctrl/USB-PD PMIC + USB Billboard

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.