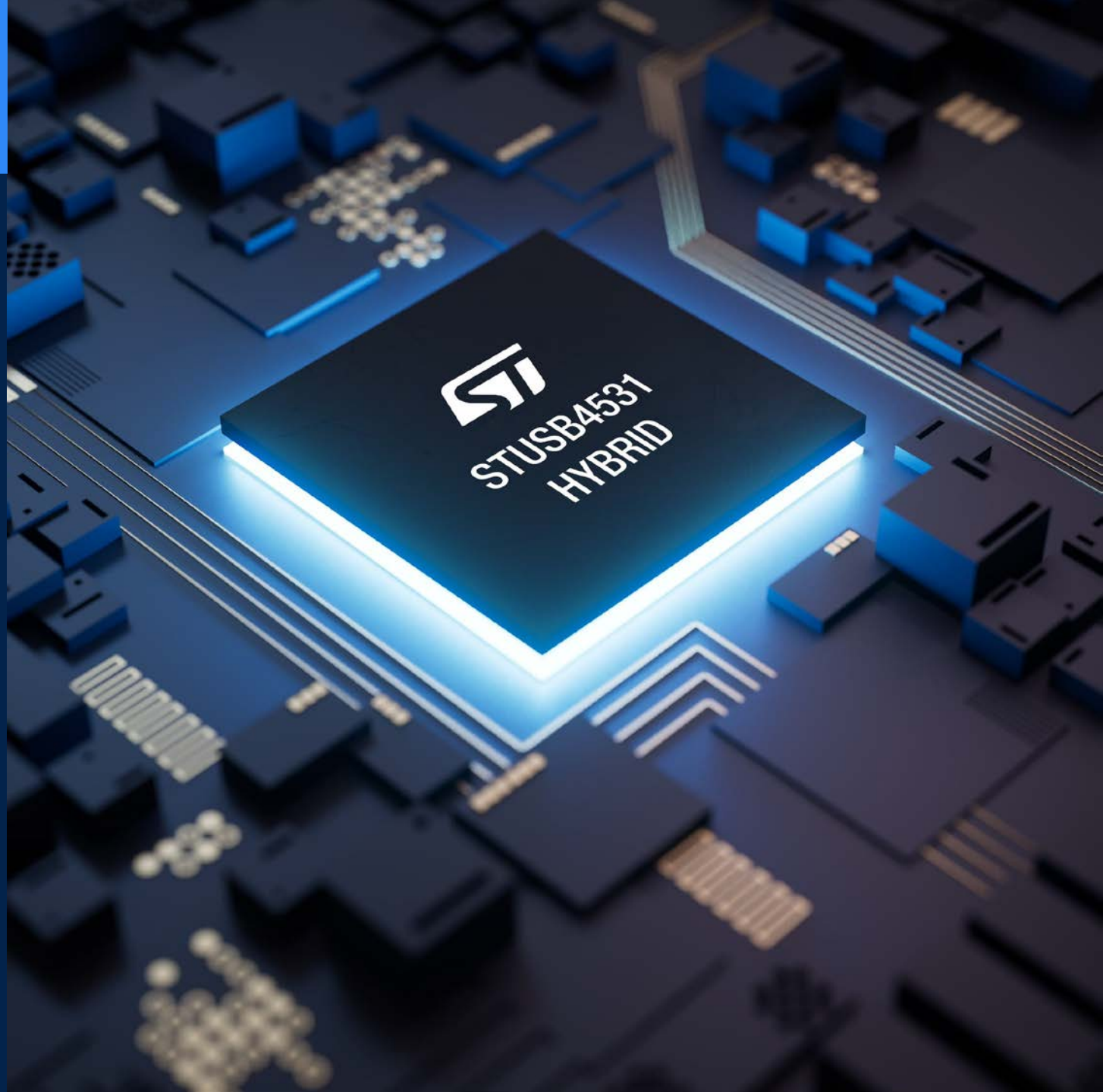
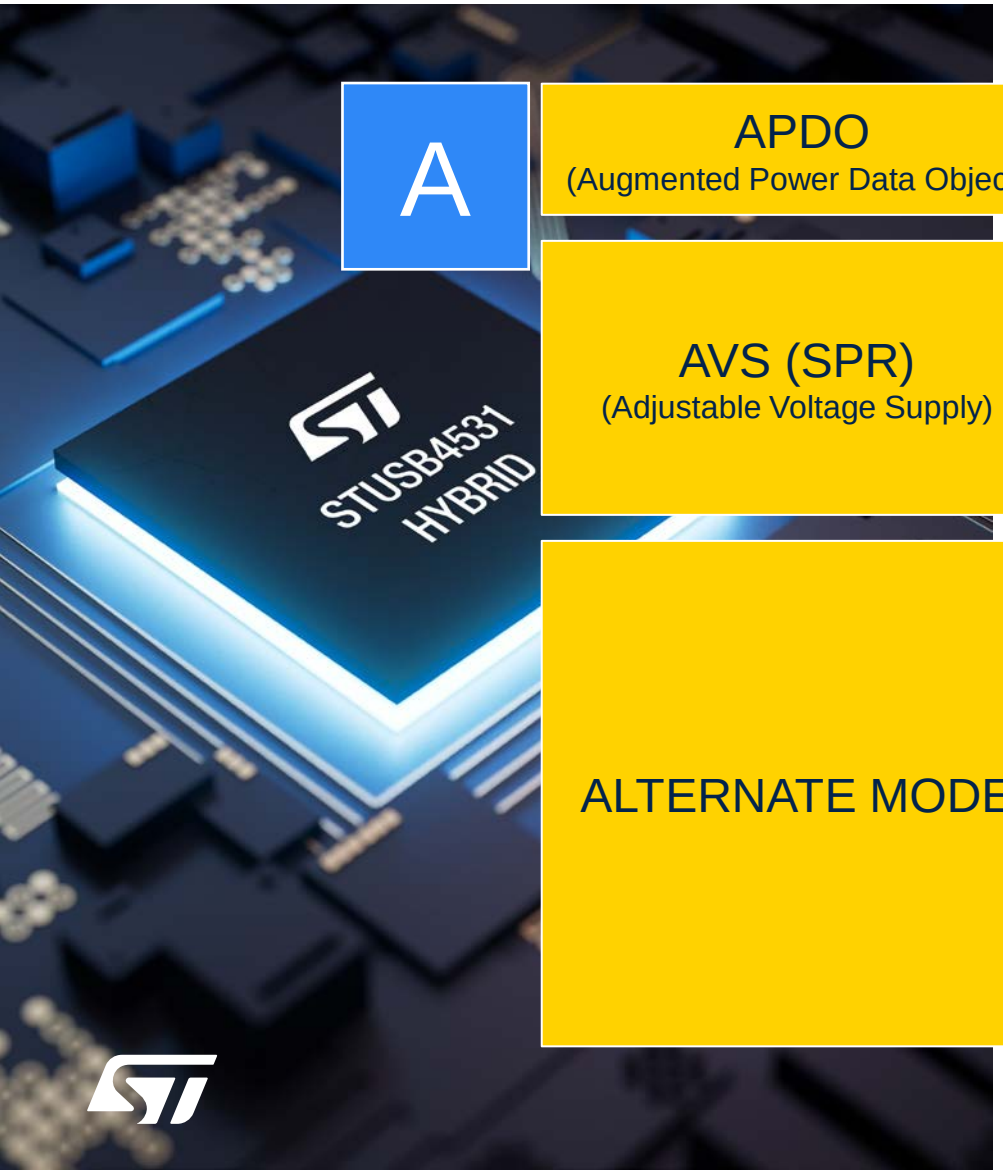
USB-C / PD

GLOSSARY

A-Z





A

APDO
(Augmented Power Data Object)

- Can be either SPR PPS, SPR AVS or EPR AVS

AVS (SPR)
(Adjustable Voltage Supply)

- **Mandatory** PDO for EPS / SOURCE with PDP greater than 27W (ie. with 9V and 15V support)
- From 9V to highest FIXED PDO voltage
- 100mV granularity
- Static charging (source regulates Voltage only)

ALTERNATE MODE

- Use of USB PD Structured Vendor Defined Messages (VDMs) to extend the functionality a device exposes
- Only a subset of the pins can be re-purposed depending on product type
- 4 Alternated modes are visible today:
  - Display Port
  - MHl
  - HDMI
  - Thunderbold

D

DFP
(Downstream Facing Port)

- Used to define the port's data flow in the USB topology
- Typically, the DFP is the port on a USB **host** to which USB devices are attached to
- Chargers can be a DFP while not having USB communication capability
- NB: only the DFP is allowed to control ALTERNATE MODE operation

DRD
(Dual Role Data)

- Port that can operate as either a DFP or a UFP

DRP
(Dual Role Port)

- Port that can operate as either SINK or SOURCE power role

E

EPS
(External Power Supply)

- Stand-alone device designed to convert AC voltage into DC voltage and supply electric devices or charge built-in batteries of electronic devices (in this case, often denoted as “charger”)

EPR
(Extended Power Range)
100W to 240W

- EPR Mode is an **optional** feature (for SINK and SOURCE)
- From 20V to 48V
- EPR AVS: from 15V to Max Voltage
- EPR device shall support SPR (standard Power Range 5V to 20V up to 100W)

P

PDO
(Power Data Object)

- Data packet expressing supported Voltage and Current
- Can be either FIXED supply (**5V mandatory**), BATTERY, or VARIABLE

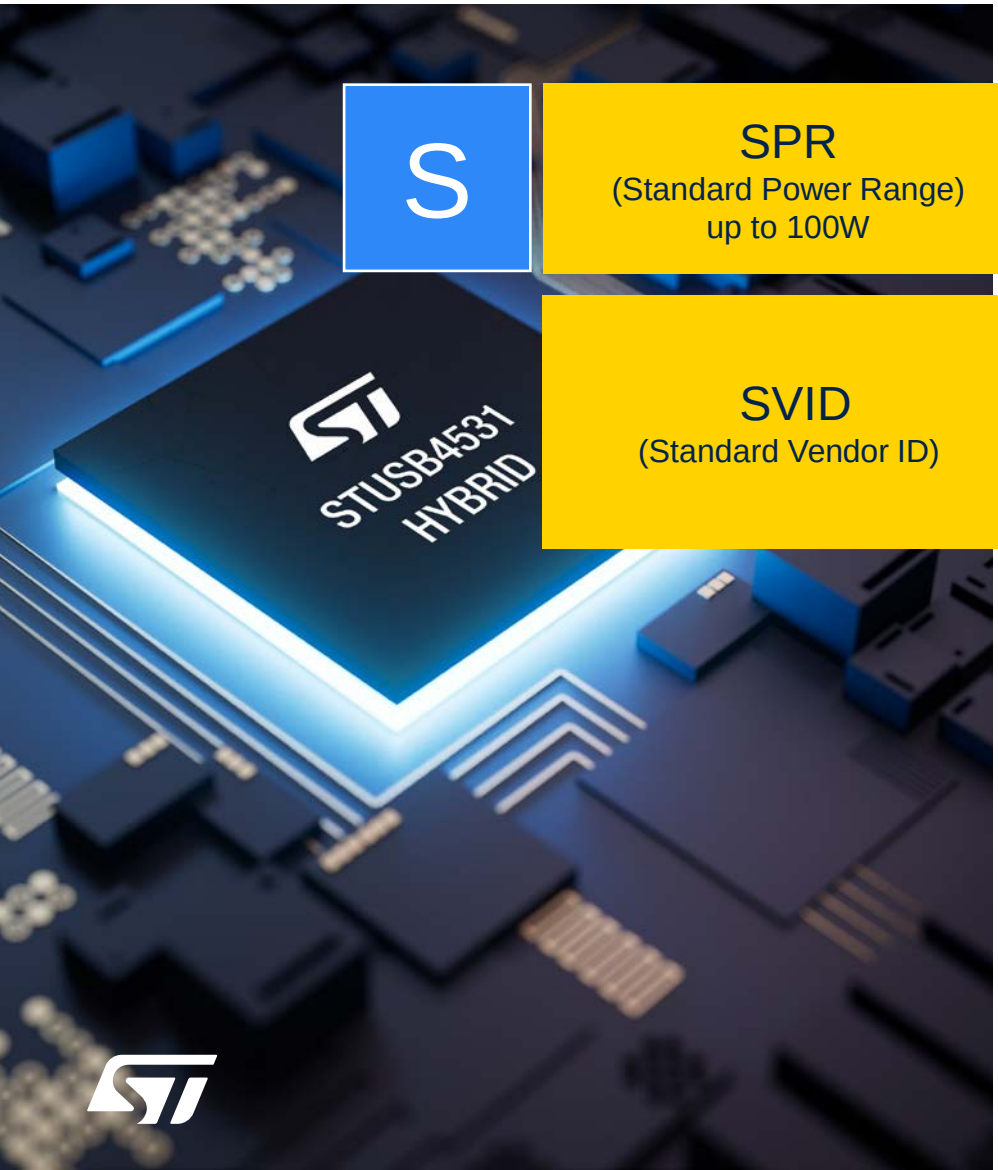
PDP
(Power Delivery Power)

- Power rating of an application (expressed in Watts)
- used to characterize SOURCE power ability or SINK power needs

PPS (SPR)
(Programmable Power Supply)

- **Optional** PDO (for SINK and SOURCE).
- From 5V to 11V, 16V or 21V (depending on highest FIXED PDO voltage)
- 20mV / 50mA granularity - SOURCE output power (V, I) is controlled by the SINK
- Dynamic charging (SOURCE regulates both voltage and current)

➔ used for direct battery charging (mainly smartphone fast charge)



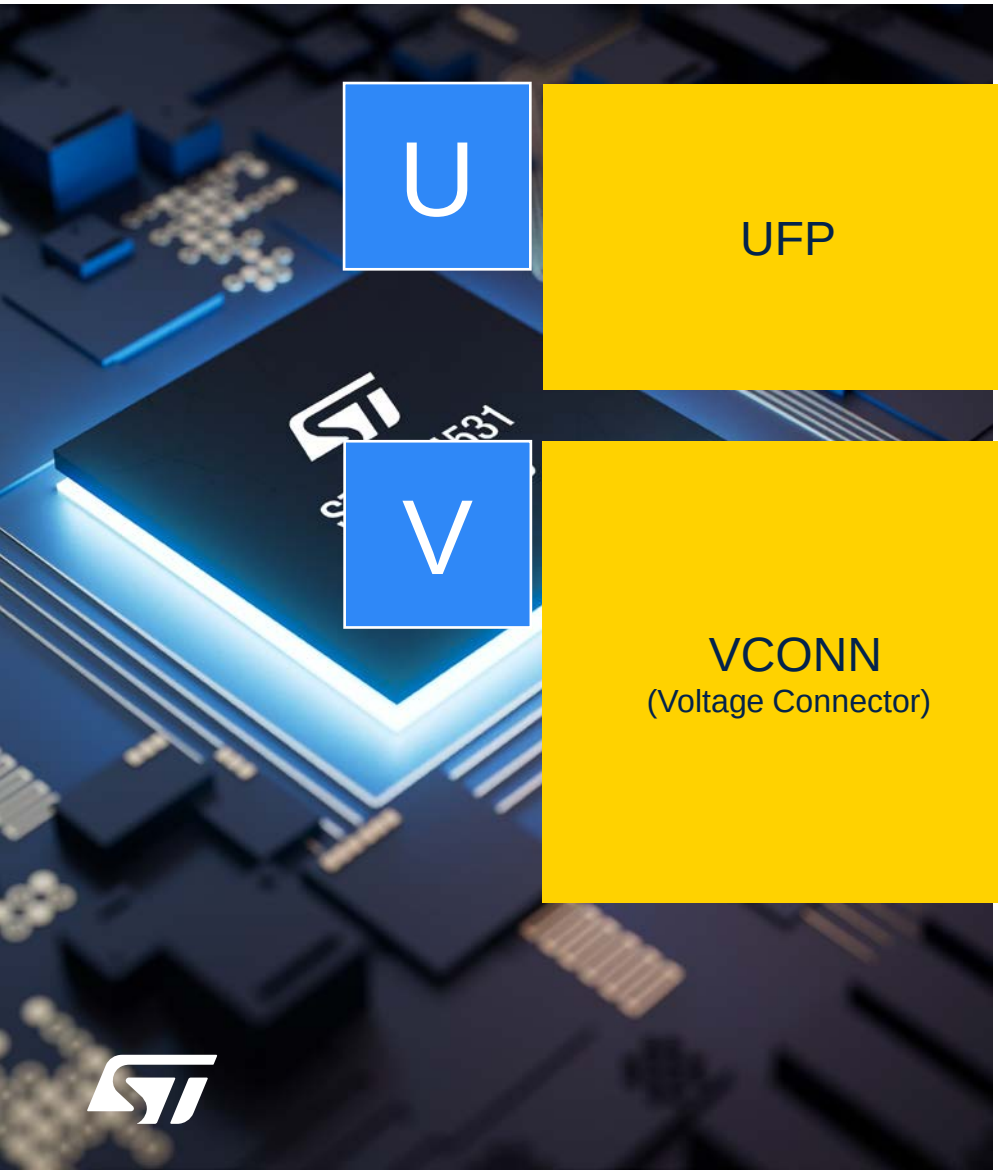
S

SPR
(Standard Power Range)
up to 100W

- SPR Mode is the **default** power range
- From 5V to 20V
- SPR support is mandatory for EPR device

SVID
(Standard Vendor ID)

- 16-bit identifier assigned by the USB-IF
- Generic term referring to either Vendor ID (VID) or a USB ID (SID)
- Mainly used in VDM



U

UFP

- Used to defines the port’s data flow in the USB topology
- Typically, the UFP is the port on a USB device that is connected to a USB host or the DFP of a USB hub.
- Charged devices can be a UFP while not having USB communication capability

V

VCONN
(Voltage Connector)

- Once the connection between USB Host and device is established, the CC pin (CC1 or CC2) in the receptacle that is not connected via the CC wire through the standard cable is re-purposed to source VCONN to power circuits in a Cable Plug, VCONN Powered Accessory or VCONN Powered USB Device
- Typically 3.3V or 5V, up to 1.5W

VDM
(Vendor Defined Message)

- **VDMs** are used for communication between devices to exchange vendor-specific information or commands. Can be of 2 types: Unstructured or Structured
- **Unstructured VDM:** entirely custom VDM and defined by the vendor or manufacturer. Ideal to implement proprietary features, protocols or commands
- **Structured VDM:** to support USB-C Alternate Modes and Electronically Marked cables
  - o Identify the device or cable: Discover Identity of attached cable or Port Partner
  - o Support for USB Type-C Alternate Modes:
    - Discover SVIDS, Discover Modes
    - Enter, Exit and manage USB Type-C Alternate Modes of attached device or cable
    - Attention message allows a device to get the host's attention
- All VDMs are identified by SVID (Vendor ID -VID- or USB ID -SID-)