

## Mobility DisplayPort (MyDP) transmitter

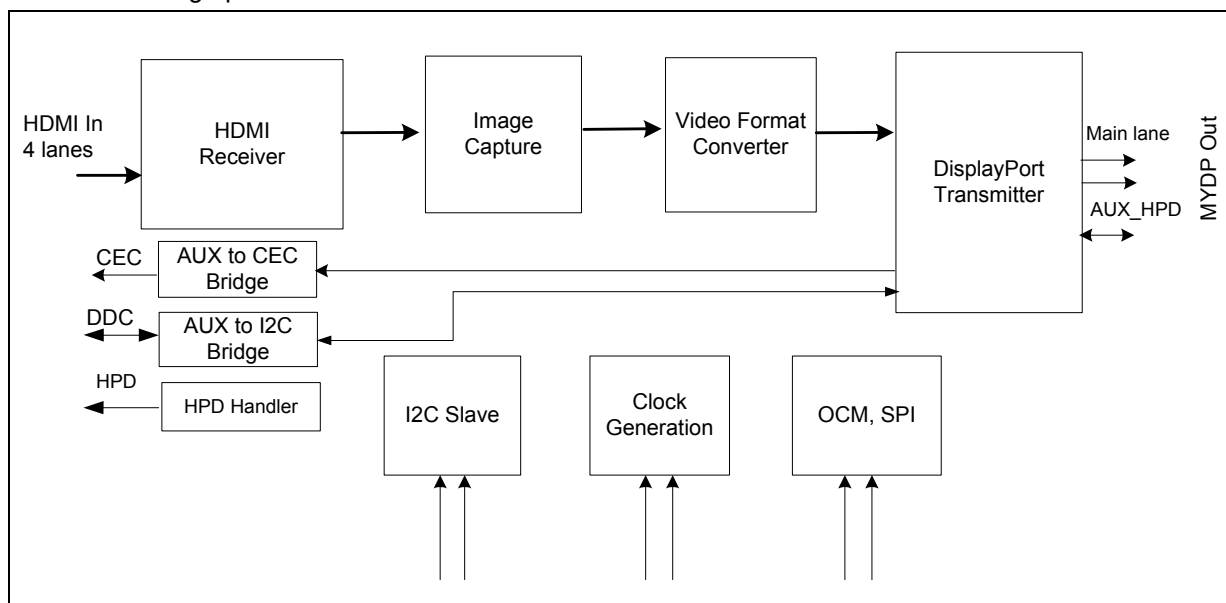
Data brief

### Features

- Mobility DisplayPort® (MyDP) transmitter
  - Link rate HBR2/HBR/RBR
  - 1 lane
  - AUX\_HPD single-ended AC coupled signal, 1 Mbps
- HDMI 1.4 receiver
  - Max data rate up to 2.97 Gbps/data pair
  - Color depth 24, 18 bits per pixel
  - 3D video timings (1920 x 1080 @ 30 Hz stereo)
  - CEC
- HDCP repeater with embedded keys
- I2C to AUX\_HPD bridge for EDID access
- CEC message protocol handler
- Spread spectrum on MyDP interface for EMI reduction
- Bandwidth
  - Video resolution up to 1920 x 1080 @ 60 Hz
  - Audio 7.1 Ch up to 192 kHz sample rate
- Low power operation
- Package
  - 81 BGA (5 x 5 mm)
- Power supply voltages
  - 3.3 V I/O; 1.2 V core

### Applications

- Smart phones, tablets, cameras, other portable media devices



# 1 Description

The STDP2530 is a Mobility DisplayPort transmitter with an HDMI input that facilitates streaming FHD 60 Hz video and audio from MyDP enabled smart phones and tablets over a standard 5-pin connector. The STDP2530 is a VESA Mobility DisplayPort (MyDP) standard compliant device, implementing a single lane DisplayPort output and AUX\_HPD signal. The input comprises an HDMI port with four differential signal pairs, CEC, and HPD signal. The MyDP standard is a digital audio-video interconnect based on the VESA DisplayPort standard for a mobile source device capable of streaming uncompressed audio and video. It uses the existing standard 5-pin connector commonly used for charging the portable mobile devices to stream the audio-video to an external display.

The STDP2530 uses ST's latest generation DisplayPort transmitter technology that supports a single AV stream at HBR2 speed, a data rate of 5.4 Gbps per lane. The HDMI 1.4 receiver in STDP2530 is based on advanced high-speed TMDS technology supporting link rate up to 2.97 Gbps and the stereo 3D formats. In mobile applications, this device can receive up to 1080p 60 Hz video at 24 bits per pixel color and audio up to 8-channel at 192 Kb sample rate from the Application Processor Engine (APE) and converts into MyDP output over one lane for external display. This device also complies with the HDCP 1.3 content protection scheme with an embedded key option for secure transmission of premium digital AV content.

The AUX\_HPD is a single-ended sideband channel used for low-speed data exchange with the MyDP converters or MyDP compliant sinks. The AUX\_HPD data transfer rate is 1 Mbps, which is quite adequate for handling I2C and CEC protocols from the downstream sink. The AUX\_HPD channel is also used for monitoring sink requests and DPCD read-write access.

The AUX-to-I2C translator in the STDP2530 bridges I2C communication between APE with the external display. Similarly, the AUX-to-CEC translator handles CEC message transfer from the sink to the APE. This device has an on-chip microcontroller with SPI and I2C host interfaces for system configuration purposes. The STDP2530 implements a sink detection and monitoring feature that automatically puts the device into low power operation whenever the sink is disconnected.

## 2 Application overview

Figure 1. STDP2530 mobile application: interfacing with HDMI TV via MyDP to HDMI adapter

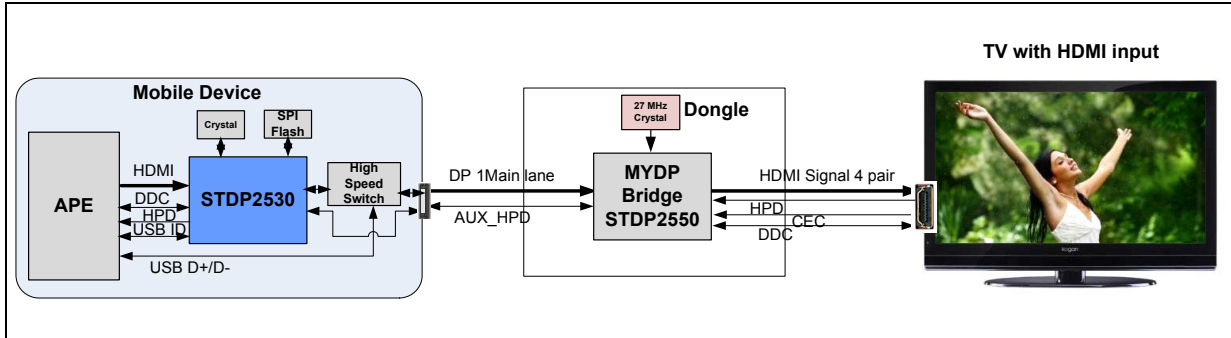
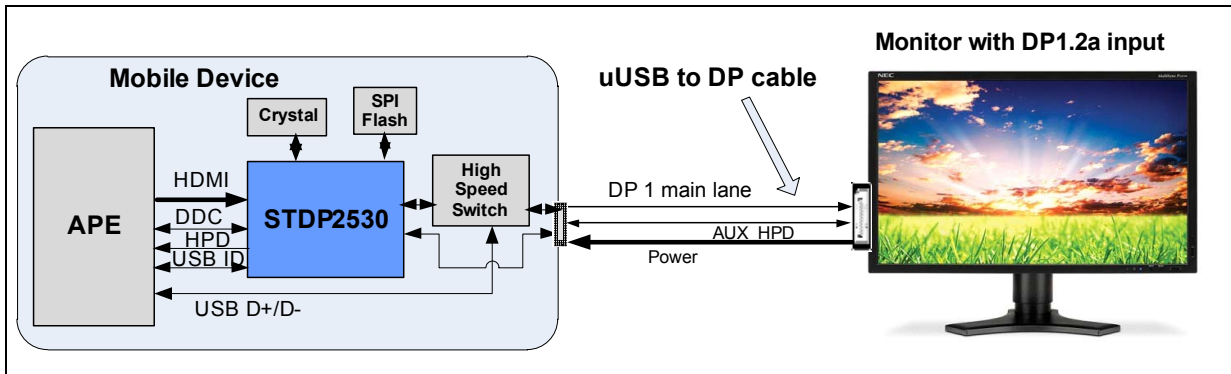


Figure 2. STDP2530 in mobile application: direct interface to DP 1.2 based monitor via passive cable



## 3 Feature attributes

### 3.1 Output interface

- Mobility DisplayPort
- Main link configuration (SST format only)
  - HBR2/HBR/RBR link rate
  - 1 lane
- AUX\_HPD: 1 Mbps Manchester transaction format
  - I2C over AUX\_HPD
  - CEC over AUX\_HPD
- Pixel bit depth: 24 bpp, 18 bpp
- Color format: RGB
- Audio: Up to 192 Kb samples/sec, 8 Ch/sample, 24 bits/Ch

### 3.2 Input interface

- HDMI standard Ver.1.4 compliant
- Link rate: 2.97 Gbps/data pair max
- Pixel bit depth: 24 bpp, 18 bpp
- Color format: RGB
- Audio: Up to 192 Kb samples/sec, 8 Ch/sample, 24 bits/Ch
- DDC master port
- HPD monitoring

### 3.3 Supported video timings

- 1920 x 1080 (FHD) 60 Hz: 24 bits/pixel
- 1920 x 1080 (FHD) 30 Hz stereo 3D

### 3.4 Supported audio timings

- Up to 8-Ch LPCM; word length up to 64 x Fs; bit depth up to 32 bits, sample rate up to 192 kHz

### 3.5 Control channel interfaces

- AUX\_HPD, I2C host interface, SPI (optional), and UART (UART for test/debug purposes only)

### 3.6 **HDCP 1.3 support**

- Key sets for HDMI RX and MyDP TX integrated in one-time programmable ROM (OTP)
- Standalone HDCP repeater capability

### 3.7 **Package**

- 81 BGA (5 x 5 mm), 0.5 ball pitch

### 3.8 **Power supply voltages**

- 3.3 V I/O; 1.2 V core

### 3.9 **ESD**

- 2 KV HBM, 500 V CDM

## 4 Ordering information

Table 1. Order codes

Part number	Description
STDP2530-AC	81 BGA (5 x 5 mm) delivered in trays
STDP2530-ACT	81 BGA (5 x 5 mm) delivered in tape and reel

### 4.1 ECOPACK®

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK® is an ST trademark.

## 5 Revision history

**Table 2. Document revision history**

Date	Revision	Changes
08-Oct-2012	1	Initial release.
06-May-2013	2	Updated Ordering information section.

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