

iDP to LVDS converter

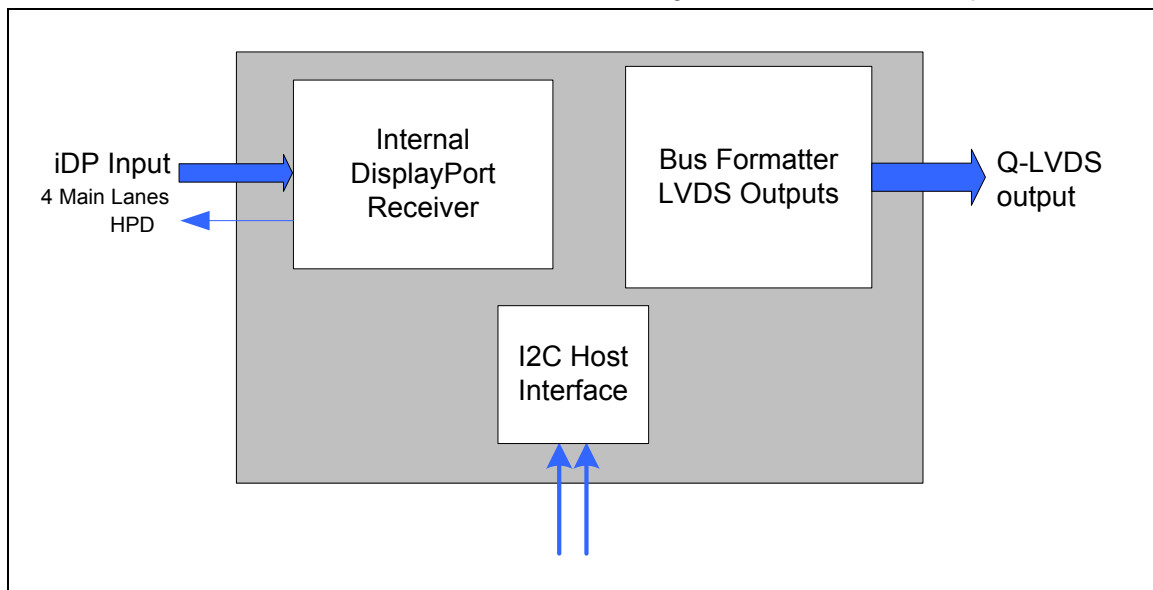
Data brief

Features

- Internal DisplayPort (iDP) receiver
 - Compliant with proposed iDP specification
 - 3.24 Gbps per lane
 - 1, 2, or 4 lanes
 - HPD pulse assertion as per proposed iDP standard
- Supports video timings up to 1920 x 1080 (FHD) 120 Hz/10-bit color
- Interface compatibility with wide range of panels
 - Quad LVDS interface up to 100 MHz per channel (400 MHz pixel rate)
 - High speed dual-link LVDS up to 150 MHz per channel (300 MHz pixel rate)
 - Supports JEIDA, non-JEIDA, VESA pixel data mappings
- Supports Asynchronous Scrambler Seed Reset (ASSR) for premium contents reception
- Configurable through I2C host interface
- Supports Spread Spectrum for EMI/RFI reduction
- Robust interoperability – supports FFC and UTP type cables
- Low power operation; 20 mW standby
- Package
 - 164 LFBGA (12 x 12 mm/0.8 mm pitch)
 - HF and RoHS compliant
- Power supply voltages
 - 3.3 V I/O; 1.2 V core
- ESD
 - 2 KV HBM, 200 V MM, 600V CDM

Applications

- High refresh rate TV/monitor panel interface



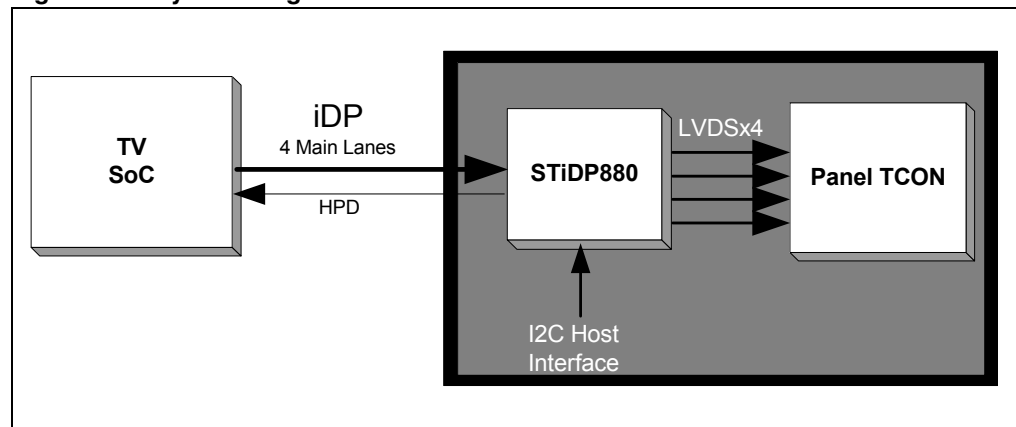
1 Description

The STiDP880 is an internal DisplayPort to high-speed Dual LVDS/Quad LVDS converter IC targeted for the interconnection between a TV controller SOC and panel TCON. STiDP880 is a proposed VESA iDP compliant device, implementing a single link internal DisplayPort input comprising four Main Link lanes and HPD, which operates without a sideband channel. This device supports the proposed standard iDP link rate of 3.24 Gbps per lane with a total link bandwidth of 12.96 Gbps, allowing interface connectivity for a wide range of panels up to FHD 120 Hz and 10 bits per color. The advanced equalizer built in this device offers robust performance over FFC and UTP type cables.

The STiDP880 supports RGB video color formats with color depth of 10 and 8 bits. This device offers LVDS output interface configurable to map a wide range of pixel data mapping, such as JEIDA, non-JEIDA, and VESA types. The Quad LVDS interface supports video signals up to 400 MHz pixel rate with flexible channel and lane swapping options. In Dual LVDS configuration, STiDP880 can support up to 300 MHz pixel rate.

The STiDP880 is designed to operate in standalone mode (without any programming from an external microcontroller) with default configuration of four lanes DP input and QLVDS output with non-JEIDA mapping. However, the device is configurable from an external microcontroller through I2C host interface for custom configuration.

Figure 1. System diagram



2 Benefits

- Industry's first iDP receiver based on ST's market proven DisplayPort technology
- Offers robust interoperability with ST and third party iDP transmitters
- Highly integrated single chip solution for FHD 120 Hz TV panel; two devices supports FHD240Hz panel over eight Main Link lanes
- Flexible interface to ease system design – DP 1, 2, 4 lane configuration, high speed LVDS 2, 4 channels
- Standalone operation with default LVDS mappings matches to majority non-JEIDA FHD 120 Hz TV panels
- I2C host interface for custom configurations – LVDS channel mappings, equalization settings, color depth selection, etc.
- Low EMI – supports down-spread DP input and spectrum-spreading of LVDS channels
- Low power – active power sub 800 mW max and 20 mW standby

3 Ordering information

Table 1. Order codes

Part number	Description
STiDP880	164 LFBGA (12 x 12 mm)

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. ECOPACK[®] is an ST trademark.

4 Revision history

Table 2. Document revision history

Date	Revision	Changes
10-Dec-2009	1	Initial release.

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2009 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com