APIX®

APIX® Automotive Pixel Link

Expanding the Limits of the Automotive Communications Platform

Car telematics systems are becoming the mobile communications platform of choice for cars and trucks. Brilliant, high-resolution TFT-LCD displays and real-time camera systems are providing increased capabilities for navigation, graphics, and automated driving options i.e. lane departure warning or obstacle detection.

APIX®, Inova Semiconductors' new Automotive Gbit/s Pixel Link, is uniquely designed to overcome the bandwidth-distance limitations of today's automotive connectivity designs. Using Inova Semiconductors' GigaSTaR® transmission technology, the APIX® chip family enables optimum connection of high-resolution displays and cameras to automotive Car PCs, using only two wires. The result is significant reduction in EMI, cable diameter and cost at maximized throughput.

The APIX® requires only one twisted cable pair for full duplex video and sideband operation. Alternatively a separate feedback path may be activated to use fiber optic cables, for example.

A bi-directional sideband data channel, which allows for control of CMOS camera sensors or display settings, is also provided.

The combination of adjustable driver characteristics, selectable operating modes (of 0.5 or 1 Gbit/s) and Spread Spectrum-Clocking enables the optimum combination of minimal EMI, maximum transmission distances, and lowest power consumption.

Applications:
- In-Car Information Displays
- Automotive Dashboard Displays
- Car Head-Up Displays
- Rear-Seat Infotainment
- Automotive Vision Systems
    - Adaptive Cruise Control
    - Lane Departure Warning
    - Lane Change Assistant
    - Obstacle Detection
    - Sign Recognition
    - Rear & Side Mirror Replacement
    - Blind Spot Detection
- Passenger Infotainment Systems
- Security Systems
- Machine Vision
- Military Head-Up and Helmet Displays

inova® Semiconductors
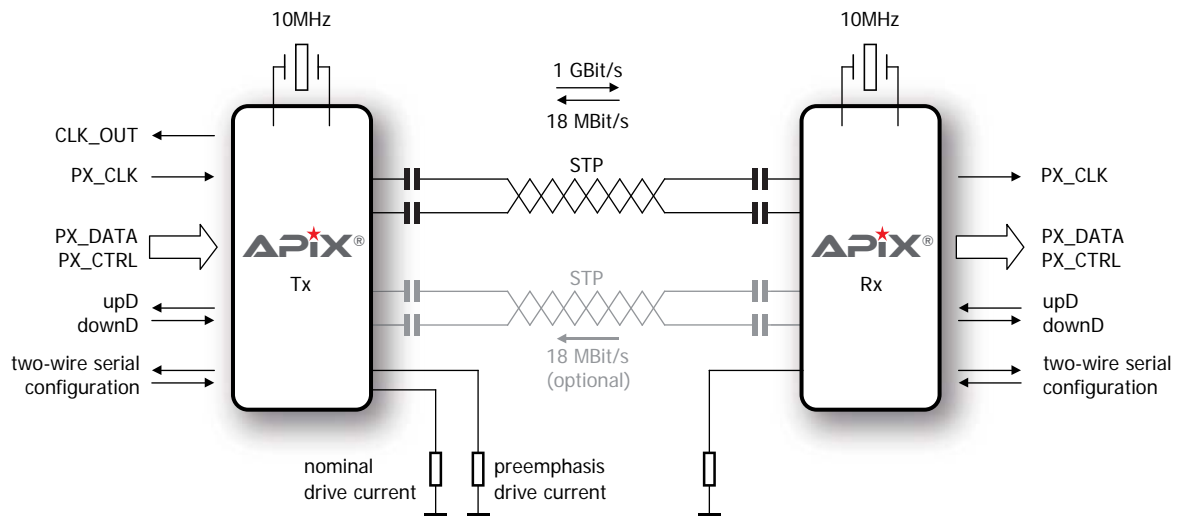
Link Bandwidth Capabilities

	Downstream	
Operation Mode	@ 1000 Mbit/s	@ 500 Mbit/s
10 bit	max. 60 MHz PxClk	max. 36 MHz PxClk
18 bit	max. 42 MHz PxClk	max. 21 MHz PxClk
24 bit	max. 32 MHz PxClk	max. 16 MHz PxClk
Sideband Channel	2 x 1 bit at 12 Mbit/s max.	2 x 1 bit at 6 Mbit/s max.
	Upstream	
Sideband Channel	2 x 1 bit at 9 Mbit/s max.	

Package Options

To reducing pin count and saving board space at dedicated applications, the APIX® chips are available in packages with different pin counts.

Device	Description	Package
Transmitter		
INAT125P10	Tx with 10 bit Interface + 1 bit Sideband	QFN44
INAT125P18	Tx with 18 bit Interface + 2 bits Sideband	QFN52
INAT125P24	Tx with 18…24 bit Interface + 2 bits Sideband	QFN64
Receiver		
INAR125P10	Rx with 10 bit Interface + 1 bit Sideband	QFN48
INAR125P24	Rx with 18…24 bit Interface + 2 bits Sideband	QFN64

APIX® Features:

- Low EMI, Two- or Four-Wire Full Duplex Link
- Up to 1 Gbit/s Downstream Link Bandwidth
- Up to 18 Mbit/s Upstream Link Bandwidth
- 15 m+ Distance with small profile STP/UTP cables
- Tx: 10/12/18/24 bit RGB Interface
- Rx: 10/12/18/24 bit RGB Interface
- DC-balanced decoding supports AC-coupling
- Adjustable Output Driver Characteristics
- Link Setup/Control through Microwire-Compatible Interface
- Dual +1.8 V / 3.3 V Power Supply
- Extended Temperature Range: -40…+105°C

For more information: **www.inova-semiconductors.com**

Distributor: