TDAIP01 - TD next Advanced Imaging Platform

AVNET SILICA

The TD next TDAIP01 is a compact module for advanced imaging that mounts on a user PCB. The TDAIP01 features video, image and audio processing capabilities as well as stream, record and playback. It integrates powerful hardware while keeping cost and power consumption low. The TDAIP01 does not need an external DRAM. The startup time (from power on to first delivered video frame) is around 200 ms, making the TDAIP01 the best in class for applications where instant response is important. Users can easily configure the TDAIP01 to support simultaneous audio/video inputs and to drive many external peripherals such as a 3G/4G modem, Wi-Fi module, SD card, and USB devices (camera/mass storage/printer class). It also supports USB, SPI, UART and GPIOs for control functions. The integrated high performance processor supports H.264 and MJPEG video and simultaneous AAC audio compression. This compression significantly decreases the data cost by reducing the data volume to be transferred.

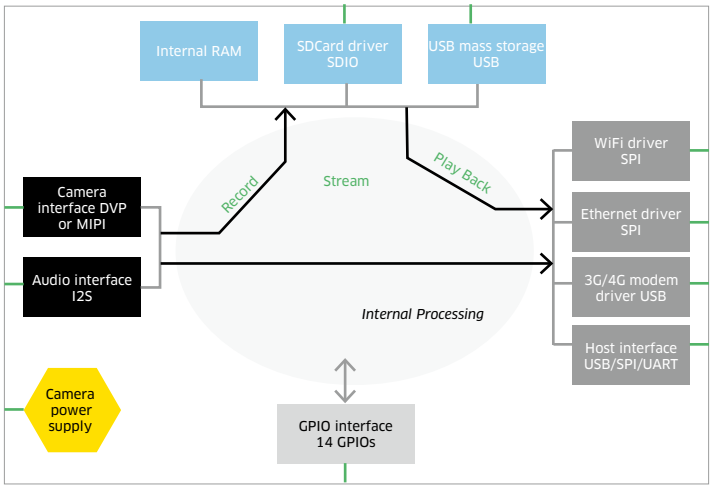
No firmware development is required. All the user has to do is to configure both TDAIP01 working mode and peripheral settings. The required functionalities can be activated by using simple script files and configuring the actions to be performed. The TDAIP01 can then work in stand-alone mode as no additional processor is required. These customizations may be performed during the product manufacturing phase.

Many applications can be implemented easily with a few simple configuration steps on the TDAIP01 module. These applications include video streaming over an external Wi-Fi module or a 3G/4G modem, microSD card recording, connecting a PIR sensor, and driving an external I/R LED for night vision, to name just a few.

The TDAIP01 low power consumption enables customers to design battery-powered products supported by the smart and highly integrated processor. During video streaming, the H.264 compression uses the integrated memory, eliminating the need for external DRAM power used by competing devices.

The TDAIP01 can be driven by a host processor if needed. Using the available interfaces, including USB, UART and SPI.
A host may configure and receive a video stream in real-time.

BLOCK DIAGRAM



GENERAL INFORMATION

- 30 x 30 x 3.5 mm
- 108 castellated pins
- Pitch: 1 mm
- SMT mounting
- Metallic shield
- Embedded camera connector

APPLICATIONS

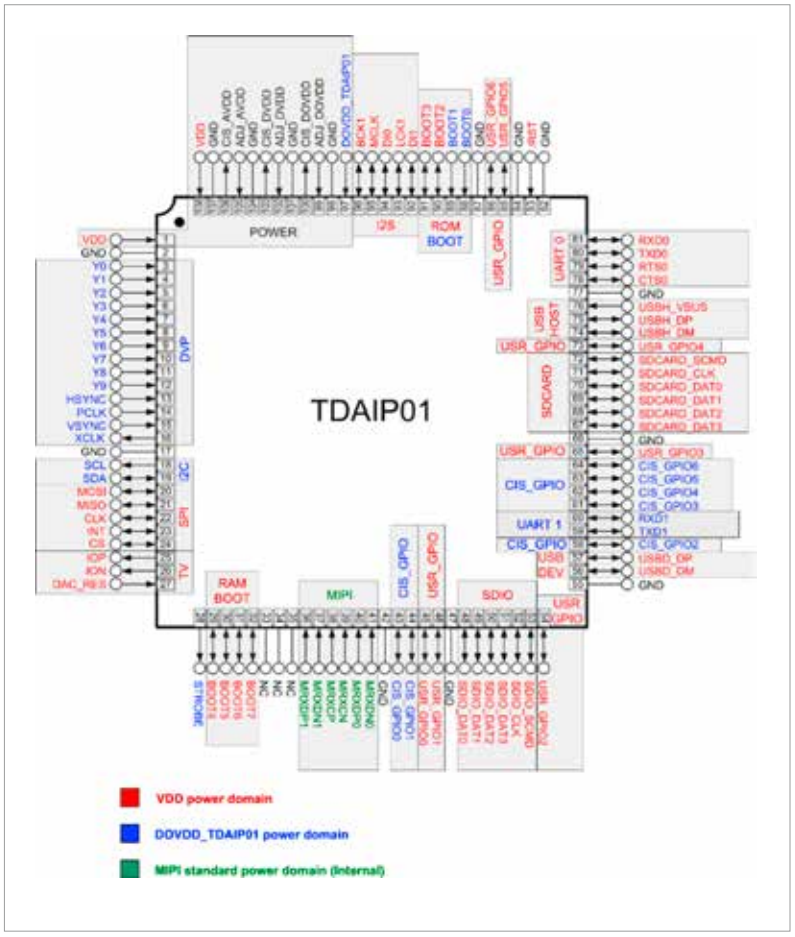
- Home automation
- Security
- Video conferencing
- Industrial vision
- Video door phone
- Drones
- Real-time video streaming
- Battery powered videocam

TD next
A division of Telecom Design

EVALUATION KIT

TD next offers a kit for evaluating the TDAIP01 and designing proprietary systems. This kit enables users to test all the TDAIP01 features and configure by connecting the evaluation kit to a PC. The user will be able to setup and validate configuration scripts for the camera, the Wi-Fi or a 3G/4G modem, and any other required interface.

PIN OUT DESCRIPTION



FEATURES

- Audio/video streaming, recording and playback
- Startup time (power on to 1st delivered frame): ~200 ms
- Frame rate up to 720p @60 fps
- 8-10 bits CMOS parallel DVP camera interface
- 1 or 2 lanes MIPI camera interface
- H.264 compression:
  - Baseline profile, level 3.0 for QVGA @60 fps
  - Baseline profile, level 3.0 for VGA @30 fps
  - Main profile, level 4.0 for 720p @60 fps
- MJPEG video compression
- I2S stereo audio codec interface
- AAC audio compression:
  - High quality audio profile level 2
- Wi-Fi, 3G/4G modem and Ethernet driver
- Embedded protocols:
  - DNS, DHCP, HTTP, RTP, RTCP, RTSP
- Internal SRAM of 256 Kbytes + 2 Mbytes
- Internal serial flash of 1 Mbytes
- Input power supply: 3.3V ±10%
- Power consumption:
  - TD7740 VGA w/ H.264 video + AAC audio compression recording on SD card: 205 mA @ 3.3 V (0.7 W)
  - TD7740 VGA w/ MJPEG video compression + PCM 11 ksps audio streaming on USB: 190 mA @ 3.3 V (0.6W)
- Adjustable output power supply for external camera:
  - VCORE: 1.3 V to 3.3 V
  - VDIO: 1.2 V to 3.3 V
  - AVDD: 1.2 V to 3.3 V
- Connectivity/interfaces:
  - USB host and device
  - SPI
  - UART
  - I^2C
  - SDIO
  - SD card
- Operating temperature range: -25°C to +70°C