

HDK-AR-CD45

Hardware Development Kit for MIPI C-PHY(4.5Gbps) / D-PHY(4.5Gbps)

General Description:

The HDK-AR-MIPI-CD45 is a Hardware Development Kit for MIPI devices employing the Arasan Combo ASIC test chip Apollo-Lite, supporting MIPI C-PHY v2.0 @ 4.5gsp/s, and MIPI D-PHY v2.1 @ 4.5gbps.

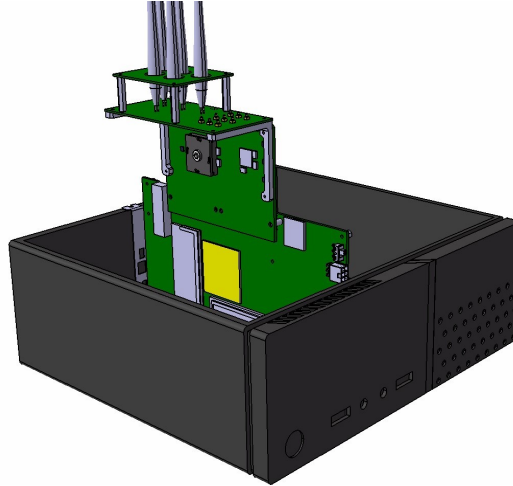
The Apollo-Lite test chip (© 2022 Arasan Chip Systems Inc.) is fabricated via TSMC 12nm / 7nm FIN-FET process.

The system includes hardware and software required for FPGA designs testing / validation, as well as for the validation of fabricated MIPI ICs or End-User Devices.

HDK Key Features:

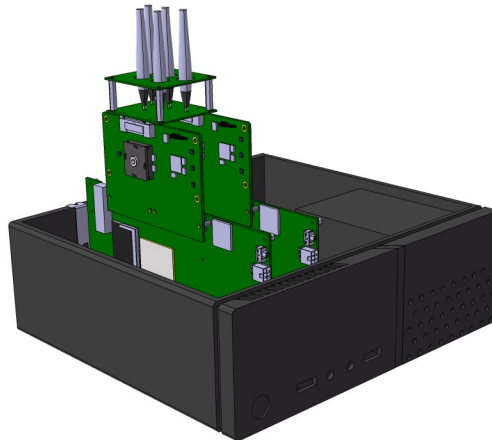
- 4-lane D-PHYSM 2.5 configuration provides:
 - 18 Gbps when operating at 4.5 Gbps/lane
- 3-channel C-PHYSM 2.0 configuration provides:
 - 23.94 Gbps when operating at 3.5 Gsp/s/trio-lane
 - 30.78 Gbps when operating at 4.5 Gsp/s/trio-lane (short haul)
- Supports HS, LP, and ALP modes
- Supports Fast Lane Turnaround mode, Low-Power Escape modes, and Ultra Low-Power State mode
- 80 Mbps to 1.5 Gbps per data lane in D-PHYSM mode without deskew calibration
- Up to 2.5 Gbps per data lane in D-PHYSM mode with deskew calibration
- Up to 4.5 Gbps per data lane in D-PHYSM mode with equalization
- Up to 4.5 Gsp/s (10.26 Gbps) per data trio-lane in C-PHYSM mode
- On-board programmable PLL with Spread Spectrum Clocking
- Supports new power saving HS-Tx half swing mode for D-PHYSM
- Supports HS-IDLE mode for D-PHYSM
- Supports HS deskew, Alternate calibration sequence, Preamble sequence
- Supports polarity swap for all lanes between DP/DN or A/B/C
- Offers SPI access to all registers
- Supports standard PPI interface compliant with MIPI Specifications
- Activates and disconnects high speed termination for Rx and Tx modes
- Supports "Stuck-At Scan" for DC scan feature

HDK-AR-CD45-Rx / HDK-AR-CD45-Tx



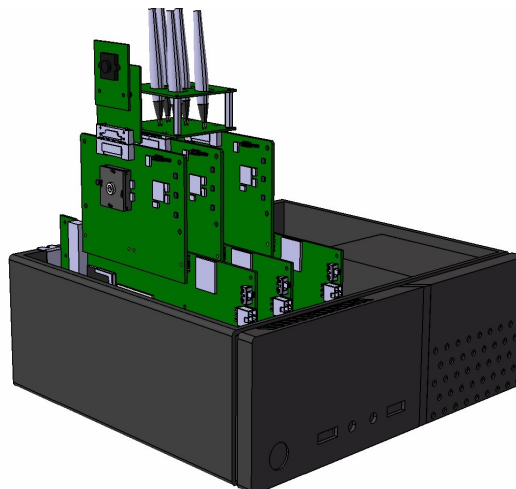
- **HDK-AR-CD45-PHY** PHY board (config for Tx or Rx)
- **Xilinx VC707** Xilinx Development Board (configured for Tx or Rx)
- **HDK-AR-CD45-PC** HDK System PC
- **Options:**
 - **HDK-AR-CD45-TB-MX** (I/O Test Kit) (shown)
 - **HDK-AR-CD45-ISK** (Image Sensor Kit)
 - **HDK-AR-CD45-IDK** (Image Display Kit)

HDK-AR-CD45-RxTx Configuration:



- **HDK-AR-CD45-PHY** PHY board (config for Tx)
- **Xilinx VC707** (configured for Tx)
- **HDK-AR-CD45-PHY** PHY board (config for Rx)
- **Xilinx VC707** (configured for Rx)
- **HDK-AR-CD45-PC** HDK System PC
- **Options:**
 - **HDK-AR-CD45-BBK** (shown) (Bridge Board Kit)
 - **HDK-AR-CD45-ISK/IDK** (Image Sensor & Display Kit)

HDK-AR-CD45-RxTxSG Configuration:



- **HDK-AR-CD45-PHY** PHY board (config for Tx)
- **Xilinx VC707** (configured for Tx)
- **HDK-AR-CD45-PHY** PHY board (config for Rx)
- **Xilinx VC707** (configured for Rx)
- **HDK-AR-CD45-BBK** (Bridge Board Kit)
- **HDK-AR-CD45-SGK** Signal Generator Kit
- **HDK-AR-CD45-PC** HDK System PC

HDK Components Description:

- HDK-AR-CD45-PHY:
 - HDK PHY board containing the socket for the Arasan Apollo-Lite PHY test chip (© 2022 Arasan Chip Systems Inc.)
 - Configurable for Tx or Rx
- Xilinx VC707:
 - Xilinx Development Board (requires a PCI X8 slot)
- HDK-AR-CD45-IOK (I/O Kit)
 - Connects to target Tx or Rx devices
 - Includes IO board containing MMCX connector and Scope Probe Holding Board for performing scope measurements in a convenient manner
- HDK-AR-CD45-ISK (Image Sensor Kit)
 - Adds a MIPI Image Sensor to the HDK
 - Includes Image Sensor Adapter and Image Sensor Module.
- HDK-AR-CD45-IDK (Image Display Kit)
 - Addis a MIPI Image Display to the HDK
 - Includes Image Display Adapter and Image Display Module.
- HDK-AR-CD45-BBK (Bridge Board Kit)
 - Connects two HDK-CD45-PHY boards (Rx and Tx)
 - Accepts Scope Probe Holding Board
- HDK-AR-CD45-ISDK (Image Sensor and Display Kit)
 - Adds a MIPI Image Sensor and Image Display to the HDK
 - Includes Image Sensor Adapter, Image Display Adapter, Image Sensor Module, Image Display Module.
- HDK-AR-CD45-SGK (Signal Generator Kit)
 - Adds a MIPI Signal Generator to the HDK
 - Includes Image Sensor Adapter and Image Sensor Module
 - used to generate configurable MIPI test patterns
- HDK-AR-CD45-PC:
 - HDK System PC with preinstalled test software
 - Optional
- HDK-AR-CD45-TB-MX (Test I/O Board)
 - Allows customer devices to be tested with the HDK
 - Employs MMCX connectors for lane signals

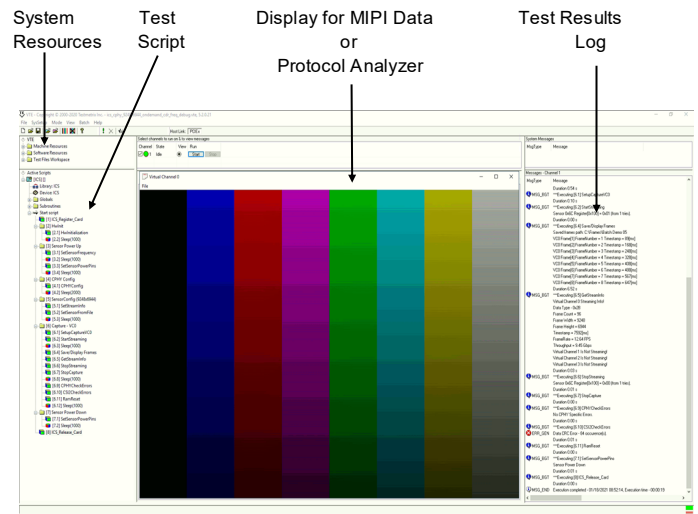
HDK Software:

VTE Application:

- Win 10 compatible
- Includes IDE for developing C-like test scripts
- User Friendly UI
- Comprehensive Test Log Generation
- Includes Test Scripts
- Optional MIPI Protocol Analyzer

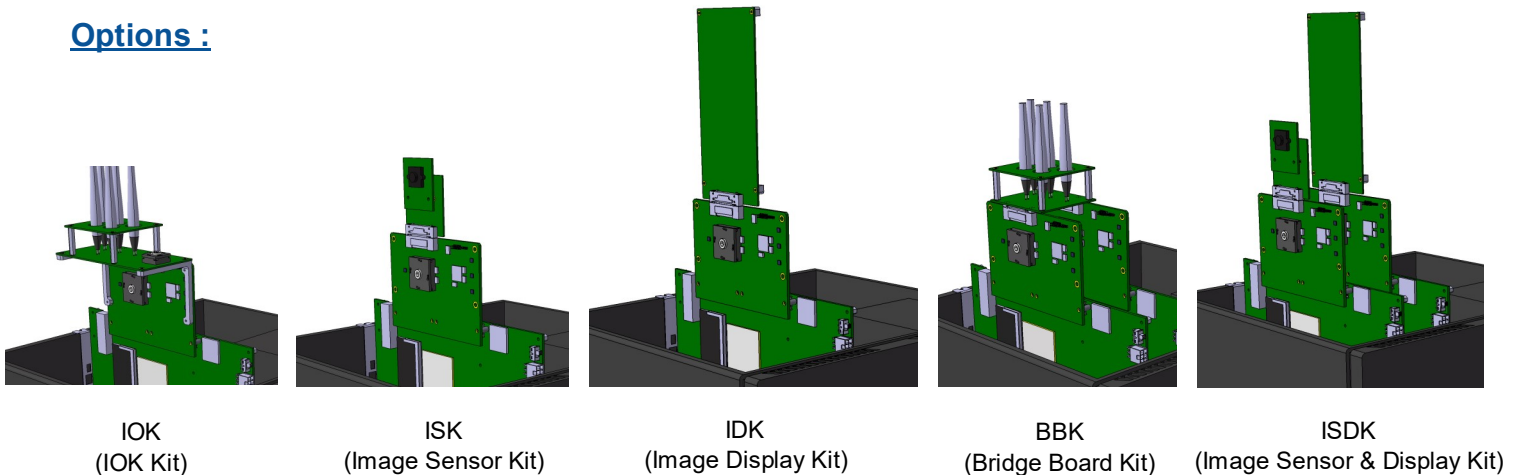
Xilinx Vivado Project (optional)

- Project includes communication with Host and Apollo-Lite PHY chip
- Interface provided for Customer module insertion
- Includes configuration bit files for VC707 and PHY chip



VTE Application Program Screenshot

Options :



TESTMETRIX

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