Diamond$_X$ HSI2$_X$

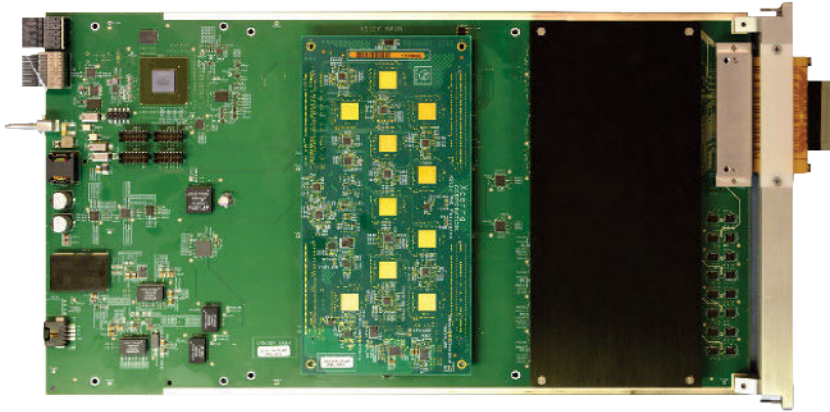## High Speed Solution for SerDes / LVDS / MIPI Interfaces

The HSI2$_X$ is optimized for testing clock embedded and clock-forwarded serial interfaces commonly found in modern mobile, consumer, industrial and automotive electronics.

These ports connect modems, cameras, displays, storage and applications processors to enable high bandwidth, low power consumption, and low EMI.

Automotive

Consumer

Flat Panel Display

IoT/IoV & Optoelectronics

Industrial & Medical

MCU

Mobility

Highlights

- Physical layer testing with built in PRBS BERT TX/RX
- BIST/DFT testing using high bandwidth drive/compare memory
- Protocol level and mixed-signal testing using deep send pattern memory

Features

- Test of high-speed serial ports with data rates up to 12.8 Gbps, such as HDMI, MIPI, JESD204, PCIexpress, SATA, EDP, Vby1 and USB3
- 32 differential TX channels
- 24 differential RX channels
- Hardware clock data recovery per lane with flexible BERT sync
- Deep source memory
- Flexible loopback modes including closed loop BERT
- Calibrated jitter injection on all lanes
- Flexible pre-emphasis and equalization

- **SerDes and LVDS/MIPI**
- **32 differential TX channels**
- **24 RX Differential Channels**

- **12.8 Gb Data Rate**
- **250M TX Vector Memory Jitter Injection**
- **Eye Mask, PRBS**

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Specifications

Data Rate
- Data rate range   400 Mbps to 12.8 Gbps
- Frequency resolution   1 KHz

Transmitter
- Number of differential TX channels   32
- AC output differential impedance   100 Ω
- Differential voltage swing   40 mV to 950 mV
- Pre-emphasis range   +/-300 mV (Typical)
- DC Common Mode Range   0 V to 1.2 V
- Jitter Frequency range   0.1 KHz to 20 MHz
- Max injected deterministic   1.4 ns
  jitter, peak-peak
- Maximum RMS random jitter   0.1 UI
  injection

Receivers
- Number of differential RX channels   24
- AC input differential impedance   100 Ω
- Input differential voltage range   25 mV to 1.4 V
- Input single ended range   360 mV to 1070 mV
- Programmable comparator   +/-0.5 V
  threshold voltage
- Extracted clock domains   2
- Equalization gain   1 to 2.4

Pattern Specifications
- Built in patterns   K28.5, PRBS 5, 7, 9 11, 13, 15, 21, 23 ,31,and invert,
                                                           toggle, all ones, all zeros
- Pattern segment size   512 bits – 64 Kbits
- Total memory space for TX   8 Gb
- Total memory space for RX   2 Mb
- Sequence control   Loop infinite, Loop on count, Play to end
- Maximum loop count per   2**16 - 1
  sequencer slot
- Triggering   External or internal

PMU Specifications
- Current ratings   4 uA, 40 uA, 400 uA, 25 mA
- Measure voltage range   -1 V to +3.5 V

All specifications are subject to change without notification and are for reference only. For detailed performance specifications, please contact Cohu.