VTR-S1000
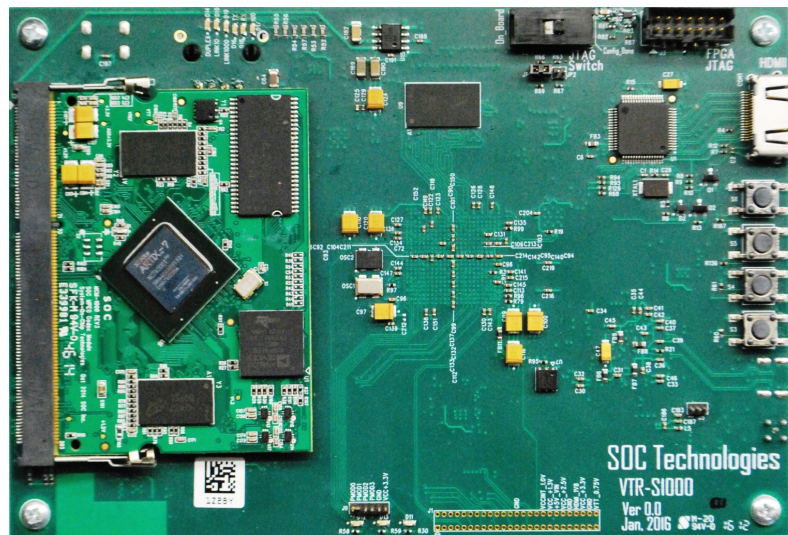## Evaluation and Product Development Platform

Quick-Start Guide
- Encoder Kit

Revision 1.0
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Revision History

Date (MM/DD/YYYY)	Version	Notes	Author
03/29/2017	1.0	Initial Public Version	Chad Hartman

This document is intended to be a quick-start guide for getting familiar with the evaluation kit environment. For a thorough evaluation of SOC CODECs' capabilities, please refer to the User Guide and various API Manuals after reading this guide.

Kit Contents

1. VTR-S1000 Encoder Carrier-Board
2. Encoder Module
3. Cables
   - 5V Power Adapter
   - USB Mini-B Cable
   - HDMI Cable
   - Micro HDMI to HDMI Cable
   - SDI adapter cable
   - Ethernet Cable

Prerequisites

To avoid issues, please use the latest versions of software.

1. Latest version of VLC Media Player - **http://www.videolan.org**
2. Serial terminal. (Recommended: Tera Term - **https://ttssh2.osdn.jp**)
3. (Optional) SOC API CLI Toolkit – **http://soctechnologies.com/tools**

Connecting the System

CODEC Module	Video Cable	Source	Board Ports
HD Codec Modules	HDMI	480p60 to 1080p60 video source	HDMI_IN (CON1)
N/A	Micro-HDMI	Input Source Loopback	HDMI_OUT (CON2)
HD Codec Modules	SDI	720p60 to 1080p60 video source (HD/3G-SDI)	SDI (J11)

	External	Board Port	Notes
Mini-B USB	PC	J10 (USB-UART)	For API access

	External	Board Port	Notes
Module		SODIMM Slot (J2)	Power-off carrier board before inserting/removing modules.
Ethernet Cable	PC Ethernet port, SOC decoder board, a network switch, router, or a third-party receiver.	Primary Ethernet port (J6)	To send encoded stream data. Speed configuration: *only 100/1000Mbps*
5V Power	5V Adapter	5V DC IN (J7)	VTR Board does not have a power-switch.

Sending Streams

Encoder Kit to PC

Checklist:

1. Cables connected (See *Connecting the System).*

    ○ Ethernet cable connected from board to PC

    ○ Ensure Correct Jumper setting for Network

    ○ Serial terminal with serial port (COM port) open on PC.

2. Carrier-board > Destination IP matches PC's IP address. (See Carrier Board API Manual)

3. On PC, VLC listening on "udp://@:1234" (1234 is default port, can be changed in Carrier-Board API)

Note: H.265 Decoding is a resource-intensive operation. We advise that customers use high-performance desktop workstations rather than laptops/netbooks to decode H.265 streams. Playback will be smoother, and it would be easier to judge the quality and performance. For smoother playback when PC performance is limited, lower the bitrate or frame rate through the API (See Encoder Module API Manual).

Recommended PC configuration for H.265 playback on VLC:

o CPU: Intel Xeon E5-2637v3, 3.5GHz

o Graphics card: NVIDIA Quadro K620, 2Gb DDR3

Encoder Kit to Decoder Kit

Checklist:

1. Cables connected (*Connecting the System*)

   ○ Ethernet cable connected from Encoder board to Decoder board.

2. Ensure Network Jumper is set to 1Gbps for Encoder and Decoder Carrier boards

3. Encoder TX IP matches Decoder IP. (See Carrier Board API Manual)

On-board User Interface

	Label	Notes
System Reset	S3 (Push-button)	Reset the carrier board system
Timer Overlay	S5 (Push-button)	Overlays a millisecond timer on the video
API Mode Cycle	S6 (Push-button)	Toggles API Mode (See *6. API Interface*)
Static IP Enable	PMOD0/1	On/Present − Static IP will be set if DHCP fails Off/Not Present − Only assign IP address on successful DHCP handshake
Network Speed Select	PMOD2/3	**On/Present** − 100Mbps **Off/Not Present** − 1Gbps
Stream to Module	D11 (LED)	**Flashing** − Receiving data/ transmitted to module **Solid** − Idle/No Data transmitting to Module
Network Status	D13 (LED)	**On** − Network Ready **Off** − Network Initializing
API Mode LED	D12 (LED)	See API Mode LED table

API Mode LED	Linked Endpoint
Off	Carrier Board API
On	Module API

API Interface

When the USB-UART Cable is connected from board to PC, the PC will expose a serial (COM) port. You can find this port in Windows in **Device Manager > COM Ports.** Use the following settings for the serial port:

- o Baud rate: 115200

- o Data bits: 8

- o Parity: None

- o Stop bits: 1

- o Flow control: None

The serial link is shared by the carrier board and the module endpoints, one at a time. The API endpoint mode can be cycled by pressing the API Mode Cycle button S6. API Mode LED D12 indicates the endpoint that is currently linked.

Endpoint	API Functions Available	Documentation
Carrier Board API	• Network Configuration (send/receive IP/port) • Flash Update •	• Carrier Board API Manual
Module API	• CODEC Core API • CODEC System API • Video Input API • Flash Update	• H.264 Encoder API Manual • H.265 Encoder API Manual • Encoder System API Manual • Video Input API Manual • Multiboot Module API Manual

You may press ESC (or ENTER without entering a value) to cycle the prompt. **Important: Backspace is not supported.** If you make a mistake, use **ESC** to cycle back and restart the input.

Format:

C AA DDDD

- **C = Command (R/W)**

- **AA = 2 Byte Hex Address**

- **DDDD = 4 Byte Hex Data Value**

Read a register value:

> R <address hex>

Change a register value

> W <address hex> <value hex>

Note all command start with a '>' prompt. Read data will be returned on the next line with no '>' preceding the value.