



# Implement a SMPTE 259M Serial Digital Interface Using SMPTE HOTLink™ and CY7C9235/9335

## Introduction

The Society of Motion Picture and Television Engineers (SMPTE) is a professional organization that develops interface and protocol standards for the professional video industry. One such standard, SMPTE 259M, documents the Serial Digital Interface (SDI) which is used to transport 10-Bit 4:2:2 component and  $4f_{SC}$  composite digital video signals across 75Ω coaxial cables. This standard supports transmission of both 525 line@60 Hz and 625 line@50 Hz television signals in both 4:3 and 16:9 aspect ratio forms (Reference 1).

This application note describes how to implement an ANSI/SMPTE 259M link using the Cypress SMPTE chip set. The transmit portion of this chip set consists of the Cypress CY7C9235 SMPTE 259M/DVB-ASI Scrambler-Controller and the CY7B9234 SMPTE HOTLink™ Transmitter that provide the proper scrambling, encoding, and parallel-to-serial conversion of component (SMPTE 125M) or composite (SMPTE 244M) video. The receive portion of this chip set consists of the CY7B9334 SMPTE HOTLink Receiver and the Cypress CY7C9335 SMPTE 259M/DVB-ASI Descrambler/Framer-Controller that provide the proper serial-to-parallel conversion, decoding, descrambling, and framing of these same video formats (Reference 2, 3).

This application note also discusses how to use these same components to implement an interface that supports both SMPTE 259M and Digital Video Broadcast-Asynchronous Serial Interface (DVB-ASI) protocols. DVB-ASI is a similar professional video interface used to transmit MPEG2 (Motion Picture Experts Group) encoded video (Reference 4).

## SMPTE-259M













