SMPTE OVERVIEW

12G-SDI Bit-Serial Interfaces — Overview for the SMPTE ST 2082 Document Suite

Document Overview

The SMPTE ST 2082 suite of documents defines the mapping of various source image formats onto a single-link, dual-link and quad-link serial digital interface operating at a nominal rate of 12 Gb/s. This informative “overview” describes the documents in the SMPTE ST 2082 suite.

The SMPTE ST 2082 series specify a common virtual interface that is carried on both electrical and optical physical interfaces which are also defined in the document suite.

The diagram of Figure 1 illustrates a simplified ‘Image mapping data flow’ overview for the 12G-SDI profile as defined by the ST 2082 document suite. The individual roadmaps of the SMPTE ST 2082 standards include full details of reference standards.

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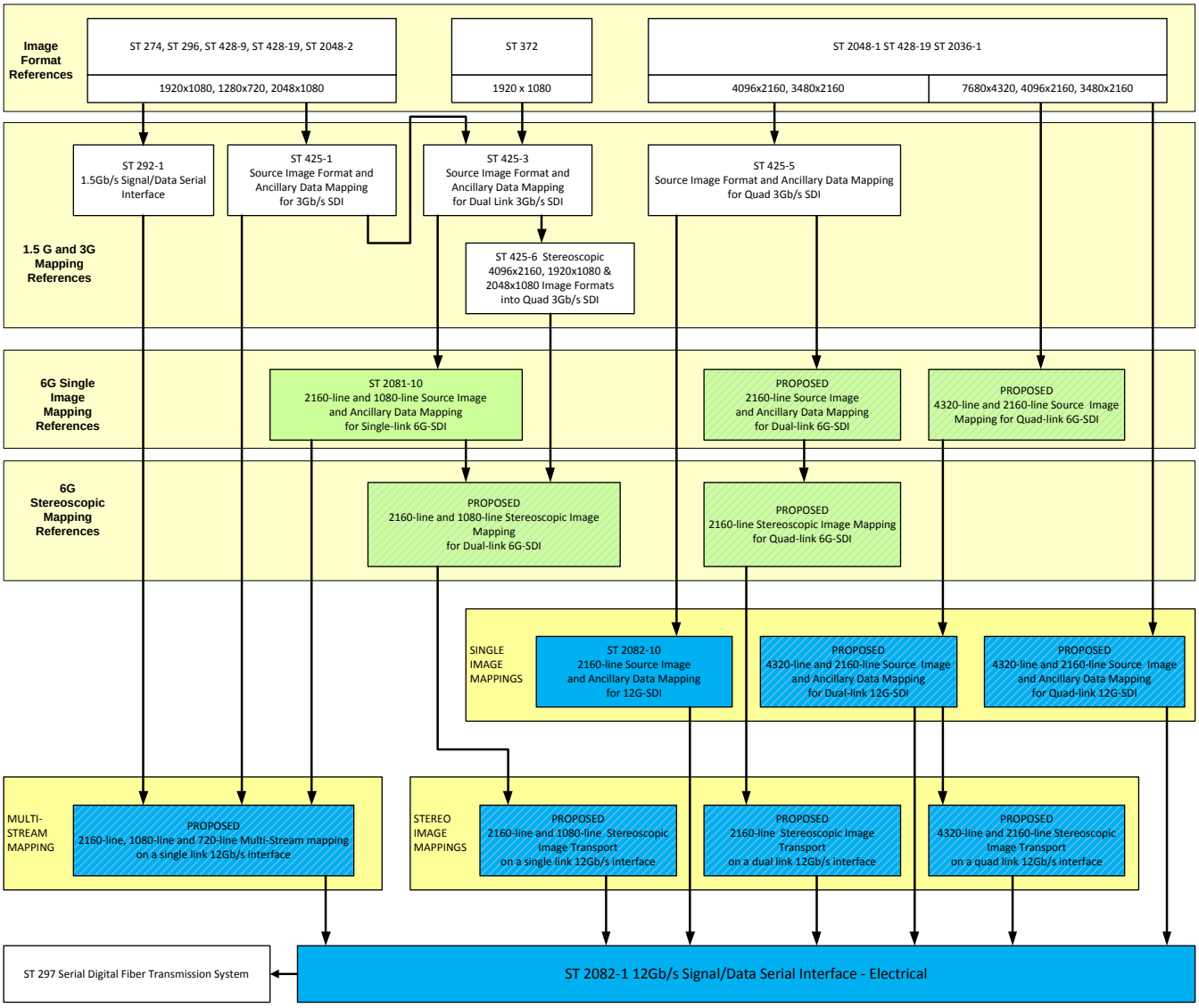

Figure 1 – 12G-SDI Profile

1 SMPTE ST 2082-1 – 12 Gb/s Signal/Data Serial Interface — Electrical

This standard defines a bit-serial data structure, electrical signal and coaxial cable interface for the transport of signals with a total payload of 11.88 Gb/s or 11.88/1.001 Gb/s.

This standard also specifies the electrical and physical characteristics of coaxial cables and connectors.

2 SMPTE ST 2082-10 – 2160-line Source Image and Ancillary Data Mapping for 12G-SDI

This standard defines the carriage 2160-line image formats and associated ancillary data into a Single-link 12 Gb/s [nominal] SDI bit-serial interface as follows:

MODE 1: 2160-line source image formats and ancillary data into a 12 Gb/s [nominal] SDI bit-serial interface

This standard also defines the carriage of the SMPTE ST 352 payload ID's for the single-link 12Gb/s SDI interface.

2.1 SMPTE ST 2082-10 Supported image Formats

UHDTV1 and 4K Digital Cinematography Production			
Reference SMPTE Standard	**Image Format**	**Signal Format Sampling Structure/pixel Depth**	**Frame Rate**
ST 2036-1	3840 × 2160	4:2:2 (Y'C'$_B$C'$_R$)/10-bit 4:2:0 (Y'C'$_B$C'$_R$)/10-bit	50, 60/1.001 and 60 frames progressive
ST 2048-1	4096 × 2160	4:2:2 (Y'C'$_B$C'$_R$)/10-bit	48/1.001, 48, 50, 60/1.001 and 60 frames progressive
ST 2036-1	3840 × 2160	4:4:4 (R'G'B')/10-bit	24/1.001, 24, 25, 30/1.001 and 30 Progressive
ST 2048-1	4096 × 2160	4:4:4 (R'G'B'), 4:4:4:4 (R'G'B'+A)/10-bit	
ST 2036-1	3840 × 2160	4:4:4 (Y'C'$_B$C'$_R$)	
ST 2048-1	4096 × 2160	4:4:4 (Y'C'$_B$C'$_R$), 4:4:4:4 (Y'C'$_B$C'$_R$+A)/10-bit	
ST 2036-1	3840 × 2160	4:4:4 (R'G'B')/12-bit	
ST 2048-1	4096 × 2160	4:4:4 (R'G'B')/12-bit	
ST 2036-1	3840 × 2160	4:4:4 (Y'C'$_B$C'$_R$)/12-bit	
ST 2048-1	4096 × 2160	4:4:4 (Y'C'$_B$C'$_R$)/12-bit	
ST 2036-1	3840 × 2160	4:2:2 (Y'C'$_B$C'$_R$)/12-bit	
ST 2048-1	4096 × 2160	4:2:2 (Y'C'$_B$C'$_R$)/12-bit	
ST 2048-1	4096 × 2160	4:2:2:4 (Y'C'$_B$C'$_R$+A)/12-bit	

2.2 SMPTE ST 2082-10 Document Roadmap