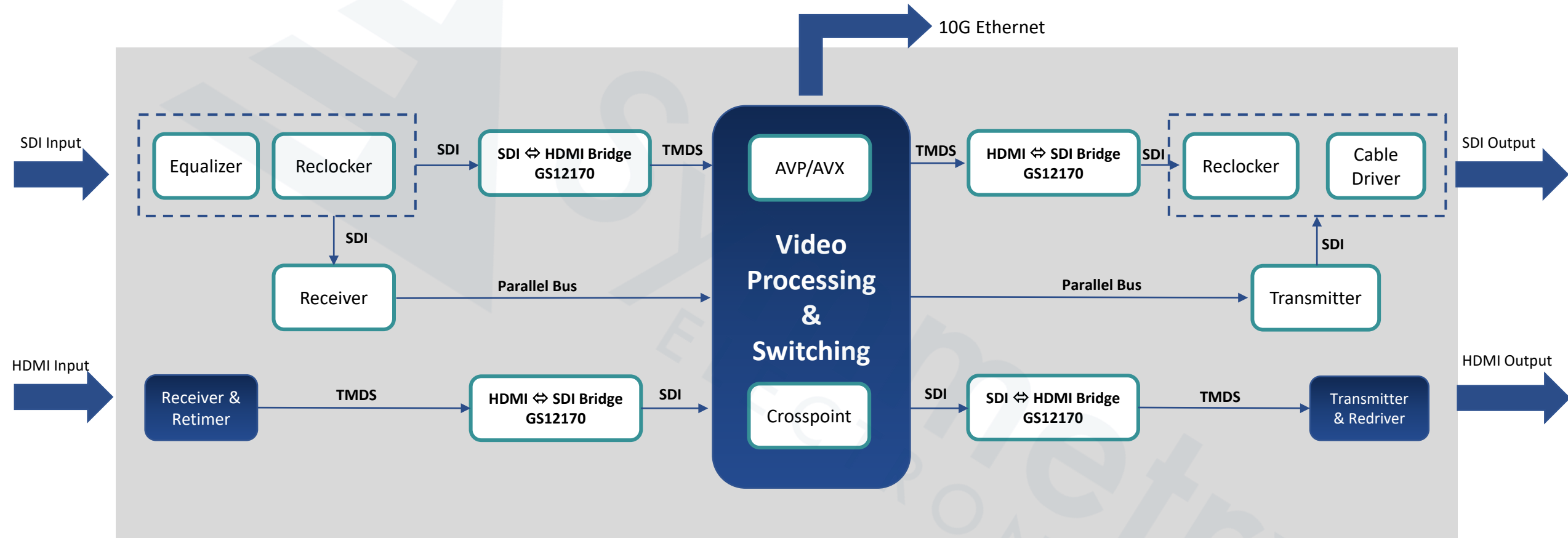


# Common HDMI/SDI Bridge Applications

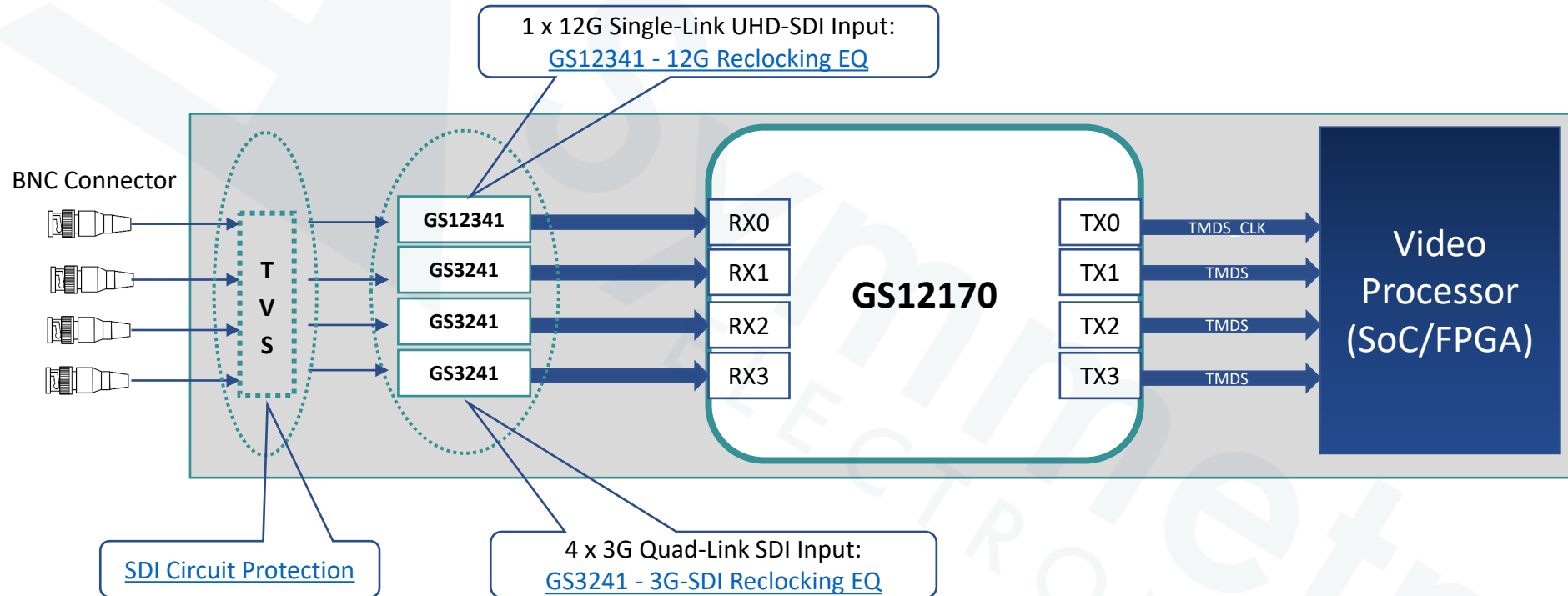


➤ GS12170 Supports 3 bridging modes up to 12G in UHD-SDI and 18G in HDMI 2.0 formats

- HDMI – to – SDI
- SDI – to – HDMI
- SDI – to – SDI

Note: Each  block represents an SDI device type from Semtech broadcasting solutions that are required as a companion chip of GS12170 for designated applications.

# Case 1: 4K SDI Monitor Application (SDI to HDMI operation mode)

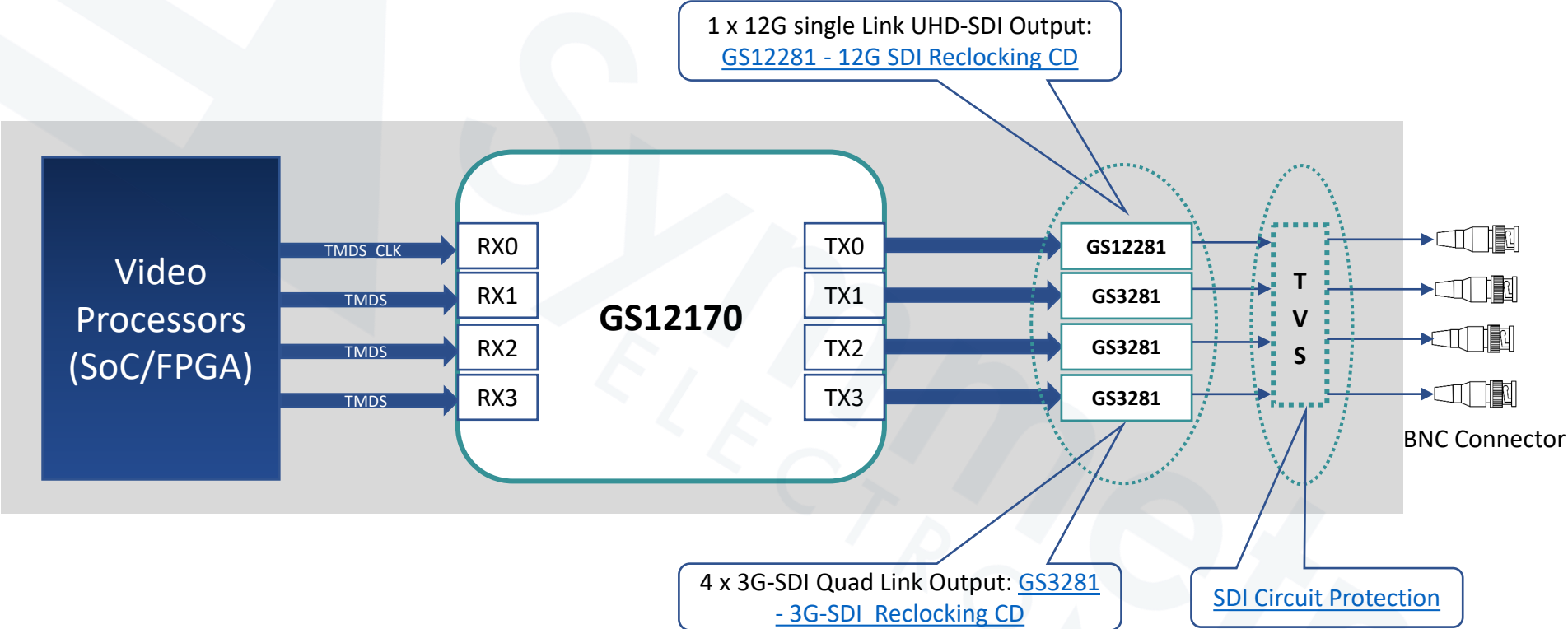


- Semtech TVS Options:
  - [RClamp3391ZC](#) (8KV-contact & 15KV-air; **0.2pF** Max capacitance)
  - [RClamp1011ZC](#) (10KV-contact; **0.2pF** Max capacitance)

Note: ESD protection device with minimized capacitance should be considered for hashed operating environment.

- See **Appendix – 1** for additional options for **Reclocking EQ**

# Case 2: 4K SDI Camera Applications (HDMI to SDI operation mode)



- Semtech TVS Options:
  - ❑ [RClamp3391ZC](#) (8KV-contact & 15KV-air; **0.2pF** Max capacitance)
  - ❑ [RClamp1011ZC](#) (10KV-contact; **0.2pF** Max capacitance)

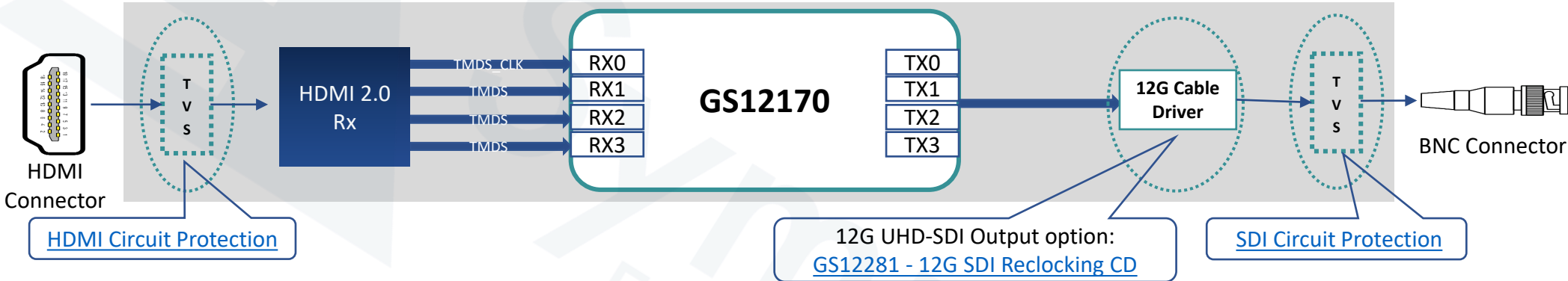
Note: ESD protection device with minimized capacitance should be considered for hashed operating environment.

- See **Appendix – 2** for additional options for **Reclocking Cable Driver**

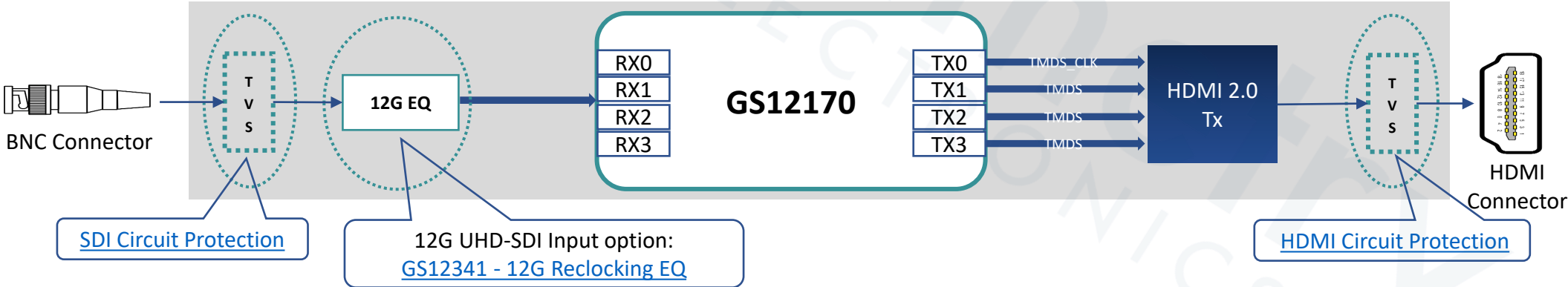
# Case 3. HDMI↔SDI Converter & Extender Applications



GS12170 is used to extend HDMI video reach via coaxial cable and perform HDMI to SDI conversion.



GS12170 is used to convert SDI input into HDMI for interfacing with standard HDMI video equipment



- See **Appendix – 1 & 2** for additional options for **Reclocking Cable Driver** and **Reclocking EQ**
- See **Appendix – 3** for TVS options for SDI and HDMI protection.

# Appendix – 1.

## GS12170 Companion Equalizer/Reclocker Options

Part #	Description	Data Rate	Notes
GS12341	Reclocking EQ	12G	External 12G reach support
GS3241	Reclocking EQ	3G	
GS12142	Dual Input Reclocking EQ	12G	1 x Cable EQ + 1 x Trace EQ
GS12190	Reclocking Configurable EQ/CD	12G	Bi-direction to support both EQ and CD function in a single chip
GS3590	Reclocking Configurable EQ/CD	3G	Bi-direction to support both EQ and CD function in a single chip
GS12150	Dual Input Reclocker	12G	2 x Trace EQs

# Appendix – 2.

## GS12170 Companion Cable Driver/Reclocker Options

Part #	Description	Data Rate	Notes
GS12281	Reclocking CD	12G	
GS3281	Reclocking CD	3G	
GS12182	Dual Input Reclocking CD	12G	2x Trace EQ Inputs
GS12190	Reclocking Configurable EQ/CD	12G	Bi-direction to support both EQ and CD function in a single chip
GS3590	Reclocking Configurable EQ/CD	3G	Bi-direction to support both EQ and CD function in a single chip
GS12150	Dual Input Reclocker	12G	2 x Trace EQs

## Appendix – 3.

# TVS Options for 12G UHD-SDI and HDMI 2.0 Interfaces

Part #	Description	Notes
RClamp1011ZC	1-LINE 1.0V 2.5A 0.20pF max ±10kV/±15kV (contact/air) ESD 0.6 x 0.3 x 0.25mm	12G SDI protection
RClamp3391ZC	1-LINE 3.3V 7A 0.20pF max ±8kV/±15kV (contact/air) ESD 0.6 x 0.3 x 0.25mm	12G SDI and HDMI 2.0 protection
RClamp0564P	4-LINE 5V 3A 0.20pF max ±10kV/±15kV (contact/air) ESD 2.0 x 1.0 x 0.5mm	HDMI 2.0 protection