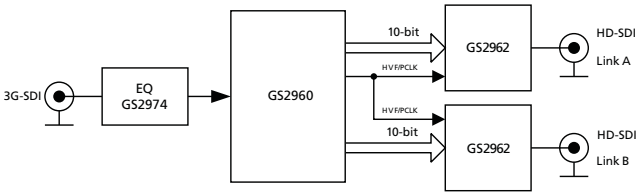
GS2960 3Gb/s, HD, SD SDI Receiver

Key Features

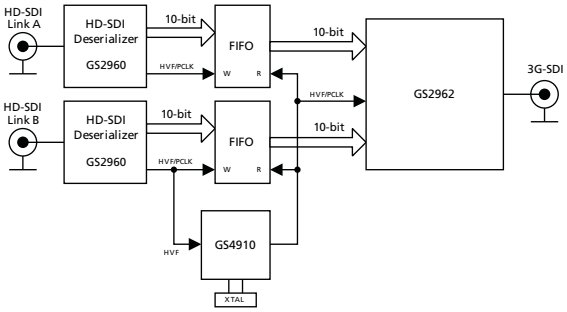
- Operation at 2.97Gb/s, 2.97/1.001Gb/s, 1.485Gb/s, 1.485/1.001Gb/s and 270Mb/s
- Supports SMPTE 425M (Level A and Level B), SMPTE 424M, SMPTE 292M, SMPTE 259M-C and DVB-ASI
- Integrated Reclocker with low phase noise integrated VCO
- Serial digital reclocked, or non-reclocked output
- Ancillary data extraction
- Optional conversion from SMPTE 425M Level B to Level A for 1080p 50/60 4:2:2 10-bit
- Parallel data bus selectable as either 20-bit or 10-bit
- Comprehensive error detection and correction features
- Output H, V, F or CEA 861 Timing Signals
- 1.2V digital core power supply, 1.2V and 3.3V analog power supplies, and selectable 1.8V or 3.3V I/O power supply
- GSPI Host Interface
- -20°C to +85°C operating temperature range
- Low power operation (typically 420 mW)
- Small 11mm x 11mm 100-ball BGA package
- Pb-free and ROHS compliant

Applications

Application: Single Link (3G-SDI) to Dual Link (HD-SDI) Converter



Application: Dual Link (HD-SDI) to Single Link (3G-SDI) Converter



Description

The GS2960 is a multi-rate SDI Receiver which includes complete SMPTE processing, as per SMPTE 425M, 292M and SMPTE 259M-C. The SMPTE processing features can be bypassed to support signals with other coding schemes.

The device features an integrated Reclocker with an internal VCO and a wide Input Jitter Tolerance (IJT) of 0.6UI.

A serial digital loop through output is provided, which can be configured to output either reclocked or non-reclocked serial digital data. The Serial Digital Output can be connected to an external Cable Driver.

The device operates in one of four basic modes: SMPTE mode, DVB-ASI mode, Data-Through mode or Standby mode.

In SMPTE mode, the GS2960 performs SMPTE de-scrambling and NRZI to NRZ decoding and word alignment. Line-based CRC errors, line number errors, TRS errors and ancillary data check sum errors can all be detected. The GS2960 also provides ancillary data extraction. The entire ancillary data packet is extracted, and written to host-accessible registers. Other processing functions include H:V:F timing extraction, Luma and Chroma ancillary data indication, video standard detection, and SMPTE 352M packet detection and decoding. All of the processing features are optional and may be enabled or disabled via the Host Interface.

Both SMPTE 425M Level A and Level B inputs are supported. The GS2960 also provides user-selectable conversion from Level B to Level A for 1080p 50/60 4:2:2 10-bit formats only.

In DVB-ASI mode, 8b/10b decoding is applied to the received data stream.

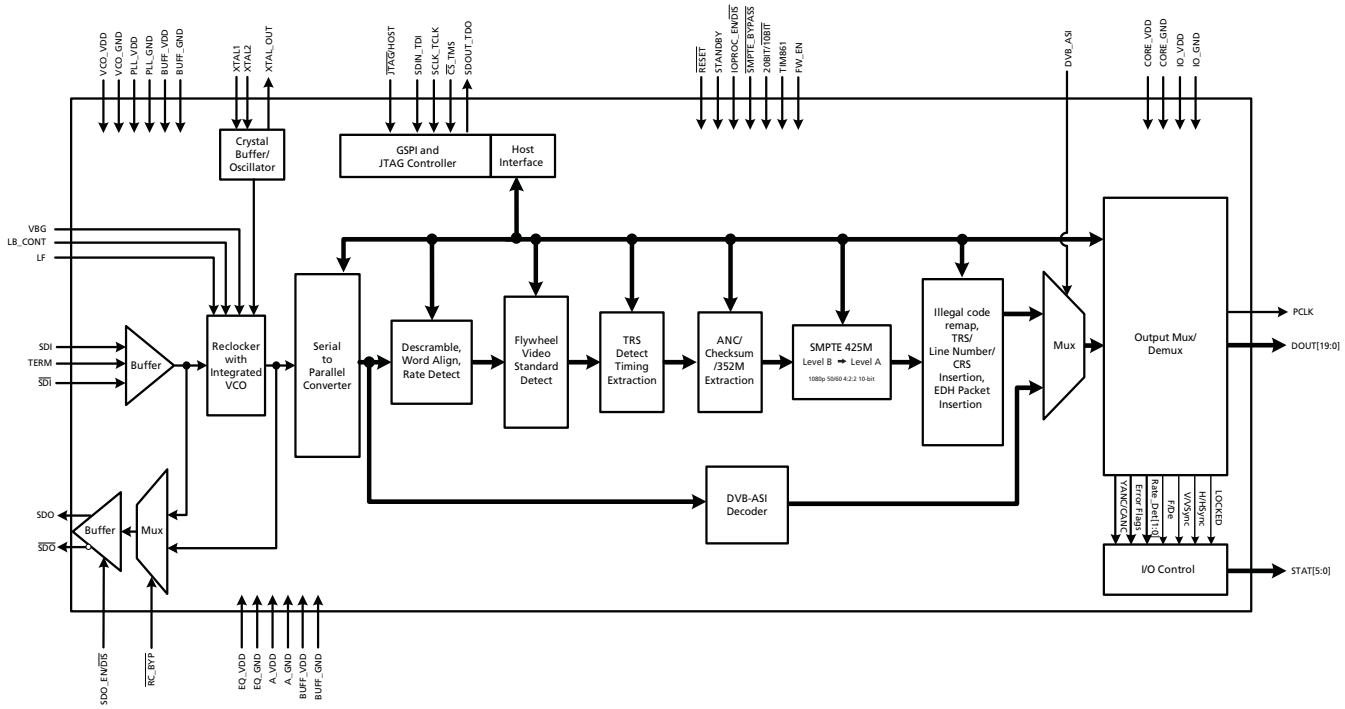
In Data-Through mode all forms of SMPTE and DVB-ASI decoding are disabled, and the device can be used as a simple serial to parallel converter.

The device can also be placed in a lower power Standby mode. In this mode, no signal processing is carried out and the parallel output is held static.

Parallel data outputs are provided in 20-bit or 10-bit multiplexed format for 3Gb/s, HD and SD video rates. For 1080p 50/60 4:2:2 10-bit, the parallel data is output on the 20-bit parallel bus as Y on 10 bits and Cb/Cr on the other 10 bits. As such, this parallel bus can interface directly with video processor IC's. For other SMPTE 425M mapping structures, the video data is mapped to a 20-bit virtual interface as described in SMPTE 425M. In all cases this 20-bit parallel bus can be multiplexed onto 10 bits for a low pin count interface with downstream devices. The associated Parallel Clock input signal operates at 148.5 or 148.5/1.001MHz (for all 3Gb/s HD 10-bit multiplexed modes), 74.25 or 74.25/1.001MHz (for HD 20-bit mode), 27MHz (for SD 10-bit mode) and 13.5MHz (for SD 20-bit mode).

Note: for 3Gb/s 10-bit mode the device operates in Dual Data Rate (DDR) mode, where the data is sampled at both the rising and falling edges of the clock. This reduces the I/O speed requirements of the downstream devices.

Functional Block Diagram



GS2960 Functional Block Diagram

DOCUMENT IDENTIFICATION
PRODUCT BRIEF

The product is in a development phase and specifications are subject to change without notice. Gennum reserves the right to remove the product at any time. Listing the product does not constitute an offer for sale.

CAUTION

ELECTROSTATIC SENSITIVE DEVICES

DO NOT OPEN PACKAGES OR HANDLE EXCEPT AT A STATIC-FREE WORKSTATION

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