



GS2965

Multi-Rate SDI Reclocker with Equalization & De-emphasis

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The GS2965 is a multi-rate serial digital reclocker designed to automatically recover the embedded clock from a digital video signal and retime the incoming video data. It will recover the embedded clock signal and retime the data from a SMPTE 424M, SMPTE 292M, or SMPTE 259M-C compliant digital video signal.

A serial host interface provides the ability to configure and monitor multiple GS2965 devices in a daisy-chain configuration.

Adjustable input trace equalization (EQ) for up to 40" of FR4 trace losses, and adjustable output de-emphasis (DE) for up to 20" of FR4 trace losses, can be configured via the host interface. The GS2965 can operate in either auto or manual rate selection mode. In Auto mode, the device will automatically detect and lock onto incoming SMPTE SDI data signals at any supported rate. For single rate data systems, the GS2965 can be configured to operate in Manual mode. In both modes, the device requires only one external crystal to set the VCO frequency when not locked and provides adjustment free operation.

The GS2965 accepts industry-standard differential input levels including LVPECL and CML. The differential data and clock outputs feature selectable output swing via the host interface, ensuring compatibility with most industry-standard, terminated differential receivers.

The GS2965 features dual differential outputs. The second output can be configured to emit either the recovered clock signal or the re-timed video data. This output can also be disabled to save power.

In systems which require passing of non-SMPTE data rates, the GS2965 can be configured to either automatically or manually enter a bypass mode in order to pass the signal without reclocking.

The GS2965 is Pb-free, and the encapsulation compound does not contain halogenated flame retardant. This component and all homogeneous sub-components are RoHS compliant.



	Features		
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- SMPTE 424M, SMPTE 292M and SMPTE 259M-C compliant
- Supports DVB-ASI at 270Mb/s
- Single supply operation at 3.3V or 2.5V
- 180mW typical power consumption (213mW with RCO enabled) at 2.5V
- Input signal equalization and output-signal de-emphasis settings to compensate for board-trace dielectric losses
- 2:1 input multiplexer patented technology
- Choice of dual reclocked data outputs or one reclocked data output and one clock output
- Uses standard 27MHz crystal
- Differential inputs and outputs
 - support DC coupling to industry-standard differential logic
 - on-chip 100Ω differential data input/output termination
 - selectable 400mVppd or 800mVppd output swing on each output
 - seamless interface to other Gennum products
- 4 wire SPI host interface for device configuration and monitoring
- Standard logic control and status signal levels

- Auto and Manual modes for rate selection
- Standards indication in Auto mode
- Lock Detect Output
- Mute, Bypass and Autobypass functions
- SD/HD indication output to control GS2978 or GS2988 dual slew-rate cable drivers
- Operating temperature range: -40°C to +85°C
- 32 pin 5mm x 5mm QFN package
- Pb-free and RoHS compliant

Applications

SMPTE 424M, SMPTE 292M and SMPTE 259M-C coaxial cable serial digital interfaces

Reclockers

Industry's lowest power and lowest jitter 3Gb/s solution



MULTI-RATES

Gennium reclockers offer robust multi-standard operation from 143Mb/s to 2970Mb/s and are SMPTE 424M, 292M, 344M and 259M compliant.

LOWEST POWER

Gennium offers high-performance at the industry's lowest power consumption. The GS2985 has a 55% power reduction from previous generations.

BEST INPUT JITTER TOLERANCE

Gennium's unique reclocker architectures offer the industry's best input jitter tolerance and output jitter for worry free design flexibility.

LOW OUTPUT JITTER

The GS2985 has output jitter that is 50% of the GS2975A.

IMPROVED FEATURES

The GS2985 adds input trace equalization and output signal de-emphasis, which give additional design flexibility to system designers. The serial interface allows for multiple communication methods.

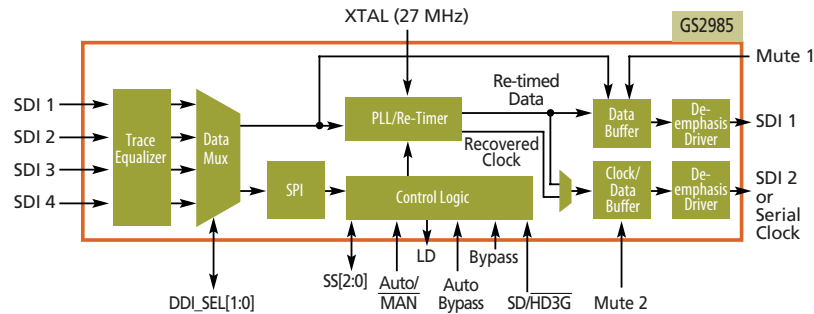
SIZE

The GS2985 maintains the same size as previous generations, the GS2986 maintains the same features as the GS2985 but is 55% smaller. The GS2965 is 69% smaller than the GS2985.



APPLICATIONS

Routers, distribution amplifiers, camera control units, multiviewers, production switchers, master control switchers, VTRs, video servers, encoders/decoders, up/down/cross converters, test and measurement equipment



	GS2965	GS2985	GS2986	GS2975A	GS1575B	GS9076	GS9075B
Data Rate (Mb/s)	270, 1485, 2970	270, 1485, 2970	270, 1485, 2970	270, 1485, 2970	143, 177, 270, 360, 540, 1485	270	143, 177, 270, 360, 540
Power Supply (V)	2.5 or 3.3	2.5 or 3.3	2.5 or 3.3	3.3	3.3	3.3	3.3
Input Trace Equalization	YES	YES	YES	NO	NO	NO	NO
Output De-Emphasis	YES	YES	YES	NO	NO	NO	NO
Serial Interface	YES	YES	YES	NO	NO	NO	NO
Input MUX	2 : 1	4 : 1	4 : 1	4 : 1	4 : 1	4 : 1	4 : 1
Dual Data Output	YES	YES	YES	YES	NO	YES	NO
Temp Range (°C)	-40 to +85	-40 to +85	-40 to +85	0 to +70	0 to +70	0 to +70	0 to +70
Power (mW)	180	180	180	400	645	400	645
Size (mm)	5 x 5	9 x 9	6 x 6	9 x 9	9 x 9	9 x 9	9 x 9
Package	32 QFN	64 QFN	40 QFN	64 QFN	64 QFN	64 QFN	64 QFN