Want a 3G-SDI Deserializer with Integrated Adaptive Cable Equalizer ? Gennum has a product for that!

Gennum’s 3G-SDI SerDes (Serializer and Deserializer) chipsets are fast becoming the number 1 choice of professional video and broadcast equipment manufacturers looking to transmit 1080p 50/60Hz data rates utilizing the most complete video processing features available on the market today. Improved jitter attenuation means that jitter margins allow for more tolerance with cascaded SDI signals. Longer cable distances at 3G-SDI data rates are now possible and have overall better performance with reduced bit error rates.

Like any transmission medium, cables impose transmission losses on the signals they carry, manifested as signal dispersion and loss of high-frequency content. Unless something is done to compensate for these losses, they can render the cables useless for transmitting high resolution & high speed signals over reasonable distances. To compensate for cable losses, the integrated equalizer on the GS2971 can be utilized at the receiving end of the cable just before deserialization takes place.

GS2971 Deserializer Key Features

- SMPTE 424M, SMPTE 425M (Level A&B), SMPTE 292M and SMPTE 259M-C compliant
- Supports date rates from 1.0Gbps to 2.97Gbps and DVB-ASI at 270Mbps
- Integrated adaptive cable equalizer capable of supporting Belden 1694A cable:

- 150m at 3G data rates

- 250m at HD data rates

- 480m at SD data rates

- Integrated reclocker with low phase noise VCO.
- Integrated audio de-embedder for 8 channels of 48kHz audio with clock generator
- Ancillary data extraction
- Comprehensive error detection and correction features
- GSPI host interface
- 20-bit SDR or 10-bit DDR parallel interface options with 1.8V I/Os
- 1.2V digital core supply with 1.2V and 3.3V analog supplies
- Selectable 1.8V and 3.3V I/O supplies
- Optional Level B to A conversion
- Typical power consumption of 545mW
- Temperature range -20 to +85 ºC
- 100 pin BGA package (11x11mm)

Note……SMPTE 425M Level A supports fast progressive formats for 1080p 50/59.94/60. Level B supports the legacy dual link HD format (SMPTE 372M) over a single cable.

The GS2971 integrates both the digital SMPTE video and analog processing to off-load the demands placed on the digital processing section of the FPGA. However, using an GSPI host interface, any step in the digital processing path can be disabled via programming thus giving more system flexibility for the design engineers. Ultimately, adopting this partitioning approach will lead to a lower gate count FPGA being used meaning lower cost, lower power consumption plus the added advantage of not requiring to port FPGA 3rd party code. What this essentially means is faster product development cycles.

GS2971 Deserializer Key Value Added Advantages

- Gennum’s GS2971 offers integrated adaptive equalization – no need for external equalizer - save power and cost.
- FPGA serial I/O performance have issues when driving across log board traces or off-board using cables. Sending signals across backplanes, connectors and cables will have an effect on the signal quality causing high jitter and very small timing and/ or voltage margins which means more bit errors and loss of data.
- Gennum offer de-embedded audio functionality such as AES, I2S and serial audio formats.

- Integrated PLL with narrow loop bandwidth meets the SMPTE output jitter specs and are 100% production tested - not just based on product characterization.
- The SMPTE output jitter requirements are <= 0.3 UI and IJT industry accepted standard is >0.5 UI. The GS2971 has output jitter = 0.2 UI max and IJT = 0.7 UI min.
- 1.8V I/O helps to reduce EMI with SSTL resistors that can be controlled to reduce the speed of the rising and falling signal edges.
- Gennum’s standalone SerDes chipsets offer a far lower entry cost solution with far better signal integrity performance over backplanes and cables:

In Summary:

- GS2972 SD/HD/3G Serializer with Audio Embedder
- GS2970 SD/HD/3G Deserializer with Audio Embedder
- GS2962 SD/HD/3G Serializer without Audio Embedder
- GS2960 SD/HD/3G Deserializer without Audio Embedder
- GS2961 SD/HD/3G Deserializer with Integrated Cable Equalizer and without Audio Embedder
- GS2971 SD/HD/3G Deserializer with Integrated Cable Equalizer and with Audi Embedder