

GENNUM'S LARGE CROSSPOINT FAMILY OFFERS EXCEPTIONAL VALUE AND PERFORMANCE

- Six new products:
 - GX3290 290 input by 290 output
 - GX3190 146 input by 290 output
 - GX3246 290 input by 146 output
 - GX3202 202 input by 202 output
 - GX3146 146 input by 146 output
 - GX3074 74 input by 74 output
- All products listed above run up to 3.5Gb/s and are fully asynchronous and non-blocking
- All products feature independent advanced signal integrity conditioning such as input trace equalization and output de-emphasis to support trace lengths in excess of 40 inches
- Built in pattern generators and arbitrary pattern checkers ease system design

GENNUM'S 2X2 CROSSPOINTS OFFER ROOM FOR DATA RATE EXPANSION UP TO 14Gb/s

- Two new products:
 - GX3002 2x2 3.5Gb/s crosspoint
 - GX4002 2x2 14Gb/s crosspoint

KEY FEATURES

- Built specifically for video
- Multiple strobe feature
- Built-in data rate margins
- Fully-independent input and output channels
- On-chip pattern generators and checkers
- Low power
- Host interface flexibility
- Horizontal eye measurement
- Temperature sensors
- Dynamic output power down and signal invert
- Flexible footprint

APPLICATIONS

- Routers
- Multiviewers
- Production switchers
- Master control switchers

crosspoint solutions



Gennum's history in the broadcast market has given us a thorough understanding of the nuances of broadcast equipment. We've leveraged this expertise to design and build our new family of crosspoints. These are not parts adapted from the datacomm market. They were designed for broadcast video from the ground up.

Gennum crosspoint switches are unmatched for size, features and performance. Available in sizes from 2 x 2 up to 290 x 290 – the largest asynchronous, fully non-blocking crosspoint switch in the industry – they offer such new features as multiple strobe enable pins, the industry's greatest input and output flexibility and a pattern checker that supports arbitrary patterns.

All of these features make Gennum crosspoints easy to use and de-bug, while providing superior performance. And since they're from Gennum, you know you can rely on them to work seamlessly with the entire family of Gennum video solutions.



Crosspoint Switches

Video-specific Features Developed from the 'Ground Up' for HD, 3D and Ultra HD



DESIGNED FOR BROADCAST

Gennum's history in the broadcast market has given us a thorough understanding of the nuances of broadcast equipment, allowing us to design specifically for these applications. Using this expertise, we're introducing several features that are new to the industry such as multiple strobe enable pins, the industry's greatest input and output flexibility and a pattern checker that supports arbitrary patterns. All of these features mean that Gennum crosspoints are easy to use and easy to de-bug, while providing superior performance.

MULTIPLE STROBE FEATURE

Eight update enable pins allow the crosspoint to be broken into smaller pieces, each of which can be independently updated. This is useful in multi-format environments when the switches will occur at different points in time. Because they can be assigned on a per-output basis, this feature enables maximum flexibility.

DATA RATE MARGIN

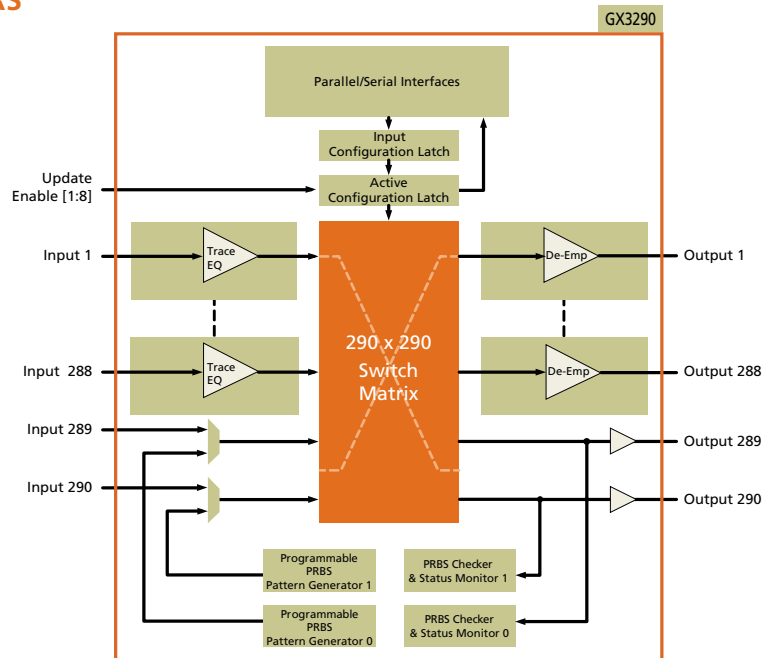
Supporting input data rates up to 3.5Gb/s means that there is significant margin for systems operating up to 2.97Gb/s. The 3.5Gb/s data rate support also means that the product can be used in Xaui™, DisplayPort™ and HDMI applications.

FULLY INDEPENDENT INPUT AND OUTPUT CHANNELS

All of Gennum's crosspoint products provide independent input trace equalization and output de-emphasis, which can compensate for over 40 inches of PCB trace loss. Also, the wide input sensitivity (100-1200mV) means that drivers on previous chips can be reduced, saving overall system power. With outputs capable of driving 1600mV, passive splitting while still driving long traces can be guaranteed; and with output swings as low as 200mV, system power can be significantly reduced when the chip is followed closely by another product.

ON-CHIP PATTERN GENERATORS AND CHECKERS

With two independent pattern generators and pattern checkers on chip, the GX3290 (and family) can be used for testing and diagnosing system channel issues on either the input or output side of the system. Support for PRBS7, 15, and 23 patterns in the pattern generator means that there is enough flexibility to evaluate the system under different stress conditions. The pattern checker can check one of the three PRBS patterns above or it can be configured to check bit errors on any arbitrary pattern. This is particularly useful for evaluating system performance under stressful video pathological signals.



HOST INTERFACE FLEXIBILITY

By offering both serial and parallel host interfaces with normal and auto-increment modes, customers can choose the interface and mode of operation that works best in their system. This makes it easy to interface to a variety of controlling chips, from FPGAs to microprocessors.

HORIZONTAL EYE MEASUREMENT

The GX3290 can check for bit errors at arbitrary phase offsets from the received data. This allows the user to determine the value of the horizontal eye opening, which provides a measure of the system jitter margin.

TEMPERATURE SENSORS

Four on-chip temperature sensors monitor the junction temperature of the chip and provide this information to the registers, where the user can read them. This allows the user to control things like fan speed and power down sequences that prevent the chip and system from overheating.

DYNAMIC OUTPUT POWER DOWN AND SIGNAL INVERT

Having the output power down and signal invert functions tied to the strobe enable pins guarantees that outputs enter or exit powerdown mode when all other switches are occurring in the matrix. This is particularly important for large switch cards built using multiple crosspoint chips with passive combining to guarantee that two outputs are not driving the same line at the same time.

LOW POWER

At only 34W for 290 channels, per channel power consumption is industry leading when compared to other competitive solutions.

FLEXIBLE FOOTPRINT

The GX3290, 3190, 3246, 3202, 3146, and 3074 are all pin compatible. Also, sharing the same interface and register set, one design can be easily scaled to the necessary switch size with no rework required in either hardware or software, allowing multiple end products to be launched from one common platform.

CROSSPOINT FEATURE/COMPARISON CHART

	GX3290	GX3190	GX3246	GX3202	GX3146	GX3074	GX3002	GX4002
Data Rate (Gb/s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	14
Inputs	290	146	290	202	146	74	2	2
Outputs	290	290	146	202	146	74	2	2
Input Trace EQ	YES	YES	YES	YES	YES	YES	YES	YES
Output De-emphasis	YES	YES	YES	YES	YES	YES	YES	YES
DC coupling	1.2V, 2.5V	1.2V, 2.5V	1.2V, 2.5V	1.2V, 2.5V	1.2V, 2.5V	1.2V, 2.5V	3.3V	3.3V
Temp Range (°C)	0 to +85	0 to +85	0 to +85	0 to +85	0 to +85	0 to +85	-40 to +100 (Case)	-40 to +100 (Case)
Power (W)	34	25	30	30	18	10	0.3	0.3
Size (mm)	50x50	50x50	50x50	50x50	50x50	50x50	5x5	5x5
Package	2377 BGA	2377 BGA	2377 BGA	2377 BGA	2377 BGA	2377 BGA	32 QFN	32 QFN



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