

## M21170 3.2 Gbps 288x288 Crosspoint Switch

### Product Overview

#### M21170 – 3.2 Gbps 288x288 Asynchronous Crosspoint Switch

Built on three generations of industry-leading crosspoint switches, the M21170 is a 288x288 asynchronous non-blocking crosspoint switch which features 82,944 unique switching paths. It is ideally suited for high-speed data switching in the datacom, telecom, and video applications. Each switching path can operate independently at any data rate of up to 3.2 Gbps, allowing for multi-rate routing and switching in one single device. The M21170 includes per lane, programmable, input equalization and output de-emphasis, enabling optimal compensation for board trace losses and making this device ideal for designs in very large systems. To alleviate the power consumption and heat dissipation challenges in such systems, the output swing level for each lane may be set individually, providing flexibility and optimization of power dissipation without compromised performance. All unused output drivers, in addition to all paths not exercised within the device, are automatically disabled for maximum power savings. The device is configurable through standard 2-wire (I2C compatible) and 4-wire serial interfaces, as well as a 9-bit parallel interface.

Features	Benefits
<ul style="list-style-type: none"> <li>Fully non-blocking array switch matrices</li> </ul>	Ultimate flexibility for switching and multicasting signals
<ul style="list-style-type: none"> <li>Programmable per lane input equalization</li> </ul>	Allows control in removing deterministic jitter (ISI)
<ul style="list-style-type: none"> <li>Programmable output de-emphasis and swing level</li> </ul>	Improves system jitter budget and drive reach
<ul style="list-style-type: none"> <li>Protocol agnostic</li> </ul>	One device supports multiple applications
<ul style="list-style-type: none"> <li>Support for video pathological patterns</li> </ul>	Robust solution for SDI applications
<ul style="list-style-type: none"> <li>Individual level loss of signal (LOS) alarm and squelch</li> </ul>	Diagnostics for status
<ul style="list-style-type: none"> <li>DC and AC coupling support at input and output</li> </ul>	Flexible support for both AC and DC coupled design configurations
<ul style="list-style-type: none"> <li>Power-on reset feature</li> </ul>	Automatically defaults all register settings to a known state during power up
<ul style="list-style-type: none"> <li>Junction temperature monitoring</li> </ul>	Automatically prevents thermal damages to the device
<ul style="list-style-type: none"> <li>Programmable per lane power-down and standby mode</li> </ul>	Provides additional power management efficiency
<ul style="list-style-type: none"> <li>2-wire I<sup>2</sup>C, 4-wire SPI, and 9-bit data parallel interface registers</li> </ul>	Flexible and complete control for configuration
<ul style="list-style-type: none"> <li>1.2V core power supply operation / 1.2V or 1.8V output optional / 1.2V or 1.8V or 2.5V input optional supply</li> </ul>	Standard power supply supported
<ul style="list-style-type: none"> <li>JTAG boundary scan</li> </ul>	Improves manufacturing yield for configuration



Fig. 1 - M21170 Device Architecture

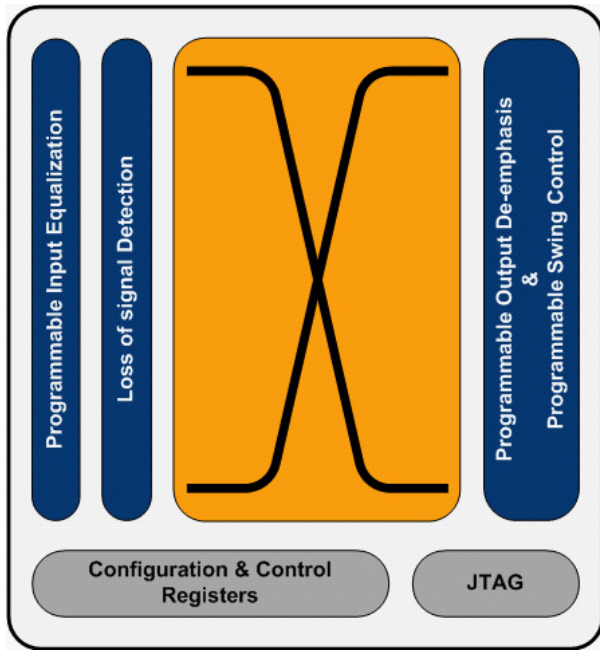


Fig. 2 - Routing Switcher Application Diagram

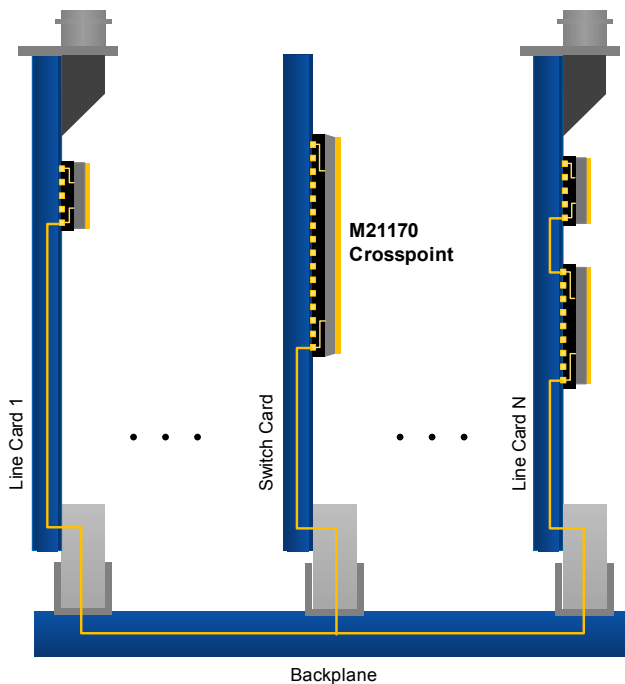
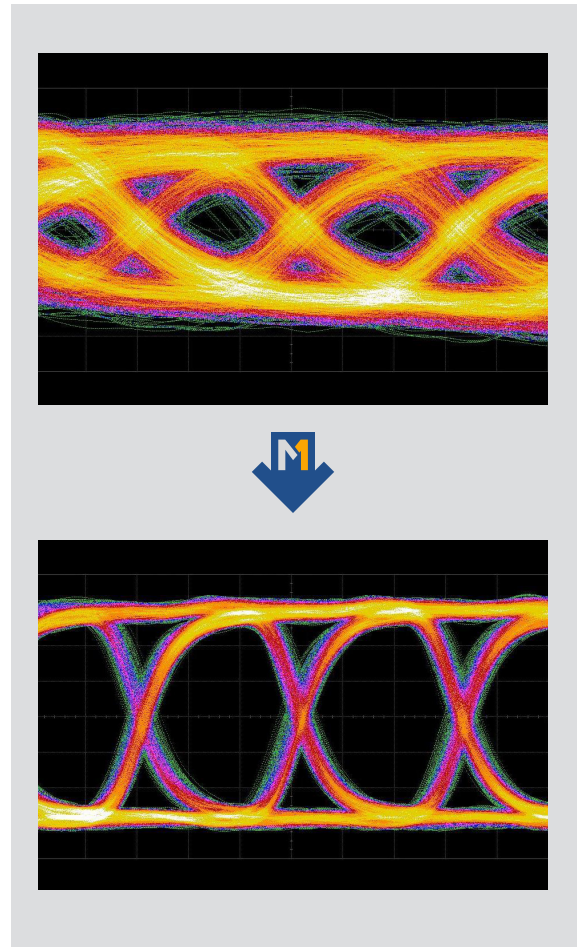


Fig. 3 - 3.2 Gbps Equalized After 40" FR4 Trace



### > Product Features

#### Applications

- Digital video switchers/routers
- DWDM routers
- Backplane switching and signal conditioning

#### Package (RoHS Compliant)

- M21170: 50 mm, 2389 ball FCBGA

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