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M21145/65 6.5 Gbps 80x80/160x160 Crosspoint Switch

Product Brief

Product Overview

M21145 6.5 Gbps 80x80 and M21165 6.5 Gbps 160x160 Crosspoint Switch

Built on three generations of industry-leading crosspoint switches, the M21145 and M21165 are high-performance 80x80 and 160x160 asynchronous non-blocking crosspoint switches with signal conditioning, optimized for a wide range of datacom, telecom, and video control applications. M21165 is the largest monolithic switch solution in the industry. Each channel operates independently at data rates of up to 6.5 Gbps, allowing maximum flexibility in system design. They can be configured to switch each channel as individual lanes (lane mode) or in a group of 4 channels (group mode) with low intra-channel skew. Signal conditioning features include input equalization and output pre-emphasis, configurable per-lane basis and optimized for PCB trace. The various options of the crosspoint switch and the switch state can be configured with registers accessed through an I²C, SPI, or parallel interface.

Features	Benefits
Programmable per lane input equalization	Allows control in removing deterministic jitter (ISI)
Fully non-blocking array switch matrices	Ultimate flexibility for switching and multicasting signals
Programmable output de-emphasis to 6db	Improves system jitter budget and drive reach
Protocol agnostic	One device supports multiple applications
Support for video pathological patterns	Robust solution for SDI applications
2-wire I²C, 4-wire SPI, and 8-bit data parallel interface registers	Flexible and complete control for configuration
1.2V core power supply operation / 1.2 or 1.8 or 2.5V IO optional	Standard power supply supported
Low power consumption at 11W (M21145) and 22W (M21165)	Low thermal and power management costs
Individual level loss of signal (LOS) alarm and squelch	Diagnostics for status
JTAG boundary scan	Improves manufacturing yield for configuration
Extended temperature operation: 0°C to 85°C	Provides higher tolerance and additional design margin

Specification	M21145	M21165
Switch Matrix	80x80	160x160
Power at 1.2V (W)	11	22
Package (mm)	35 mm, 1156 ball TEPBGA	45 mm, 1936 ball TEPBGA

Fig. 1 – M21145/65 Product Selection Chart

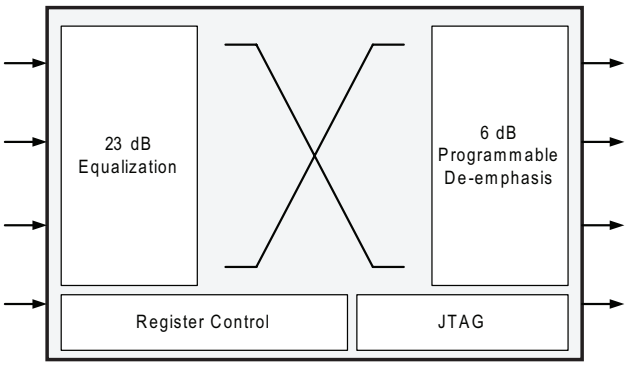

Fig. 2 – M21145/65 Device Architecture

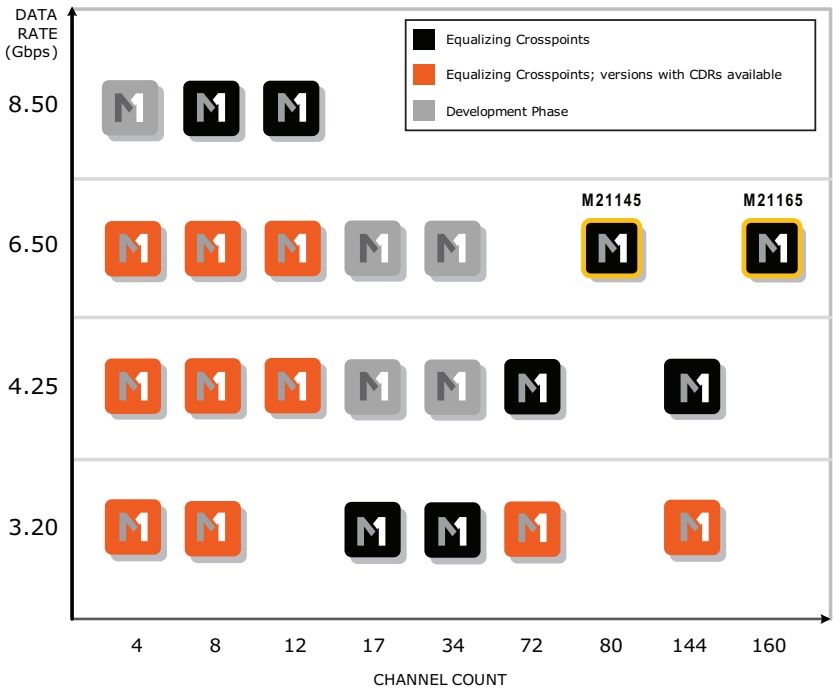

Fig. 3 – Signal Conditioners and Crosspoints Matrix

Product Features

Applications

- HDMI, DVI, KVM, and Displayport switching equipment
- SMPTE 424M, 292M, 344M, 259M, DVB-ASI (270 Mbps)
- Digital video switchers/routers
- DWDM routers
- Backplane switching and signal conditioning
- SONET/SDH systems and modules
- Fibre channel systems
- Gigabit Ethernet systems
- XAUI systems
- Wireless base-stations

Package (RoHS Compliant)

- M21145: 35 mm, 1156 ball TEPBGA
- M21165: 45 mm, 1936 ball TEPBGA

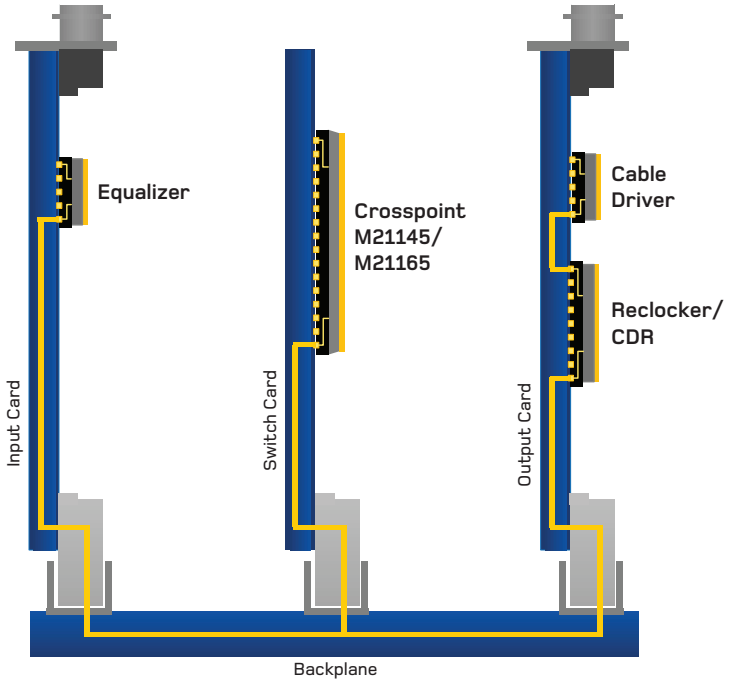

Fig. 4 – Routing Switcher Application Diagram

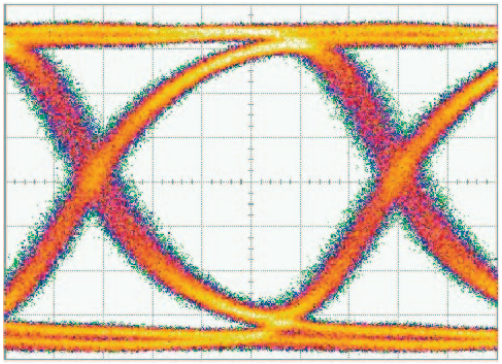

Fig. 5 – 6.5 Gbps Equalized After 40”

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