

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

### Product Overview

#### M21145 [6.5 Gbps 80x80] and M21165 [6.5 Gbps 160x160] Crosspoint Switch

The M21145/M21165 are 80x80/160x160 asynchronous fully non-blocking crosspoint switches operating at data rates up to 6.5 Gbps. The M21145/M21165 can be configured either to switch channels as individual lanes (Lane Mode) or in groups of four (Group Mode). The devices include advanced signal conditioning capabilities that enable the transmission of 6.5 Gbps NRZ data over PCB channels that exceed one meter in length. Signal conditioning circuits counter frequency dependent impairments in the channel. Specific device capabilities include individual, per-lane input equalization and output de-emphasis. Configuration of the device is done through a set of register writes using one of the integrated 2-wire serial (I<sup>2</sup>C compatible) or 4-wire serial digital interfaces.

Features	Benefits
➤ Programmable per lane input equalization up to 23 dB	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 I <sup>2</sup> C, 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 IO optional	Standard power supply supported
➤ Low power consumption at 11.5W (M21145) and 22.9W (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
<b>Switch Matrix</b>	80x80	160x160
<b>Power at 1.2V (W)</b>	11.5	22.9
<b>Package (mm)</b>	35 mm, 1156 ball FCBGA	45 mm, 1936 ball FCBGA

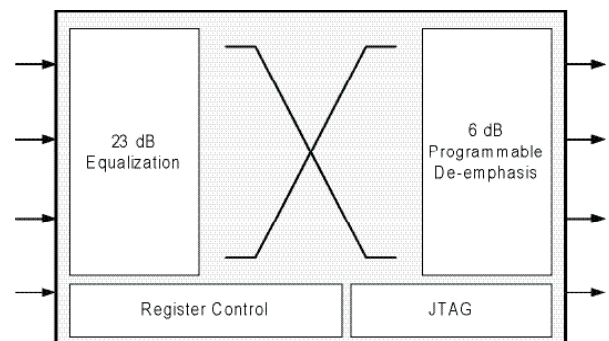


Fig. 1 - M21145/65 Product Selection Chart

Fig. 2 - M21145/65 Device Architecture



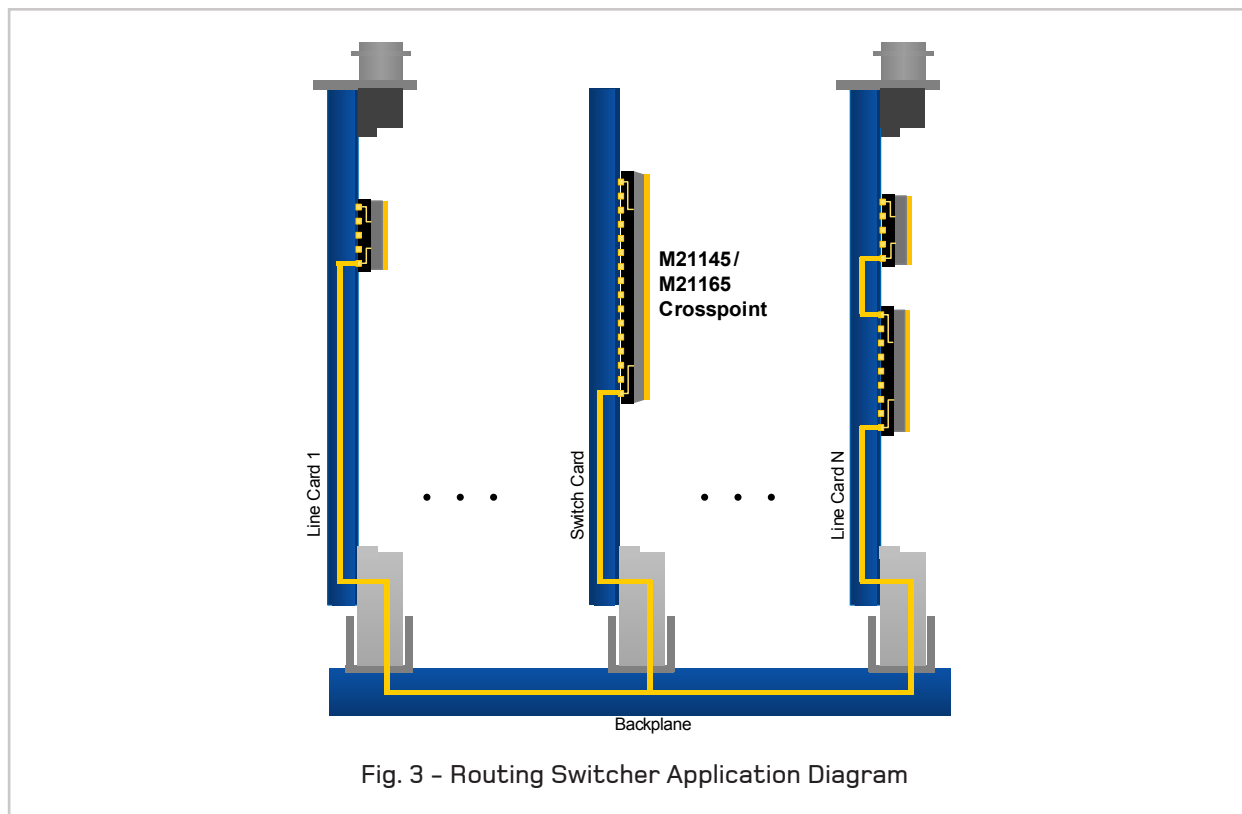


Fig. 3 - Routing Switcher Application Diagram

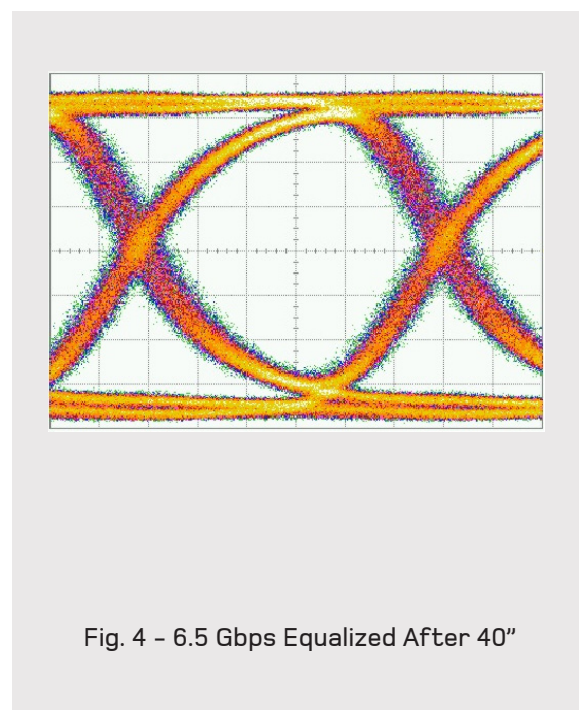


Fig. 4 - 6.5 Gbps Equalized After 40"

## > 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 FCBGA
- M21165: 45 mm, 1936 ball FCBGA

For more product information, please visit [www.mindspeed.com](http://www.mindspeed.com)

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