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M23636/M21148 6.5 Gbps 36x36/48x48 Crosspoint Switch

Product Brief

Product Overview

M23636 [6.5 Gbps 36x36] and M21148 [6.5 Gbps 48x48] Crosspoint Switch

The M23636/M21148 is a 36x36/48x48 asynchronous fully non-blocking crosspoint switch operating at data rates up to 6.5 Gbps. The M21148 can be configured to switch channels as individual lanes (Lane Mode) or in groups of four (Group Mode), while the M23636 always operates in Lane 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 counteract frequency dependent impairments in the channel that degrade the signal quality. Specific device capabilities include individual, per-lane programmable 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 (I2C-compatible), 4-wire serial, or parallel digital interfaces.

Features	Benefits
Programmable per lane input equalization up to 23dB	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 IO optional	Standard power supply supported
Low power consumption at 4.1W (M23636) and 5.5W (M21148)	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
Integrated PRBS pattern generator and checker	Digital pass/fail testing with a variety of test patterns
Electrical idle transparency / Out of band signaling support	PCIe, SATA, SAS application
Extended temperature operation: -20°C to 85°C	Provides higher tolerance and additional design margin

Specification	M23636	M21148
Switch Matrix	36x36	48x48
Power at 1.2V (W)	4.1	5.5
Package (mm)	23 mm, 484 ball FCBGA	27 mm, 676 ball FCBGA

Fig. 1 – M23636/M21148 Product Selection Chart

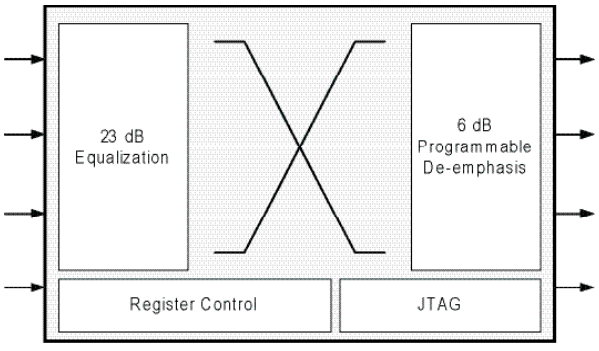

Fig. 2 – M23636/M21148 Device Architecture

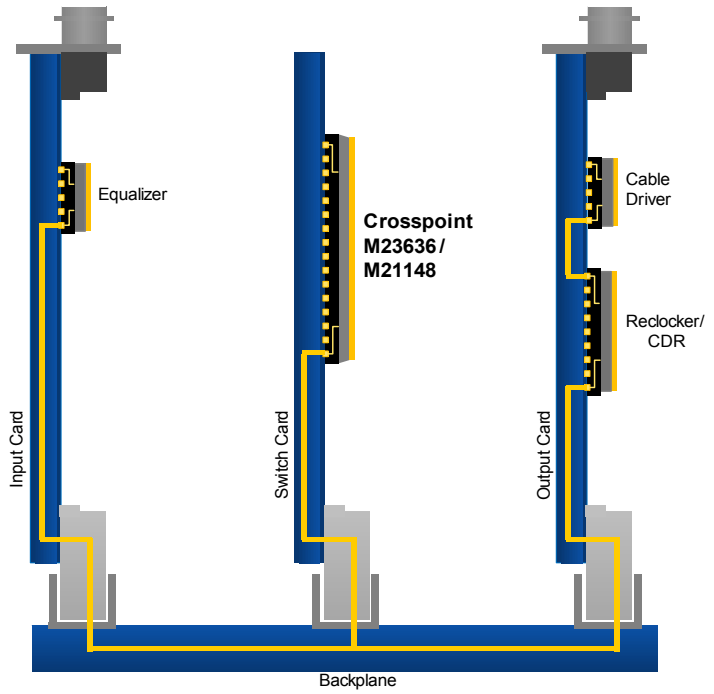

Fig. 3 – Routing Switcher Application Diagram

Product Features

Applications

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

Package (RoHS Compliant)

- M23636: 36 mm, 484 ball BGA
- M21148: 27 mm, 676 ball BGA

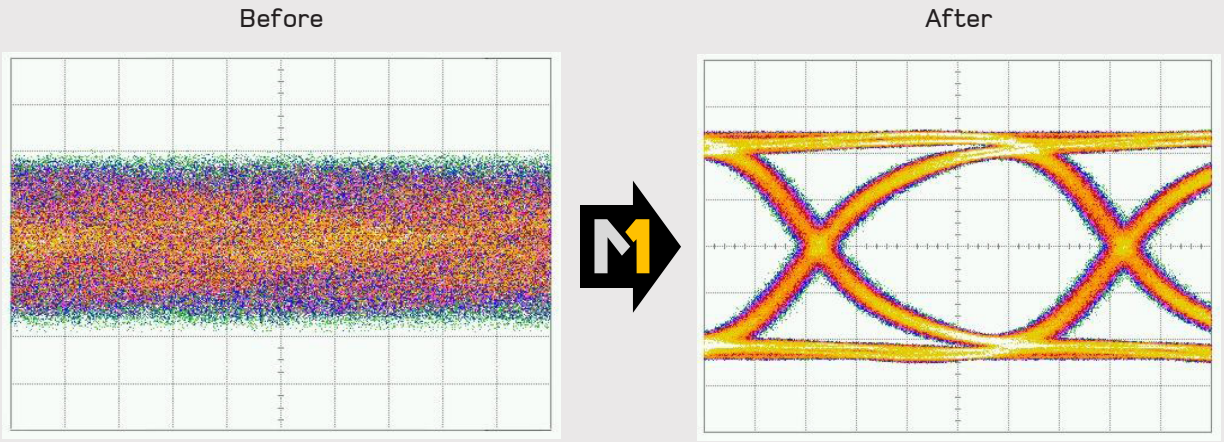

Fig. 4 – 6.5 Gbps Equalized After 40" FR-4 Trace

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