

## M21030 6.5 Gbps Cable Equalizer & Driver

### Product Overview

The M21030 is a low power, small form factor, cable driver and equalizer that is designed to enable data transmission over long copper cables at speeds of up to 6.5 Gbps. The M21030's small form factor and lower power consumption make it ideal for module applications such as Quad SFP. The device features four fully independent adaptive equalizers that automatically optimize equalization for maximum performance. No equalizer programming is required. This is critical in cabled environments where channel properties will change drastically from cable to cable. The equalizer provides over 40 dB of boost enabling transmission of data through even the lossiest environments. The M21030 is protocol agnostic and fully asynchronous. Virtually any digital protocol can be transmitted through the device at speeds from 100 Mbps to 6.5 Gbps. The list of supported protocols includes: PCI Express, SATA, SAS, Infiniband, 2xXAUI and Fibre Channel. The M21030 is designed to recognize and transparently relay OOB signals for SATA/SAS and PCI Express. Additionally, it operates at the popular SMPTE and DVB video rates for various applications. The device includes a fully non-blocking 4 x 4 switch matrix that allows for simple switching as well as multi-cast functionality. The M21030 features programmable output drivers for maximum power efficiency. These drivers and other functions can be either programmed via two-wire serial bus or via EEPROM at device power up. The device uses 580 mW.

Features	Benefits
<ul style="list-style-type: none"> <li>Four fully Independent, adaptive equalizers</li> </ul>	<ul style="list-style-type: none"> <li>Automatically configures for maximum channel performance</li> </ul>
<ul style="list-style-type: none"> <li>SMPTE 424M, 344M, 292M, and 259M compatible, DVB-ASI</li> </ul>	<ul style="list-style-type: none"> <li>Robust video compatibility</li> </ul>
<ul style="list-style-type: none"> <li>Equalization reach up to 20m over 24 AWG cable</li> </ul>	<ul style="list-style-type: none"> <li>Long distances at higher speeds</li> </ul>
<ul style="list-style-type: none"> <li>40 dB+ Equalization and 6 dB de-emphasis</li> </ul>	<ul style="list-style-type: none"> <li>Maximizes transmission length</li> </ul>
<ul style="list-style-type: none"> <li>Low 580 mW power usage</li> </ul>	<ul style="list-style-type: none"> <li>Minimizes cost to operate and cool</li> </ul>
<ul style="list-style-type: none"> <li>Small 6 x 6 mm QFN package</li> </ul>	<ul style="list-style-type: none"> <li>Provides space efficiency and reliability</li> </ul>
<ul style="list-style-type: none"> <li>Out of band (OOB) / electrical bus idle (EBI) signaling support</li> </ul>	<ul style="list-style-type: none"> <li>Allows for seamless integration into PCIe and S-ATA/SAS</li> </ul>
<ul style="list-style-type: none"> <li>Protocol agnostic</li> </ul>	<ul style="list-style-type: none"> <li>One device supports many applications</li> </ul>
<ul style="list-style-type: none"> <li>1.2 Volt core / optional 1.2 or 1.8 Volt IO</li> </ul>	<ul style="list-style-type: none"> <li>Flexibility to use right power performance</li> </ul>
<ul style="list-style-type: none"> <li>Extended Temp Range (-20° to 85° C)</li> </ul>	<ul style="list-style-type: none"> <li>Provides additional margin for most applications</li> </ul>
<ul style="list-style-type: none"> <li>Fully non-blocking switch matrices</li> </ul>	<ul style="list-style-type: none"> <li>Ultimate flexibility for switching and multicasting signals</li> </ul>
<ul style="list-style-type: none"> <li>Boundary scan</li> </ul>	<ul style="list-style-type: none"> <li>High speed input and output pins</li> </ul>



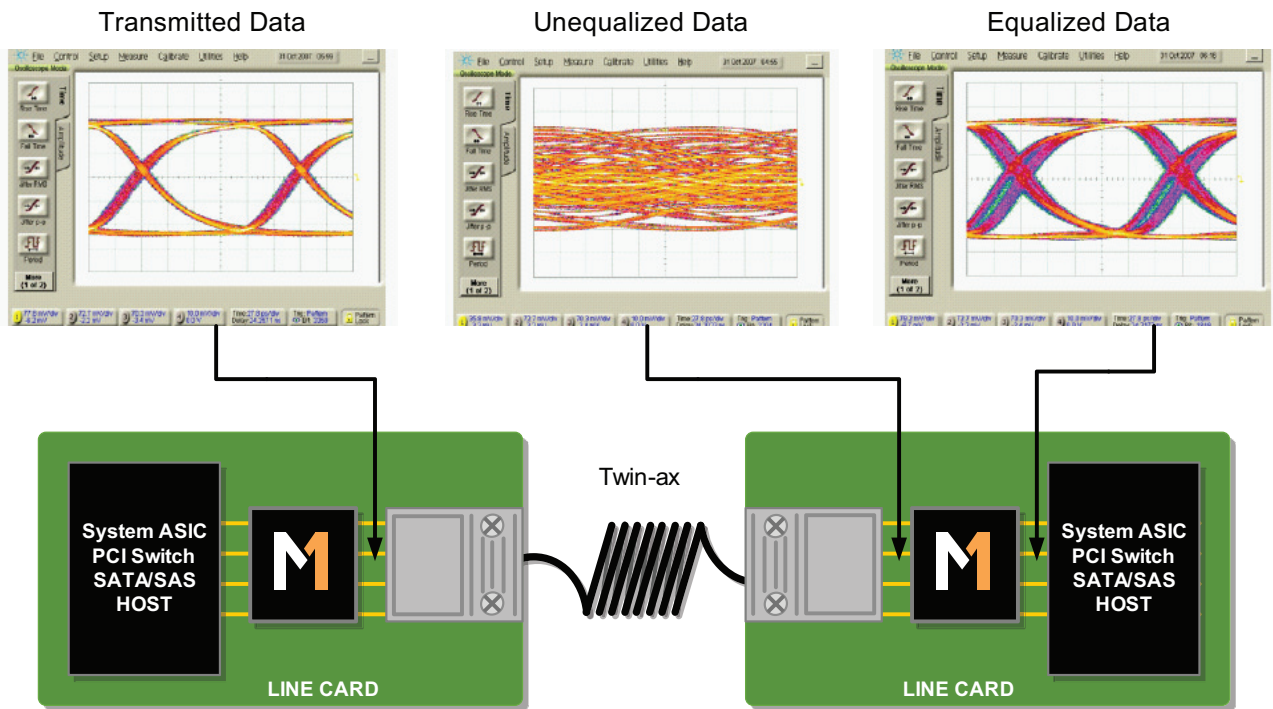


Fig. 1 - Equalized Data Transmission

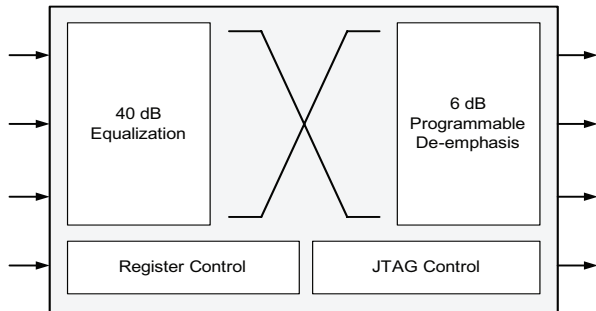


Fig. 2 - M21030 Device Architecture

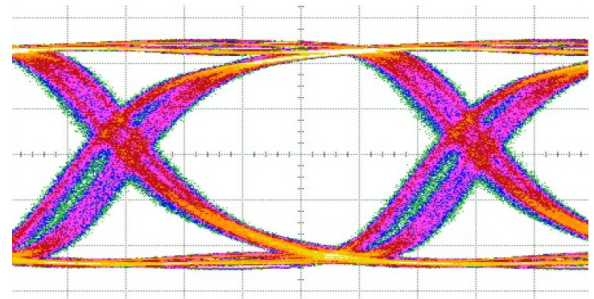


Fig. 3 - 6.5 Gbps Equalized After 15m over 24 AWG Cable

## Product Features

### Applications

- Cable equalizer / driver
- SDI video and DVB-ASI equipment
- Quad SFP length extender
- Shelf to shelf interconnect
- 6.5 Gbps redundancy switch
- Data center cable extender
- Infiniband cable interconnect
- Multi-gigabit interconnect over low cost cable

### Package (RoHS Compliant)

- 6 x 6 mm, 40 pin QFN package

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

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