## M21111/21 3.2 Gbps 17x17/34×34 Crosspoint Switch

## ? Product Overview

## M21111 3.2 Gbps 17x17 and M21121 3.2 Gbps 34x34 Crosspoint Switch

The M21111/21, designed for today's demanding video, telecom and datacom switching applications are low-power, high-speed crosspoint switches with input equalization and integrated pattern generator/checker. With all channels operational, the M21111 and M21121 typically consume 2.6 Watts and 4 Watts of power respectively, making them ideal for use in low power systems. The PowerScalerTM feature provides dynamically scalable switch settings for further power reduction. With the use of the SmartPowerTM feature, unused portions of the core may be automatically turned off without affecting the operational channels. In addition, individual input and output buffers may be manually powered down for more power consumption control.

In order to improve signal integrity, each input buffer features programmable trace equalization (IE), which removes ISI jitter that is usually caused by board trace skin effect losses. The input equalizer circuit opens the data eye in applications where long PCB traces and cables are used. The input equalizer can be enabled on a per channel basis, allowing maximum flexibility. Built-in system test features simplify design, verification, and production testing of the system. The crosspoint switches includes an integrated pseudo-random bit sequence generator (PRBS TX) and checker (RX).

The M21111 and M21121 are non-blocking switches with multi-cast and broadcast abilities. All inputs and outputs are differential positive current mode logic (PCML) with 2.5 V or 3.3 V supply. The M21111 and M21121 both have a common footprint and share the same software control methodology enabling a single PCB design to support both $17 \times 17$ and $34 \times 34$ system solutions. The devices are offered in a 404 ball, 23 mm Plastic Ball Grid Array (PBGA) package and are RoHS compliant. Non-RoHS versions of the devices are available upon request.

| Features | Benefits |
| :--- | :--- |
| Programmable per lane input equalization | Allows control in removing deterministic jitter (ISI) |
| Pully non-blocking array switch matrices | Ultimate flexibility for switching and multicasting signals |
| Support for video pathological patterns | One device supports multiple applications |
| M21111 and 4W for M21121 | Robust solution for SDI applications |
| Extended temperature operations: $0^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ | Provides higher tolerance and additional design margin |
| Common footprint for M21111 and M21121 | Design and layout flexibility saving development costs |
| Smart PowerTM and PowerScalerTM | Optimized power consumption based on system requirements |


| Specification | M21111 | M21121 |
| ---: | :---: | :---: |
| Switch Matrix | $17 \times 17$ | $34 \times 34$ |
| Power at 1.2V (W) | 2.6 | 4 |
| Package $(\mathrm{mm})$ | $23 \mathrm{~mm}, 404$ <br> ball PBGA | $23 \mathrm{~mm}, 404$ <br> ball PBGA |

Fig. 1 - M21111/21 Product Selection Chart


Fig. 2 - M21111/21 Device Architecture

Fig. 3 - Signal Conditioners and Crosspoints Matrix


## Product Features

## Applications

- Large $N \times N$ cascaded switch fabrics
- Telecom 8 datacom switches
- Storage area network (SAN) switches
- Packet switching
- High-speed automated test equipment
- Digital video switchers/routers SMPTE 424M, 292M, 344M, 259M, DVB-ASI (270 Mbps)

Package (RoHS Compliant)

- M21111: $23 \times 23 \mathrm{~mm}, 404$ ball PBGA
- M21121: $23 \times 23 \mathrm{~mm}, 404$ ball PBGA

Fig. 3 - Routing Switcher Application Diagram


Fig. 4 - 3.2 Gbps Equalized After $84^{\prime \prime}$ Coax and 67.5" Microstrip

## www.mindspeed.com/salesoffices

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