

M21245 3G/HD/SD-SDI Multirate Low Power Video Reclocker

Product Overview

The M21245 is a serial digital video reclocker with integrated trace equalization, automatic rate detect (ARD) circuitry, and a 4:1 mux at the input. It operates at SDI data rates ranging from 270 Mbps to 2970 Mbps and is compliant to SMPTE 424M, SMPTE292M, and SMPTE 259M-C. At 270 Mbps, it also supports DVB-ASI.

The M21245 has an input jitter tolerance (IJT) of greater than 0.6 unit intervals (UI) and can provide retimed serial outputs with very low output jitter. The reclocker requires a single, external, 27 MHz crystal, which is used as the reference clock for all four channels. It includes per lane analog input equalization for up to 40" of FR4 trace and two connectors in addition to output de-emphasis.

This device features integrated supply regulators, allowing it to be powered from 1.2V, 1.8V, 2.5V, or 3.3V supply voltages. When operating at 1.2V, it consumes only 230 mW at 3G-SDI. Furthermore, the power rails for the core, input, and output circuitry are electrically independent and as such may be connected to different voltage rails on the board. This feature enables the M21245 to be DC coupled to any upstream or downstream device regardless of its input/output voltage level.

The 4:1 mux at the input allows any of the 4 inputs to be routed to the integrated reclocker and its output. The device, and the input mux, may be configured by setting the internal registers through standard two-wire and four-wire interfaces. Optionally, the reclocker may be configured at power-up through an external EEPROM device. Limited configuration is also possible through hardware pin settings.

The M21245 is offered in a green and RoHS compliant, 6 mm x 6 mm, 40-pin QFN package.

| Features | Benefits |
|---|---|
| › SMPTE 259-C, 292M, 424M, and DVB ASI compliant | Standard compliant solution |
| › 0.6UI Input jitter tolerance | Enable robust, error free designs |
| › Integrated 50Ω input termination | Save board area and enable high density designs |
| › 4:1 Input multiplexer | Saves board area and enables high density designs |
| › Input equalization 40" of FR4 trace and 2 connectors | Ease of high speed design and layout |
| › Output de-emphasis | Ease of high speed design and layout |
| › 230mW power consumption per channel (1.2V operation) | Enables low power designs with minimal heat dissipation |
| › Integrated regulators extends operation from 1.2 to 3.3V | Reduces number of power rails required on a board |
| › Electrically isolated input, output, and core supply rails | DC interface – saves board area and cost |
| › Mute and configurable auto or manual bypass mode | Allows use with non-standard rates |
| › Automatic and manual modes for rate indication and selection | Ease of use and flexibility |
| › Loss of Lock (LOL), Loss of Signal (LOS) and data rate indication | Ease of status update and diagnostics |
| › I ² C, SPI and I ² C EEPROM interface | Flexibility and ease of control and configuration |
| › Industrial operating temperature range (-40°C to +85°C) | Provides higher tolerance and additional design margin |



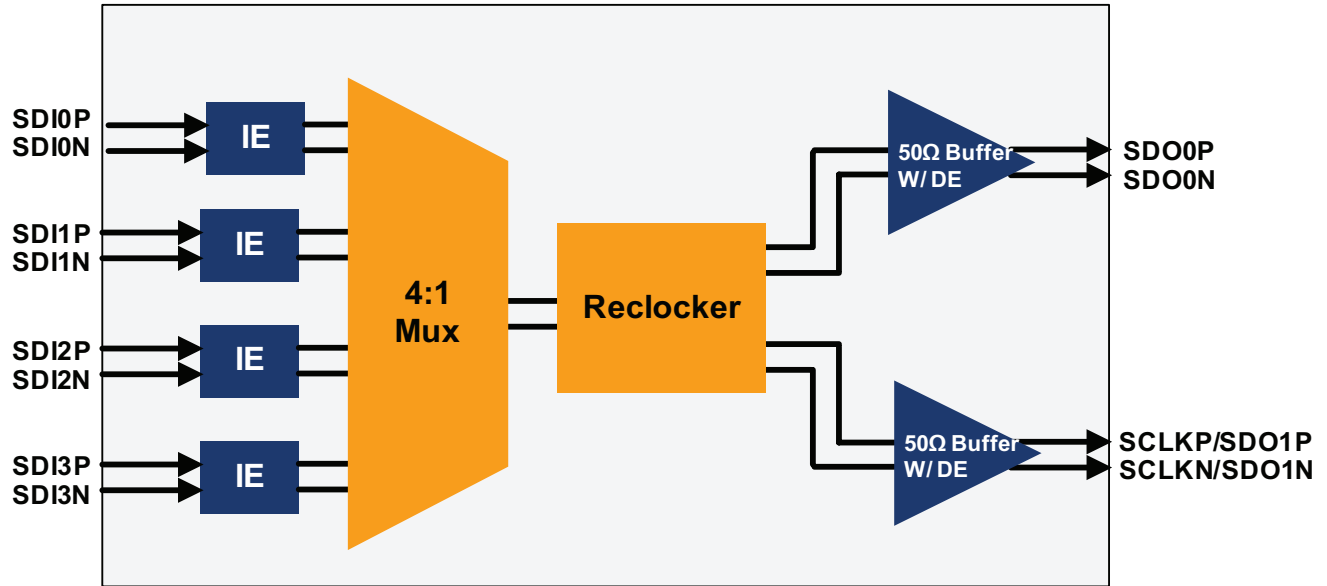


Fig. 1 - Functional Block Diagram

Product Features

Applications

- 3G/HD/SD-SDI switchers
- 3G/HD/SD-SDI routers
- 3G/HD/SD distribution amplifiers
- DVB-ASI equipment

Standards Compliance

- SMPTE 424M, 292M, and 259M
- Supports DVB-ASI (270 Mbps)

Package (RoHS Compliant)

- 40pin QFN
- 6mmX6mm

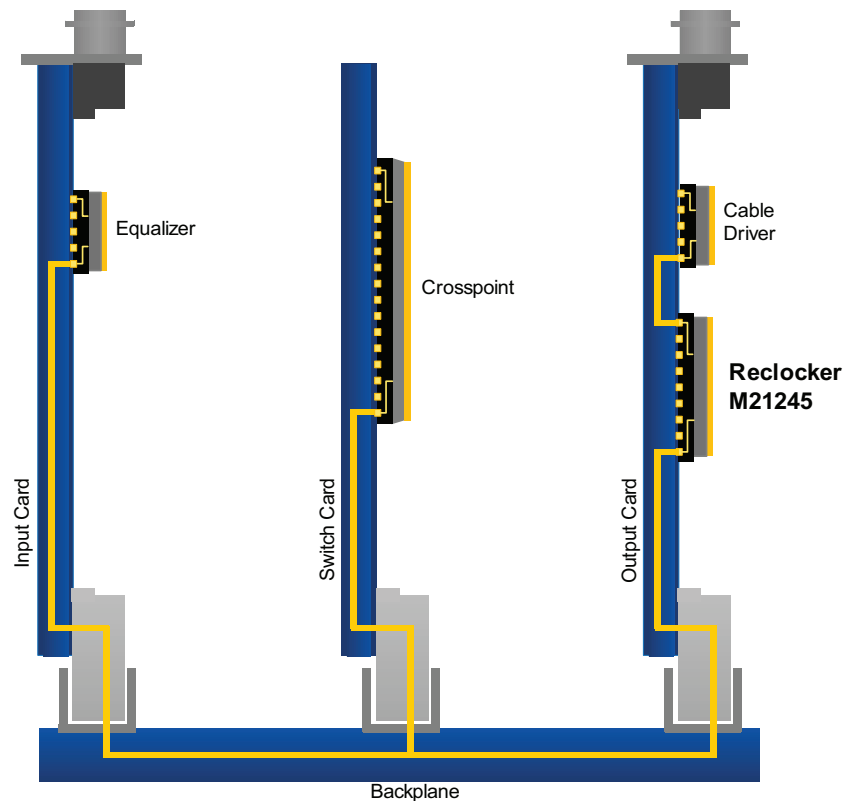


Fig. 2 - Typical Routing Switcher Application Diagram

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