

# DS40MB200 – 1 to 4 Gbps Dual Signal Conditioning Mux-Buffer/Repeater with Pre-Emphasis and Equalizer

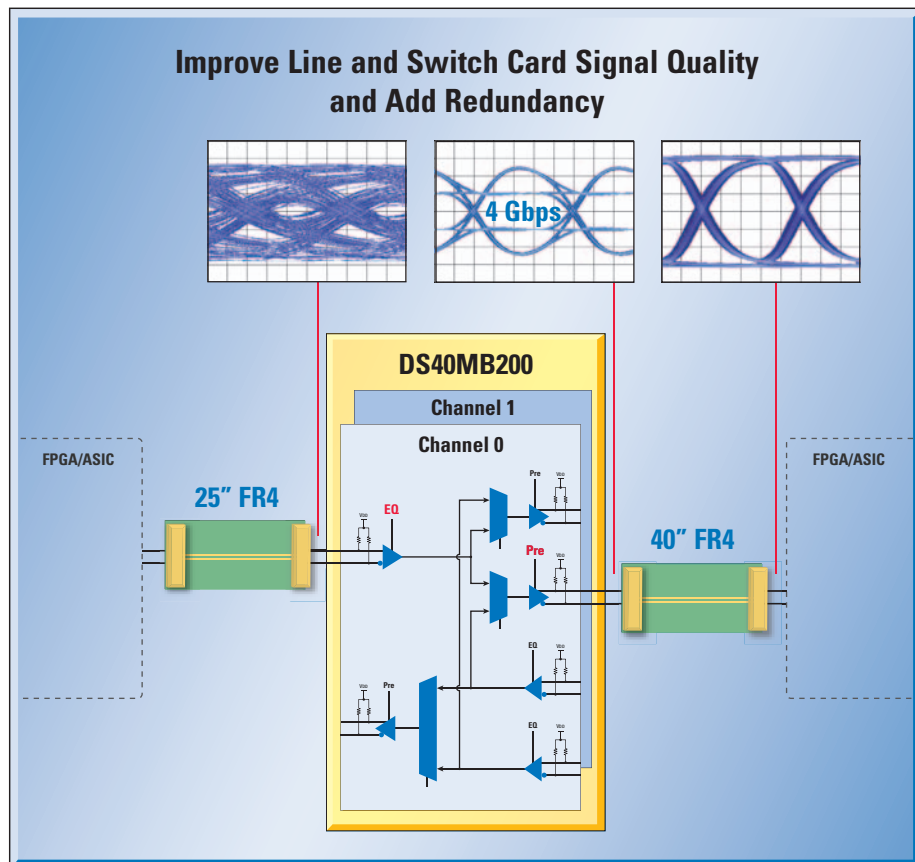
## Introduction

Datacom, storage, and telecom applications require best-in-class signal integrity and reliability. National Semiconductor's DS40MB200 is a signal conditioner that can easily attach to an FPGA or ASIC to provide redundant I/O, signal buffering, and improved serial I/O performance on a low cost interconnect.

The DS40MB200 is a dual 1:2 multiplexer and a dual 2:1 selector that can operate at speeds up to 4 Gbps. The high-speed serial inputs feature an integrated receive equalizer to compensate for input transmission line loss. The high-speed serial outputs provide four configurable levels of pre-emphasis to optimize performance for a particular backplane or cable. The DS40MB200 provides configurable switch-side loop back to allow system-level testing.

## Product Features

- 1:2 Dual signal-conditioning mux-buffer
- Fixed input equalization
- Programmable output pre-emphasis
- Independent switch and line side pre-emphasis controls
- Programmable switch-side loop-back mode
- On-chip termination
- 3.3V power supply
- LLP-48 package (7 mm x 7 mm)



## Target Applications

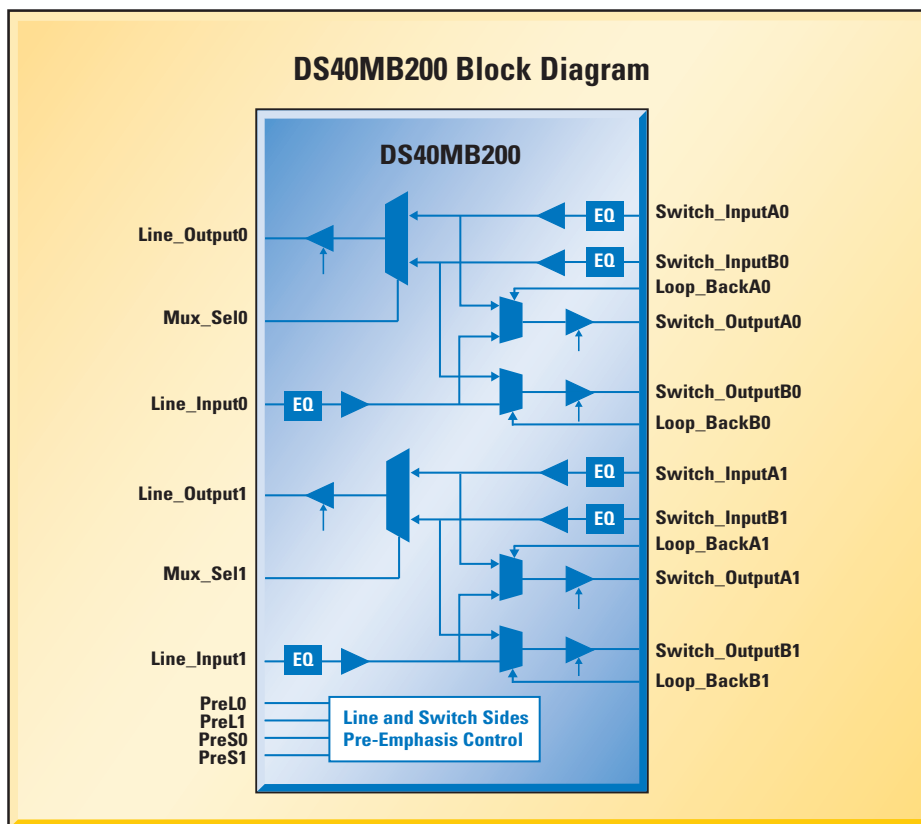
- XAUI, GbE, Fibre Channel, and PCIe express data rates
- Bidirectional repeater
- Signal conditioner
- Error free transmission on low-cost cables or long traces of FR4
- Broadcast video applications

## Tools

- Datasheet
- Hspice models
- Test reports on standard, Tyco, and Teradyne backplanes and cables
- Application notes
- Evaluation kit

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# DS40MB200 Product Description



The DS40MB200 is a dual 2:1 multiplexer and a dual 1:2 fan-out buffer for use in backplane redundancy applications. Each input stage has a fixed-equalizer to reduce ISI distortion from board traces. All output drivers have four configurable steps of pre-emphasis to compensate against transmission losses from long FR4 backplanes.

The pre-emphasis levels can be independently controlled for the line-side and switch-side drivers. The internal loopback paths from switch-side input to switch-side output enable at-speed testing. All receiver inputs and driver outputs are internally terminated with CML differential terminating resistors.

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## Standards Compliance

Standard	Application	Data Rate (Gbps)	FR4 Trace Length (Inches)
GE	Gigabit Ethernet	1.25	60 to 80
XAUI	10 GE, ATCA	3.125	40 to 60
Storage	2G FC, 4G FC	2.12, 4.25	40 to 60