Intel® LXT16865

Transimpedance Amplifier (TIA)

Product Description

The Intel® LXT16865 is a high-gain Transimpedance Amplifier (TIA) designed to convert and amplify an optical signal into an electrical signal for further processing.

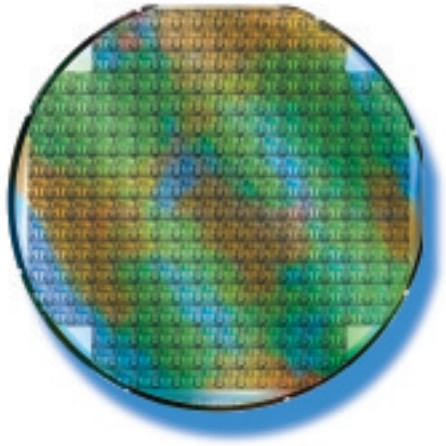
Used in conjunction with a photodetector and featuring a differential gain of 12kΩ, the LXT16865 is intended for SONET/SDH transmission systems at 9.953, 10.3, and 10.7Gbps data rates.

The Intel LXT16865 delivers the following features:

- output signal swing up to 2x200mV
- input current overload: 2mApp
- input DC current control circuit
- automatic offset and output swing control

The LXT16865 requires a single power supply +3.3V and dissipates less than 160mW, allowing the customer to relax the power budget of the optical receiver or module. The TIA provides high optical input sensitivity (as good as -20dBm) which makes it suitable for long-haul transmissions. The LXT16865 is designed in well-proven SiGe BiCMOS process and is available as die.

The Intel LXT16865 is a four-stage TIA. A large value transimpedance provides significant output amplitude for the next device, even at small input current. The output connection can be either AC- or DC-coupled.

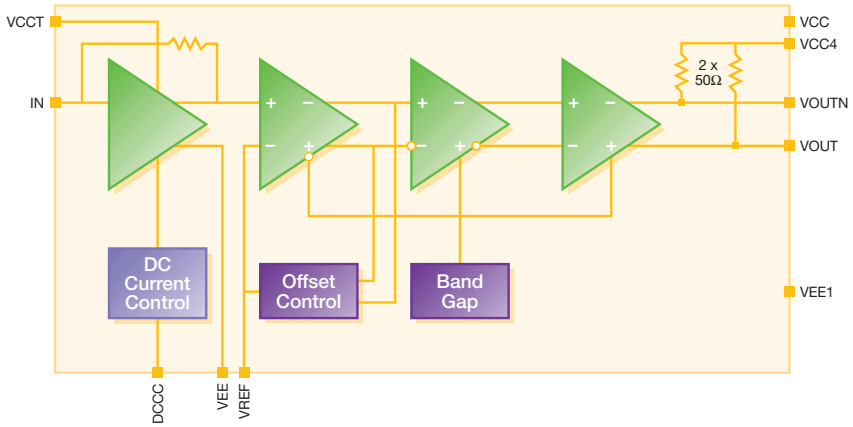


The input stage is directly connected to the photodiode anode to receive, amplify, and convert a small photodiode current to a voltage signal at line rates of up to 10.7Gbps. Second, third, and fourth stages are intended to amplify this voltage signal, transform it to a differential signal, and arrange 50Ω output matching. Because the input stage is single-ended and the second and third stages are differential, an on-chip circuit is used to control the offset level.

Key Applications

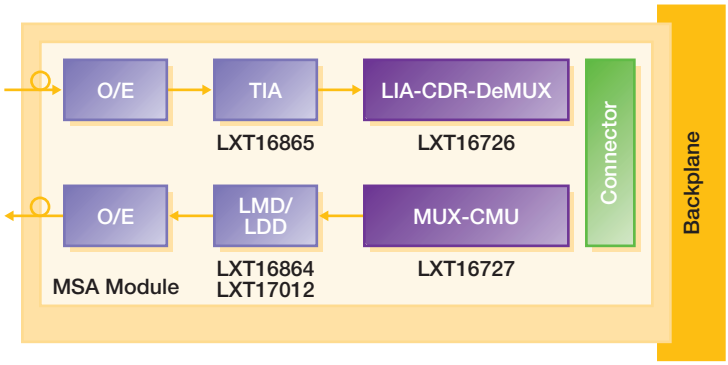
- Telecommunication transmission systems STM 64/OC-192
- Dense Wavelength Division Multiplexing (DWDM) applications
- 10.7Gbps Forward Error Correction (FEC) and Optical Transport Network (OTN) transmission
- Metro and Long-Haul optical receiver

Block Diagram



Features	Benefits
■ Low power dissipation 160mW	■ Relaxes total power budget
■ 12kΩ differential gain	■ Provides high amplification stage and makes further processing easier
■ -20dBm optical input sensitivity	■ Increases signal quality and transmission distance
■ Automatic output swing and offset control	■ Provides stable and high quality output eye
■ Up to 10.7Gbps speed	■ Suitable for FEC and OTN applications

Typical Application Diagram



Support Collateral

Item	Description	Order Number
LXT16865	Data Sheet	250694-001
LXD90865	Demo Board Data Sheet	Contact your local rep.
LXT16865	Test report	Contact your local rep.

Intel Access

Developer's Site	http://developer.intel.com
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UNITED STATES AND CANADA
Intel Corporation
Robert Noyce Bldg.
2200 Mission College Blvd.
P.O. Box 58119
Santa Clara, CA 95052-8119
USA

EUROPE
Intel Corporation (UK) Ltd.
Pipers Way
Swindon
Wiltshire SN3 1RJ
UK

ASIA-PACIFIC
Intel Semiconductor Ltd.
32/F Two Pacific Place
88 Queensway, Central
Hong Kong

JAPAN
Intel Japan (Tsukuba HQ)
5-6
Tokodai Tsukuba-shi
300-2635 Ibaraki-ken
Japan

SOUTH AMERICA
Intel Semicondutores do Brasil Ltda
Av. Dr. Chucri Zaidan, 940-10° andar
04583-904 São Paulo, SP
Brazil

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