

**Application: Redundant bus for SDH/SONET**  
**Pericom Device: PI90LV022**

**Overview of SDH/SONET**

Synchronous Digital Hierarchy (SDH) and Synchronous Optical Network (SONET) refer to a group of fiber-optic transmission rates that can transport digital signals with different capacities. SDH was defined by the European Telecommunications Standards Institute (ETSI) and SONET was defined by American National Standards Institute (ANSI). The two standards govern interface parameters; rates, formats, multiplexing methods; and operations, administration, maintenance, and provisioning for high-speed transmission of bits of information in laser-light streams.

SONET standards are based on STS-1 (synchronous transport signal) equivalent to 51.84 Mbit/s. When encoded and modulated onto a fiber optic carrier, STS-1 is known as OC-1. Higher data rates are multiples of this up to STS-48. SDH is based on an STM-1 (155.52 Mbit/s) rate, which is identical to the SONET STS-3 rate.

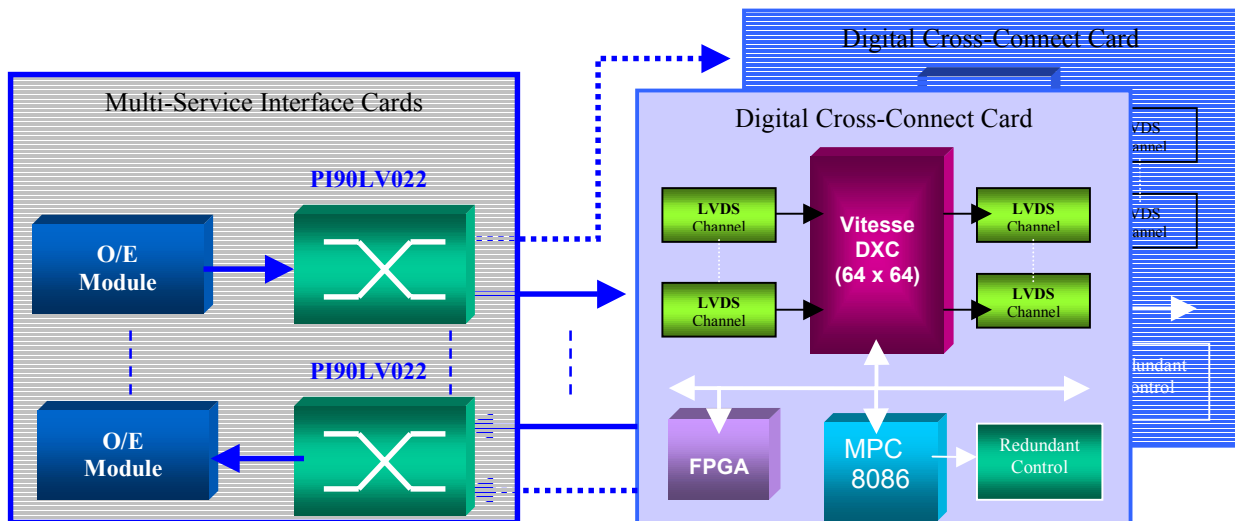
SDH/SONET has been widely adopted in the world for telecommunication equipment

of central office to fulfill the data transmission in backbones, local loop networks, and metropolitan area networks. In SDH/SONET, DXC a digital cross connect multi-port switch is used to route bulk traffic in blocks through LVDS bus. In order to maintain high availability and reliability of the system, redundant design usually will be implemented.

SONET Signal	SDH Signal	Bit Rate
STS-1, OC-1	-	51.84Mbps
STS-3, OC-3	STM-1	155.52Mbps
STS-12, OC-12	STM-4	622.08Mbps
STS-48, OC-48	STM-16	2488.32Mbps
STS-192, OC-192	STM-64	9953.28Mbps

**The Pericom Solution**

For higher order DXC system, LVDS signal running at 155.52 Mbps or 622.08 Mbps are used for bus connection. To implement redundant system, the secondary hardware card and transmission channel will be equipped. A high-speed LVDS switch can provide the function to select the bus through master system channel or the backup one. Pericom's 2x2 LVDS cross-point switch PI90LV022 can provide up to 660Mbps operation with typical propagation delay time of 3.5ns, and a 10KV ESD protection for telecommunication system.

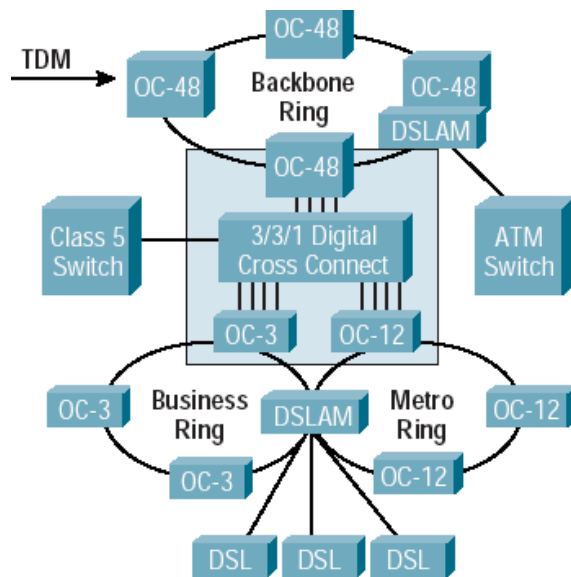


## Key Features & Specifications

- ❑ 2x2 cross-point, MUX/DEMUX, splitter and repeater
- ❑ Typical propagation delay time: 3.5ns
- ❑ Industrial temperature range -40°C to +85°C
- ❑ 16-pin SOIC and TSSOP Package
  - [Package Outline Drawings](#)
  - <http://www.pericom.com/packaging/mechanicals.php>

## Key Benefits

- ❑ Signaling rate up to 650 Mbps. Ready for STM-1 (STS-3) and STM-4 (STS-12) data rates
- ❑ Inputs are open, short and terminated fail safe
- ❑ Output drivers are high-impedance when disabled or when  $V_{cc} \leq 1.5V$



**Traditional SONET Network**

## Product Status

- ❑ Samples: NOW
- ❑ Production: NOW
- ❑ Lead Time: 4 Weeks

## Additional Information

- ❑ [Datasheet:](#)
  - <http://www.pericom.com/specs/P190LV022.pdf>
- ❑ [IBIS](#)
- ❑ [App Note](#)
- ❑ Customer Product Presentation  
[http://www.pericom.com/presentations/lvds\\_ow.pdf](http://www.pericom.com/presentations/lvds_ow.pdf)
- ❑ Product Guide / Databook CD
  - <http://www.onfulfillment.com/pericom>

## Contact Information

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