

SERIALIZED DATA COMM.

Jim Kubinec
Advanced Micro Devices
June 18, 1990

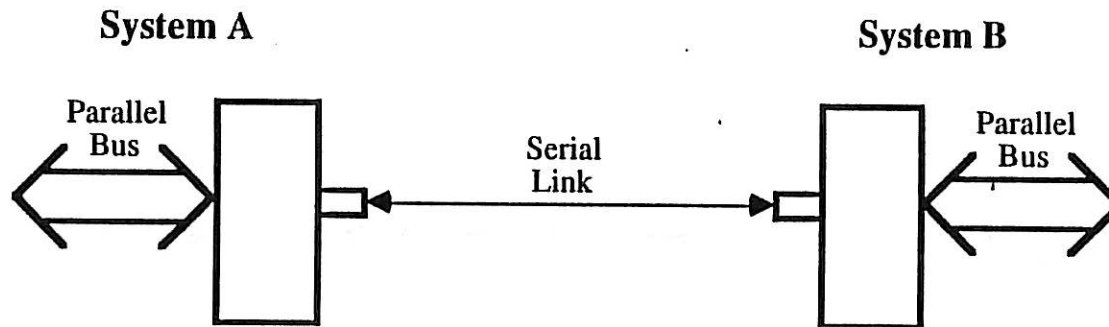
117



Outline

- Serial Data Communication Background
- AMD's Serial Data Communication Solutions (TAXIchips)
- Serial SCSI Solutions
- Integrated Optical Components
- Futures

Serial Data Communication



ADVANTAGES:

- Single Line vs. Multiple Lines for Parallel Transmission
- Small Connector Size

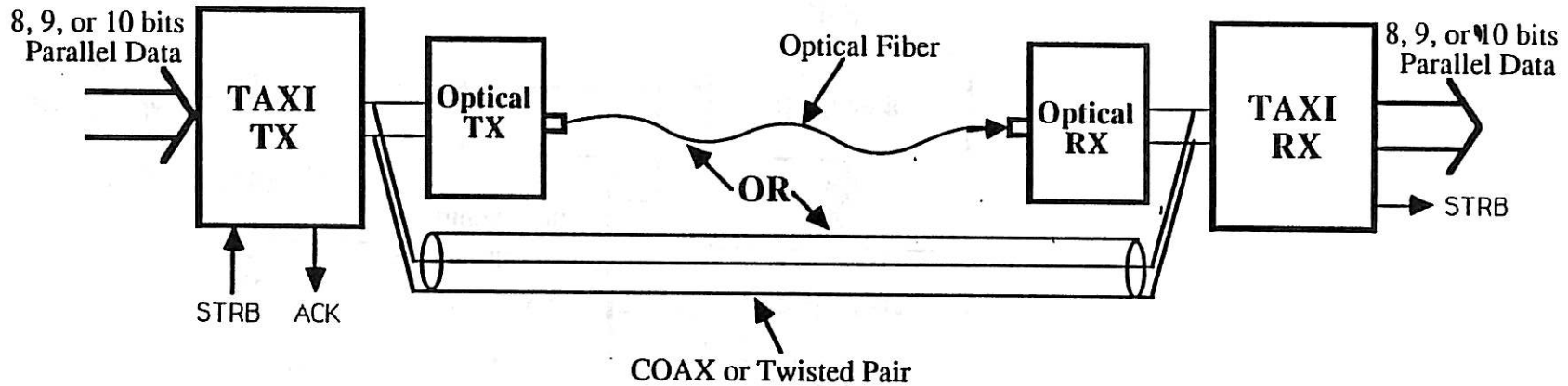
611

Issues/Requirements of the Serial Link

- Embedding and Recovering Clock → PLL Circuitry/Coding
- Bit and Byte (word) Alignment at Receiver → SYNC Symbols
- Filling Gaps Between Data → Idle Symbols

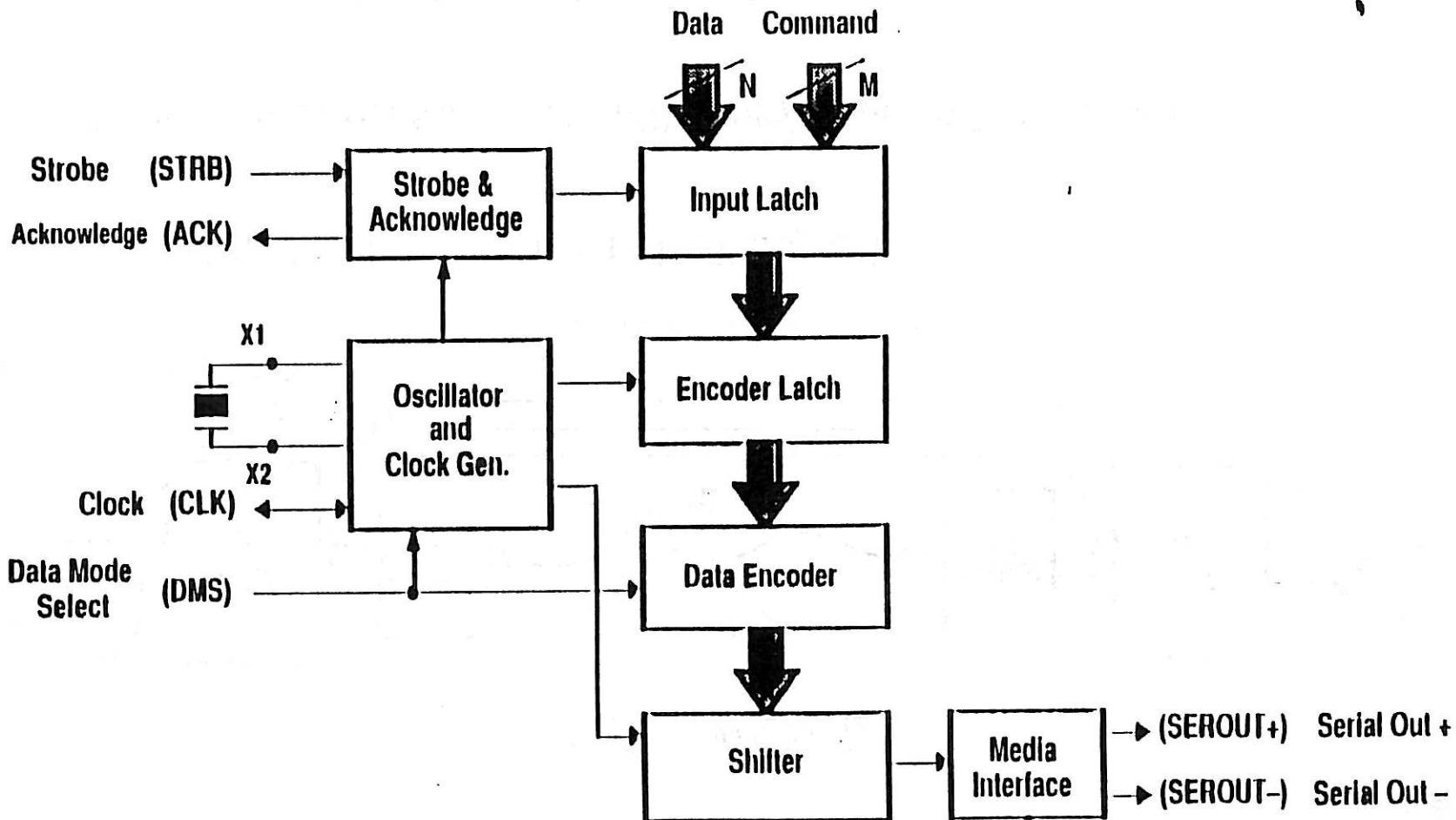
128

The TAXIchip Set

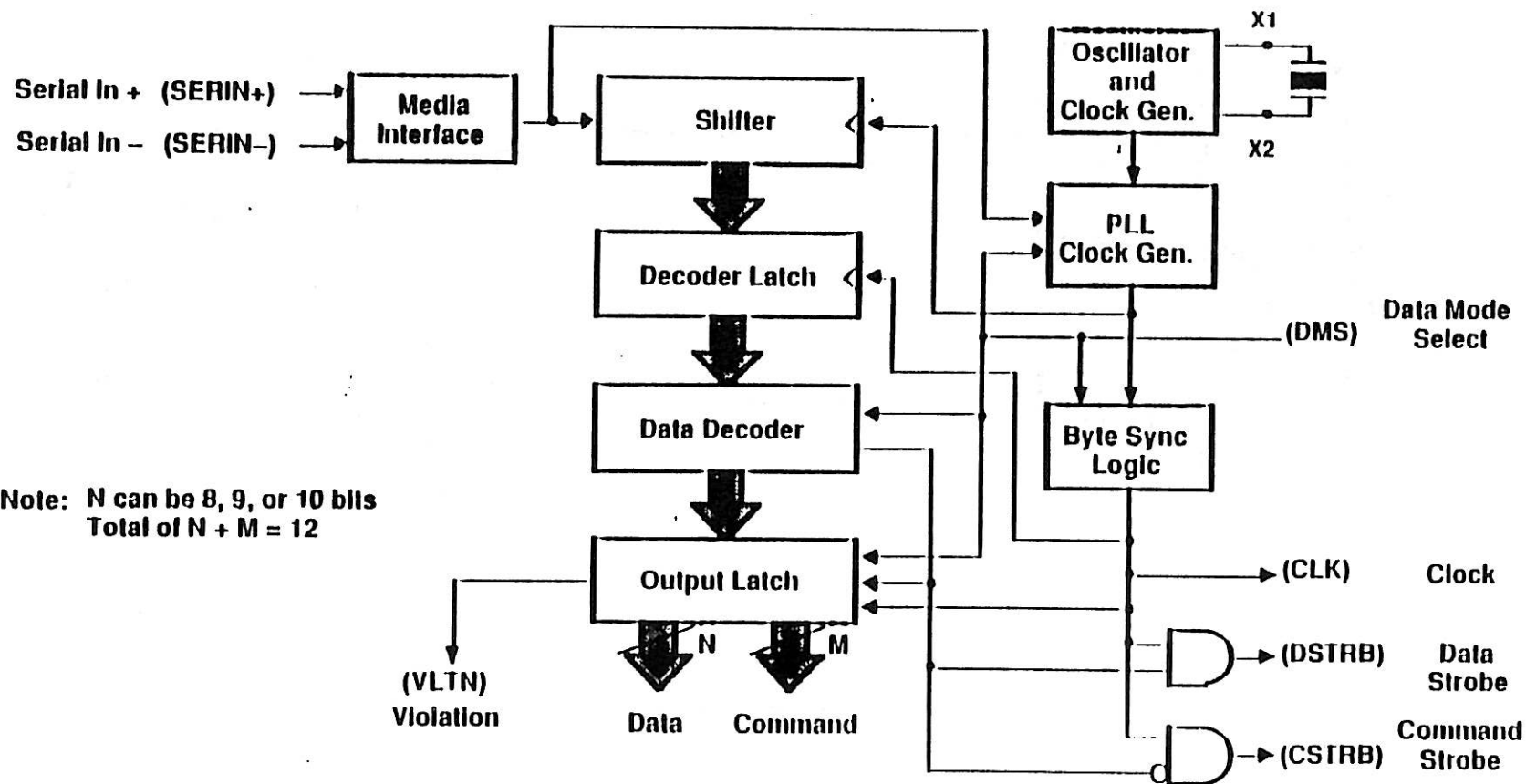


- Parallel, TTL Bus Interface, 4 to 17.5 Mbytes/sec
- Transparent Serial Link, 32 to 140 Mbits/sec (40 to 175 Mbaud)
- Simple STROBE/ACK Handshake at Transmitter
- Serial Side Easily Interfaces to Coaxial or Twisted Pair Cable, or Optical Components

TAXI Transmitter Block Diagram



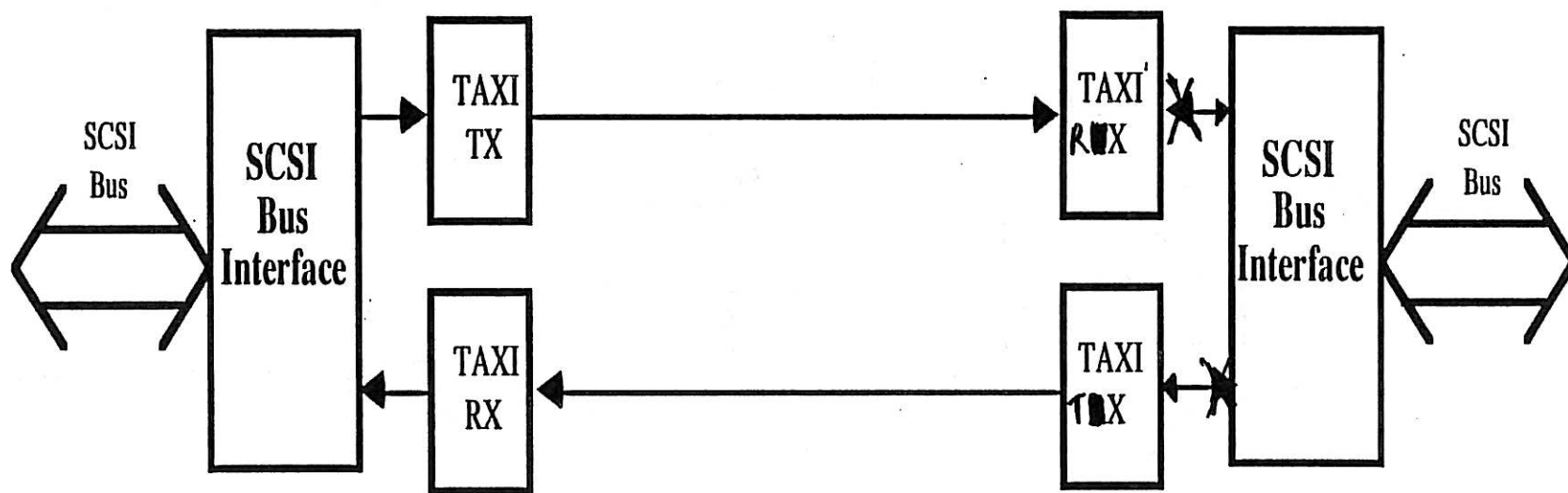
TAXI Receiver Block Diagram



Note: N can be 8, 9, or 10 bits
Total of N + M = 12

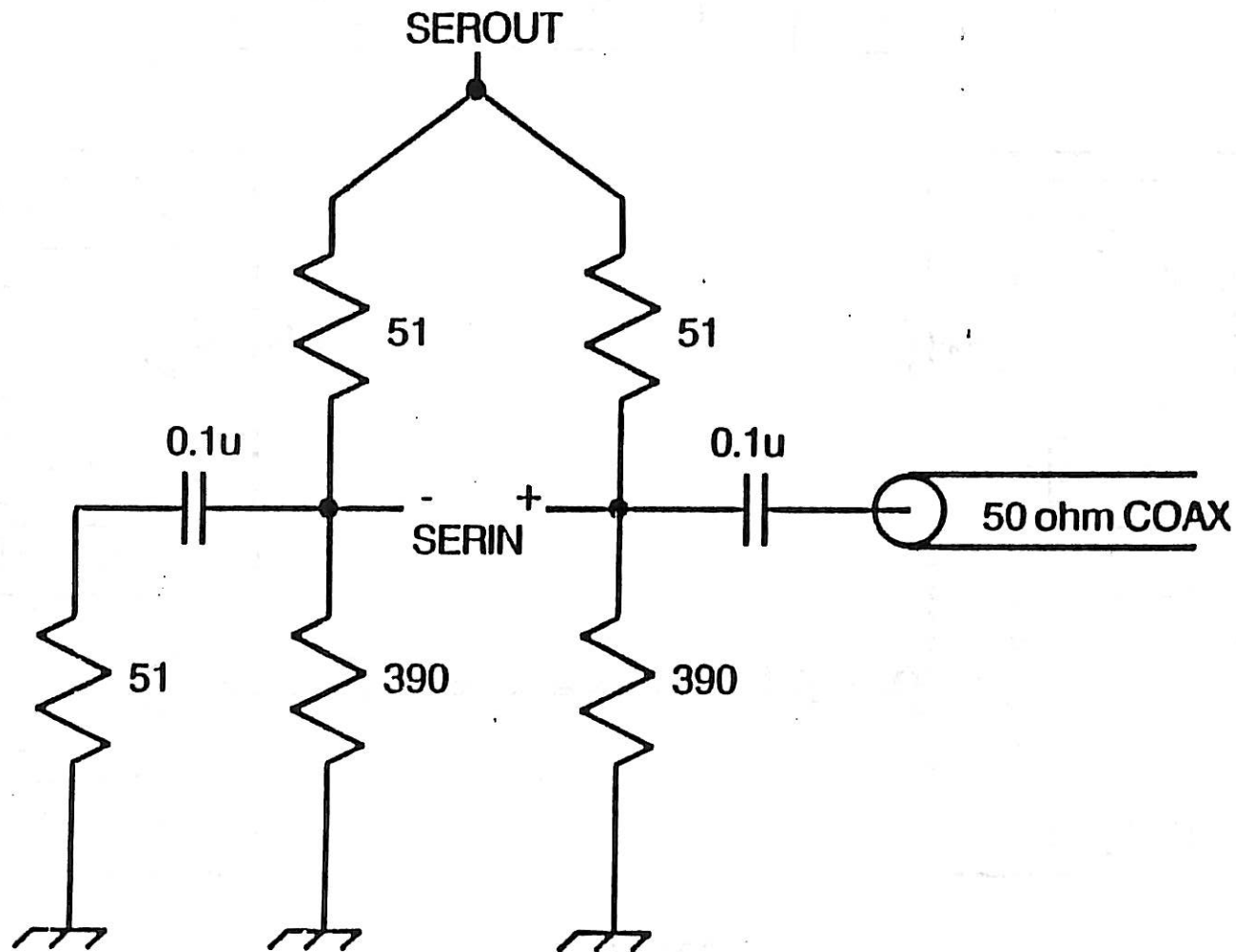
123

Serial SCSI



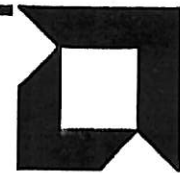
127

Passive Bridge Circuit



- Allows for Full-Duplex Transmission over Single COAX

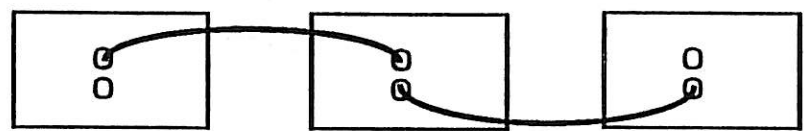
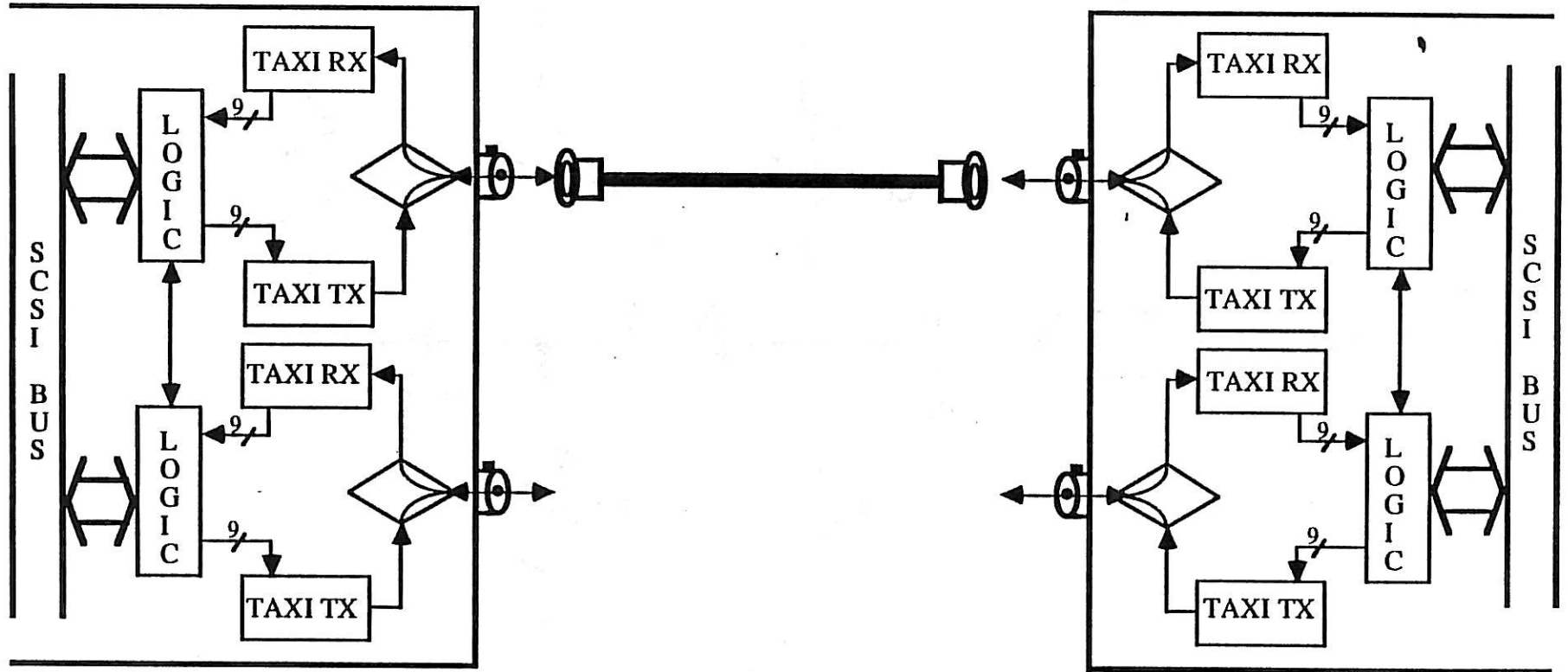
AMD



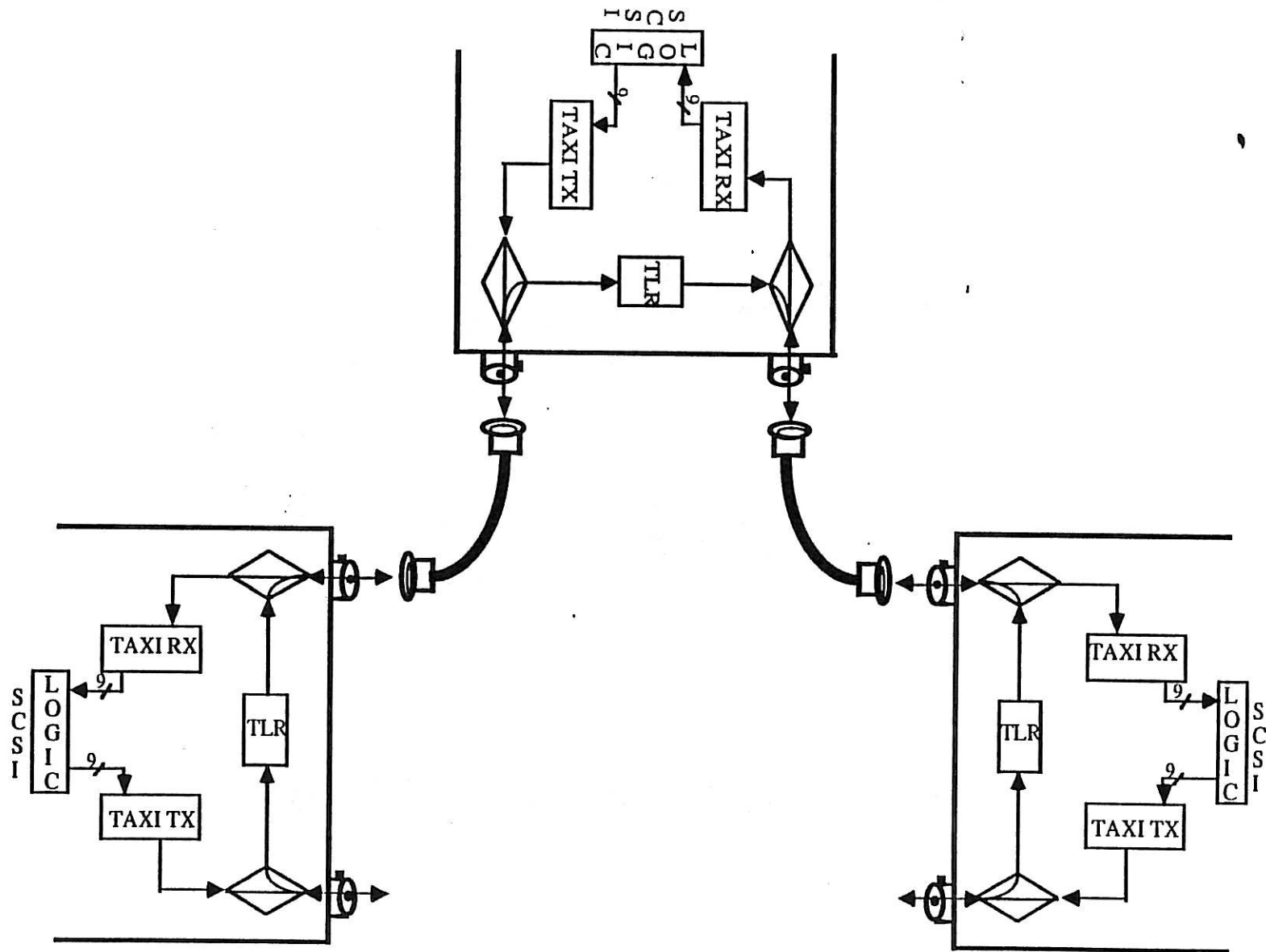
125

COAX SCSI

126

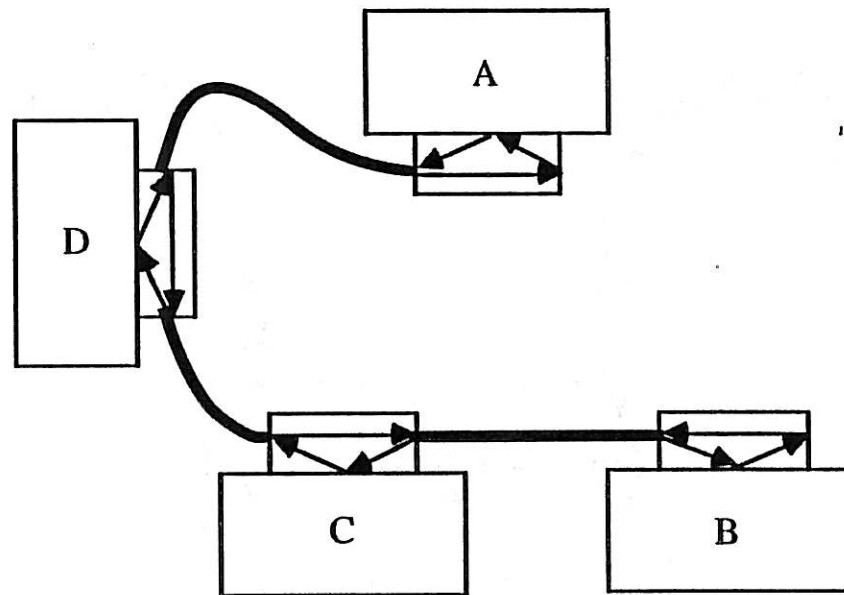


Linear Bus, Logical Ring Topology



AMD

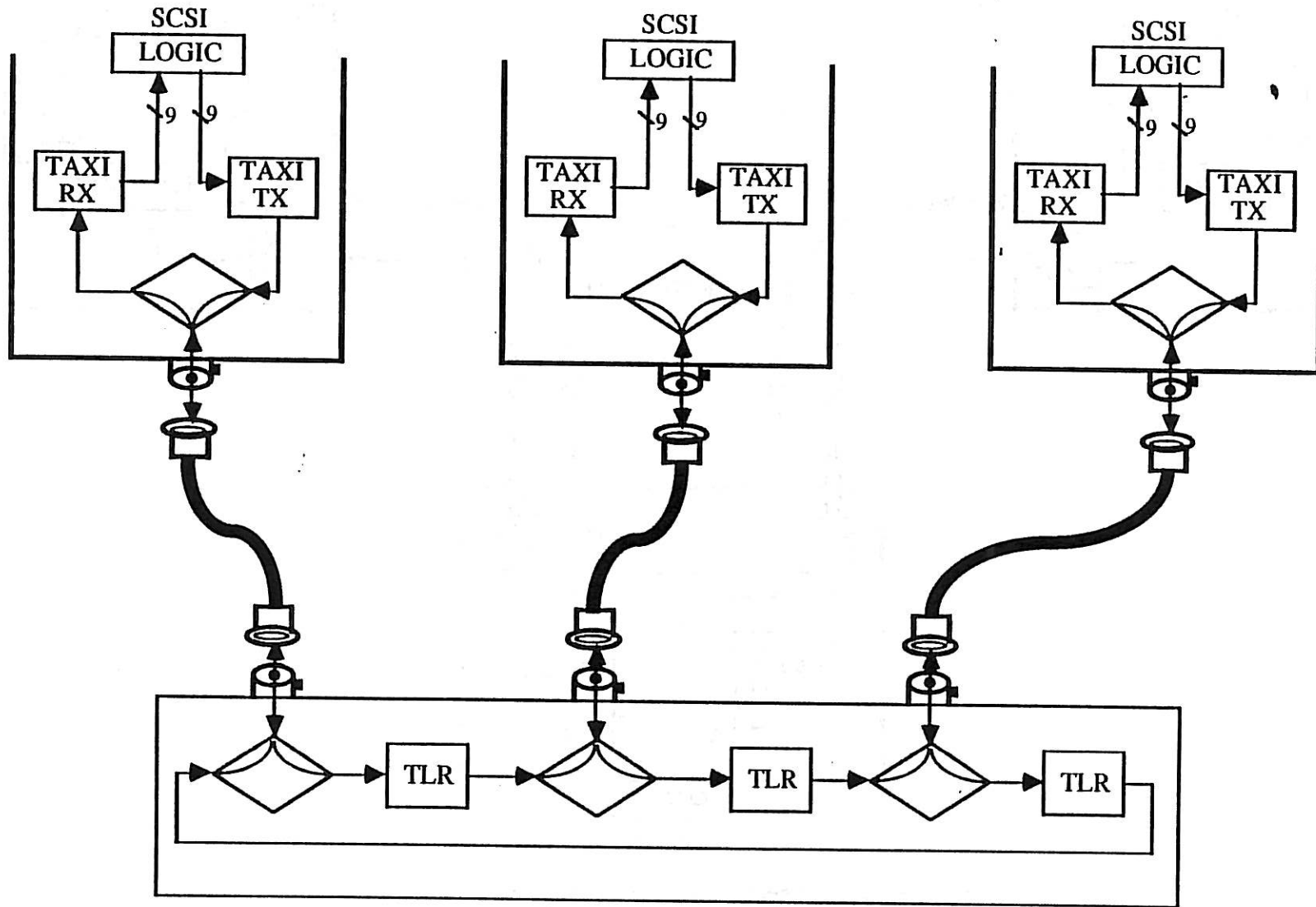
Linear Bus, Logical Ring Orientations



- Connector choice determines Logical Orientation

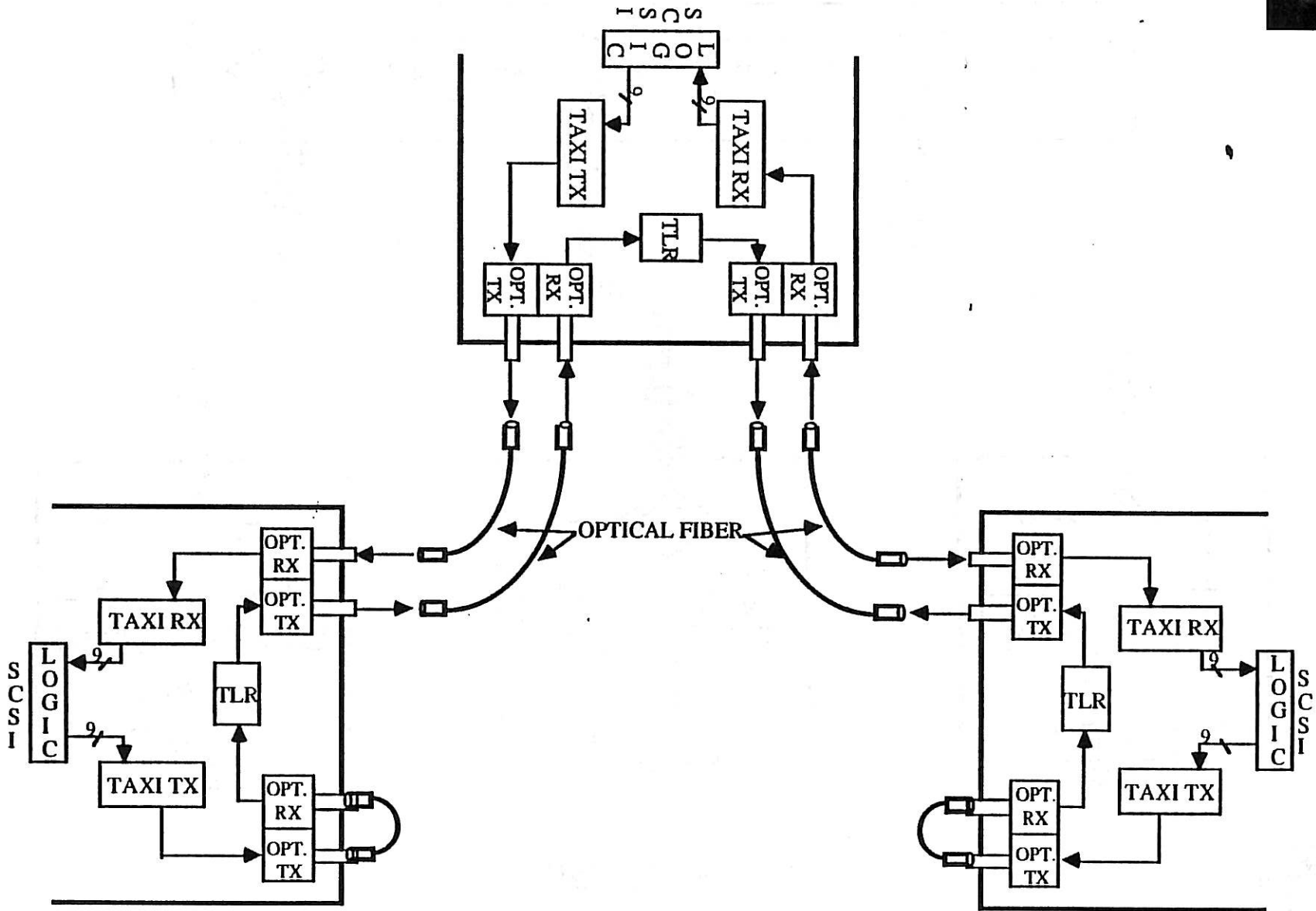
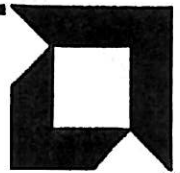
128

Star Topology



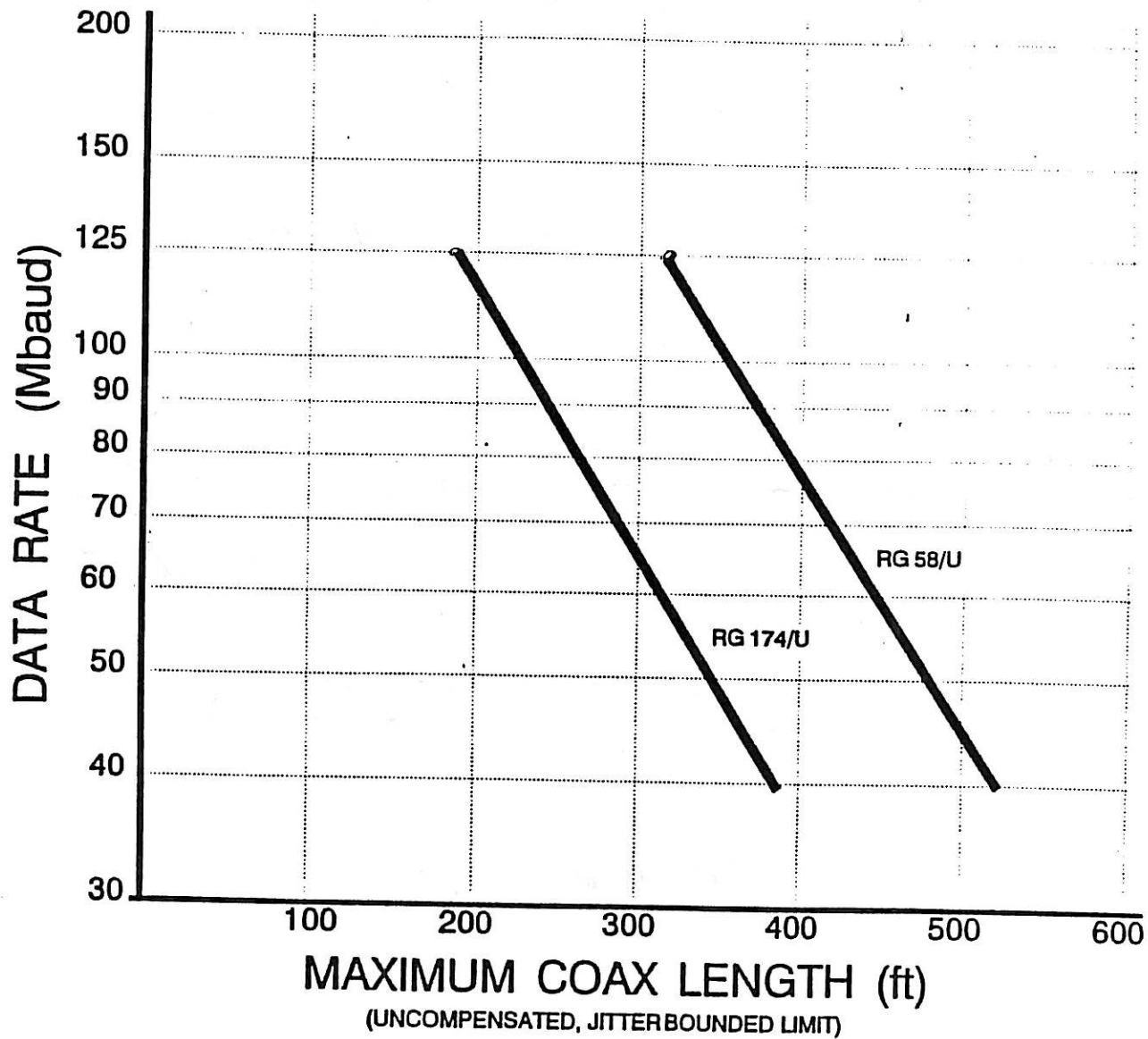
129

Optical Linear Bus, Logical Ring



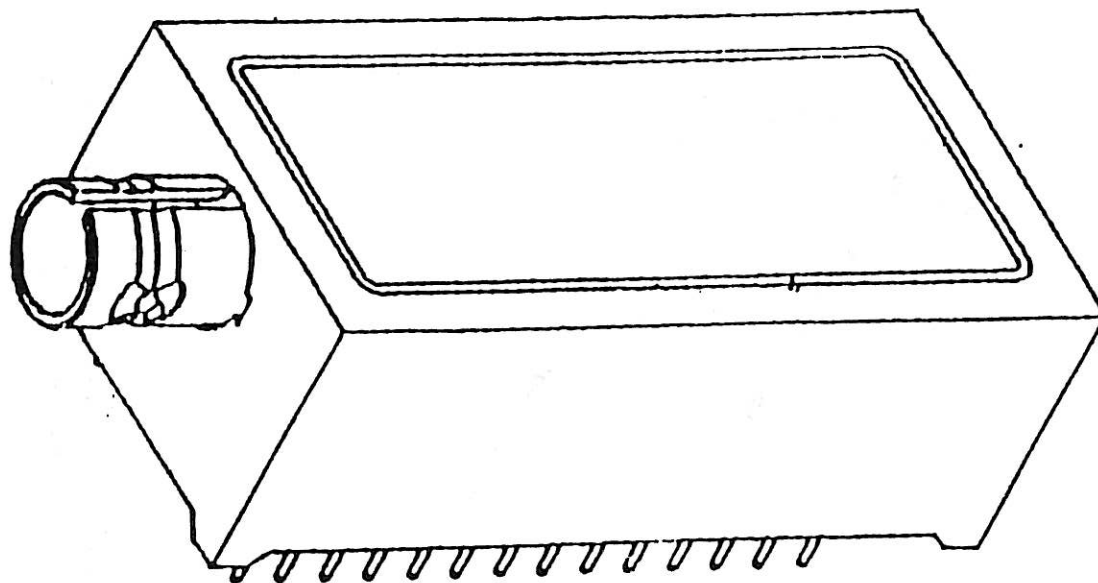
130

TAXI COAX LIMIT



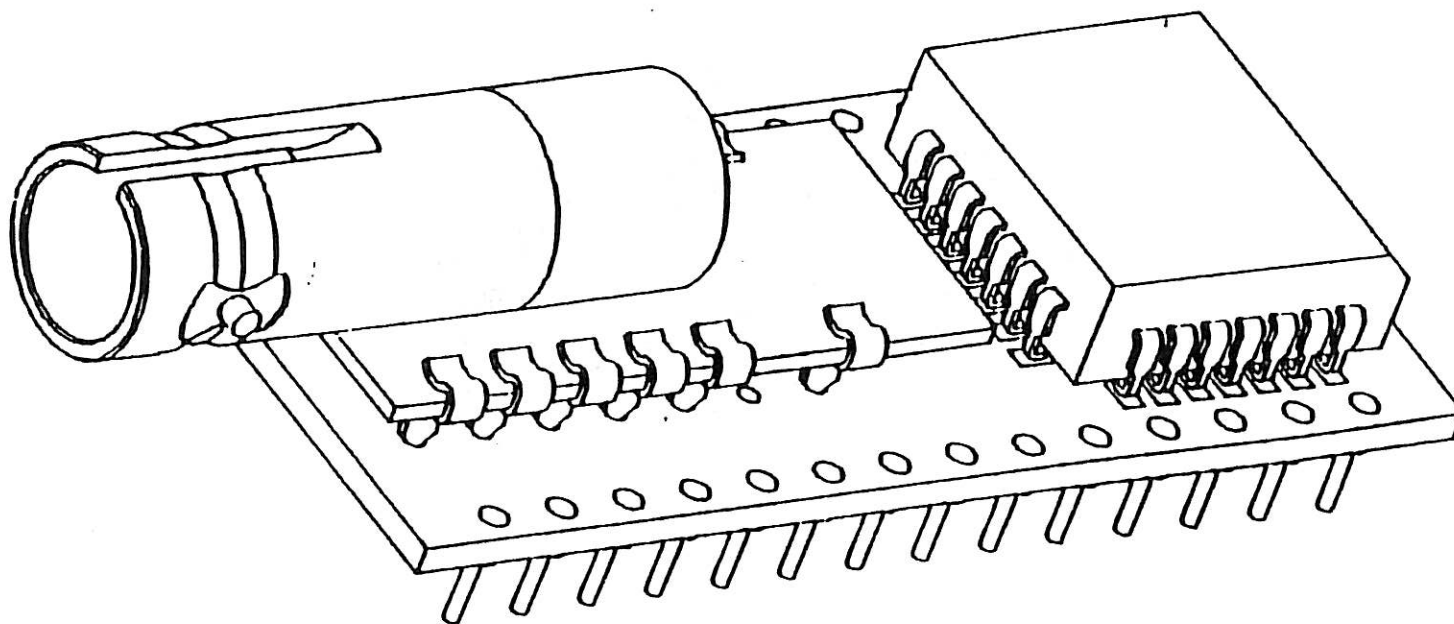
131

FOXI Components

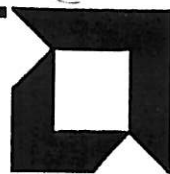


- Contains TAXI and Optical Components Packaged Together

FOXI Open Assembly

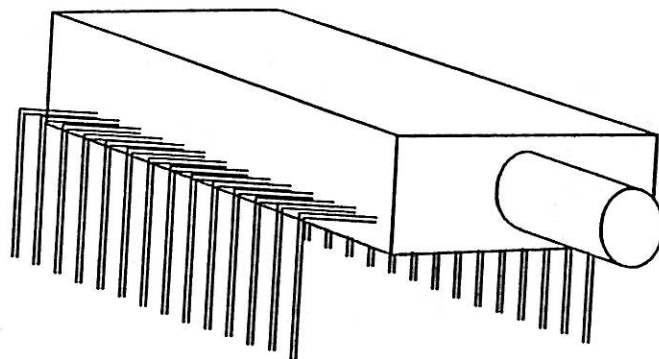


AMD



133

Future

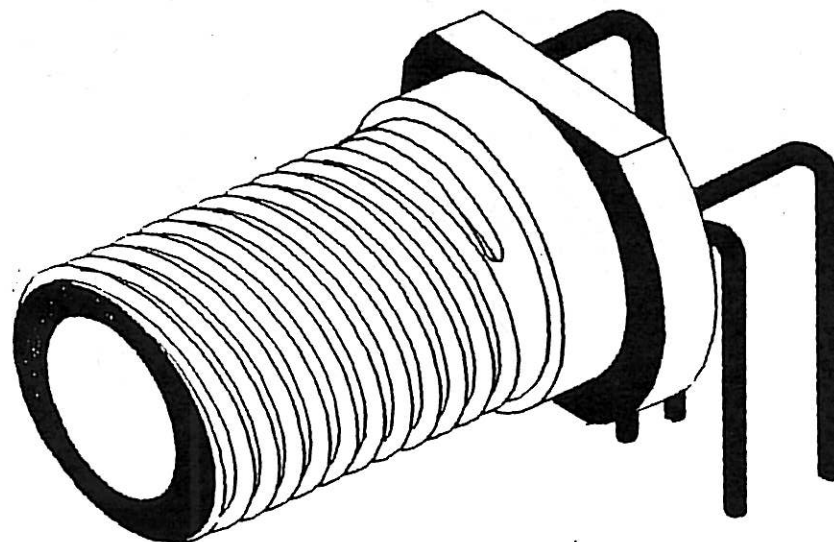


- Plastic, Injection Molded Package

- LOW COST !!

134

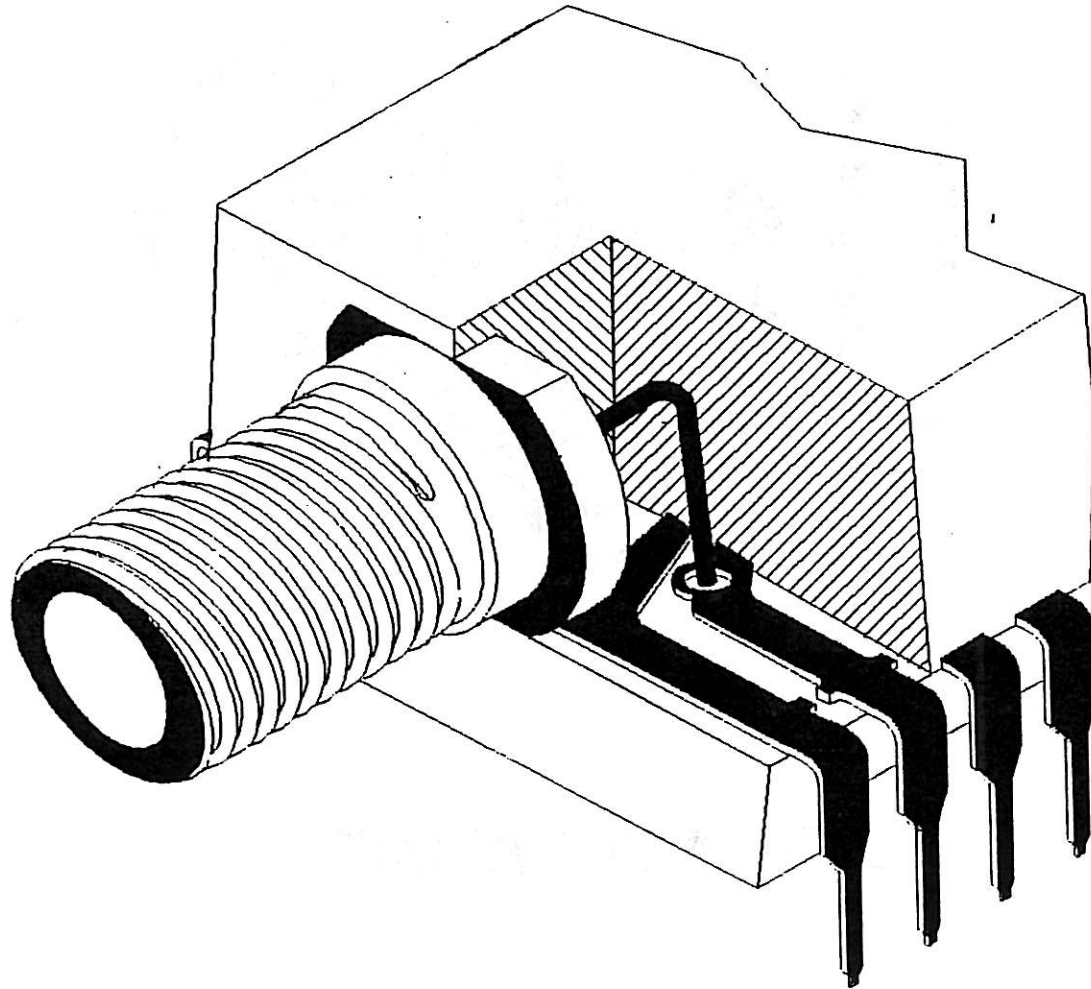
ACTIVE DEVICE MOUNT



AMD

135

ADM IN MOLDED PACKAGE



136

AMD