

## Ethernet to ATM Adaptation

### INTRODUCTION

GDC's Xedge ETH is a high performance Ethernet to ATM adaptation controller designed to provide Virtual LAN services over an ATM backbone for point-to-point and point-to-multipoint Ethernet bridging. The Xedge ETH controller provides four physical ports of the Ethernet 10Base-T twisted pair interface.

This interface supports Ethernet attachments that can be programmed within the switch software to act as any combination of a one- two-, three- or four-port Ethernet bridge. For example, each of the four ports can be configured:

- as a separate Ethernet bridge (allowing a Service Provider to service connections from four customers on a single I/O controller)
- as two Dual Port Ethernet bridges (local bridging plus an ATM uplink into the network), or
- as a Quad Port Ethernet bridge with an ATM uplink into the network

### Connectivity and Compatibility

The Xedge ETH plugs into a single slot of an Xedge AC- or DC-powered shelf: Xedge 6160 (4 slots), the 7-slot Xedge 6280, or the 16-slot Xedge 6640/6645 shelves. The Xedge ETH is intended for use with the Xedge QT line interface module (QTLIM).

Each ATM connection supporting the Ethernet service within the network may be either a PVC or an SPVC. If an SPVC, then the circuit is protected and will be automatically rerouted if there is a network failure.

The Ethernet to ATM Slot Controller can also be used within the switch to provide a dedicated shelf controller for those customers wishing to fully protect the Xedge node against component failure.

### Diagnostics

Diagnostics are provided via status LEDs for all ports, diagnostic screens for all faults, and Local and Line Loopbacks. Management interfaces include:

- Standard SNMP
- MIB management
- GDC's ProSphere Network Management System

### FEATURE HIGHLIGHTS

- Four independent 10 Mbps Ethernet ports
- Per port virtual LANs
- High performance learning bridge
- Spanning Tree per bridge and traffic shaping per VCC
- Four soft programmable local Ethernet bridges
- Standards compliant IEEE 802.3 RFC1483 LAN over ATM encapsulation
- Up to 128 ATM/Ethernet connections per controller

### Compliance & Interoperability

The Ethernet frame within the ATM network is encapsulated within a RFC1483 compliant Protocol Data Unit (PDU) using AAL5 adaptation and has been shown to be interoperable with similar equipment from other vendors.

The Ethernet controller additionally supports spanning tree and traffic shaping features to provide resilient Ethernet networking.

### Closed User Group Isolation

The Xedge ETH controller software enables the complete isolation of each port, ensuring that a Closed User Group is maintained within each customer's Virtual LAN environment. This capability also ensures that there is no possibility of data leakage from one customer LAN segment to another.

**ETH****FLT**  
**RUN****LINK 0****RX**  
**UP**  
**TX**  
**ERR****LINK 1****RX**  
**UP**  
**TX**  
**ERR****LINK 2****RX**  
**UP**  
**TX**  
**ERR****LINK 3****RX**  
**UP**  
**TX**  
**ERR**