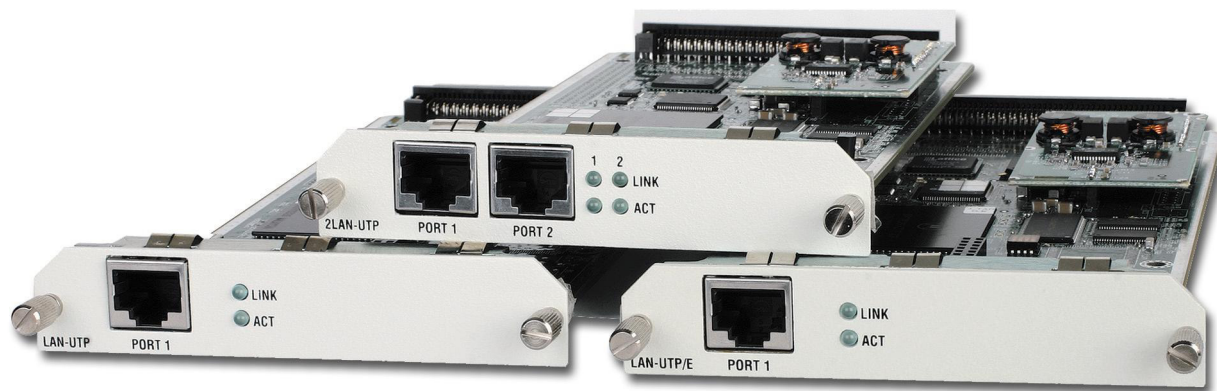




## Ethernet/Fast Ethernet Modules



# ACE

### FEATURES

- Auto-negotiating Ethernet/Fast Ethernet port
- Bridging and IP routing over ATM according to RFC 1483
- Support both Ethernet 802.3 and 802.1d packet format
- Switching of LAN traffic between LAN port and ATM VCCs
- Layer 2 and 3 priority mapping to ATM QoS
- VLAN ID to ATM VCC mapping
- Static and dynamic routing (RIP I/II)
- Up to 123 LAN to ATM connections per LAN port
- Availability of hybrid LAN and CES modules

### DESCRIPTION

- The LAN modules offer bridging and routing capabilities (dual LAN module offers bridging only). The Ethernet frames and IP packets are converted to ATM using RFC 1483 encapsulation.
- In bridging mode, the LAN modules act as a layer 2 switch between the LAN and the ATM VCCs. The transparent bridging function performs automatic MAC address learning (up to 2048 addresses) and aging. In star applications (see *Figure 1*), the LAN modules switch between LANs located at remote sites.
- The LAN modules support mapping of VLAN frames to ATM VCCs based on the VID according to IEEE 802.1Q.
- VLAN tagging based on IEEE 802.1p enables marking frames in the LAN environment with different priorities (up to 8 levels). ACE-2002/2002E/202 map frames with various priorities into different VCCs for distinguishing between QoS levels.
- In routing mode, the LAN modules act as IP routers with the ATM VCCs and the LAN port as interfaces. Full router functionality is supported, including default gateway and ARP. The routing tables can be updated manually (static) or automatically, using the RIP-I/II dynamic routing protocols.
- The LAN modules perform routing based on IP addresses and tagged Type of Service (ToS) bytes. This means that if the LAN devices are able to set the ToS byte (in accordance with relevant standards), the ACE-2002/2002E/202 LAN modules can translate the information into ATM QoS.
- Bridging mode is configurable on LAN modules in all slots, while routing mode is available only on one LAN module per chassis.
- Several types of modules with various options of LAN and CES ports are available. See *Ordering*.

# LAN

## Ethernet/Fast Ethernet Modules

### SPECIFICATIONS

- Standards**  
 Ethernet standard IEEE 802.3, 802.1Q, 802.1p and 802.1D
  - Data Rate**  
 Electrical: 10/100 Mbps, half/full-duplex  
 Optical: 155.52 Mbps
  - Connectors**  
 Electrical: RJ-45 8-pin  
 Optical: LC
  - Typical Distance\***  
 Electrical  
 Up to 100m/328 ft using UTP category 5 cables  
 Optical  
 2 km/1.25 miles (multimode)  
 15 km/9 miles (single mode)
  - Wavelength**  
 1310 nm
  - Optical Output**  
 Multimode: -19 to -14 dBm  
 Single mode: -15 to -8 dBm
  - VLAN MAC Learning Mode**  
 Independent VLAN Learning (IVL) for the LAN modules  
 Shared VLAN Learning (SVL) for the ETH modules
- \* Typical optical distance is calculated using common peripheral equipment and environment conditions. It may therefore vary according to user specific equipment and environment conditions.

### ORDERING

#### ACE-M/+

ACE-2002/2002E/202 modules:

- + Specify module interface:
  - LAN-UTP** for an Ethernet/Fast Ethernet port, RJ-45 connector
  - LAN-UTP/D** for a dual Ethernet/Fast Ethernet port, RJ-45 connector (ACE-2002E only)
  - LAN-UTP/E** for an Enhanced performance Ethernet/Fast Ethernet port, RJ-45 connector
  - LAN-LC13L** for a Fast Ethernet port, 1310 nm single mode fiber, LC connector
  - LAN-LC13L/D** for a dual Fast Ethernet port, 1310 nm single mode fiber, LC connector (ACE-2002E only)
  - LAN-LC13L/E** for an Enhanced performance Fast Ethernet port, 1310 nm single mode fiber, LC connector
  - LAN-LC13M** for a Fast Ethernet port, 1310 nm multimode fiber, LC connector
  - LAN-LC13M/D** for a dual Fast Ethernet port, 1310 nm multimode fiber, LC connector (ACE-2002E only)
  - LAN-LC13M/E** for an Enhanced performance Fast Ethernet port, 1310 nm multimode fiber, LC connector

### APPLICATIONS

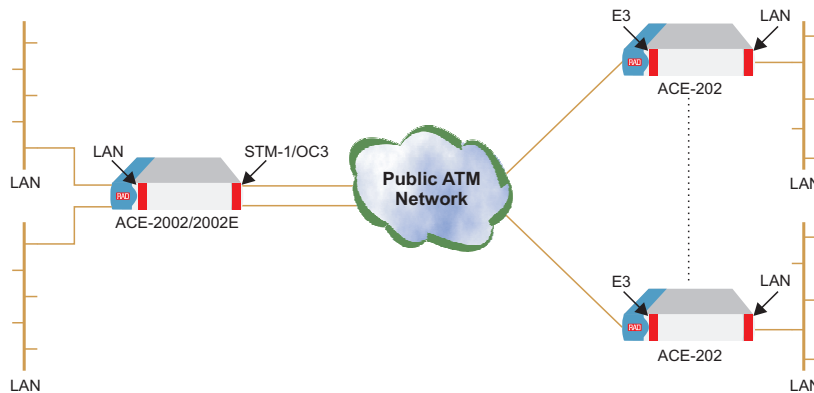


Figure 1. Multiple Branches Star Topology

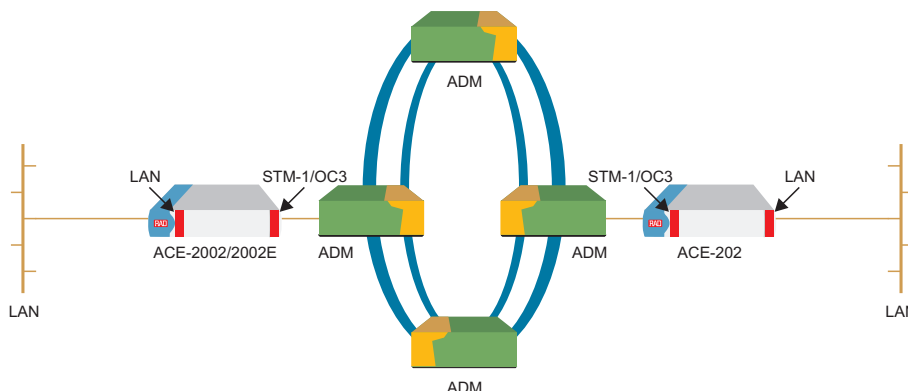


Figure 2. Point-to-Point LAN Extension over SDH/SONET



data communications

www.rad.com

- International Headquarters**  
 24 Raoul Wallenberg Street  
 Tel Aviv 69719, Israel  
 Tel: (972) 3-6458181  
 Fax: (972) 3-6498250, 6474436  
 Email: rad@rad.com
- U.S. Headquarters**  
 900 Corporate Drive  
 Mahwah, NJ 07430  
 Tel: (201) 529-1100  
 Toll free: 1-800-444-7234  
 Fax: (201) 529-5777  
 Email: market@radusa.com

123-103-02/04