



# Remote Access Solutions

## Overview

Accessing the corporate network from branch offices, road warriors, or telecommuters use a variety of mechanisms. Each type of users selects from several methods or services such as dialup modems, ISDN, or leased lines (SNA, Frame Relay). It is key to have products flexible enough to meet market differences between geography's.

**REMOTE ACCESS SERVER ADAPTERS** combine IBM technology and leading industry standard modem technology to give you the essential components you need to build open-platform, remote-access concentrators.

Remote access applications (modem and ISDN connectivity) can be implemented on Netfinity servers using standard operating systems and communications packages such as:

- Microsoft BackOffice
- Microsoft Routing Remote Access Server
- IBM Communications Server
- Citrix WinFrame
- Windows-based terminal server

High-performance interface maximizes Netfinity CPU power for application usage.

The information in this release is not to be disclosed prior to announcement on 01/19/99.

K. R. Barry  
General Manager, PSG Options





## IBM ISDN Basic Rate Adapter

### Product Overview:

The IBM ISDN BASIC RATE SERVER Adapter is a four port adapter with integrated modem support for remote access servers. The ISDN BASIC RATE SERVER adapter provides V.90 Modem support based on the daughter card design. The ability to build low end remote access servers with the ability to support both analog, V.90 and ISDN calls is a competitive advantage. The ISDN BASIC RATE service is the predominate method used by Internet Service providers and corporations install remote access equipment. The ISDN Basic rate adapter allows customers to implement remote access with standard non proprietary hardware and software such as Netfinity servers, Microsoft Remote Access Software.

## ISDN Primary Adapter

### Product Overview:

The IBM ISDN PRIMARY RATE Adapter is a single port adapter with integrated modem support for remote access servers. The ISDN PRIMARY RATE card provides scaleable modem based on the daughter card design. The ability to scale number of modems installed is a requirement from the European market which has less dependency on analog remote assess due to the predominance of ISDN. The ISDN PRIMARY service is the predominate method used by Internet Service providers and corporations install remote access equipment. The ISDN Primary card allows customers to implement remote access with standard non proprietary hardware and software such as Netfinity servers, Microsoft Remote Access Software.

### Hardware Highlights

- ISDN PRIMARY RATE SERVER Adapter with integrated V.90 modem support
- Analog, V.90, and ISDN calls supported
- 4 BRI ISDN PORTS, (8-64KBPS or 8-V.90 Modem Data Channels)\Lines can be independently configured for multiple protocol and traffic type.
- MVIP interface (256 full-duplex 64 Kbps channels)
- Data Transfer 32 – bit
- Bus Access – Zero Wait-state
- 4 RJ45 Connectors
- Data Compression
- Onboard IBM PowerPC 403 80 mip processor
- 8 MB RAM
- U and S/T interface versions

- Expandable Bandwidth (64KBps/128Kbps or Nx64 up to 8 channels)
- Short hold mode
- Single slot PCI 2.1 compliant design
- Supports multi processor server platforms
- All protocol stacks run on the adapter for increased performance

### Software highlights

- Support for IP/IPX on multiple WAN protocols with Routing and remote access servers
- Independently configured B channel protocols
- X.25 for remote access support
- I<sub>2</sub>O Ready
- HDLC
- SNA Support
  - SNA over Frame Relay, SDLC and X.25/QLLC with SNA server
  - 802.2 LLC type 2 (LLC2) emulation over Frame Relay
  - SNADIS driver for Microsoft SNA Server support
- High speed Internet/Intranet Access connectivity
- Automatic Hardware detection
- Operating system support for Windows NT, OS/2, Novell, and Unixware 7.0.
- Software downloadable features
- Software downloadable firmware
- Diagnostic software with protocol analyzer
- ISDN Client Adapter independent including AVM, Eicon, SAT, Interphase/Synaptel and ITK
- B Channel Protocol
  - HDLC, TCP/IP, ML-PPP, IPX/SPX, RRAS, PAP & Chap Authentication
  - RRAS with Radius Agent Tunneling – PPTP, Frame Relay (T1/E1), NETBeui, NETBeui on IP, PPP (T1/E1)

### D Channel

NI-1 (North America), NI-2, 5ESS AT&T, E-DSS1 (Euro-ISDN)

### Driver Support

Microsoft Windows NT 4.0  
NDIS Driver for T1/E1  
NDIS4 driver for NT4.0  
IP/IPX over PPP (on-board PPP)  
IP/IPX over X.25  
IP/IPX over Frame Relay  
NDISWAN Miniport Driver for Windows NT  
RAS and RRAS  
SCO UnixWare V 7.0  
OS/2  
Novell

### Software configurable CSU

Software selectable on/off  
Long Haul/ Short Haul  
Selectable Line Code (AMI, B8ZS)  
Selectable Framing (ESF, D4)  
Configurable Signal Level Attenuation (LBO)  
Loopback Testing



## PPP

Point-to-Point (RFC1618, RFC1661, RFC1662, RFC1663, RFC1570, RFC1333)  
PAP, CHAP authentication (RFC1334)  
Multi-Link Protocol (RFC1717)  
IP and IPX (RFC1332, RFC1552)

## X.25

ISO8208, ISO7776, ITU-T X.25  
Frame size to 2048 bytes  
Up to 256 VCs  
IP and IPX over X.25 (RFC1356)

## Frame Relay

Link Management Interface UNI: UI ANSI T1.617 Annex D, UI IUT-T Q.933 Annex A or I  
Data link Layer IUT-T Q.922/ANSI T1 618  
User side of the User to Network Interface  
PVC support (up to 976 user's DLCIs)  
DLCI management (user defined and automatic)  
Unicast  
Frame size to 4096 bytes  
Quality of Service management (CIR, Bc, Be, T)  
Congestion Management (BECN, FECN, DE)  
IP and IPX over Frame Relay (RFC1490)

## Standards Compliance

- UL1950, CSA-C22.2 950 safety
- FCC Class A, Part 15
- IC CS-03
- Microsoft certification: hardware compatibility as a card/device (vs. system)

## Operating Environment

- Temperature 0 to 55°C
- Relative Humidity 5% to 95% non-condensing
- Altitude 0-12,000 ft
- Power Consumption 1.5A @ 5V DC

## Physical Specifications (more to come)

- Half size PCI 2.1
- Length 174.63 mm
- Width 106.68 mm
- Weight 175 grams
- Indicators Line Activity

## Warranty

- Warranty Period: 3 year

## Benefits and solutions

- Implementing Remote Access servers using non proprietary hardware and software
- Provide broad range of connection options for extending customers LAN networks to the remote access location
- Single supplier for platform and network interface attachment.
- Increases eNetwork functionality
- Provides single service capability for both Analog and Digital remote

## The ISDN PRIMARY + Basic Rate Interface Adapters

are supported primarily in the Windows NT environment. Although other operating system may be supported, the predominate business growth is in the Microsoft NT environment. The card is designed for wide area interfaces connections using off the shelf software communications programs from Microsoft and IBM. The versatility of the adapters allows the customer to scale the amount of modem and the intelligent adapter provides for off loading much of the communications protocol interface to the adapter.



## SynWatch Utility

SynWatch is a protocol analyzer which allows you to watch frames exchanged between the OBI RAS adapter and the ISDN network. This utility will help you follow communication establishment on the ISDN D channels, as well as data traffic on the ISDN B channels. SynWatch gives you diagnostics of ISDN connection failures, and will help you discover PPP connection failures (for example, PPP negotiation using Remote Access Service).

SynWatch is able to interpret exchanged frames according to several protocols (Remote Access Service uses the PPP protocol), and to display them according to protocol.

Each ISDN channel has a standalone configuration and can be selected or deselected.

## LoopTest Utility

The LoopTest utility allows you to quickly and easily check your ISDN line. It checks for electrical problems, hardware connectivity, and ISDN compatibility problems.

It test the adapter's ISDN line by establishing 2 ISDN B channels in a loopback connection. One channel is set up to accept incoming calls, and the other channel calls the first one.

When the connection is established, data is sent on one channel, and checked when received by the other channel. At the end of the test, the utility stops the communication. If there is an error, LoopTest displays a warning and stops the communication.

## Need more information?

IBM Reseller and General Information  
United States (800) 426-9735 ext. 4752  
Canada (800) 465-7999

IBM Fax Information Service  
United States (800) IBM-3395  
Canada (800) IBM-3395

World Wide Web  
[www.ibm.com/pc/is/](http://www.ibm.com/pc/is/)  
Business Intelligence  
[www.software.ibm.com/data/busn-intel](http://www.software.ibm.com/data/busn-intel)

Technical Support  
United States (800) 426-7378  
Canada (800) 426-7378

(c) International Business Machines Corporation

IBM Personal Systems Group  
Department D7VA  
3039 Cornwallis Road  
Research Triangle Park, NC 27709