Advanced Communications Riser Special Interest Group

ACR SIG Charter

To develop an open specification for a new and advanced PC communication riser card providing a common architecture for analog modem, Ethernet, phoneline and wireless networking, DSL, and audio functions

The ACR SIG is an open, not-for-profit organization of adopters from the microcomputer industry

ACR SIG Members

- **Includes technology leaders in**
  - **Processor design**
  - **PC motherboard chipset**
  - **DSP**
  - **Networking**
  - **Communications**

ACR SIG Members

- 3Com
- ALi
- AMD
- ArchTek Telecom
- Askey Computer
- AsusTek Computer
- CastleNet Technology
- Conexant
- D-Link
- Elite Group Computer Systems, Co.
- ESS Tech
- Giga-Byte Technology
- IC Ensemble
- ICS
- KC Technology, Inc.
- Lucent
- MicroStar Inc. (MSI)
- Motorola
- Nu Vision Technology, Inc.
- nVidia
- Ocean Manufacturing
- PCTEL
- Phoenix
- SigmaTel
- Smart Link
- Standard Microsystems (SMSC)
- Tech Gen Inc.
- TI
- T-Square Design
- Turbocomm Tech.
- VIA
- WELL Communication
- Wolfson Microelectronics

The Need for a New Riser

- To reduce communications peripheral development costs and form factor size requirements
- To answer demand for emerging and new communications technologies
- To accommodate the communications technology advances while mitigating the impacts of a standards change
- To allow multiple generations of core logic, peripheral components, and software emulators to implement a specification without frequent motherboard architecture changes

ACR SIG Objectives

- **Lower cost of high-performance communications through integration**
  - **Reduce cost to integrate analog modem, broadband, LAN and audio**
  - **Riser combo functionality frees up PCI slots**
  - **Uses an existing high-volume, low-cost 120 pin PCI A-stagger connector**
  - **ACR risers receive industry and agency approvals independent of motherboards, accelerating time to market**

ACR SIG Objectives

- **Multiple Codec/PHY interfaces**
  - **Simultaneously support AMR, multiple network interfaces, and a DSL interface on a single riser card**
- **Define new communication buses**
  - **The new Integrated Packet Bus (IPB) allows implementation of traditional controller-based, controllerless or host-based solutions for communication technologies**

ACR SIG Objectives

- **Advance Communications Integration**
  - **Allows diverse and scalable communications, networking and audio functions in a flexible combination of hardware and software cores**
  - **Enables a single RJ-11 jack for all phoneline-based communication schemes**
    - **Analog modem, HomePNA, and DSL**
  - **Preserves choice in selection of discrete silicon components to promote industry innovation and product differentiation**

ACR SIG Objectives

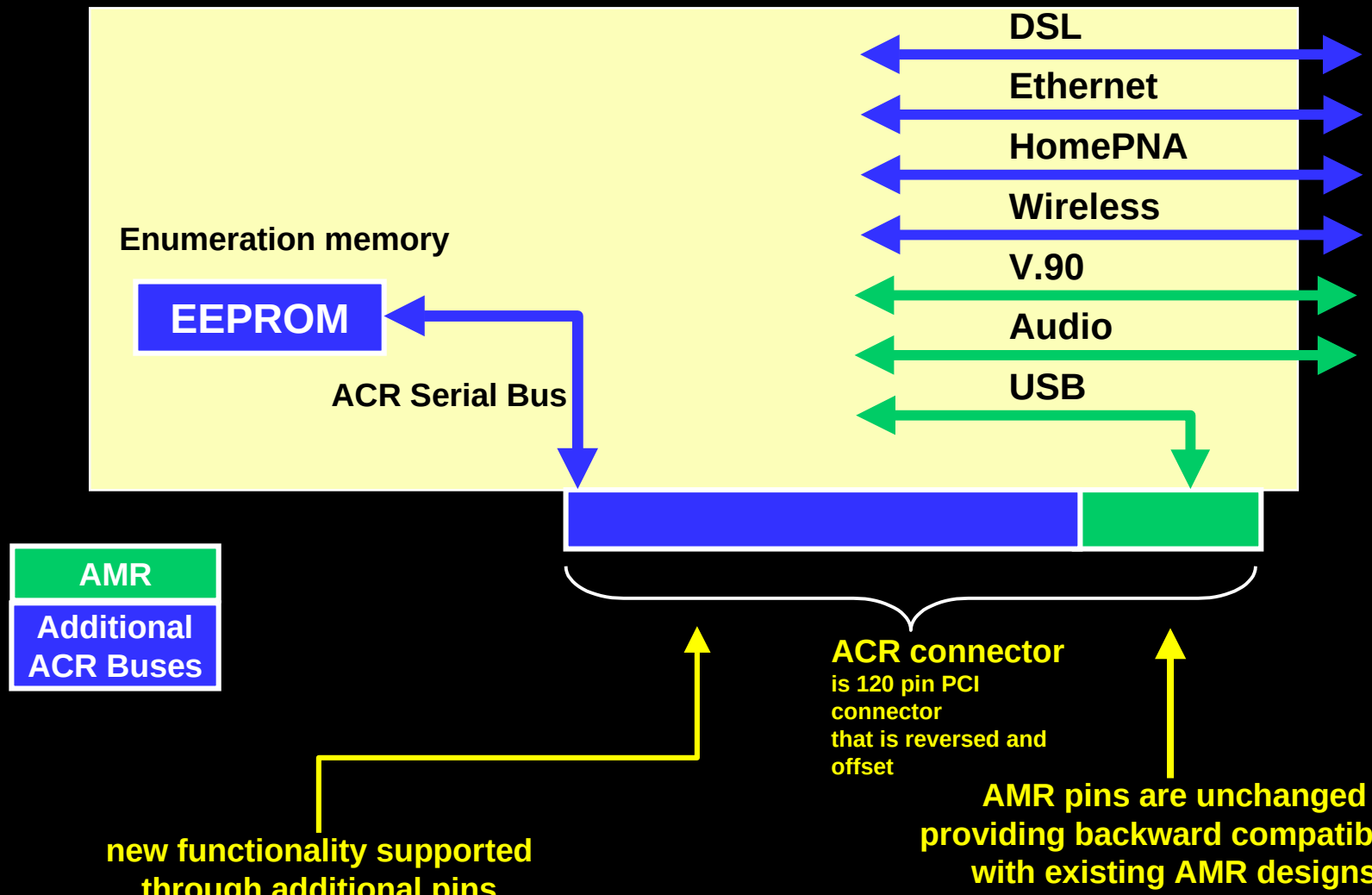
- **Provide key benefits to implementers of legacy riser technologies**
  - **Supports legacy AMR riser designs for modem and audio Codecs.**
  - **Legacy AMR cards plug into the ACR slot and work without modification**
  - **Eliminates enumeration and Plug-n-Play challenges by the addition of an EEPROM/PROM and new signals**
    - **Existing AMR designs can be easily modified to take advantage of these new capabilities.**

ACR SIG Timeline

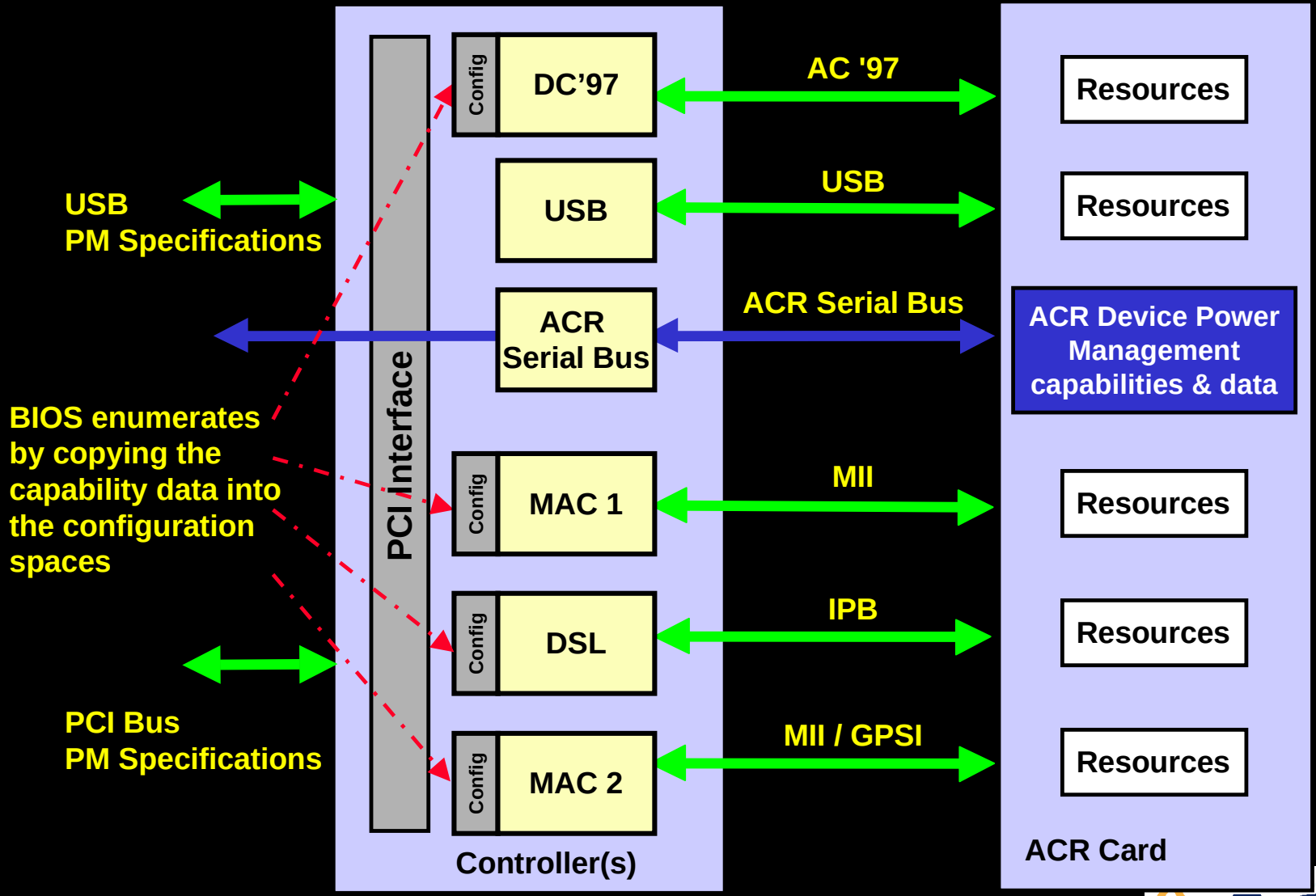
- **Organizational Announcement**
  - **February 8, 2000**
- **Release Specification 1.0**
  - **February 2000**
- **Products expected**
  - **Second Half 2000**

ACR Technology Overview

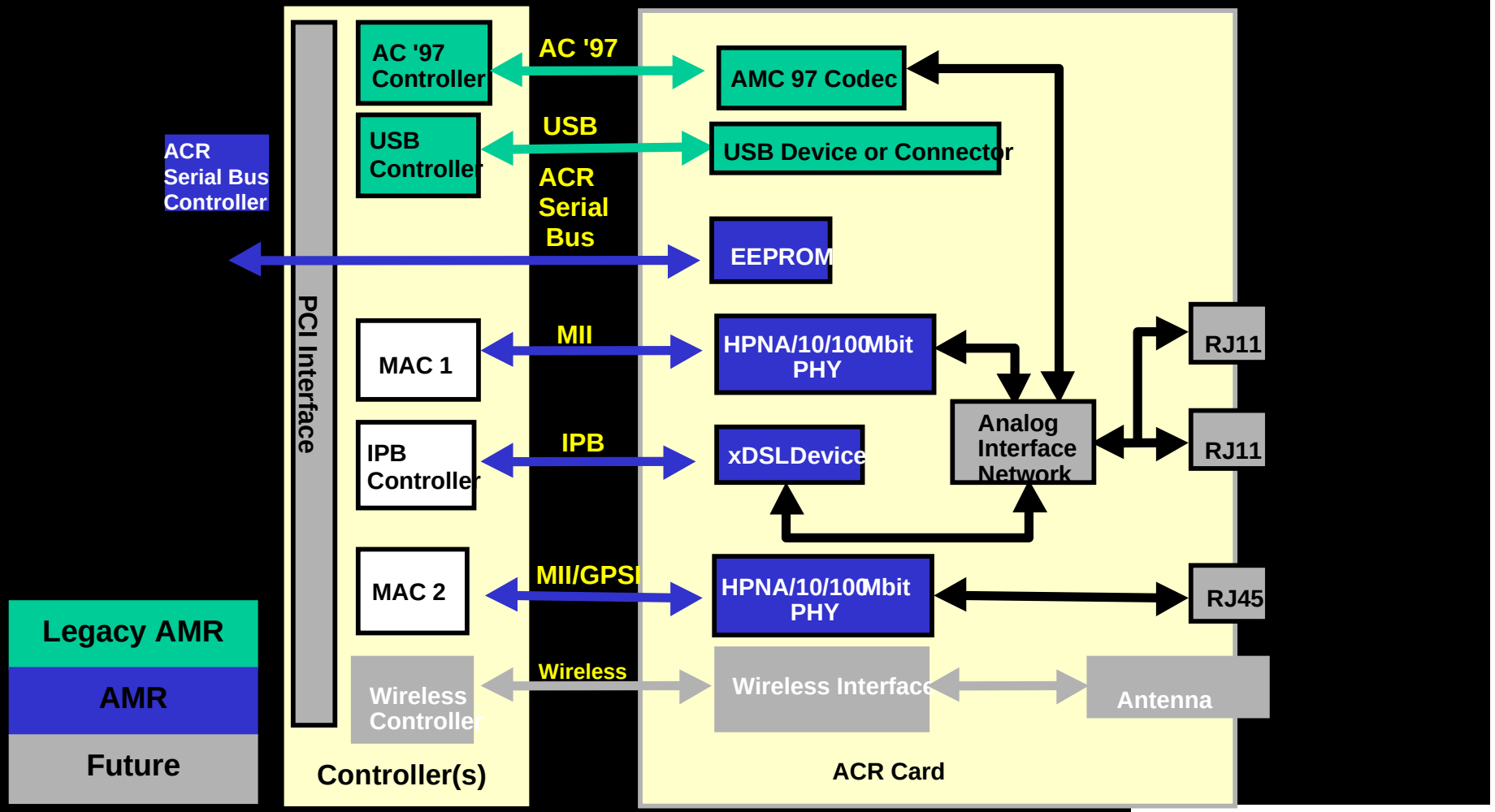
ACR Concept Diagram



ACR Functional Diagram



ACR Architecture



Integrated Packet Bus (IPB)

- **The IPB Data Link Specification enables the host system CPU to directly process the communications stream**
  - **Developed in tandem with the ACR Specification**
  - **Offers high-speed data transfers in a variety of hardware and software core combinations, supporting multiple types of communications designs**
  - **Allows OEMs the flexibility to implement communications solutions across a wide range of the performance and cost spectrums**

ACR SIG Summary

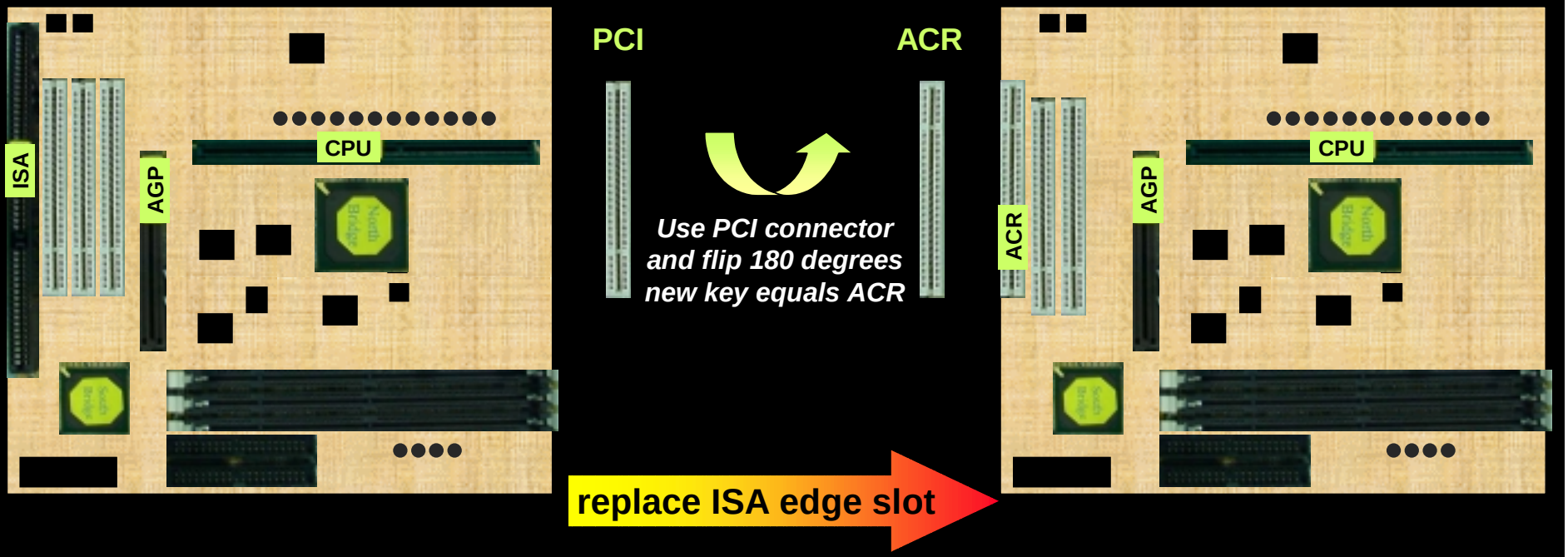
- Defines a scalable standard interface to modems, LAN, WAN, DSL, and other audio and communication technologies
- Allows mix of product differentiation and integration
- New buses provide flexibility, longevity and future enhancements
- Backward compatible with legacy AMR cards
- Open standards approach

ACR Backup Slides

No New Connector

Pre-ACR Motherboard

ACR Motherboard



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ACR Alignment

Connector alignment is unique to ACR

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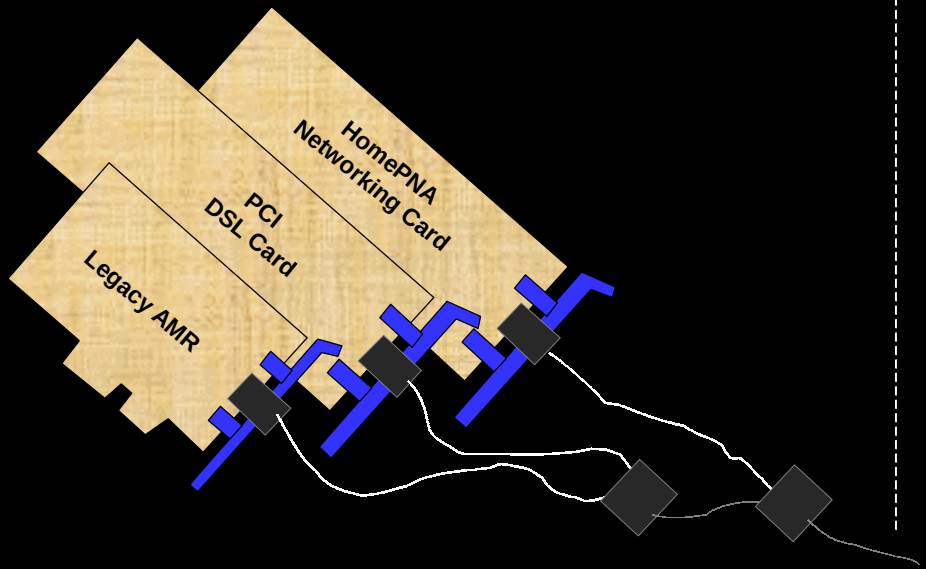
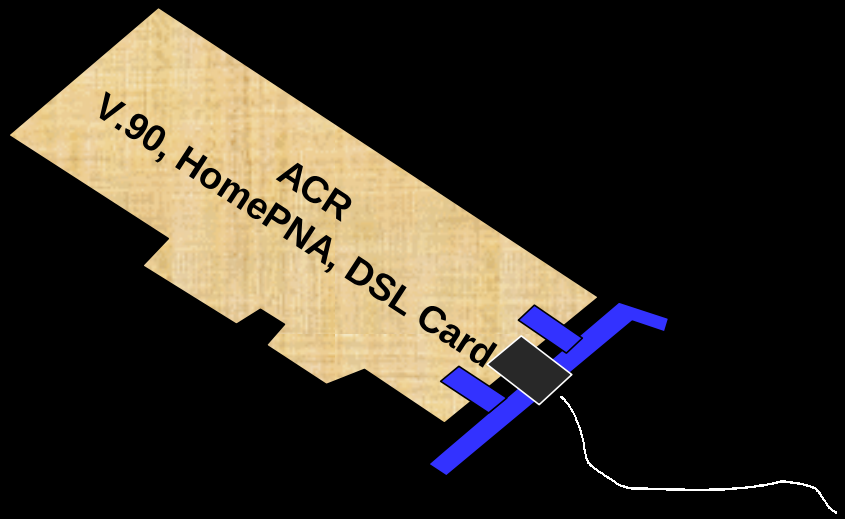
ACR simplifies RJ11 connections

Legacy Designs

- Need separate cards for each phone line function and require adapters to merge the lines into one combined phone wire





ACR Designs

- Combine all the phone line functions on a single card that uses a single RJ-11 connector

ACR Card Configurations

	A	B	C	D
Audio and Analog Modem	★	★	★	★
Primary Ethernet 10/100		★		★
IPB (DSL or BB bus)			★	★
Home Networking	★	★	★	★
Wireless			Future	Future

ACR SPECIAL INTEREST GROUP

ACR card are certified modules

- **The ACR riser card can be tested and receive agency approval independent of the motherboard (even WHQL) shortening design time**
- **Testing Agencies view the ACR motherboard just like PCI**