AMD

ISAnet-EVAL-KT

PCnet-ISA II Based Shared Memory Evaluation Platform

DISTINCTIVE CHARACTERISTICS

Adapter Card

- ISA-based adapter card with Am79C961A PCnet™-ISA II Ethernet controller
- Shared memory operation mode
- Compatible for use with AMD's family of Élan™ microcontrollers

Am79C961A PCnet-ISA II Ethernet Controller

- Single-chip Ethernet controller for direct interface to ISA and EISA buses
- Supports IEEE 802.3/ANSI 8802-3 Ethernet standards
- Supports full-duplex operation on the 10BASE-T, AUI, and GPSI ports
- Supports Magic Packet™ technology for waking up remote Ethernet nodes
- Software compatible with Am7990/Am79C90 LANCE™/CLANCE™ register and descriptor architecture

Communication Port

- One Attachment Unit Interface (AUI) Ethernet port via a DB-15 DCE connector
- One 10BASE-T Ethernet port via an RJ-45 connector

Memory

- Two 32 Kbytes x 8 SRAMs (for a total of 64 Kbytes)
- One PAL® for external decoding for shared memory operation
- One EEPROM for Ethernet physical address and other data
- Expansion sockets for boot ROMs

Software

- Binary drivers for shared memory operation (NDIS 2.0 and DOS ODI)
- Utility programs for programming and examining on-board EEPROM
- Schematics, Gerbers, and bill Of materials

Software and Documentation

- Software and documentation only package available (PID #21450 can be ordered from AMD's Literature Distribution)

GENERAL DESCRIPTION

The ISAnet evaluation kit meets the needs of customers working with embedded networking control applications using the Am79C961A PCnet-ISA II single-chip Ethernet controller. The evaluation kit contains hardware, software, and documentation to facilitate the design of embedded networking control applications based on the PCnet-ISA II controller.

The user should note there is a *significant difference* between ISAnet evaluation adapter card used here and the PCnet-ISA II evaluation adapter card used in the **PCnet-ISA II-KT/2 Evaluation Kit**. While both adapter cards are ISA-based adapter cards and both are based on the Am79C961A PCnet-ISA II Ethernet controller,

the ISAnet evaluation adapter card is designed and configured for shared memory and PIO operation mode. The adapter card in the PCnet-ISA II-KT/2 evaluation kit is designed and configured for bus-mastering operation mode.

The design of the ISAnet adapter card provides an Ethernet feature that can be added to other platforms with ISA slots to allow for system development in a shared memory mode environment. In particular, the ISAnet adapter card is ideal for use with AMD's family of Élan microcontrollers and their evaluation boards. This is because the Élan family of microcontrollers, in particular, ÉlanSC300 and ÉlanSC400 series of microcontrollers do

not support bus-mastering peripherals. With the addition of the ISAnet adapter card, the user has a complete Élan/PCnet-ISA II shared memory development environment.

For users who have already designed and implemented the hardware portion of their application based on the PCnet-ISA II Ethernet controller and just need the software driver and documentation, a package containing only the binary driver software and documentation is available from AMD's Literature Distribution (Order PID# 21450).

Software

Included in both the ISAnet evaluation kit and the software/documentation only package, are a number of software programs and utilities on a set of diskettes. The driver software diskette contains binary code for Novell DOS ODI and NDIS 2.0 for DOS driver software. Source code for these two drivers can be acquired from AMD upon completion and execution of an license agreement form. The *Request for ISAnet Driver Source Code License Form* is included in the *Quick-Start ISAnet User's Brief*. Send the completed form to "AMD, ISAnet Driver Administration, M/S: 126, Systems Software Engineering."

The utility diskette contains a variety of software programs including EESETUP and EE_DUMP for programming and examining the EEPROM. Also included are diskettes containing electronic copies of the schematics, bill of materials, layout artwork, and Gerber files for the PCnet-ISA II shared memory board. A diskette containing a number of utilities for

configuring and interfacing the PCnet-ISA II to the ÉlanSC400 microcontroller concludes the diskette set.

CAUTION: The user is highly cautioned against using the binary driver software from the PCnet-ISA II-KT/2 Evaluation Kit on the ISAnet adapter card. It will not function!

PCnet-ISA II Ethernet Controller

The Am79C961A PCnet-ISA II Ethernet controller, a single-chip Ethernet controller, is a highly integrated Ethernet controller with a built-in ISA bus and PHY layer (Manchester Encoder/Decoder and 10BASE-T transceiver). The PCnet-ISA II device can be used in either bus-mastering or shared memory mode. On the ISAnet adapter card, the PCnet-ISA II device is configured for shared memory operation mode. The 16-bit ISA interface makes an ideal straight-forward connection to an x86-style local bus. For more information about the PCnet-ISA II controller, refer to the *Am79C961A PCnet-ISA II Data Sheet*, PID#19364.

The PCnet-ISA II Ethernet controller is part of the AMD PCnet family of single-chip Ethernet controllers based on the original LANCE/CLANCE architecture. Other members include the following: the Am79C965 PCnet-32 (for VL or other general x486, 32-bit bus environments), the Am79C970A PCnet-PCI II device and the Am79C971 PCnet-*FAST* device (for PCI bus environments). Like the PCnet-ISA II controller, the PCnet-32 and PCnet-PCI II devices are 10 Mbps Ethernet controllers. The Am79C971 PCnet-*FAST* device is a 10/100 Mbps Ethernet controller.
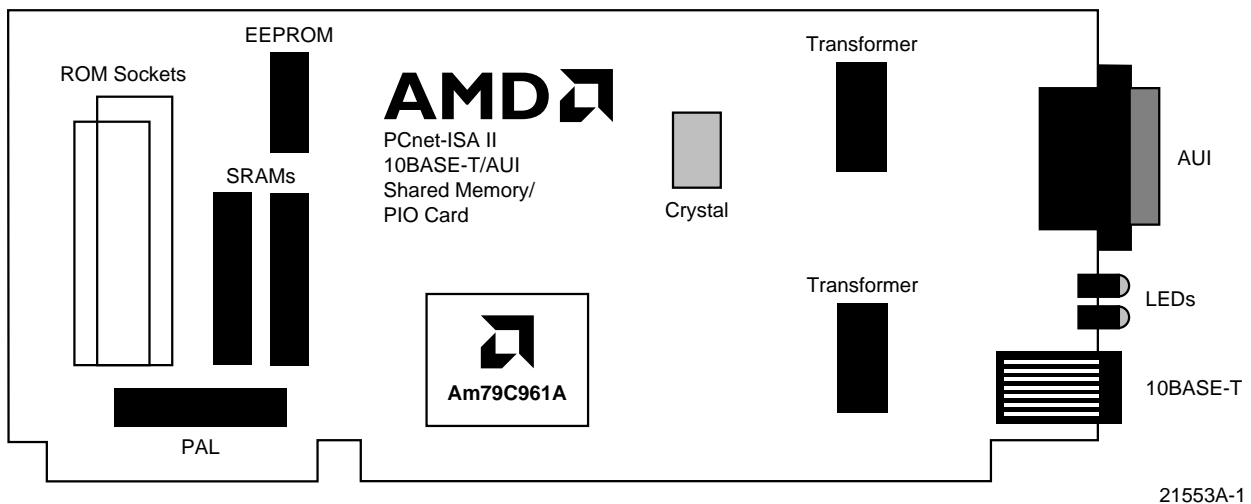

Figure 1.   ISAnet Board Layout Diagram

21553A-1