



DP839EB-SE

16-Bit Mac SE Ethernet Evaluation Board

General Description

The DP839EB-SE is designed as a high performance low cost Ethernet adapter card for the Macintosh SE. This card utilizes National Semiconductor's Ethernet chipset. The DP839EB/SE provides a low-power thick (10BASE5) or thin (10BASE2) Ethernet interface for the Macintosh SE computer. Since the Mac SE provides a slot that is essentially Motorola 68000 μ P signals, this board also is a good example of a general synchronous 68000 interface design using the National Ethernet Chip Set.

The DP839EB-SE is actually composed of two PCBs. One PCB lies on top of the SE's main board, and contains the Ethernet controller, buffer RAM, SNI, and bus logic. The second card, called the Connector Card, is mounted on the back of the Mac SE cabinet. It contains the DP8392 CTI, DC-DC converter, and pulse transformers.

The feature of the DP839EB-SE is an on-card shared packet buffer memory architecture that utilizes 16-bit wide RAM, either 16k or 64k bytes. This RAM is mapped into SE's 68000 memory space. The DP8390's bus clock is derived from the Mac SE's 16 MHz bus clock. This simplifies the shared RAM arbitration logic since the Ethernet Controller and the CPU are synchronous to each other. This board provides a very low parts count solution, requiring only 14 ICs to completely implement the interface. Finally, the buffer RAM supports a byte write function which simplifies collecting packet fragments for transmission.

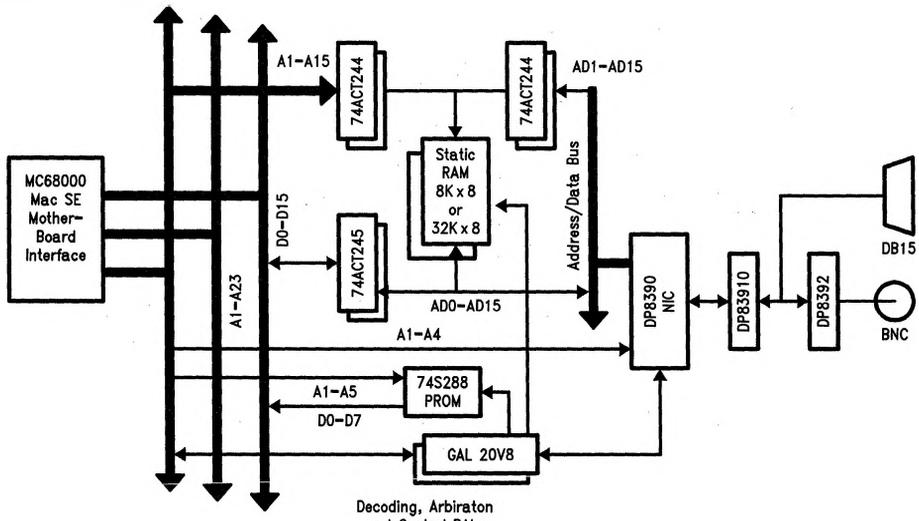
The DP839EB-SE utilizes the CMOS DP83910 Serial Network Interface chip and allows for a low power implementation of the cable interface. The DP8392 resides on the connector card which is mounted to the back of the Mac SE. The connector card contains a single thin/thick Ethernet selection switch, and also diagnostic LEDs for ease of connection debugging.

The DP839EB-SE is supplied with essentially the same demonstration/diagnostic program that is utilized on the DP839EB-NB. It provides network and diagnostic functions which are coded in 'C' using Apple's MPW 3.0 for portability.

Features

- Efficient 16-bit shared buffer memory with byte write function
- Supports byte, or 16 word transfers
- Fast synchronous shared memory arbitration
- Single jumper configurable for thick or thin Ethernet
- Low power fully CMOS implementation of 14 ICs
- No DMA channel required
- Full diagnostic software included
- Diagnostic LEDs

Block Diagram



TL/F/10472-1