National Semiconductor

DP839EB-NB
32-Bit NuBus Ethernet Evaluation Board

General Description

The DP839EB-NB is designed as a high performance Ethernet adapter card which utilizes National Semiconductor's DP8390 Ethernet chipset (DP8390, DP8391 or CMOS DP83910, DP8392). This card provides a low-power Ethernet connection to thick (10Base5) or thin (10Base2) Ethernet for the NuBus equipped Macintosh computers (Mac II, IIx, IIcx, etc.).

The major feature of the DP839EB-NB is a shared buffer memory architecture that utilizes 16-bit wide RAM on the board. The shared memory is configurable for either 8k x 16 or 32k x 16 that is directly addressable by the NuBus as 32-bit words. Logic on the card utilizes a 5 clock transfer cycle. For a read this bus cycle first reads 16-bits from the RAM, then the next 16-bits, next logic assembles both 16-bit words into a single 32-bit word, and completes the transfer. On a RAM write the 32-bit quantity is split into two 16-bit quantities, and loaded into the RAM. This design allows for highly efficient block data transfers between buffer memory and system memory without the cost of a full 32-bit wide static RAM (4 byte-wide RAM chips).

The cable interface section utilizes the DP83910 and DP8392. It supports the use of either thin or thick Ethernet via the selection based on a single jumper.

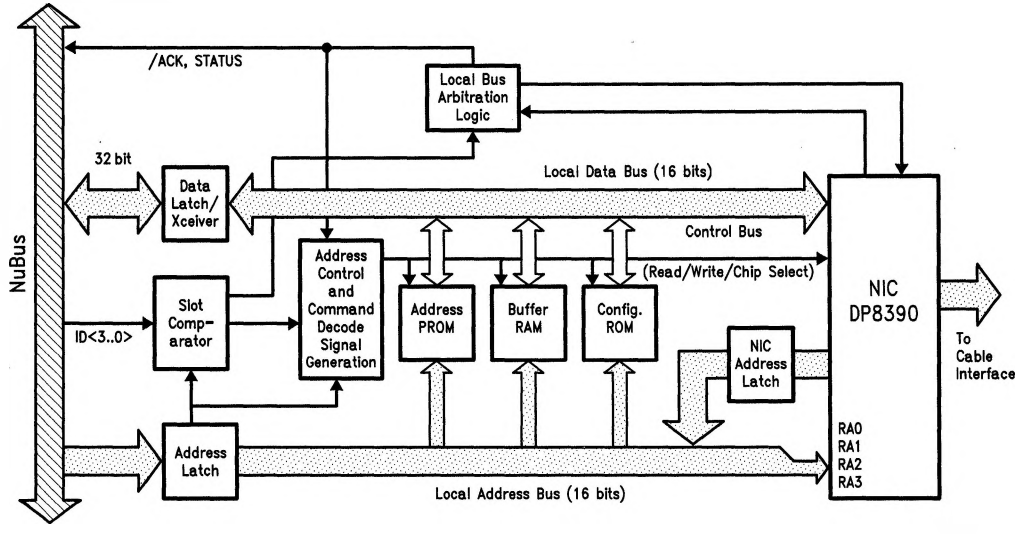
The adapter fully supports Apple's implementation of NuBus, including the Configuration ROM which also includes the Ethernet Address information. A state machine defines the bus cycles depending on device accessed, DP830 read/write or RAM read/write. The physical cable interface uses a single jumper to configure either thin or thick Ethernet operation.

The DP839EB-NB is supplied with demonstration/diagnostic code that provides network and diagnostic functions which is coded in "C" for portability.

Features

- Efficient 16-bit shared buffer memory with 32-bit system bus interface
- Supports byte, 16- or 32-bit word transfers
- Fast shared memory arbitration
- Single jumper configurable for thick or thin Ethernet
- Low power CMOS implementation
- No DMA channel required
- Full diagnostic software included
- Diagnostic LED's

Block Diagram



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