Am7990

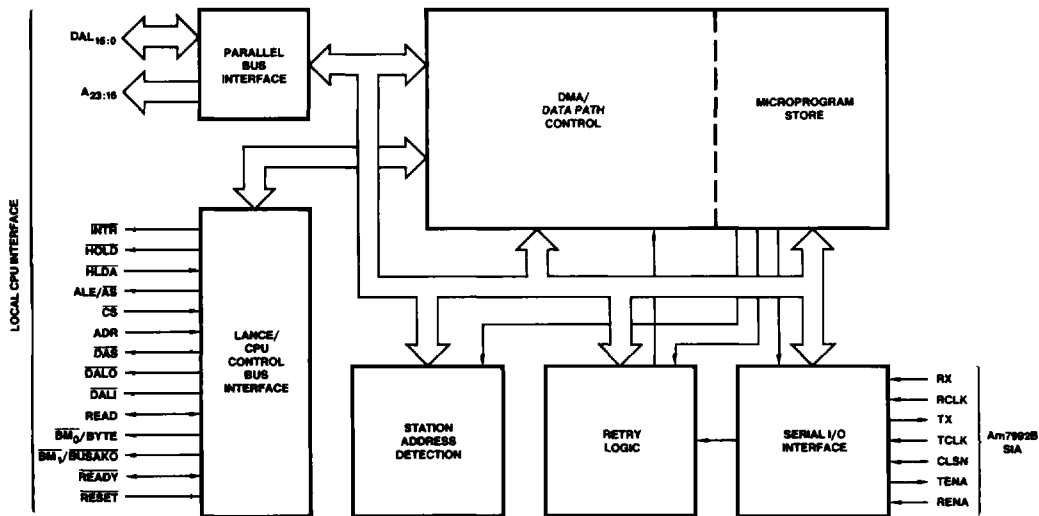## Local Area Network Controller for Ethernet (LANCE)

DISTINCTIVE CHARACTERISTICS

- Compatible with Ethernet and IEEE-802.3 10Base5 Type A, and 10Base2 Type B, "Cheapernet")
- Easily interfaced to 8086, 68000, Z8000*, LSI-II** microprocessors
- On-board DMA and buffer management, 48 byte FIFO
- 24-bit wide linear addressing (Bus Master Mode)
- Network and packet error reporting

- Back-to-back packet reception with as little as 4.1 μsec interpacket gap time
- Diagnostic Routines
  - Internal/external loop back
  - CRC logic check
  - Time domain reflectometer

GENERAL DESCRIPTION

The Am7990 Local Area Network Controller for Ethernet (LANCE) is a 48-pin VLSI device designed to greatly simplify interfacing a microcomputer or minicomputer to an IEEE-802.3/Ethernet Local Area Network. The LANCE, in conjunction with the Am7992B Serial Interface Adapter (SIA), Am7996 Transceiver, and closely coupled local memory and microprocessor, is intended to provide the

user with a complete interface module for an Ethernet network. The Am7990 is designed using a scaled N-Channel MOS technology and is compatible with a variety of microprocessors. On-board DMA, advanced buffer management, and extensive error reporting and diagnostics facilitate design and improve system performance.
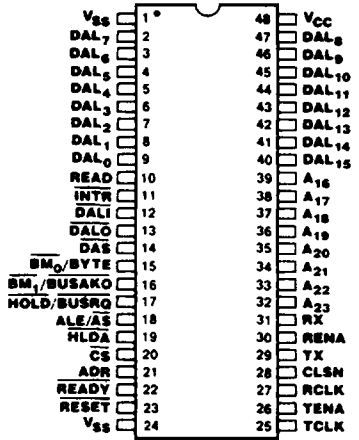
BLOCK DIAGRAM

BD002063
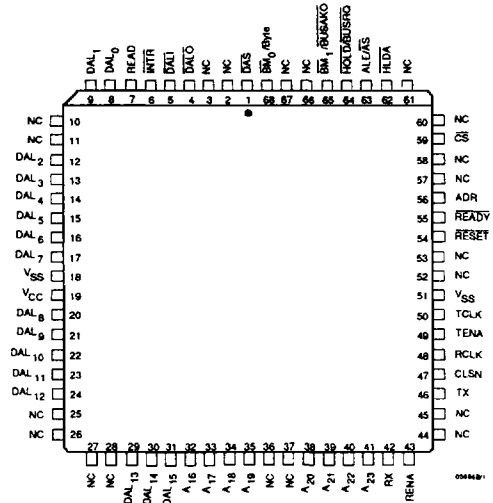
RELATED AMD PRODUCTS

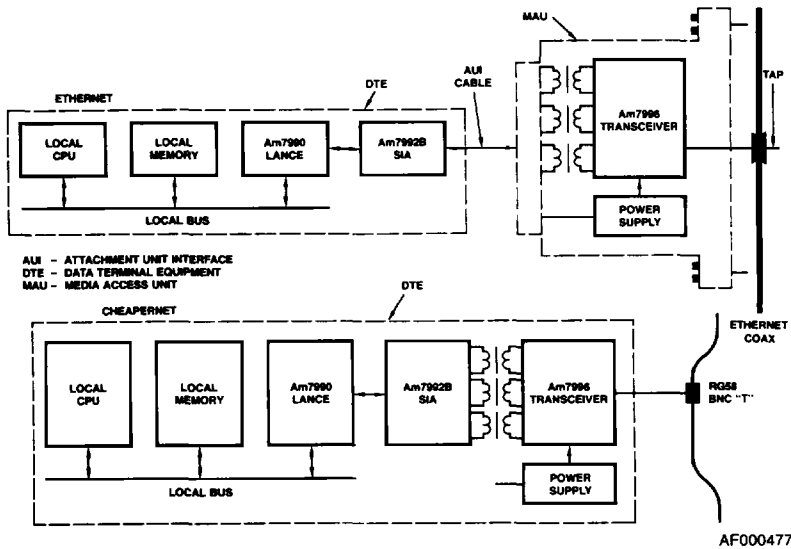| Part No.	Description
Am7992B	Serial Interface Adaptor (SIA)
Am7996	IEEE-802.3/Ethernet/Cheapernet Transceiver
Am79C900	Integrated Local Area Communications Controller

CONNECTION DIAGRAMS
Top View

CD001450

CD011930

Note: Pin 1 is marked for orientation.

TYPICAL ETHERNET/CHEAPERNET NODE

AUI – ATTACHMENT UNIT INTERFACE
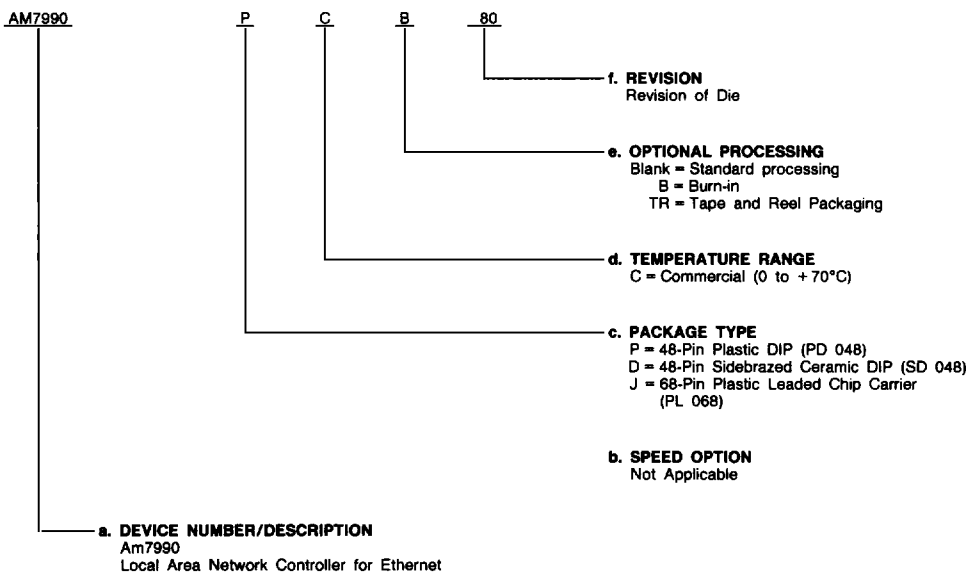DTE – DATA TERMINAL EQUIPMENT
MAU – MEDIA ACCESS UNIT

AF000477

ORDERING INFORMATION

Standard Products

AMD standard products are available in several packages and operating ranges. The order number (Valid Combination) is formed by a combination of:
- **a. Device Number**
- **b. Speed Option** (if applicable)
- **c. Package Type**
- **d. Temperature Range**
- **e. Optional Processing**
- **f. Revision**

```
AM7990          P    C    B    80
```

f. REVISION
Revision of Die

e. OPTIONAL PROCESSING
Blank = Standard processing
B = Burn-in
TR = Tape and Reel Packaging

d. TEMPERATURE RANGE
C = Commercial (0 to +70°C)

c. PACKAGE TYPE
P = 48-Pin Plastic DIP (PD 048)
D = 48-Pin Sidebrazed Ceramic DIP (SD 048)
J = 68-Pin Plastic Leaded Chip Carrier
(PL 068)

b. SPEED OPTION
Not Applicable

a. DEVICE NUMBER/DESCRIPTION
Am7990
Local Area Network Controller for Ethernet

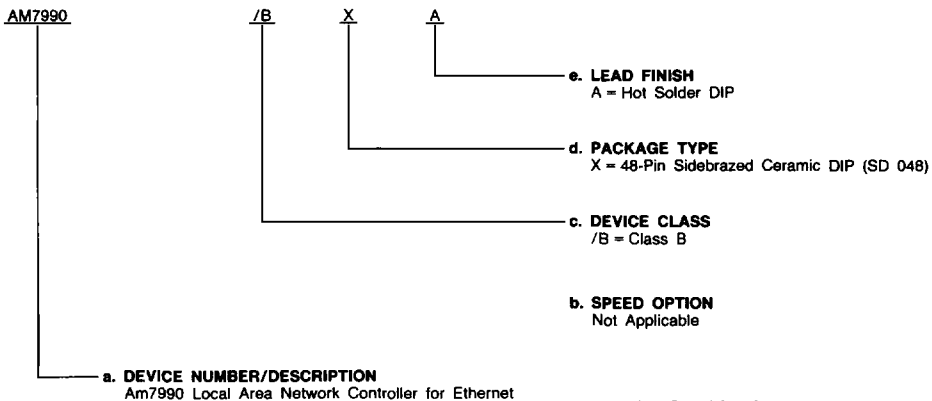| Valid Combinations	
AM7990	DC, DCB, PC, PCB, JC, JCB, JCTR

Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, to check on newly released combinations, and to obtain additional data on AMD's standard military grade products.

ORDERING INFORMATION (Cont'd.)

APL Products

AMD products for Aerospace and Defense applications are available. APL (Approved Products List) products are fully compliant with MIL-STD-883C requirements. The order number (Valid Combination) for APL products is formed by a combination of: **a. Device Number**
b. Speed Option (if applicable)
c. Device Class
d. Package Type
e. Lead Finish

```
AM7990                    /B    X    A
                                     |
                                     e. LEAD FINISH
                                        A = Hot Solder DIP

                                d. PACKAGE TYPE
                                   X = 48-Pin Sidebrazed Ceramic DIP (SD 048)

                          c. DEVICE CLASS
                             /B = Class B

                          b. SPEED OPTION
                             Not Applicable

      a. DEVICE NUMBER/DESCRIPTION
         Am7990 Local Area Network Controller for Ethernet
```

Valid Combinations

Valid Combinations	
AM7990	/BXA

Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations or to check for newly released valid combinations.

Group A Tests

Group A tests consist of Subgroups
1, 2, 3, 7, 8, 9, 10, 11.