Am82520
High-Level Serial Communications Controller (HSCC)

Advanced Micro Devices

DISTINCTIVE CHARACTERISTICS

- Two independent HDLC channels
- Implementation of X.25 LAPB/LAPD protocol
- Programmable timeout and retry conditions
- FIFO buffers for efficient transfer of data packets
- Digital phase locked loop for each channel
- Baud rate generator and oscillator
- Different modes for clock recovery and data encoding
- High-speed data rate (up to 4 MHz)
- Supports bus configuration by collision resolution

- Telecom-specific features programmable
- 8-bit parallel µP interface
- Advanced CMOS technology
- Low power consumption;
  active: 25 mW at 4 MHz
  standby: 3 mW
- Package: 28-Pin Plastic DIP or 28-Pin Plastic Leaded Chip Carrier
- Operating temperature 0 to +70° C
- Industrial: operating temperature –40 to +85°C

BLOCK DIAGRAM

11138-001B
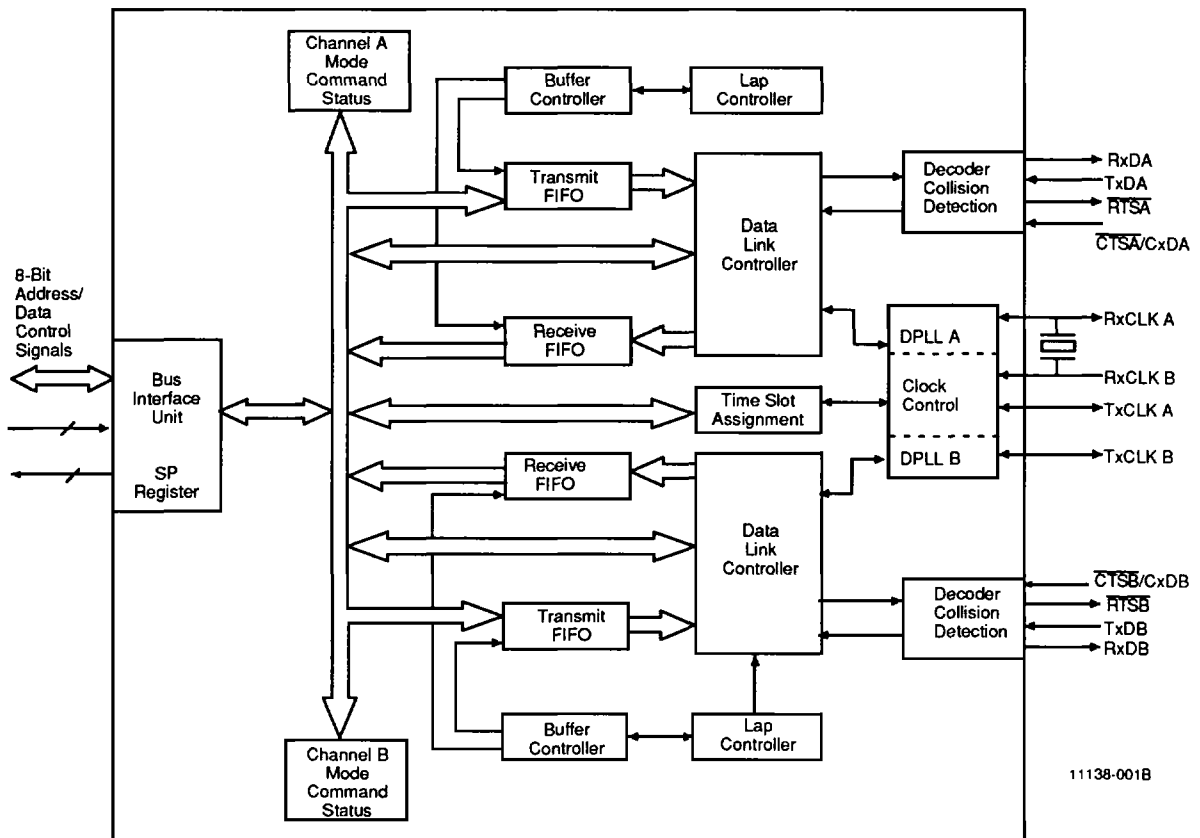
GENERAL DESCRIPTION

The Am82520, High-Level Serial Communications Controller (HSCC), has been designed to free the user from tasks occurring in communication with networks and trunk lines. It is an X.25 LAPB/LAPD controller which to a large degree performs communication procedures independent of CPU support.
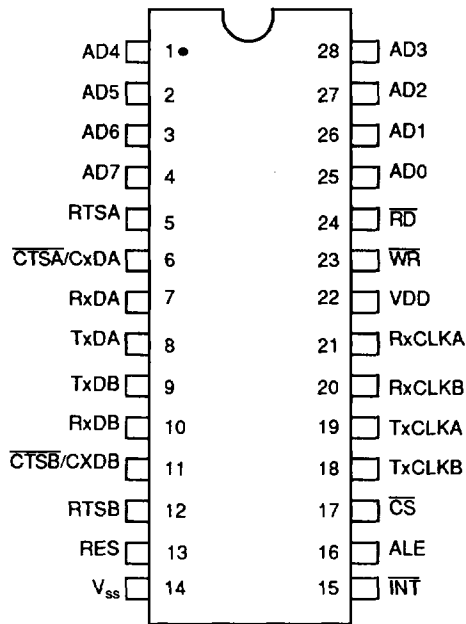
A parallel processor bus constitutes the microprocessor system. The serial communications interface consists of two full-duplex HDLC channels that can be operated independently from one another. The HSCC is connected to the transmission line by additional line drivers or mo-

dems. The need for external hardware is reduced because of added functions on-chip. The functions incorporated include an oscillator, DPLL (one per channel), programmable baud rate generator, and time slot assigner.
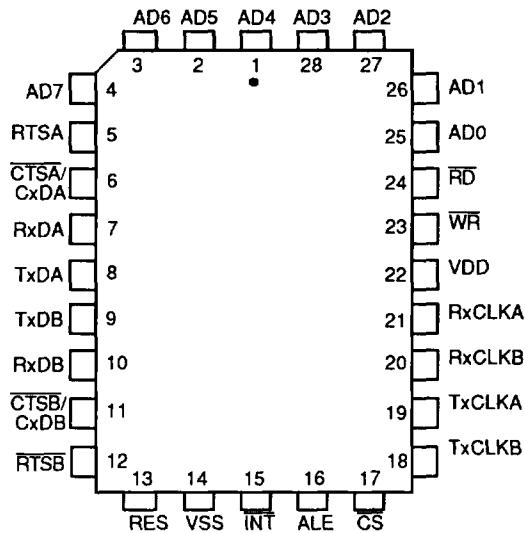
The chip contains a serial interface for two channels including a DPLL and collision-detection block, a datalink controller, and FIFO buffers. The μP interface, including the status and command registers, is used for both channels. The HSCC is implemented in a 2 micron CMOS technology.

CONNECTION DIAGRAMS
Top View

28-Pin PDIP
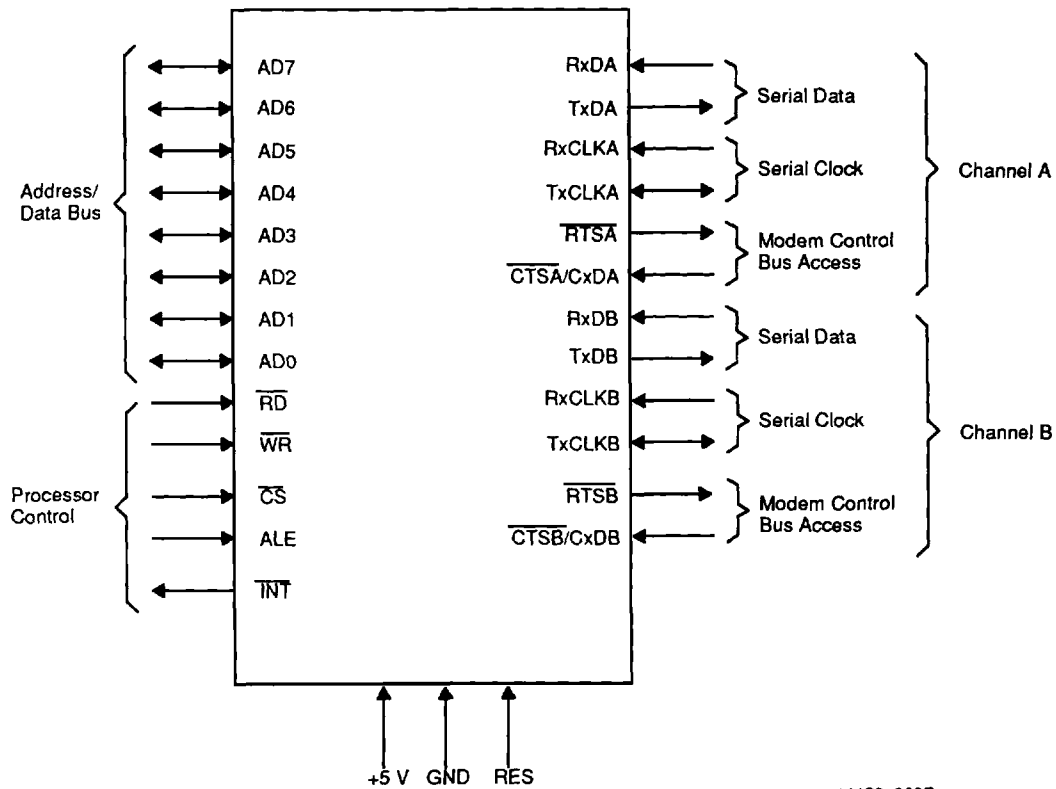
```
                    ┌────┐ ∪ ┌────┐
         AD4 □   1 ●              28 □ AD3
         AD5 □   2              27 □ AD2
         AD6 □   3              26 □ AD1
         AD7 □   4              25 □ AD0
        RTSA □   5              24 □ RD̄
   CTSA̅/CxDA □   6              23 □ WR̄
        RxDA □   7              22 □ VDD
        TxDA □   8              21 □ RxCLKA
        TxDB □   9              20 □ RxCLKB
        RxDB □  10              19 □ TxCLKA
   CTSB̅/CXDB □  11              18 □ TxCLKB
        RTSB □  12              17 □ CS̄
         RES □  13              16 □ ALE
         Vss □  14              15 □ INT̄
```

28-Pin PLCC

```
              AD6  AD5  AD4  AD3  AD2
               3    2    1    28   27
        AD7 □  4                      26 □ AD1
       RTSA □  5                      25 □ AD0
   CTSA̅/   □  6                      24 □ RD̄
     CxDA
       RxDA □  7                      23 □ WR̄
       TxDA □  8                      22 □ VDD
       TxDB □  9                      21 □ RxCLKA
       RxDB □ 10                      20 □ RxCLKB
   CTSB̅/   □ 11                      19 □ TxCLKA
     CxDB
       RTSB̅ □ 12                      18 □ TxCLKB
               13   14   15   16   17
              RES  VSS  INT̄  ALE  CS̄
```

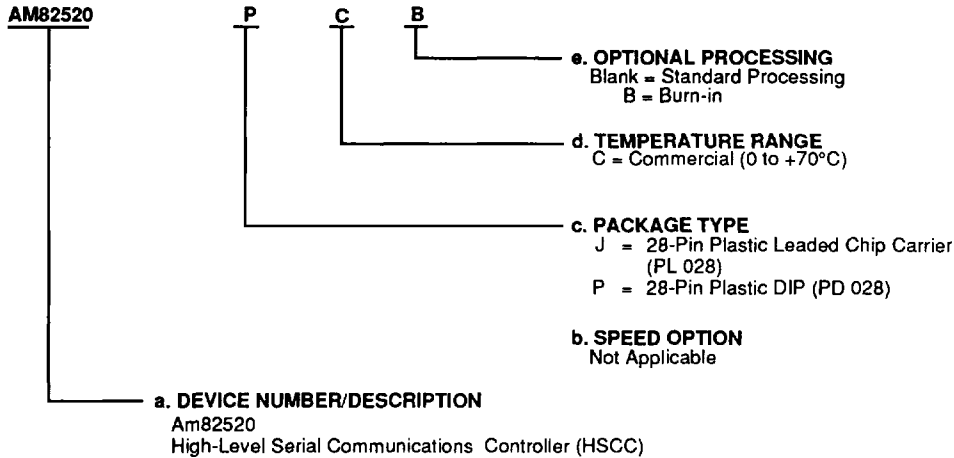Note: Pin 1 is marked for orientation.

LOGIC SYMBOL

11138-003B

ORDERING INFORMATION

Standard Products

AMD standard products are available in several packages and operating ranges. The ordering 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

AM82520   **P**   **C**   **B**

e. OPTIONAL PROCESSING
Blank = Standard Processing
B = Burn-in

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

c. PACKAGE TYPE
J = 28-Pin Plastic Leaded Chip Carrier (PL 028)
P = 28-Pin Plastic DIP (PD 028)

b. SPEED OPTION
Not Applicable

a. DEVICE NUMBER/DESCRIPTION
Am82520
High-Level Serial Communications Controller (HSCC)

Valid Combinations	
AM82520	PC, JC, PCB, JCB

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.