CCTT SGXV
Working Party XV/1
Specialist Group on Coding for Visual Telephony

Document #491

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TITLE: Basic features of the H221-Muldex Integrated Circuit

The integrated circuit H221-Muldex implements protocols defined by the Rec. H221.
Basic features are:

- CMOS Standard cell technology (IST-CB200).
- 40 pins dual in line package.
- Two modes of operation: Stand-alone, microprocessor.
- Interface for 8/16/32 bit microprocessors.
- Transmitter functions:
  - Implementation of two protocols (64Kbit/sec, IOM[1]).
  - Allocation of the multimedia frame structure in B1 or B2 (IOM protocol).
  - Up to 8 sources can be multiplexed within the 64 kbit/s input stream.
  - Serial/parallel input to the AC channel:
    - Serial: using the 8th bit of the input stream.
    - Parallel: using bytes provided by microprocessor.
  - Serial/parallel input for the seven sub-channels.
- Receiver functions:
  - Implementation of two protocols (64Kbit/sec, IOM).
  - Allocation of the multimedia frame structure in B1 or B2 (IOM protocol).
  - Demultiplexing signals for 8 channels.
  - Serial/parallel output for AC data:

[1]IOM=ISDN Oriented Modular

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    - Serial: using the 8th bit of the input stream.
    - Parallel: using bytes provided by microprocessor.
  - Serial/parallel output for the seven subchannels.
- Other general aspects:
  - Interrupt procedures to access 8 input registers and 8 output registers.
  - Working with/without external byte sync.
  - The receiver provides octet and frame sync.
  - Error correction on BAS (two consecutive errors can be corrected, three are indicated).
  - Fast receiver synchronization (parallel method).

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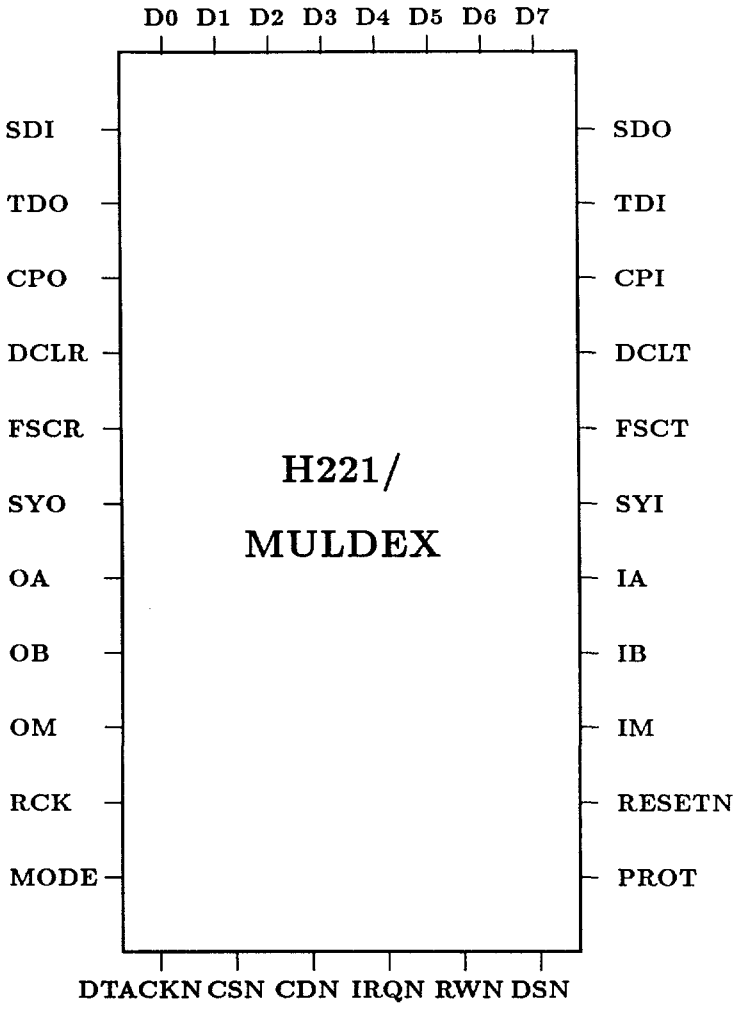
D0 D1 D2 D3 D4 D5 D6 D7
SDI
TDO
CPO
DCLR
FSCR
SYO
OA
OB
OM
RCK
MODE
SDO
TDI
CPI
DCLT
FSCT
SYI
IA
IB
IM
RESETN
PROT
H221/
MULDEX
DTACKN CSN CDN IRQN RWN DSN

Fig. 1: Pinout

Pin	Type	Function
D0 ÷ D7	I/O	Data Bus
SDI	I Rx	Serial Data Input
TDO	O Rx	Terminal Data Output
CPO	O Rx	Clock Pulse Output
DCLR	I Rx	Data CLock Rx
FSCR	I Rx	Frame SynCro Rx
SYO	O Rx	SYnc Output (octet)
OA	O Rx	Out multiplex addr. A
OB	O Rx	Out multiplex addr. B
OM	O Rx	Out Mask sync (frame)
RCK	O Rx	Rx ClocK
MODE	I	MODE selection (μP, S-A)
PROT	I	PROTocol select (64K, IOM)
RESETN	I	RESET compoNent
SDO	O Tx	Serial Data Output
TDI	I Tx	Terminal Data Input
CPI	I Tx	Clock Pulse Input
DCLT	I Tx	Data CLock Tx
FSCT	I Tx	Frame SynCro Tx
SYI	I Tx	SYnc Input (octet)
IA	O Tx	In multiplex addr. A
IB	O Tx	In multiplex addr. B
IM	O Tx	In Mask sync (frame)
DTACKN	O	DaTa ACKNowledge
CSN	I	Chip Select
CDN	I	Command / Data
IRQN	O	Interrupt ReQuest
RWN	I	Read / Write
DSN	I	Data Strobe

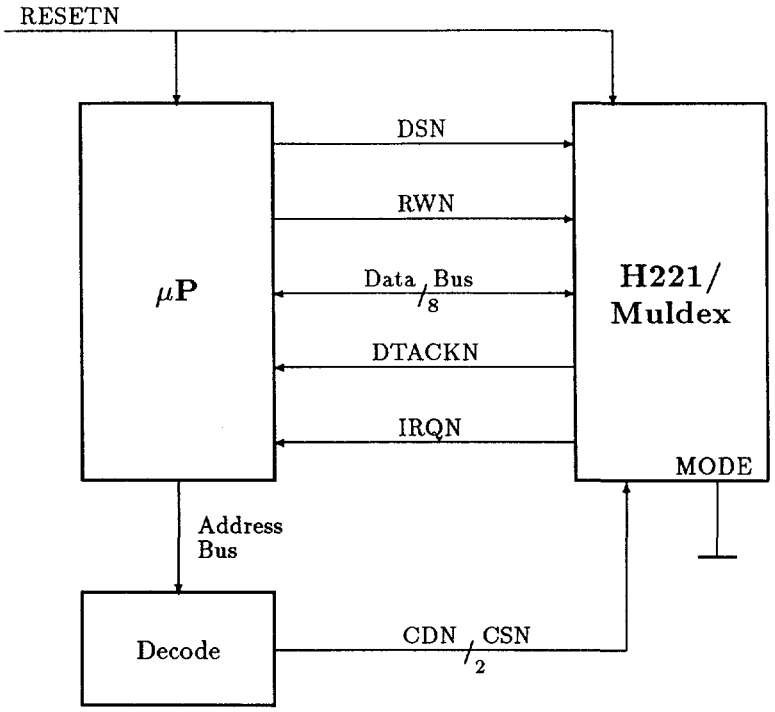

Fig. 2: Operation with μP

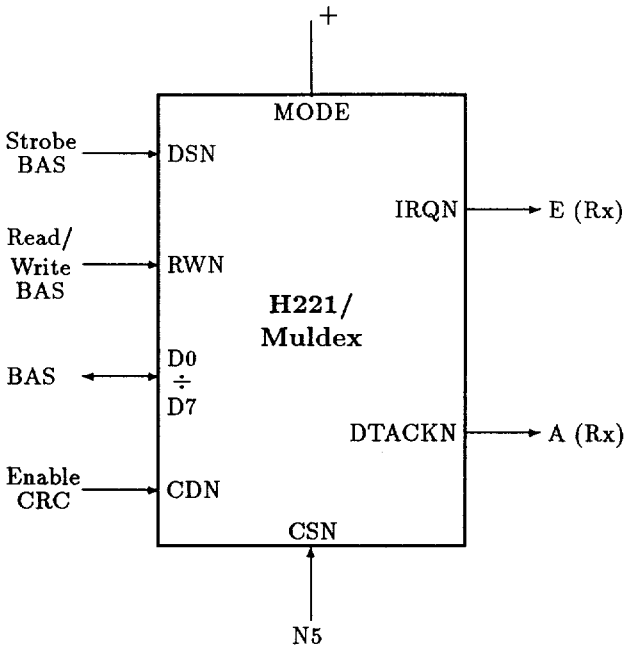

Fig. 3: Stand-alone