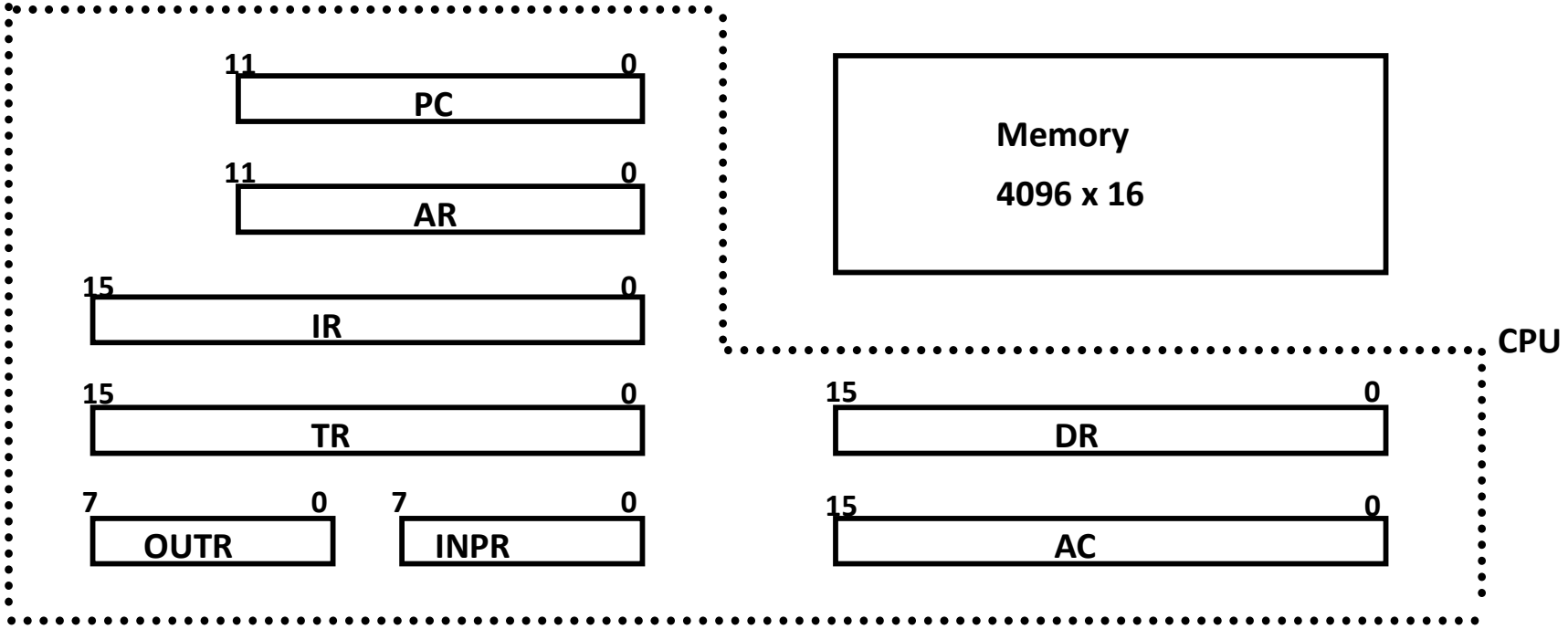
Overview

- Instruction Codes
- **Computer Registers**
- Computer Instructions
- Timing and Control
- Instruction Cycle
- Memory Reference Instructions
- Input-Output and Interrupt
- Complete Computer Description

Processor Register

Registers in the Basic Computer



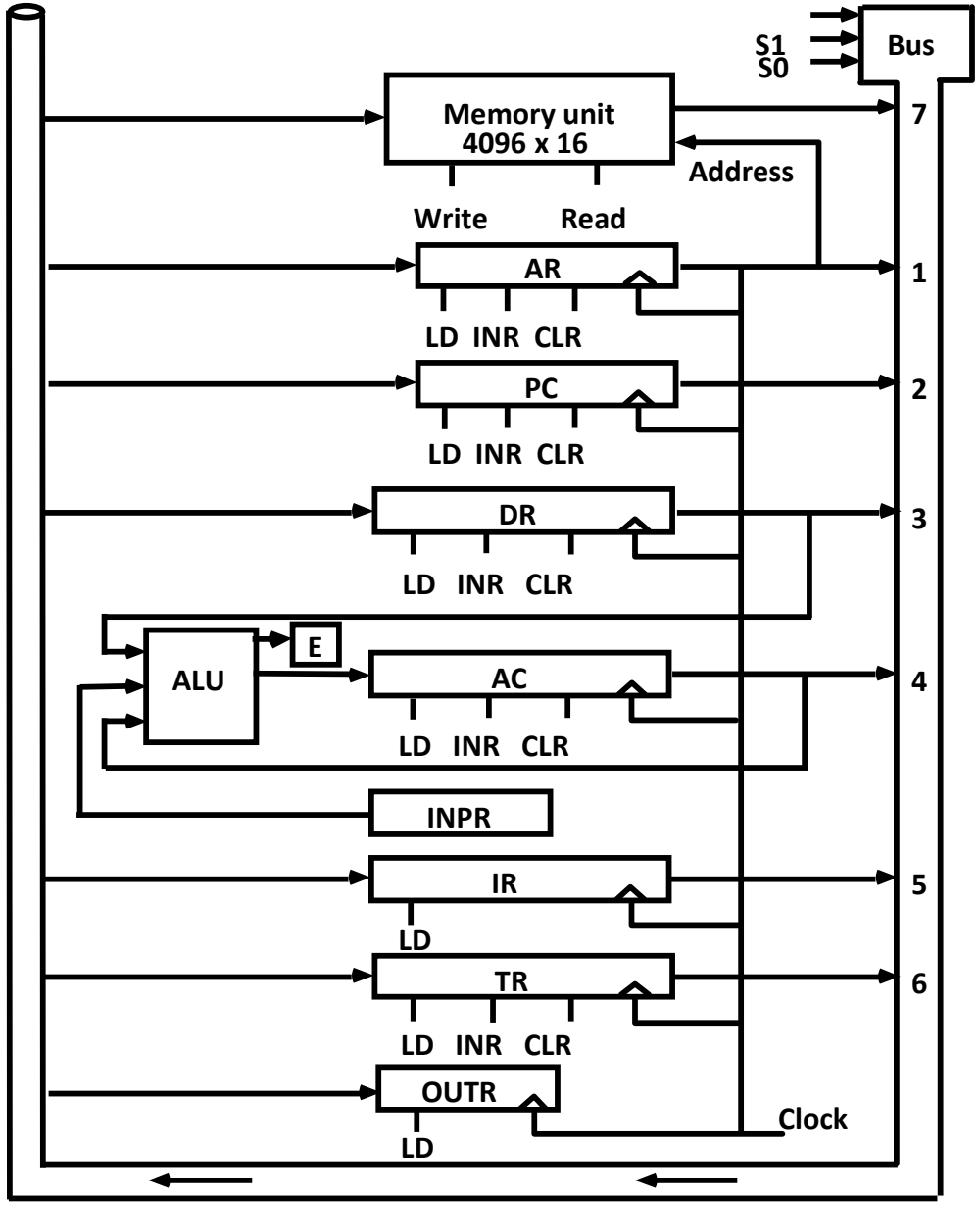
List of BC Registers

DR	16	Data Register	Holds memory operand
AR	12	Address Register	Holds address for memory
AC	16	Accumulator	Processor register
IR	16	Instruction Register	Holds instruction code
PC	12	Program Counter	Holds address of instruction
TR	16	Temporary Register	Holds temporary data
INPR	8	Input Register	Holds input character
OUTR	8	Output Register	Holds output character

Common Bus System

- **The registers in the Basic Computer are connected using a bus**
- **This gives a savings in circuitry over complete connections between registers**

Common Bus System



Common Bus System

- **Three control lines, S_2, S_1, and S_0 control which register the bus selects as its input**

S_2 S_1 S_0	Register
0 0 0	x
0 0 1	AR
0 1 0	PC
0 1 1	DR
1 0 0	AC
1 0 1	IR
1 1 0	TR
1 1 1	Memory

- **Either one of the registers will have its load signal activated, or the memory will have its read signal activated**
  - **Will determine where the data from the bus gets loaded**
- **The 12-bit registers, AR and PC, have 0's loaded onto the bus in the high order 4 bit positions**
- **When the 8-bit register OUTR is loaded from the bus, the data comes from the low order 8 bits on the bus**