



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

19ITT204 – MICROCONTROLLER & EMBEDDED SYSTEMS

III YEAR - V SEM

UNIT 2 – 8279 Keyboard and Display Controller





8279- Keyboard and Display controller

- 8279 programmable keyboard/display controller is designed by Intel that interfaces a keyboard with the CPU.
- The Keyboard can be interfaced either in the interrupt or the polled mode. In the **Interrupt mode**, the processor is requested service only if any key is pressed, otherwise the CPU will continue with its main task.
- In the **Polled mode**, the CPU periodically reads an internal flag of 8279 to check whether any key is pressed or not with key pressure.



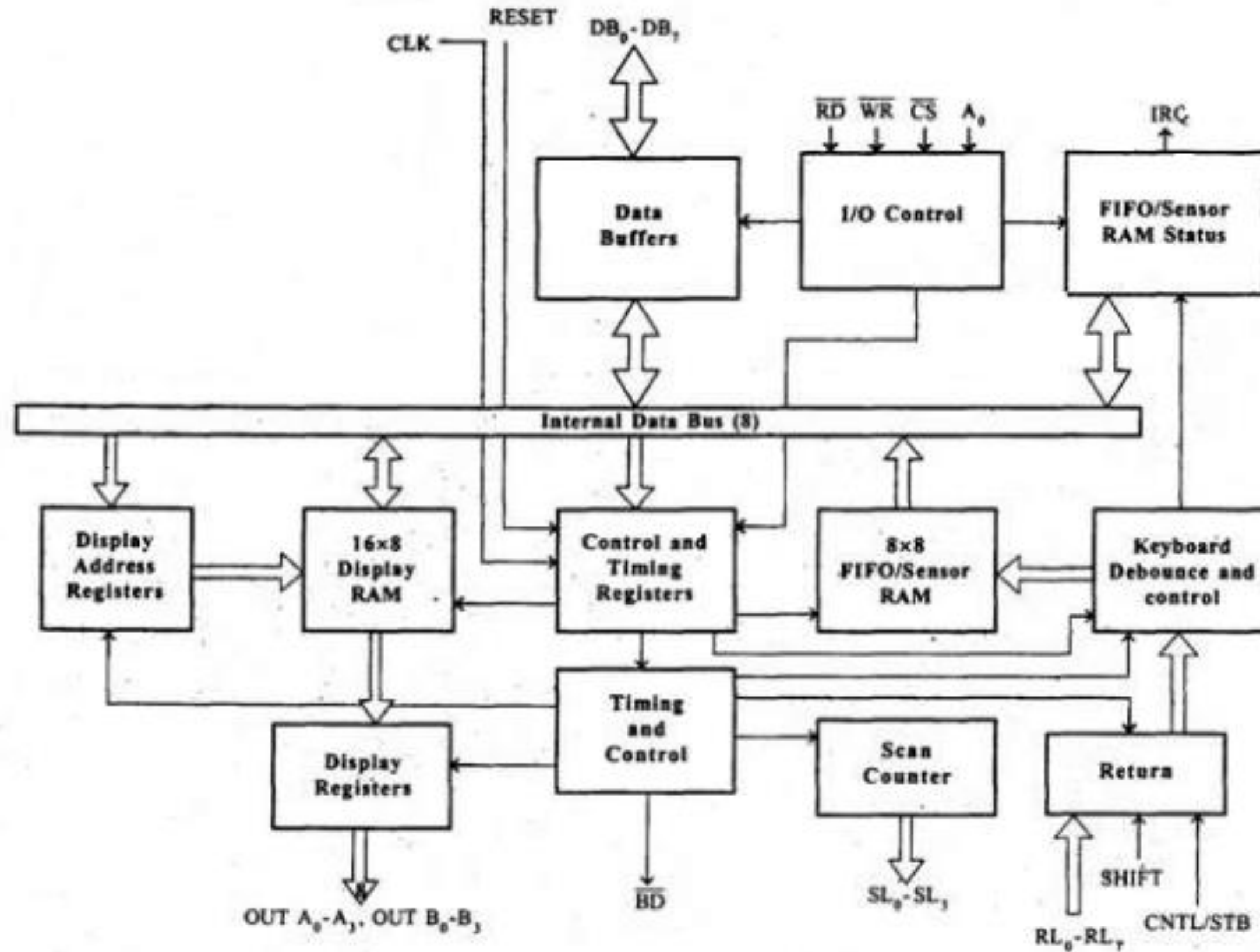
How does 8279 Keyboard works?

- The keyboard consists of maximum 64 keys, which are interfaced with the CPU by using the key-codes.
- These key-codes are de-bounced and stored in an 8-byte FIFORAM, which can be accessed by the CPU.
- If more than 8 characters are entered in the FIFO, then it means more than eight keys are pressed at a time.
- This is when the overrun status is set.



How does 8279 Keyboard works?

- If a FIFO contains a valid key entry, then the CPU is interrupted in an interrupt mode else the CPU checks the status in polling to read the entry.
- Once the CPU reads a key entry, then FIFO is updated, and the key entry is pushed out of the FIFO to generate space for new entries.





Architecture of 8279



- I/O Control and Data Buffer
- Control and Timing Register and Timing Control
- Scan Counter – Encoded mode and decoded scan mode
- Return Buffers, Keyboard Debounce, and Control
- FIFO/Sensor RAM and Status Logic
- Display Address Registers and Display RAM



Operational Modes of 8279



- There are two modes of operation on 8279 – **Input Mode** and **Output Mode**.
- **Input Mode:** Scanned keyboard mode
 - Scanned sensor Matrix
 - Strobed mode
- **Output Mode:** Display scan and Display entry



How many ways the keyboard is interfaced with CPU?

- There are two modes of operation on 8279

Interrupt Mode and Polled Mode

- **Interrupt mode-** CPU address the only when the key is pressed
- **Polled mode-** CPU periodically checks/reads an internal flag of 8279 to check whether any key is pressed or not.



References

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Thank You