8085 is a 40 pin IC, DIP package. The signals from the pins can be grouped as follows:

1. Power supply and clock signals
2. Address bus
3. Data bus
4. Control and status signals
5. Interrupts and externally initiated signals
6. Serial I/O ports
1. Power supply and Clock frequency signals:

- Vcc + 5 volt power supply
- Vss Ground
- X1, X2: Crystal or R/C network or LC network connections to set the frequency of internal clock generator.
- The frequency is internally divided by two. Since the basic operating timing frequency is 3 MHz, a 6 MHz crystal is connected externally.
- CLK (output)-Clock Output is used as the system clock for peripheral and devices interfaced with the microprocessor.

2. Address Bus:

- A8 - A15 (output; 3-state)
- It carries the most significant 8 bits of the memory address or the 8 bits of the I/O address;

3. Multiplexed Address / Data Bus:

- AD0 - AD7 (input/output; 3-state)
- These multiplexed set of lines used to carry the lower order 8 bit address as well as data bus.
  - During the opcode fetch operation, in the first clock cycle, the lines deliver the lower order address A0 - A7.
  - In the subsequent IO / memory, read / write clock cycle the lines are used as data bus.
  - The CPU may read or write out data through these lines.

4. Control and Status signals:

- ALE (output) - Address Latch Enable.
- This signal helps to capture the lower order address presented on the multiplexed address / data bus.
- RD (output 3-state, active low) - Read memory or IO device.
- This indicates that the selected memory location or I/O device is to be read and that the data bus is ready for accepting data from the memory or I/O device.
- WR (output 3-state, active low) - Write memory or IO device.
- This indicates that the data on the data bus is to be written into the selected memory location or I/O device.
- IO/M (output) - Select memory or an IO device.
- This status signal indicates that the read / write operation relates to whether the memory or I/O device.
  - It goes high to indicate an I/O operation.
  - It goes low for memory operations.
5. Status Signals:

- It is used to know the type of current operation of the microprocessor.

<table>
<thead>
<tr>
<th>IO/M (Active Low)</th>
<th>S1</th>
<th>S2</th>
<th>Data Bus Status (Output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Halt</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>Memory WRITE</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>Memory READ</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>IO WRITE</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>IO READ</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>Opcode fetch</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Interrupt acknowledge</td>
</tr>
</tbody>
</table>

Source: http://nprcet.org/e%20content/Misc/e-Learning/IT/IV%20Sem/CS%202252-Microprocessors%20and%20Microcontrollers.pdf