**Coding challenge**

A Rust program is needed which can test the output of an IOT device connected to a 16-pin interface on an SBC (single board computer).

We are interested in the status of the following 3 groups of 8 pins:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **15** | **14** | **13** | **12** | **11** | **10** | **9** | **8** | **7** | **6** | **5** | **4** | **3** | **2** | **1** | **0** |
| ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? |

(Pins 12-10, 6-4, 1 and 0 inclusive)

A “high” signal is represented by a corresponding 1 in that bit position, a “low” signal is represented by a 0.

**Design notes:**

* Read a 16-bit unsigned integer value representing the port signal
* you may store this as a denary integer in a suitable numeric literal
* Produce the following output if the following pins are “high”

|  |  |  |
| --- | --- | --- |
| **Pins** | **Required message to output** | **Target** |
| 12,11,10 only | Device is in receive mode | stdout |
| 6,5,4 only | Device is in transmit mode | stdout |
| 1, 0 only | Device is in sleep mode | stdout |
| All 8 pins | Device has an error; reset its power | stderr |

* Use **only** bit-wise operators to achieve this task.