

## Producer-Consumer example using z64 processor

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# 1 Project

## 1.1 Requirements

Two peripherals, one input and one output, want to exchange data (in byte format) between them. To support the exchange, it is used a buffer (1 byte in size) in RAM working memory.

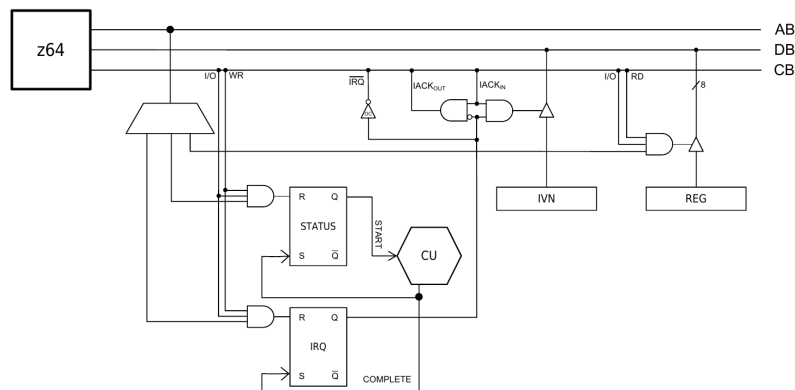
The **PRODUCER** peripheral (input peripheral) generates a data that must be written into the buffer. The **CONSUMER** peripheral (output peripheral) will receive the product data from the buffer and process it. You must prevent the **PRODUCER** device from generating a new one given as long as the one contained within the buffer is not been correctly processed by the **CONSUMER** device. Similarly, the **CONSUMER** peripheral cannot process the data contained within the buffer buffer before new data is was generated by the **PRODUCER** device.

PRODUCER and CONSUMER work with vectorized interruptions.

## 1.2 Implementation

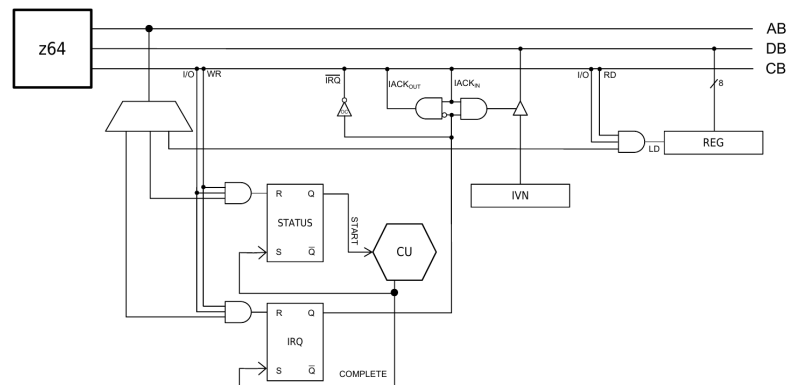
### 1.2.1 Hardware

The PRODUCER peripheral is represented as following:



**Figure 1.** The PRODUCER peripheral

The **CONSUMER** peripheral is represented as following:



**Figure 2.** The CONSUMER peripheral

### 1.2.2 Firmware

So, a possible *firmware implementation* can be found [here](#).