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 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:

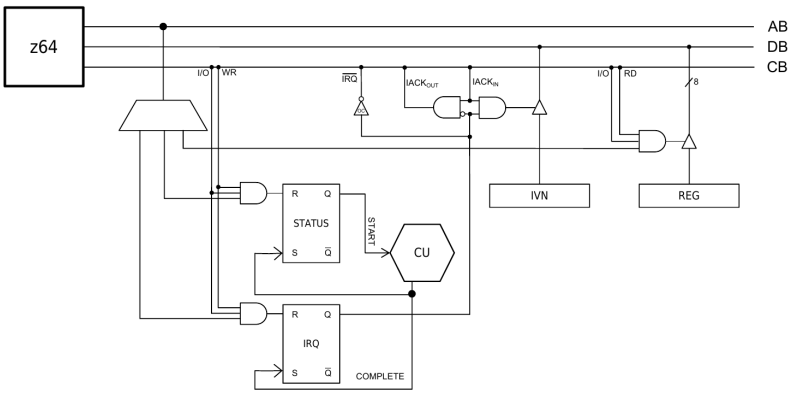

Figure 1. The `PRODUCER` peripheral

The `CONSUMER` peripheral is represented as following:

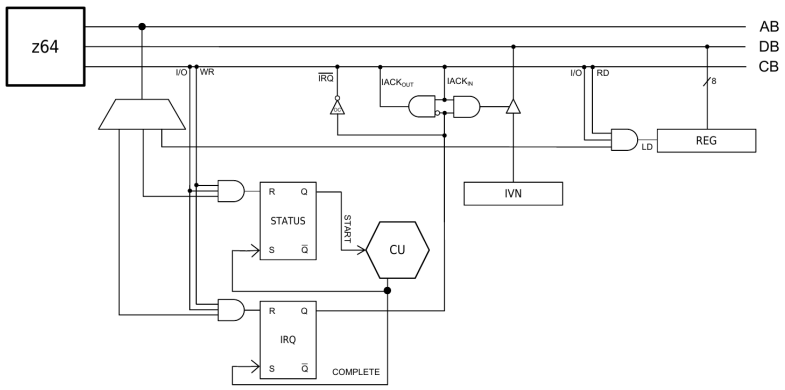

Figure 2. The `CONSUMER` peripheral

1.2.2 Firmware

So, a possible *firmware implementation* can be found here.