Abstract

The presentation deals with Tangram handshake channels at three level of abstraction. The central level is that of *handshake channels*. At this level we distinguish request and acknowledge events, which alternate when observing a channel. Handshake channels can be used for synchronization only, or for communication, for which data can be encoded in the request, the acknowledge, or in both.

The *implementation* of handshake channels in VLSI is also addressed. Even when restricted to a single-rail data encoding (also known as bundled data), there are many protocols from which one can choose.

The *abstraction* of handshake channels into communication channels at the Tangram programming level is also addressed. At the Tangram level, we distinguish three parties for each communication channel, namely the senders, the receivers, and the channel itself, which synchronizes the communications of senders and receivers.

We address the choices that have been made in all levels in the Tangram design flow, why they have been made, and how the choices at the three levels relate.

In an accompanying presentation entitled ‘*Designing an Asynchronous Bus Interface*’, Joep Kessels presents the exploitation of handshake channels in the communication scheme between an asynchronous 80c51 CPU and its peripherals.