

**Application Note: AN10051** 

## How to output on multiple ports in parallel

This application note is a short how-to on programming/using the xTIMEcomposer tools. It shows how to output on multiple ports in parallel.

## Required tools and libraries

This application note is based on the following components:

• xTIMEcomposer Tools - Version 14.0.0

## Required hardware

Programming how-tos are generally not specific to any particular hardware and can usually run on all XMOS devices. See the contents of the note for full details.



## 1 How to output on multiple ports in parallel

By configuring more than one buffered port to be clocked from the same source, a single thread can cause data to be driven in parallel on these ports.

The statement:

```
sync(out_port_a);
```

causes the processor to wait until the next falling edge on which the last data in the buffer has been driven for a full period, ensuring that the next instruction is executed just after a falling edge. This ensures that the subsequent two output statements in the loop:

```
for(char c = 'A'; c <= 'Z'; ++c) {
  out_port_a <: (char) (c & 0xF0) >> 4;
  out_port_b <: (char) (c & 0x0F);
}</pre>
```

are both executed in the same clock period.



Copyright © 2015, All Rights Reserved.

Xmos Ltd. is the owner or licensee of this design, code, or Information (collectively, the "Information") and is providing it to you "AS IS" with no warranty of any kind, express or implied and shall have no liability in relation to its use. Xmos Ltd. makes no representation that the Information, or any particular implementation thereof, is or will be free from any claims of infringement and again, shall have no liability in relation to any such claims.