

Application Note: AN10059

# How to perform timed output on a port

This application note is a short how-to on programming/using the xTIMEcomposer tools. It shows how to perform timed output on a port.

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## 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 perform timed output on a port

An output operation can be performed on a port at a specific time with respect to its clock.

The following statement performs a timestamped output, outputting the value 0 to the port `toggle_port` and reading into the variable `count` the value of the port counter when the output data is driven on the pins.

```
toggle_port <: 0 @ count;
```

The statements

```
count += 3;  
toggle_port @ count <: 1;
```

cause the port to wait until its counter equals the value `count+3` and then drive its pin high. The next two statements delay the driving of the pin low by 2 clock periods.

```
count += 2;  
toggle_port @ count <: 0;
```

The ability to control output on a port can also be achieved using a timer resource from the processor. Note however that the ports time operator is 16-bit whereas the processor timer resource is 32-bit. See example “How to control port output data rates with timers” for further information.