

Application Note: AN10021

# How to use the earlyclobber inline assembly constraint

This application note is a short how-to on programming/using the xTIMEcomposer tools. It shows how to use the earlyclobber inline assembly constraint.

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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 use the earlylobber inline assembly constraint

Normally the compiler assumes all input operands are read before any of the output operands are written. If an input operand is unused after the asm statement the compiler may decide to place the input operand in the same register as one of the output operands.

The earlylobber constraint modifier “&” can be used to specify that an output operand is modified before all input operands are consumed.

```
asm("or %0, %1, %2\n"  
    "or %0, %0, %3\n"  
    : "=&r"(a)  
    : "r"(b), "r"(c), "r"(d));
```

The compiler will place the output operand in a different register to all the input operands.