

Application Note: AN10072

How to set a conditional breakpoint

This application note is a short how-to on programming/using the xTIMEcomposer tools. It shows how to set a conditional breakpoint.

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 set a conditional breakpoint

Instruction breakpoints are used to allow XGDB to halt the execution of a program at a user defined position in the code. Furthermore, if a condition is set on a breakpoint then it will only be taken when the breakpoint location is reached and the condition evaluates to true. For example, compile the following code ensuring that debug is enabled (-g):

```
int f(int i) {  
    return 0;  
}  
  
int main() {  
    f(1);  
    f(2);  
    f(3);  
    return 0;  
}
```

2 To set a conditional breakpoint from xTIMEcomposer Studio

Create a new debug configuration via *Run->debug Configurations->xCORE Applications*. Double-click in the left-hand margin of the *return 0* line in function *f*. This will create a new instruction breakpoint. Right-click on the breakpoint and select *Breakpoint properties*. Select the *Common* entry on the list on the left-hand pane. A condition can then be entered in the *Condition* text box. In this case, setting the condition *i == 3* will cause the breakpoint to be hit on the 3rd call the function *f*.

3 To set a conditional breakpoint from the command line

Breakpoints are set using the *breakpoint* command. This command returns an ID which can be used to refer to the breakpoint. A condition can be set on a breakpoint using the *condition* command, which takes as arguments a breakpoint ID and the condition itself. The following is an example of an XGDB session using a condition breakpoint:

```
> xgdb a.xe
...etc..
(gdb) connect -s
0xffffc04e in ?? ()
(gdb) breakpoint f
Breakpoint 1 at 0x100b4: file setting_a_conditional_breakpoint.xc, line 12.
(gdb) condition 1 (i == 3)
(gdb) run
...etc...
Breakpoint 1, f (i=3) at setting_a_conditional_breakpoint.xc:12
12    return 0;
(gdb) print i
$1 = 3
(gdb)
```