

Application Note: AN10118

# How to disassemble a program using xobjdump

This application note is a short how-to on programming/using the xTIMEcomposer tools. It shows how to disassemble a program using xobjdump.

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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 disassemble a program using xobjdump

The xTIMEcomposer tools contain the *xobjdump* utility, which you can use to disassemble a given executable. For example, compile the following code:

```
#include <print.h>

int main() {
    printstr("Hello World!\n");
    return 0;
}
```

From the command line, the resulting executable can be disassembled as follows:

```
xobjdump -d a.xe
```

This will produce the following output:

```
....
<main>:
0x000100ac: 44 77:      entsp (u6)      0x4
0x000100ae: 4e 68:      ldc (ru6)       r1, 0xe
0x000100b0: 00 f0 05 60: ldaw (lru6)    r0, dp[0x5]
0x000100b4: 00 f0 4d d0: bl (lu10)      0x4d <printstr>
0x000100b8: 40 68:      ldc (ru6)       r1, 0x0
0x000100ba: 42 54:      stw (ru6)       r1, sp[0x2]
0x000100bc: 01 54:      stw (ru6)       r0, sp[0x1]
0x000100be: 02 5c:      ldw (ru6)       r0, sp[0x2]
0x000100c0: c4 77:      retsp (u6)      0x4
....
```

You can use *xobjdump* to intermix the source lines with the disassembly output. This is enabled via the *-S* command line option:

```
xobjdump -S a.xe
```

This will produce the following output:

```
....
int main() {
    0x000100ac: 44 77:      entsp (u6)      0x4
    0x000100ae: 4e 68:      ldc (ru6)       r1, 0xe
    printstr("Hello World!\n");
    0x000100b0: 00 f0 05 60: ldaw (lru6)    r0, dp[0x5]
    0x000100b4: 00 f0 4d d0: bl (lu10)      0x4d <printstr>
    0x000100b8: 40 68:      ldc (ru6)       r1, 0x0
    return 0;
    0x000100ba: 42 54:      stw (ru6)       r1, sp[0x2]
    0x000100bc: 01 54:      stw (ru6)       r0, sp[0x1]
    0x000100be: 02 5c:      ldw (ru6)       r0, sp[0x2]
    0x000100c0: c4 77:      retsp (u6)      0x4
....
```

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