How to use xobjdump to inspect and manipulate XE files

version	1.0.1
scope	Example. This code is provided as example code for a user to base their code on.
description	How to use xobjdump to inspect and manipulate XE files
boards	Unless otherwise specified, this example runs on the SliceKIT Core Board, but can easily be run on any XMOS device by using a different XN file.

The xTIMEcomposer tools contain the *xobjdump* utility, which you can use to inspect, and potentially update, the contents of XE files. For example, compile the following multicore program using the *SLICEKIT-L16* target:

```
#include <platform.h>

int f() {
  return 0;
}

int main() {
  par {
    on tile[0]: f();
    on tile[1]: f();
  }
  return 0;
}
```

An XE file is an XMOS specific container format for a number of resources that go toward making up an xCORE multicore binary. Most importantly, it contains one or more ELF files per tile. To see the contents of the resulting executable, use *xobjdump* with the *–sector-info* command line switch:

```
> xobjdump --sector-info a.xe
a.xe: file format: xcore-xe

Xmos binary sector information: file: a.xe

0: NODEDESC sector, part number: 0x2633
1: NODEDESC sector, part number: 0x2633
2: ELF sector for tile[0] (node "0", tile 0)
3: CALL sector. Address: 0x00000000
4: ELF sector for tile[1] (node "1", tile 0)
5: CALL sector. Address: 0x00000000
6: ELF sector for tile[0] (node "0", tile 0)
```

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```
7: GOTO sector. Address: 0x00000000
8: ELF sector for tile[1] (node "1", tile 0)
9: GOTO sector. Address: 0x00000000
10: SYSCONFIG sector
11: XN sector
12: PROGINFO sector
13: LASTSEC sector
```

If you need access to the these contained files, they can be dumped to the file system using the *-split* command line switch. You can then use standard ELF utilities such as *readelf* to inspect the contents of the tile specific ELF files.

You can also add and replace sectors in the XE file using *xobjdump*. See *xobjump -help* for further details.

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