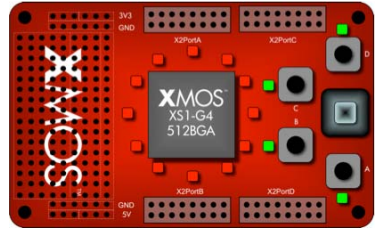


The XC-1 Development Kit contains everything you need to start exploring the XMOS technology. The XC-1 XCard is powered by your development system using the USB cable provided. Once the XC-1 card is connected, you need to download a set of tools from the XMOS website that let you load and debug programs on your XC-1 card using the USB cable.



Mac OSX Users

Connect the XC-1 card to your system

Connect the XC-1 card to your development system using the USB cable provided.

The XC-1 card starts up and flashes the LEDs around the XMOS chip on the card. The XC-1 card has four demonstrations which you can launch using the push-buttons.

Download and configure the tools

1. Go to: <http://www.xmos.com/downloads> and download the Desktop Tools.
2. Run the Package Installer to install the tools. Follow the instructions on screen.

Download a demo to the XC-1 card

1. Disconnect the XC-1 card from the USB cable.
2. Press and hold down Button A on the XC-1 card and reconnect it to the USB cable at the same time. The button LEDs flash three times to indicate that the card has been set to *program mode*, allowing you to load your own programs.
3. Go to the tools installation folder (`Applications/XMOS/DesktopTools/version/`) and double-click the `SetEnv.command` file to open a Terminal window and configure the tools.
4. Run the following command to list all the XMOS devices attached to your system:

```
xrun --listdevices
```

The first XMOS device is listed at index 0.
5. Go to <http://www.xmos.com/xc1> and download the Flashing LED example to your Desktop Tools folder (the download folder must have read/write access).
6. Use the Terminal prompt to go to your Desktop Tools folder and run the command:

```
xrun xc1_flashing_leds.xe
```

(If you have more than one XMOS device attached to your system, you need to specify the ID of the XC-1 XCard using the `--device` switch.)

The demo is loaded onto the XC-1 card and flashes the LEDs in sequence.

More information: The *Desktop Tools Quick Start Guide* included in the installer contains further information on using the tools

Microsoft Windows Users

Connect the XC-1 card to your system

1. Connect the XC-1 card to your development system using the USB cable provided.
2. Follow the New Hardware instructions on screen. Select **Yes this time only** when Windows prompts you to **Connect to Windows Update**, and **Next** on the following screens—there should be two hardware devices and one serial port.

NOTE: The Development Tools installer includes a set of drivers that you can use instead of using Windows Update, but they are not guaranteed to be the latest version of the drivers. They are copied to the *Desktop Tools/Drivers* directory during installation.

The XC-1 card starts up and flashes the LEDs around the XMOS chip on the card. The XC-1 card has four demonstrations which you can launch using the push-buttons.

Download and configure the tools

1. Go to: <http://www.xmos.com/downloads> and download the Desktop Tools.
2. Run the Windows Installer to install the tools. Follow the instructions on screen.

Download a demo to the XC-1 card

1. Disconnect the XC-1 card from the USB cable.
2. Press and hold down Button A on the XC-1 card and reconnect it to the USB cable at the same time. The button LEDs flash three times to indicate that the card has been set to *program mode*, allowing you to load your own programs.
3. Select **Start>Programs>XMOS>Desktop Tools version>XMOS Command Prompt**.

4. Run the following command to list all the XMOS devices attached to your system:
`xrun --listdevices`

The first device is listed at index 0.

5. Go to <http://www.xmos.com/xc1> and download the Flashing LED example to your Desktop Tools folder (the download folder must have read/write access).
6. Use the command prompt to go to the Desktop Tools folder and run the command:

```
xrun xc1_flashing_leds.xe
```

(If you have more than one XMOS device attached to your system, you need to specify the ID of the XC-1 XCard using the `--device` switch.)

The demo is loaded onto the XC-1 card and flashes the LEDs in sequence.

XMOS Support

For further information on configuring the USB drivers, using the XC-1 Development Kit, example programs, software updates, and documentation, please go to:

<http://www.xmos.com/support>

Linux Users

Connect the XC-1 card to your system

1. Connect the XC-1 card to your development system using the USB cable provided.
2. Log into a shell with root permissions, open the file `/etc/fstab` and add the line:
`none /proc/bus/usb usbfs defaults,devmode=0666 0 0`
3. Unmount and remount the USB file system, and log out from root access.

NOTE: For troubleshooting information on configuring the USB driver see <http://www.xmos.com/support>

The XC-1 card starts up and flashes the LEDs around the XMOS chip on the card. The XC-1 card has four demonstrations which you can launch using the push-buttons.

Download and configure the tools

1. Go to: <http://www.xmos.com/downloads> and download the Desktop Tools.
2. Unpack and install the tools to the directory `/home/user`. Type:

```
tar -xzf DesktopTools_version.tgz -C /home/user
```

The archive is unpacked into the subdirectory `XMOS/DesktopTools/version/`.

3. Go to the Desktop Tools folder and edit the first line of `setup.bash`:

```
export XMOS_ROOT=/home/user/Xmos/DesktopTools/version
```

Download a demo to the XC-1 card

1. Disconnect the XC-1 card from the USB cable.
2. Press and hold down Button A on the XC-1 card and reconnect it to the USB cable at the same time. The button LEDs flash three times to indicate that the card has been set to *program mode*, allowing you to load your own programs.
3. Set up the environment variables required to use the tools by typing:

```
source setup.bash
```

4. Run the following command to list all the XMOS devices attached to your system (the first device is listed at index 0):

```
xrun --listdevices
```

5. Go to <http://www.xmos.com/xc1> and download the Flashing LED example to your Desktop Tools folder (the download folder must have read/write access).
6. Go to your Desktop Tools folder and run the following command (if you have more than one XMOS device attached to your system, you need to specify the ID of the XC-1 card using the `--device` switch):

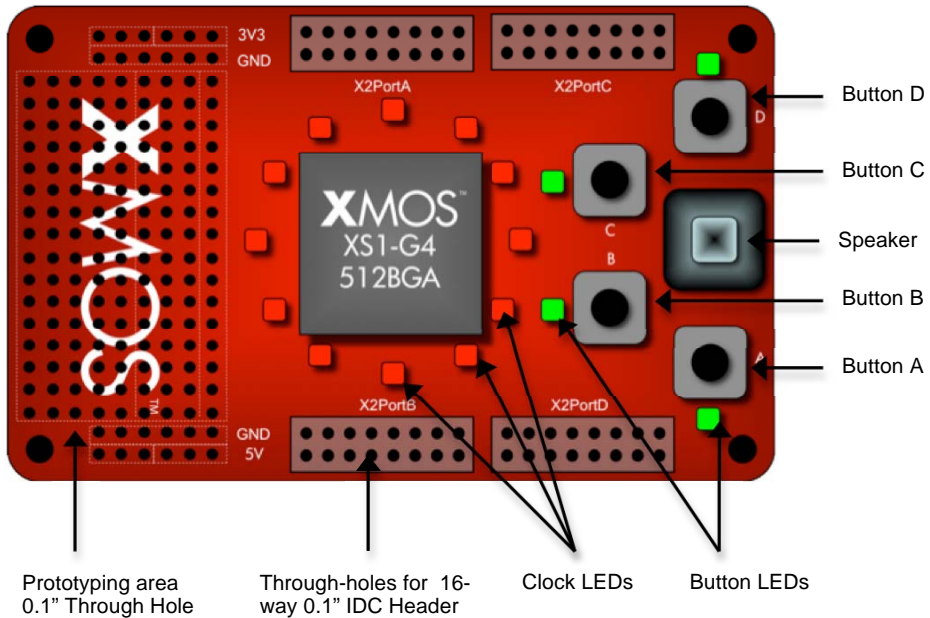
```
xrun xc1_flashing_leds.xe
```

The demo is loaded onto the XC-1 card and flashes the LEDs in sequence.

xlinkers.org

Please go to <http://www.xlinkers.org> a website that serves the XMOS community, to make contact with other users and find answers to your questions.

XC-1 XCard - Connectors and sockets



User Programming and Demo Mode

When you first connect the XC-1 to the USB port on your computer, it boots from internal OTP and runs the demonstration code. To use the XC-1 in *programming mode* disconnect the card from the USB cable and reconnect it while holding down Button A. The LEDs around the buttons flash three times to indicate that the card is in programming mode. The card stays in program mode until you disconnect it from the USB cable, when the XC-1 is automatically reset to its default demo state.

XC-1 Pre-loaded Demonstrations

The XC-1 runs pre-loaded demonstration code on power up. The default behaviour is to twinkle the bi-colour “clock” LEDs around the XS1 chip and to pulse the LEDs next to the buttons. Press any of the four buttons to launch a simple demo application.

Firmware versions

You can check the firmware version installed when you connect the XC-1 to the USB cable. The button LEDs light up to indicate the major version number and the clock LEDs indicate the minor number. For example, version 1.1 is identified when Button A LED and Clock LED 1 light up. If no LEDs light up the firmware is version 1.0.

Button A: Clock

Displays a clock on the clock LEDs with the hands as follows:

| | |
|--------|---------|
| Red | Minutes |
| Green | Hours |
| Orange | Seconds |

The 12 clock LEDs on the XC-1 provide 5-minute resolution and the four LEDs next to the buttons provide minutes (1-4) past this point.

When the clock is running use the buttons as follows:

| | |
|---|----------------------------|
| A | Return to default LED demo |
| B | Speed up clock to set time |
| C | Tick-tock sound on |
| D | Tick-tock sound off |

Button B: Simple Audio Synthesizer

Press buttons B-D to generate different tones.

Press A to return to the default LED demo.

Button C: Reaction Game

A simple reaction game. The red LED cycles around the clock face. After a varied delay a LED will illuminate green. The aim of the game is to press button D when the red LED is over the green LED.

The game speeds up as you progress. There are five levels to the game and the current level is shown on the four button LEDs.

Press A to return to the default LED demo.

Button D: Simple UART Demo

A simple UART demonstration using the virtual COM port of the XC-1. Once you have started the program, connect to it using a standard terminal (such as *realTerm* for Windows or *GTKTerm* for Linux). When you press a key, a list of three commands is displayed that you can use to illuminate the clock LEDs via the terminal.

The UART settings are as follows:

| | |
|--------------|--------|
| Bits per sec | 115200 |
| Parity | None |
| Data bits | 8 |
| Stop bits | 1 |
| Flow control | None |

Press A to return to the default LED demo.