

## Lantronix xPico200 Software Development Kit (SDK)

### SECURE BOOT

The xPico200 ships with secure boot. To use the SDK, you must first create your own private key and install it on your devices. Standard Lantronix-signed firmware will then no longer run on your devices. We provide unsigned copies of the firmware that you may sign with your own key. Find workflow and procedure details in <https://docs.lantronix.com/products/xpico-200/sdk/5.4/firmware/#secure-boot>.

### INSTALLATION

The xPico200 SDK is mostly self-contained and is distributed as a compressed directory tree within the single directory `xPico200/`. The decompressed SDK can be placed anywhere as long as the complete path to the xPico200 SDK directory contains no spaces; within the path

`<your_installation_directory>/xPico200`, ensure that any directory names within `<your_installation_directory>` do not contain space characters.

**NOTE: The full path to the xPico200 SDK must contain no spaces.**

### WINDOWS

The SDK includes a cross toolchain but does rely on basic host tools. In the Windows hosted SDK, these are provided by an included distribution of the MSYS2 platform.

### LINUX

Once the SDK has been installed on Ubuntu Linux, run the provided script at the root of the sdk directory `xPico200/install_environment.sh` to ensure the required host

The Linux hosted SDK has only been tested with Ubuntu, and has a few requirements. Specifically, the default shell `/usr/bin/sh` must be a link to `bash` instead of the Ubuntu default `dash`. Additionally, the `awk` implementation must be GNU `awk` `gawk` instead of the Ubuntu default `mawk`. These changes as well as other required host tools are installed with the `install_environment.sh` script.

### DOCUMENTATION

The content of the SDK manual is contained in the

`<your_installation_directory>/xPico200/html` directory. In the `<your_installation_directory>/xPico200/documentation` directory is a script to simplify loading the manual. In Windows, open `theDocument.cmd` either from a command prompt or by double-clicking from Windows Explorer. In Linux, open `theDocument.sh` from a shell (the default action in Gnome does not execute shell scripts).

## **SAMPLE BUILD**

Once the xPico200 SDK is installed, open a bash shell.

### **WINDOWS**

In Windows, you will need to open an MSYS2 terminal window by running `xPico200/msys64/msys2.exe`. The default working directory in the MSYS2 is `/home/<user>`; navigating to the xPico200 SDK will likely require a full path beginning with the drive letter mapped into the MSYS2 file system.

For example, if you installed the xPico200 SDK in your Windows user directory, changing the working directory to the xPico200 SDK would look like this:

```
> cd /c/Users/<user>/xPico200
```

For more information on the file system mapping and environment of MSYS2, see <https://www.msys2.org/docs/filesystem-paths/>

### **LINUX**

In Linux, ensure that the `install_environment.sh` script has been run (or the required tools and defaults are configured).

From your bash shell, follow these steps:

1. Change to the desired project directory. Type `"cd <your_installation_directory>/xPico200/custom/project/echoDemo"`
2. Edit your definition of "SDK\_VERSION" in "Makefile" which will be incorporated in the firmware version.
3. Build the project. Type `"make"`.
4. See <https://docs.lantronix.com/products/xpico-200/sdk/5.4/firmware/#manufacturing-workflow> for instruction on how to sign your built `.rom` file. By convention we name it the `.signed.rom` file.
5. Upload the signed code into your device. From the Web Manager, go to the Device page, click "Firmware Upgrade". Browse to the directory `<your_installation_directory>/xPico200/work/echoDemo` and select the `.rom` file that was just built, then click "Upload."
6. Notice that your Line configuration now has the "Echo" selection listed under "Protocol"; select this protocol.
7. Using a terminal program connected to the serial line, notice that characters sent into the Line interface are now echoed back.
8. View this example code in directory `<your_installation_directory>/custom/module/line_echo`.