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Tecktronx MSO20xx/DPO20xx software hack for AppModules

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John Ripper Initial commit — Latest commit `5807f72` on May 26, 2015

aux	Initial commit	4 years ago
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Makefile	Initial commit	4 years ago
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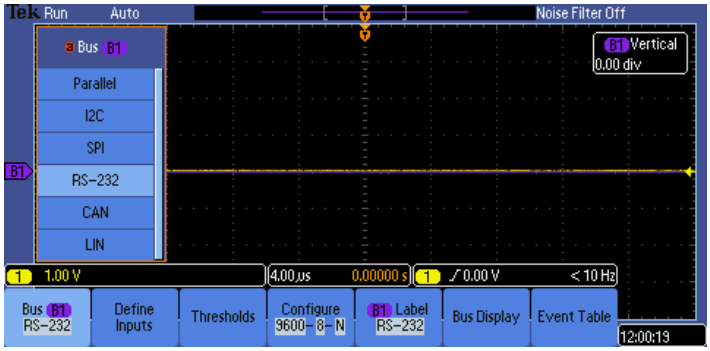
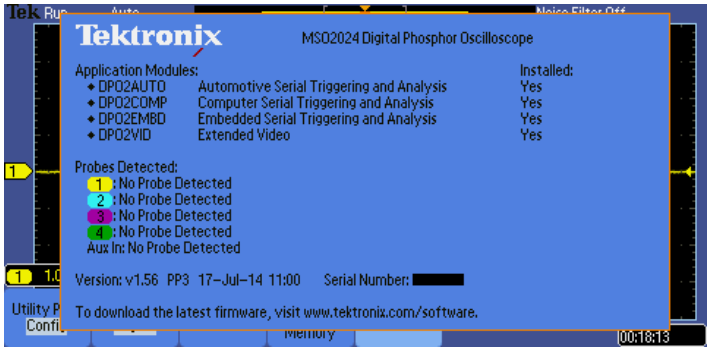
Readme.md

Tektronix MSO20xx/DPO20xx application module soft-emulator

Background

The project aims to remove ridiculous restrictions on usage of AppModules in Tektronix oscilloscopes.





A well-known solution how to hack the appmodules can be found on hackaday. However, it requires building a hardware module.

Another approach is demonstated here: is uses `LD_PRELOAD` technique to override access of scope application to i2c bus and emulate AppModule keys. Investigation of `scopeApp.ppc8xx` revealed that in MSO20xx/DPO20xx it scans two addresses (namely, `0x50` and `0x52`) and tries to read 1 byte from those addresses. If succeded, it changes base address to 0x4 (by writing 0x4 to the slave) and reads back 15 bytes. The `override.so` module simply gives the application what it's expecting to see.

Futhermore, a patch for binary file `scopeApp.ppc8xx` (`src/binpatch.sh`) is provided. It changes `fpAppKeyInitAddrs` to look at addresses `0x50`, `0x51`, `0x52` and `0x53` thus giving ability to unlock 4 ApppModules simalteneously.

Prerequisites

- Cross-compiler for `ppc32`
- Swiss File Knife sfk(if you intend to apply binary patch on `scopeApp.ppc8xxx`)

I've used a VM with debian sarge do build cross-compiler using crosstool project (powerpc-405, gcc-3.3.6, glibc-2.3.6 work fine for me).

Build & Install

Assuming that you have cross-compiler for powerpc32 and sfk in right paths (see Makefiles for that), you can just use `make` to build the firmware. Put it to your usb flash drive and follow usual Tektronix manual on updating the firmware.

Dedications

This hack is dedicated entirely to greed of Tektronix sales managers (especially those in Russian Federation) who completely fail to publish GNU GPL software components used in there scopes (linux kernel, glibc, busybox).

Legal notice

I assume that you do not use this to "crack" Tektronix scopes. Please feel free to unlock only features you have purchased from Tektronix. This software is intended to be used if you've lost the hardware key or it has been broken (or simply you don't like the idea of HW modules to unlock SW features).