Linux Rapid Embedded Programming

Rapid Embedded Development with LPCXpresso - Rapid Embedded Development with LPCXpresso 54 minutes - Since the introduction of the first variants in 2009, the LPCXpresso **development**, platform has re-energized the whole MCU ...

The LPCXpresso Ecosystem

LPCXpresso V2 Boards - Debug

The Original LPCXpresso boards

LPCXpresso IDE v7

Linux Device Drivers Development Course for Beginners - Linux Device Drivers Development Course for Beginners 5 hours - Learn how to develop **Linux**, device drivers. They are the essential software that bridges the gap between your operating system ...

Who we are and our mission

Introduction and layout of the course

Sandbox environment for experimentation

Setup for Mac

Setup for Linux

Setup for Windows

Relaunching multipass and installing utilities

Linux Kernel, System and Bootup

User Space, Kernel Space, System calls and device drivers

File and file ops w.r.t device drivers

Our first loadable module

Deep Dive - make and makefile

lsmod utility

insmod w.r.t module and the kernel

rmmod w.r.t module and the kernel

modinfo and the .mod.c file

proc file system, system calls

Exploring the /proc FS

Creating a file entry in /proc

Implementing the read operation

Passing data from the kernel space to user space

User space app and a small challenge

Quick recap and where to next?

Introduction to Embedded Linux Part 1 - Buildroot | Digi-Key Electronics - Introduction to Embedded Linux Part 1 - Buildroot | Digi-Key Electronics 25 minutes - Linux, is a powerful operating system that can be compiled for a number of platforms and architectures. One of the biggest draws is ...

Embedded Linux Size Reduction Techniques - Michael Opdenacker, Free Electrons - Embedded Linux Size Reduction Techniques - Michael Opdenacker, Free Electrons 49 minutes - Embedded Linux, Size Reduction Techniques - Michael Opdenacker, Free Electrons Are you interested in running **Linux**, in a ...

Introduction

Why reduce size

Why this talk

How small is a Linux kernel

GCC

Link Time Optimizations

clang vs GCC

Arm vs Thumb

Tiny Config

Slub

Kernel Size

Testing

Elementor

LTO

Clank

Kernel xip

Kernel configuration options

nmsizesort

LLVM Linux

User Space

Toybox

Busybox

Optimizing libraries

Conclusions

Recent achievements

References

Super fast boot of embedded Linux: 300 ms - Super fast boot of embedded Linux: 300 ms 28 seconds - http://www.makelinux.com/emb/fastboot/omap.

Watch Linux kernel developer write a USB driver from scratch in just 3h for Apple Xserve front-panel - Watch Linux kernel developer write a USB driver from scratch in just 3h for Apple Xserve front-panel 3 hours, 7 minutes - Watch #**Linux**, #kernel developer write a new #USB driver #code from scratch in just 3h by copy'n pasting and thus stealing it from ...

Embedded Linux \"from scratch\" in 45 minutes...on RISC-V - Embedded Linux \"from scratch\" in 45 minutes...on RISC-V 1 hour, 6 minutes - Join and discover how to build your own **embedded Linux**, system completely from scratch. You will build your own toolchain, ...

build a tool chain for this work

synthesize risk factors on programmable logic fpgas

started with the qm emulator

build the firmware

kickstarts the linux kernel

build the cross-compiling tool chain

generate our own cross-compiling tool chain

build a tool chain

create the cross-compiling tool chain

adding the path to the toolchain

booting an emulating machine

build the linux kernel

configure your kernel

select your features

install the kernel

install the ssh server

create an environment file

get the linux kernel

extracting the kernel sources

boot the linux kernel from qmu

boot the kernel

create a root file system and installation directory

populate the the rota system with busybox

create a mount point

create a device directory

start booting linux from from your boot

available slides about embedded linux

Web Automation Testing Using Playwright On Cloud | LambdaTest - Web Automation Testing Using Playwright On Cloud | LambdaTest 46 minutes - In this comprehensive tutorial, join Mukesh Otwani (@MukeshOtwani) - Founder Of Learn-Automation, as he delve into the world ...

Intro

Installing Playwright

LT Documentation

Explaining Capabilities

Explanation of setup

Explain TearDown

Explain Test Video

How to learn Embedded systems from scratch - A Beginner's Guide. - How to learn Embedded systems from scratch - A Beginner's Guide. 43 minutes - In this comprehensive guide, we delve into the world of **embedded**, engineering. Whether you're a beginner or looking to enhance ...

Introduction

Who should opt for Embedded systems?

Is Post graduation required?

Mentors/Community plays a big role!

How to start learning Important area/topics as a beginner?

Learning C is imp for embedded systems?

How much C programming is required?

Important topics/area in Embedded systems

learning Linux is also important

Interface Protocols

RTOS concepts

End of Part 1 - Part 2 is also available on channel!

Designing \u0026 manufacturing a custom embedded linux machine. - Designing \u0026 manufacturing a custom embedded linux machine. 42 minutes - Julien Goodwin https://2019.**linux**,.conf.au/schedule/presentation/127/ These days there's many cheap \u0026 abundant options for ...

System in Package (Ex, PocketBeagle)

Split modules onto individual test boards

Schematic

Board Rendering

Generating parts data

Boards Arrive

First Power

The Bug

Power usage (CPU idle, no Ethernet link)

Storage

Secure and Reliable Firmware Updates with wolfBoot in 2024 - Secure and Reliable Firmware Updates with wolfBoot in 2024 1 hour, 7 minutes - Check out a webinar on 'Secure and Reliable Firmware Updates with wolfBoot in 2024,' presented by wolfSSL Senior Engineer ...

intro

IoT security

Secure bootloader

overview of wolfBoot

Trust anchor

Firmware authentication: supported crypto

Secure bootloader: update management

wolfBoot boot/update mechanism

wolfBoot A/B mechanism

Architectures supported: design differences

Architecture supported: hardware assisted

wolfBoot advanced features

Integration with TPM 2.0

Simplest (?C) use case

Interruptible swap operations

Secure firmware updates

Secure protocols for IoT

Conclusion

Q\u0026A

Embedded Linux (Part 5): I2C Device Driver on Beaglebone Black - Embedded Linux (Part 5): I2C Device Driver on Beaglebone Black 29 minutes - This video will explain to you the overview and functionality of I2C communication protocol and understanding of I2C device driver ...

Building a Custom Embedded Linux Distribution with the Yocto Project - Building a Custom Embedded Linux Distribution with the Yocto Project 50 minutes - Watch the \"Building a Custom **Embedded Linux**, Distribution with the Yocto Project\" presentation from the 2013 **Embedded Linux**, ...

Intro

What is the Yocto Project?

Why not use an existing distro?

Anatomy of a Yocto Project download

So, let's run the script

What did the script do?

Let's run a build

What's the tree look like now?

So, what's in the work dir?

How far down do I need to go?!

Dumping a bitbake environment

How to explore layers efficiently

So, what are recipes?

Wait, so what are packages then?

So, what are bbappend files?

Tracking down busybox

How do I add my application to an image?

How to Avoid Writing Device Drivers for Embedded Linux - Chris Simmonds, 2net - How to Avoid Writing Device Drivers for Embedded Linux - Chris Simmonds, 2net 41 minutes - How to Avoid Writing Device Drivers for **Embedded Linux**, - Chris Simmonds, 2net Writing device drivers is time consuming and ...

Intro

About Chris Simmonds

Conventional device driver model

How applications interact device drivers

A note about device trees

GPIO: General Purpose Input/Output

Two userspace drivers!

The gpiolib systs interface

Inside a gplochip

Exporting a GPIO pin

Inputs and outputs

Interrupts

The gpio-cdev interface

gpio-cdev example 22

PWM: Pulse-Width Modulation

The PWM systs interface

Exporting a PWM

PWM example

12C: the Inter IC bus

The 12c-dev driver

Detecting 12c slaves using cdetect

12C code example - light sensor, addr 0x39

Other examples

What are you missing?

A Day in the Life of an Embedded Software Engineer | Work From Home - A Day in the Life of an Embedded Software Engineer | Work From Home 5 minutes, 3 seconds - Want to Support This Channel? Use the \"THANKS\" button to donate :) Hey all! Today I'm sharing about my day in the life of a ...

Code Reviews

Stand-Up Meetings

Designing Embedded Systems with Linux and Python - Designing Embedded Systems with Linux and Python 22 minutes - Mark Kohler The continual decrease in the cost of computer hardware is allowing more **embedded**, systems to be built with **Linux**, ...

Choose the right distribution.

For a kiosk, choose Ubuntu.

Fedora?

For a router, choose Debian.

BusyBox

Linux from Scratch

Handle upgrades automatically.

Simplest approach: upgrades are filesystem images

Debian's Advanced Package Tool (APT)

APT and embedded systems

Review

GPS time is not UTC.

Time is relative.

Time is not monotonic.

Let's talk about Python.

Libraries vs Frameworks

Write portable code.

elif model == PRODUCT_PRO

Avoid desktop assumptions.

Embedded Linux Explained! - Embedded Linux Explained! 9 minutes, 48 seconds - Embedded Linux, has become an upcoming field in electronics and computer science with plenty of opportunities to build really ...

Embedded Linux Explained!

A Brief story about the birth of Linux

Understanding 'Embedded Linux

Exam.ple applications of Embedded Linux

Nuvoton Chili board with Linux OS, featured in it's compact size, rapid in development - Nuvoton Chili board with Linux OS, featured in it's compact size, rapid in development 1 minute, 30 seconds - Nuvoton provides a new **development**, platform, Chili. Chili is designed by NUC980 family. A user can begin application ...

Chili features a 64MB DRAM density

chili supports Ethernet, USB

RS-485 and GPIO controls

Linux Training: Intro to Embedded Linux (Excerpt) - Linux Training: Intro to Embedded Linux (Excerpt) 5 minutes, 12 seconds - The **Linux**, Foundation's Jerry Cooperstein shares an excerpt from this free **Linux**, Training video on an introduction to **embedded**, ...

Intro

Introduction to Embedded Linux

Embedded Devices

Real Time Systems

Rapid Embedded Prototyping with SiFive Software - Rapid Embedded Prototyping with SiFive Software 1 hour - Learn how to develop **embedded**, software for RISC-V processors using the SiFive Freedom E SDK. We will review the ...

Introduction

SiFive Background

SiFive Software

Embedded Software Ecosystem

Freedom SDK

Freedom SDK Structure

Design Metadata

Command Line Interface

Metal Library

Metal Directory

Tips Tricks

Conclusion

Setup

Toolchain

XE3S Pro

Software Development

Hardware Setup

Creating Your Own C Program

Demonstration

Fundamentals of Embedded Linux - Chris Simmons - NDC TechTown 2022 - Fundamentals of Embedded Linux - Chris Simmons - NDC TechTown 2022 1 hour, 4 minutes - Linux, is **embedded**, into many of the devices around us: WiFi routers, the navigation and entertainment system in most cars, smart ...

Embedded Linux Development Training Course from The Linux Foundation - Embedded Linux Development Training Course from The Linux Foundation 1 minute, 9 seconds - This instructor-led course will give you the step-by-step framework for developing an **embedded Linux**, product. You'll learn the ...

What Actually is Embedded C/C++? Is it different from C/C++? - What Actually is Embedded C/C++? Is it different from C/C++? 11 minutes, 5 seconds - What Actually is **Embedded**, C? // There's a lot of misinformation out there about what **embedded**, C actually is, how it is (or isn't) ...

Embedded C Is Not an Extension of the C Language

C Is a Hardware Independent Language

Proprietary Embedded Compilers

Bug Fixing

Bug Fixing

Header File

Macros H

Linker Script

Rapid Developing and Testing Linux Kernel in Docker Containers - Leon Romanovsky, Mellanox - Rapid Developing and Testing Linux Kernel in Docker Containers - Leon Romanovsky, Mellanox 32 minutes - Rapid, Developing and Testing **Linux**, Kernel in Docker Containers - Leon Romanovsky, Mellanox In this session, Leon will present ...

Intro

Short Bio

Perfect Solution

Development Flow

Existing Solutions

Layers

Initial Setup

Support Container

Build Code

CI Testing

Run Flow

Rich Configuration Syntax

QEMU Image

QEMU Network

External Routing (2 NICS)

QEMU Hardware Support

Open Source in Every Car with Automotive Grade Linux - Open Source in Every Car with Automotive Grade Linux 49 minutes - Open Source in Every Car with Automotive Grade **Linux**, - Walt Miner, The **Linux**, Foundation Automotive Grade **Linux**, (AGL) is a ...

Intro

Who Is This Guy?

Git Commits BB and CC

Automotive Grade Linux

Charter: AGL is \"Code First\"

AGL is changing the future of driving

AGL is changing the industry

AGL Distro \"Unified Code Base\"

Brilliant Blowfish

Reference or Community BSP?

Charming Chinook

SDK for App Developers

AGL Compositor

Daring Dab

Software Configuration Requirements

AGL Core Distribution

AGL Extra Features

AGL Community Development

AGL Demonstrator Code

Release Management

AGL Yocto Layers

Git and Gerrit

Continuous Integration

App Framework and Security EG

UI and Graphics EG

Cl and Automated Test EG

Embedded Linux from Scratch in 45 minutes, on RISC-V - Embedded Linux from Scratch in 45 minutes, on RISC-V 54 minutes - This is the video of Bootlin engineer Michael Opdenacker's talk at FOSDEM 2021, \" **Embedded Linux**, from Scratch in 45 minutes, ...

Welcome to the special edition of FOSDEM for Covid

What I like in embedded Linux

Reviving an old presentation

RISC-V: a new open-source ISA

How to use RISC-V with Linux?

Things to build today

What's a cross-compiling toolchain?

Why generate your own cross-compiling toolchain?

Choosing the C library

Generating a RISC-V musl toolchain with Buildroot

RISC-V privilege modes

OpenSBI: Open Supervisor Binary Interface

Starting U-Boot in QEMU

Environment for kernel cross-compiling

Kernel configuration

Compiling the kernel

Booting the Linux kernel directly

Booting the Linux kernel from U-Boot

Disk image creation (2)

Completing and configuring the root filesystem (2)

Common mistakes

Add support for networking (2)

C++ in 100 Seconds - C++ in 100 Seconds 2 minutes, 46 seconds - C++ or C-plus-plus or Cpp is an extremely popular object-oriented **programming**, language. Created in 1979, today it powers ...

Intro

About C

Outro

Linux and embedded system: What you should know - Linux and embedded system: What you should know 2 minutes, 49 seconds - Open-source software and **embedded Linux**,? Ever-proliferating cybersecurity concerns? Get up-to-speed with the current status in ...

Intro

Linux

Updates

Intro to ENPM809V: Advanced Hacking of Linux and Embedded Systems - Intro to ENPM809V: Advanced Hacking of Linux and Embedded Systems 4 minutes, 1 second - Intro to ENPM809V: Advanced Hacking of **Linux**, and **Embedded**, Systems taught by Michael Wittner.

Intro

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Why this course

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Spherical videos

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