

Helix

Embedded Linux distribution

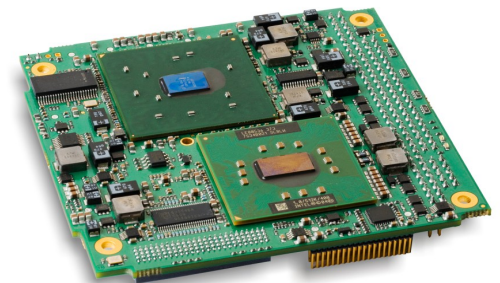
Jonas Antoni Hectronic AB

Introduction

- Hardware and software are tightly coupled in embedded systems
- The life cycle of embedded systems are long
- Open source software is great, but volatile
- Linux systems are very flexible and complex
- Having control over the system configuration is crucial for success

We will be right back after these messages...

- Hectronic provides a one-stop-shop for technical platforms.
- Involved in all stages of a product
 - Design, development, manufacturing, life cycle support



Hard earned experiences

- Distributions
 - Distribution based on Debian, failed after 3 years
 - Running 3rd party distribution. Maybe OK if you're a big player
- 3rd party software
 - Open source projects aren't always backwards compatible

System configuration

- System configuration applies to:
 - Kernel/drivers
 - Utilities/scripts
 - 3rd party software
 - And, of course, the application
- Configuration data must be well known for all items. Simplifies maintenance

The postman delivers - Helix

- Cross compiler
- Binary packages
- Source code
- Build scripts
- Bootloader
- Documentation and application notes

The cross compilation tango

- The toolchain is more than just the compiler
- Finding the correct combination
 - gcc, glibc, gdb, pthreads, binutils + patches
 - $14 * 14 * 10 * 5 = 9800$ permutations

Packages

- Utilities (such as ping, sh, init etc.)
- Development libraries (to link with the application)
- Headerfiles (interface to the libraries)
- Debugging utilities (gdb)

Build scripts

- The core of the system
- Defines the system configuration
- Builds the target filesystem

Architecture support

- Board support package - quick start
- Prototype on desktop PC
- Verify on target
- Deploy

So, what? What's the big deal?

- Home brewed distribution. You don't need to be a magician, but...
 - Time consuming to build/verify toolchain
 - Crosscompilation/porting of packages may be more than just "make"
 - Unmaintained distributions breaks down

Customer benefits

- Less system integration work
- Pre-configured Board Support Package for hardware
- Integrates with Kdevelop and Eclipse
- Fast up-and-running for Linux developers
- Long term support
- Faster product release

Q & A

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