Open Source Development Tools for Embedded Linux Software

The Yocto Project provides an Application Development Toolkit (ADT) which includes a set of recommended development tools from the open source community. The Enea Linux distribution includes some of these tools and suggests that the tools are used in Eclipse.

Eclipse™ is an open source Integrated Development Environment (IDE) comprising a base workspace and an extensible plug-in system for customizing the environment, written mostly in Java. It is the preferred choice of IDE if you prefer working in a graphical IDE instead of issuing commands in a shell.

The Application Development Kit
- Aimed at application developers
- Cross-develop on the host machine for the target hardware
- Not requiring to learn a build system
- Architecture specific cross-toolchain and sysroot
- Eclipse IDE Yocto Plug-in
- Debugging tools
- Profiling tools
- QEMU emulator integration

Cross Compiling
- Cross-compiler toolchain for specific host/target
- Automatically generate Makefile for specific target

Debugging remotely
- Compile using generated Makefile
- Load using TCF
- Run remotely
- Debug using GDB
- TCF connection (Target Communication Framework)

LTtng tracing
- Track down and debug problems involving concurrent processes and threads.
- Kernel and UST
- LTtng Viewer – display and analyze traces
- Remotely run a tracing session

Powertop
- Power usage statistics

Latencytop
- Identify system latency hiccups
- What kind of operation/action is causing it
Bitbake commander
- Used for creating Embedded Linux image projects
- Uses the poky folder
- Can automatically clone the yocto repo

Perf
- Generalized abstractions over hardware specific capabilities
- Per task, per CPU and per-workload counters
- Source code event annotation
- RSE (Remote System Explorer) interface to target

System tap
- Uses its own scripting language
- Extract, filter and summarize data to enable diagnosis of complex performance or functional problems
- Aimed at System administrators
- Plugin enables a user to launch system tap kernel modules on target

HOB
- Graphical tool for configuring and building a Yocto image
- Choose layers, targets, packages and settings
- Modify existing base image recipes
- Save build configurations as templates
- Build images
- Run images in the QEMU emulator
- Useful to see package dependencies

BSP Package
- BSP creation wizard

About the ADT and IDE
For a basic understanding of the development environment, we recommend studying the Yocto Project ADT User’s Guide.

For information on how to use the IDE and the tools once you have started them, see the Yocto Project Development Manual.

About Yocto and Enea Linux
Enea Linux is based on the Yocto Project, hence most of the documentation from the Yocto Project is valid for Enea Linux as well. We recommend the resources below:

Yocto Project documentation:
http://www.yoctoproject.org/docs
A comprehensive list of high quality documentation regarding all things in Yocto.

OpenEmbedded documentation:
http://docs.openembedded.org
Since the Yocto Project is downstreamed from OpenEmbedded, reading the OE documentation will be helpful.

bitbake documentation:
http://bitbake.berlios.de/manual/
Bitbake is the tool used to parse all recipes.

Enea Linux web page:
http://www.enea.com/linux
The best source of information about Enea Linux and related technical documentation.