

# Freescale's CommExpert Software

## Overview

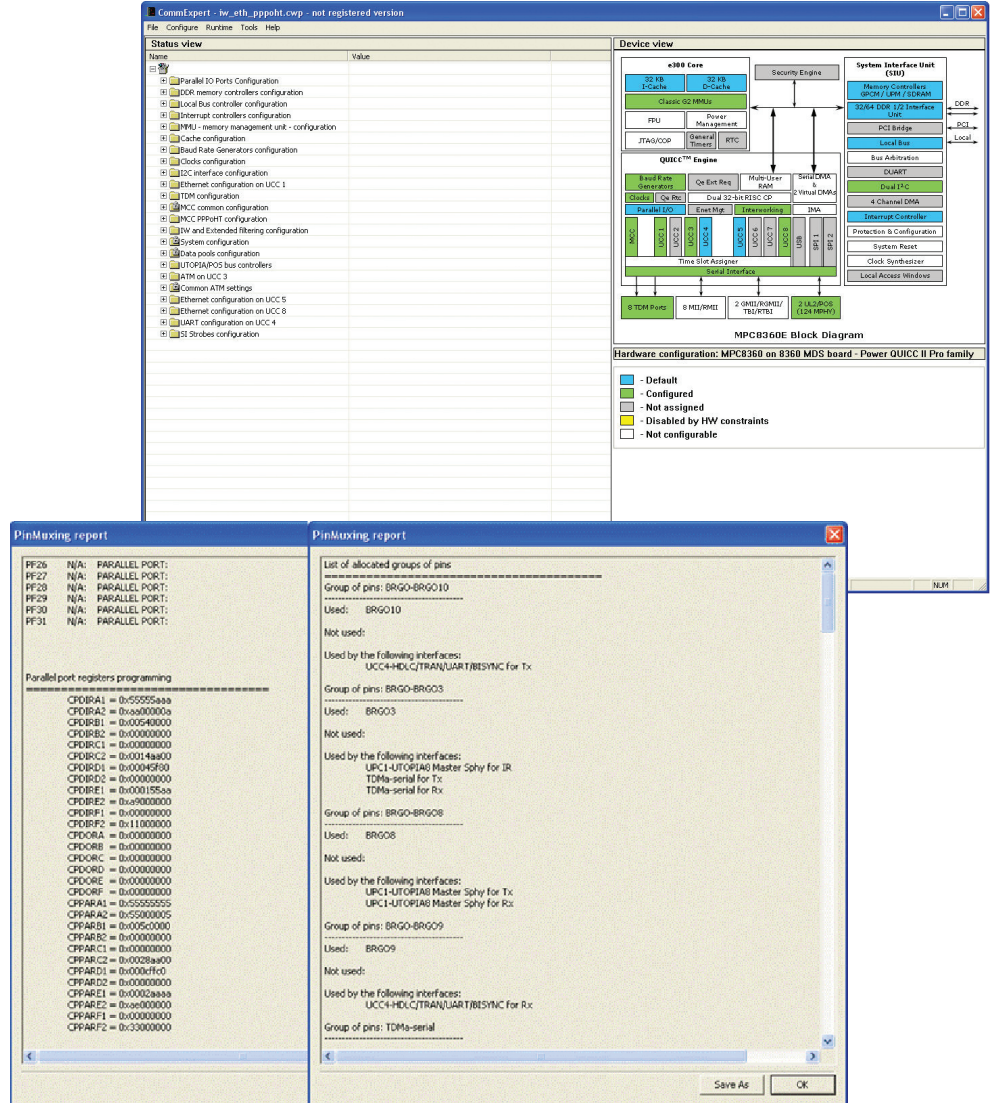
CommExpert (CE) is a powerful GUI-based tool that speeds and simplifies initialization, configuration and run time of the drivers and communications protocols managed by the QUICC Engine™ based devices and other Power QUICC® II Pro family devices. This tool provides an easy-to-use environment for handling common QUICC Engine programming tasks, and offers immediate access to relevant documentation. It is designed to help developers quickly initialize and run applications on QUICC Engine devices so they can focus on application creation and other tasks that differentiate their end product in the marketplace.

The result of this SW tool is an automatic C file code generation that integrates to a customized project, and can be quickly run on the MDS evaluation board.

The CE works with any toolset and supports the implementation of a variety of protocols including interworking protocols, with many use cases which can be easily customized by the user. It includes functionality that discovers resource collisions and issues an alarm when drivers simultaneously share common device resources. All this can be seamlessly customized and generate an application project to run on the MDS boards.

## Pin Muxing Tool

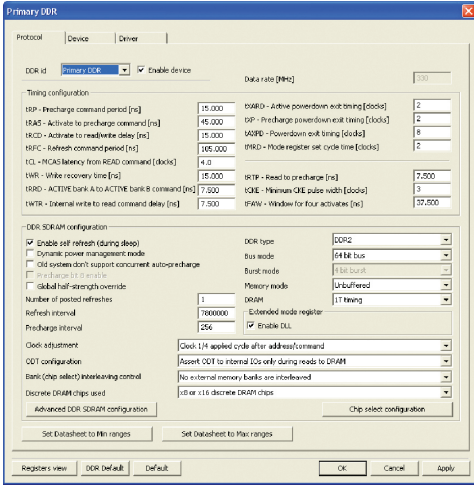
This built-in tool supports configuration of the device by multiplexing between external pins and available functionalities. It enables pin-out customization according to a user's requirements.



This option is mandatory prior to hardware design and layout. The output of this tool is a pin muxing report that lists:

- Pin group allocation
- Pins and allocated functions
- Parallel port registers programming and values

CommExpert is integrated in the NetComm device drivers release available at [freescale.com](http://freescale.com), keyword search "NetComm Device Driver." For additional up-to-date devices, features and support, please refer to the latest NetComm device drivers release notes.



### DDR Configuration

An easy-to-use interface for configuring the DDR vendor of your choice. Simply open the relevant device and click on the DDR block to fill the parameters from a vendor's data sheet. The result: full list of DDR registers are easily set to their values.

### Use Cases

We provide built-in running applications on the MDS. You can easily customize dozens of applications based on different scenarios to fit your requirements and deploy them again within minutes.

The use cases are attached to an internal traffic generator to integrate a full learning and testing environment. Many use cases enable you to connect external equipment and test the performance of the device using your own set of tests.

### Protocol Configuration and Use Cases

To help you understand how to use the drivers' APIs, device, protocol and peripheral use case configurations that are available, we have included a simple pattern generator and analyzer so you can quickly get acquainted with the relevant peripheral or protocol implementation and measure its performance.

### Interworking Support and Use Case

Interworking use cases required usage of several drivers' initialization and coordination. To customize more easily and efficiently, please consult the following flow chart. Its high-level design accelerates your interworking application. Since running an interworking application may result in using multiple drivers' environments, this easy-to-use flow chart guarantees a simple system approach to help you with your application design. Following that, just double click on the appropriate filter block and check the relevant action descriptor with the lookup key.

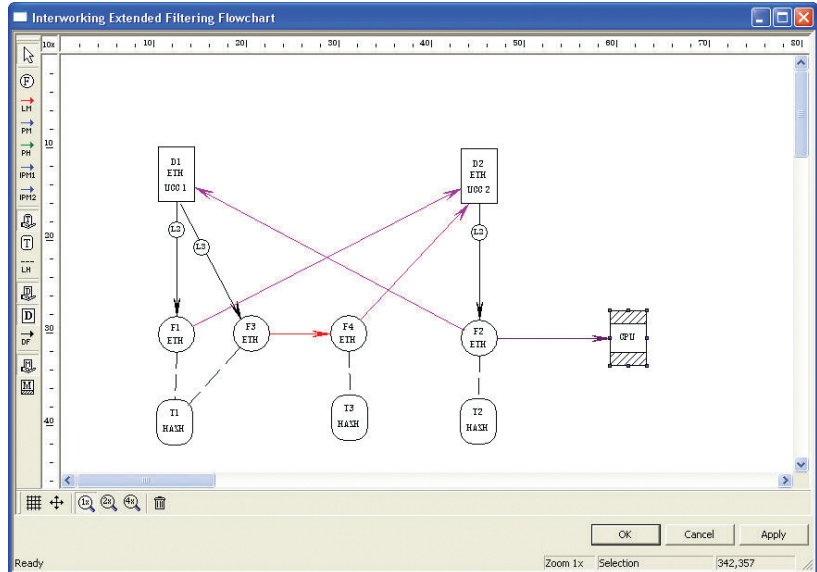
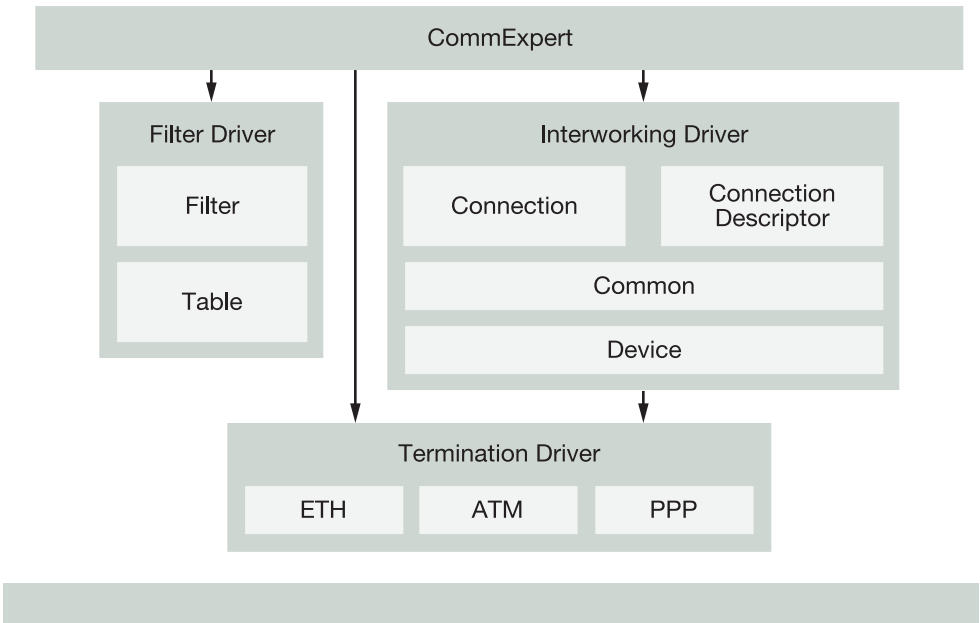
The following interworking use cases are available:

- Ethernet to Ethernet
- Ethernet to AAL5, AAL2
- PPP over HDLC TDM to Ethernet
- Multi-link, multi-class PPP to Ethernet

Demo applications available:

- IPDSLAM
- NodeB
- L2 Switch

### CE Uses the Drivers of Ethernet to ATM Interworking Use Case



## Run Time CE

Run Time CE (RCE) is a remote management software solution that allows the user to remotely control and monitor communication processors by providing runtime interaction at:

- Protocol level: channel speed/rate, filtering lookup tables configuration, protocol specific statistics
- Device level: memory view, registers view, performance monitoring

RCE is different than a regular debugger because it does not force the user to stop the running application at a particular breakpoint but allows on-the-fly runtime interaction without stopping a running application.

RCE supports a wide range of communication protocols:

- Ethernet, eTSEC, ATM (AAL0, AAL5, AAL2, AAL1), IW (Eth-Eth, Eth - ATM), IMA
- L2 Switch, HDLC, SS7, Transparent, UART, I<sup>2</sup>C, PPP, USB

RCE Agent uses one of these protocols to communicate with the server for control and monitoring purposes.

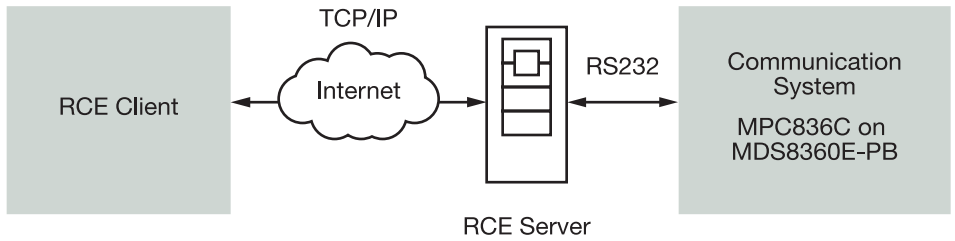
## Linux® Support

This feature allows users to configure the NetComm device drivers for a Linux BSP.

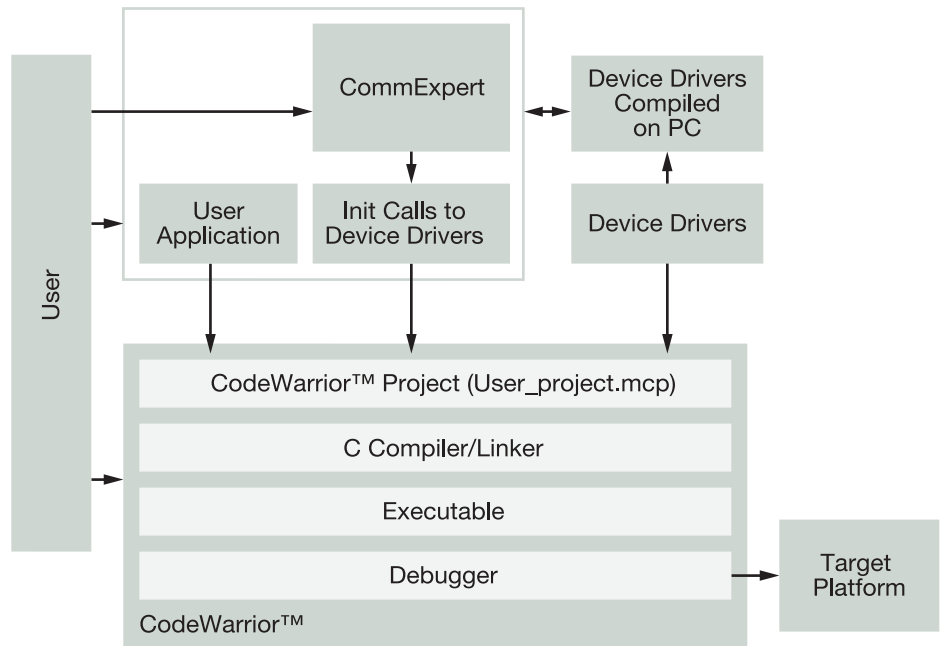
CE Linux support will contain the following features:

- Generate code for u-boot:
  - System configuration: integration with u-Boot implementation
- Generate code for Linux:
  - Initialization code for kernel space: wrappers, kernel space default configuration values
  - Initialization code for user space: libraries, user space default configuration values

## Run Time CE System Solution Concept



## Configure, Generate, Run



- Make files for kernel module and user libraries using
  - NetComm device drivers make files
  - CE initialization code make files (generated)

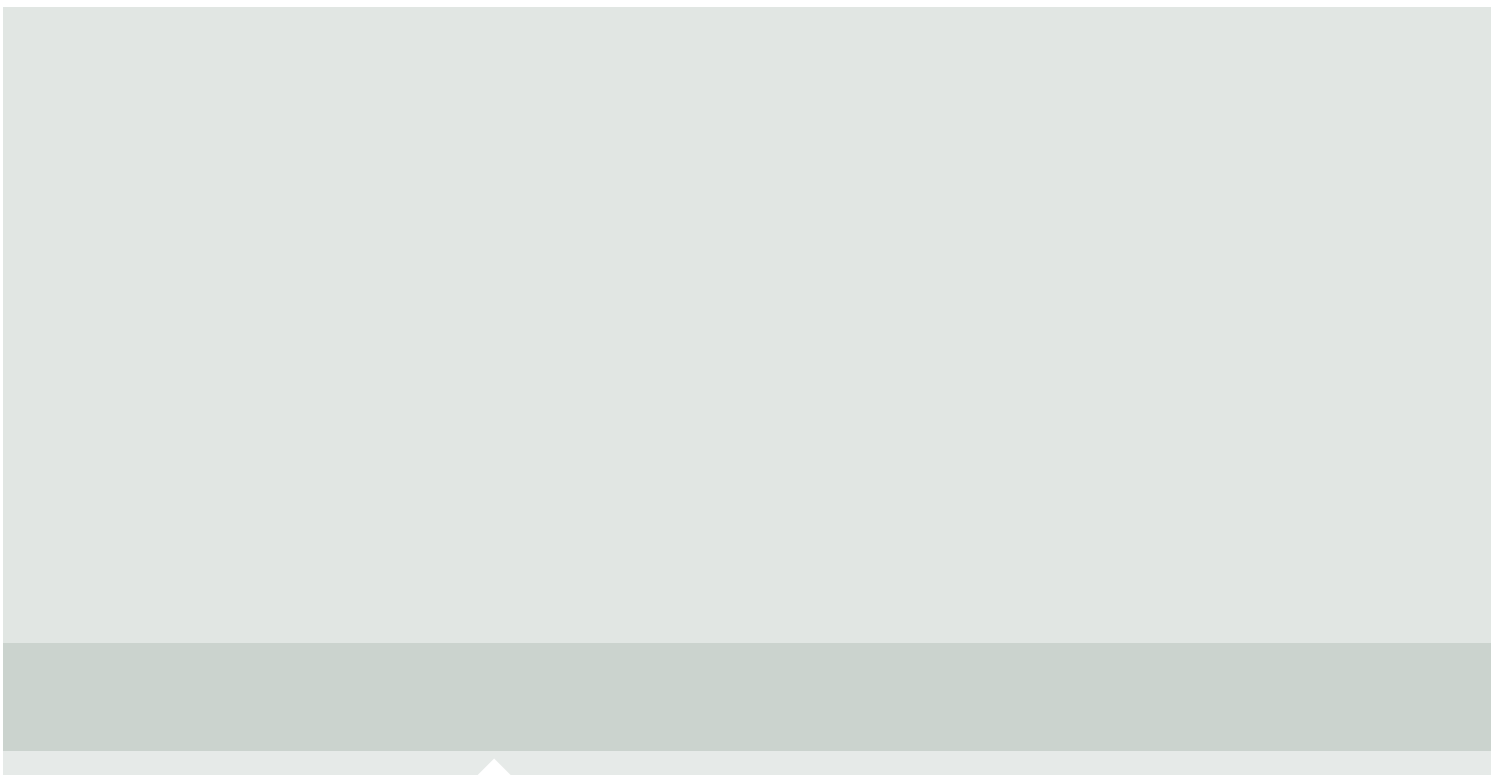
RCE Agent uses one of these protocols to communicate with the server for control and monitoring purposes.

The CE is part of our QUICC Engine comprehensive solution that enables the three-step mechanism:

1. **Configure** your needs
2. **Generate** code with the CE
3. Open CodeWarrior™ and **run** the project

That's it. Now you can analyze the results. Want to modify? Repeat the above steps.

For detailed supported features and collateral environment information on CE support, please refer to the NetComm device driver release note.



**Learn More:** For more information about Freescale products, please visit [www.freescale.com/codewarrior](http://www.freescale.com/codewarrior).