Internet of Things - Freescale Solution Training

Dates & Locations:
18/03/2015 – Katowice
24/03/2015 – Sopot
25/03/2015 – Warszawa
26/03/2015 – Wroclaw
Language: English
Training Type: Hands on

Agenda:

8:30 – 9:00	Registration
9:00 – 9:20	Opening session
9:20 – 10:30	Next generation of Kinetis MCUs as based IoT building blocks
10:30 – 12:00	Lab 1 hands-on – First steps with MQX Real Time Operating System
12:00 – 13:00	Lunch
13:00 – 14:30	Lab 2 hands-on – TCP/IP stack with IPv6 enabled for the internet of the future
14:45 – 15:45	Lab 3 hands-on – Visualization with the FreeMaster tool and the PEG graphic solution
15:45	Q/A

The Internet of Things (IoT) is a computing concept where every physical object is connected to the internet and is able to identify itself with other devices.

The IPv6 huge increase in address space is an important factor in the development of the Internet of Things. Internet Protocol version 6 (IPv6) is designed to solve many of the problems of IPv4, including mobility, auto-configuration and address exhaustion.

This hands-on class will walk you through the basic features of the MQX Real Time Operating System and the new module's which enables IPv6.

There is a trend on the market to utilize graphic displays everywhere with touch capabilities. As an addition there will be one section which demonstrates how easy it is to create powerful graphics with PEG-lite. There will be also section to shows features of the FreeMaster tool for easy development.

Hardware:

- MK64FN1M0VLL12 MCU (120 MHz, 1 MB flash memory, 256 KB RAM, low-power, crystal-less USB)
- Dual role USB interface with micro-B USB connector
- FXOS8700CQ accelerometer and magnetometer
- Two user push buttons
- Flexible power supply option – OpenSDAv2 USB, Kinetis K64 USB, and external source
- Easy access to MCU input/output through Arduino™ R3 compatible I/O connectors
- Programmable OpenSDAv2 debug circuit supporting the CMSIS-DAP Interface software that provides:
  - Mass storage device (MSD) flash programming interface
  - CMSIS-DAP debug interface over a driver-less USB HID connection providing run-control debugging and compatibility with IDE tools
  - Virtual serial port interface
- Ethernet
- SDHC

FRDM-K64F: Freescale Freedom Development Platform
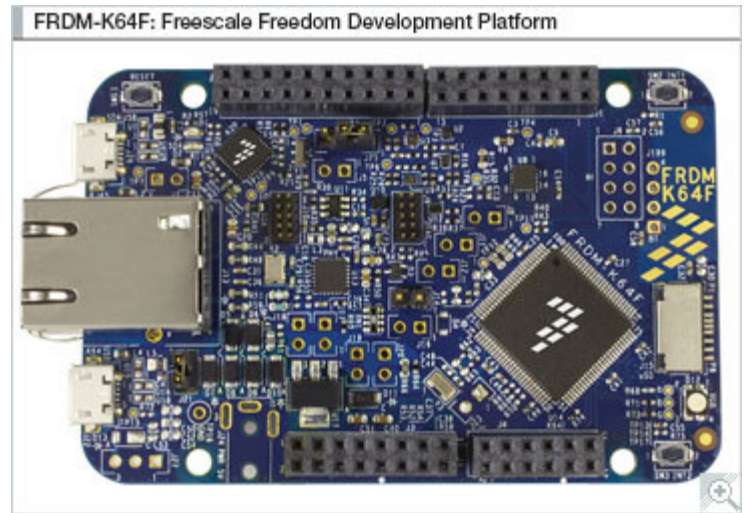
http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=FRDM-K64F&parentCode=K64_120&fpsp=1&nodeId=012FC898C9DE2DDDAF

Lab 1 description:

The lab 1 investigates on generic functionality of the MQX Real-Time Operating System (RTOS) running on Kinetis K64F series devices. There is used Freedom board FRDM-K64F for practical demonstration. It will be shown the MQX configuration for proper initialization and simple example demonstrating I2C communication with sensor and GPIO manipulation. The application performs the reading acceleration and magnetic data from external FXOS8700CQ sensor.

Lab 2 description:

This lab investigates on generic functionality of the Real Time Communication Suite (RTCS) package of the MQX RTOS. There is used Freedom board FRDM-K64F for practical demonstration. It will be shown the RTCS configuration with IPv6 functionality and HTTP service enabled. By simple embedded web server we will be able to read acceleration and magnetic values at our computer with internet browser.

Lab 3 description:

This lab shows features of the FreeMaster tool for easy development. It will provide data visualization from accelerometer and magnetometer external FXOS8700CQ sensor. This section will also demonstrate how easy it is to create powerful graphics with PEG-lite tool.