Chapter 2 - Peripherals

# Page 1

IoT devices need to measure/control something. To do this, we need to learn how to read/write the pins of the chip.

This chapter also explains HOW to make projects.. and gives you lots of experience doing that… because it is a little tricky and you need to have it wired in.

The P4 analog coprocessor is the perfect AFE companion chip for the WICED WiFi connectivity chip

Our shield will allow you to:

1. Light LEDs
2. Read mechanical buttons
3. Read CapSense buttons
4. Read Analog Coprocessor values (temperature, humidity, ambient light)
5. Display on an OLED

Platform = board support package

We have created and provided a platform for the baseboard/shield combination

Two critical files: platform.c and platform.h:

1. These define the resources such as LEDs and buttons and also initialize them for you
2. LEDs and buttons are: WICED\_SH\_LED0, WICED\_SH\_LED1, WICED\_SH\_MB0, WICED\_SH\_MB1

# Page 2

Show how mapping is done and show baseboard names.

Show list of valid peripherals and pin muxing for PWMs.

# Page 3

Documentation is in Components > Platform Functions

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The build process uses make which creates some requirements on project setup:

New project goes inside Apps folder (any number of subfolders may also be included). Must have:

1. Folder with the name of the project
2. Make file with the EXACT SAME NAME as the project with .mk at the end
3. C source file (usually same name as project with .c at the end)

Makefile contains:

1. Application name – MUST BE A UNIQUE STRING IN THE ENTIRE WORKSPACE and can have NO TRAILING SPACES
2. List of C source files
3. Maybe other stuff which we will cover later…

Point out that stuff that is bold and in all caps is critical.

Make target format must be EXACTLY:

folder.folder.project-platform download run

Can leave out download/run if you want to just build without a kit attached.

Can right click, New… to get a new make target based on existing. Need to remove Copy of (including space) from the name

To build, double click the make target

Mention driver installation instructions if the device doesn’t show up

C file:

1. Must have #include “wiced.h” at the top
2. Must call wiced\_init();before any other WICED calls

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Peripherals:

1. GPIO functions and where documentation is located
2. PWM
3. Debug Printing – mention that WPRINT\_APP\_INFO is on by default and that there are others that can be enabled
4. UART
5. I2C

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Exercises – 90 minutes… remind them that we are going to use a timer…because you could spend all day on this topic.

Point out basic vs. advanced

Point out questions to answer in exercises

Demonstrate exercises 1 and 2