



Introduction to Ameba SDK



Content

■ Introduction to SDK

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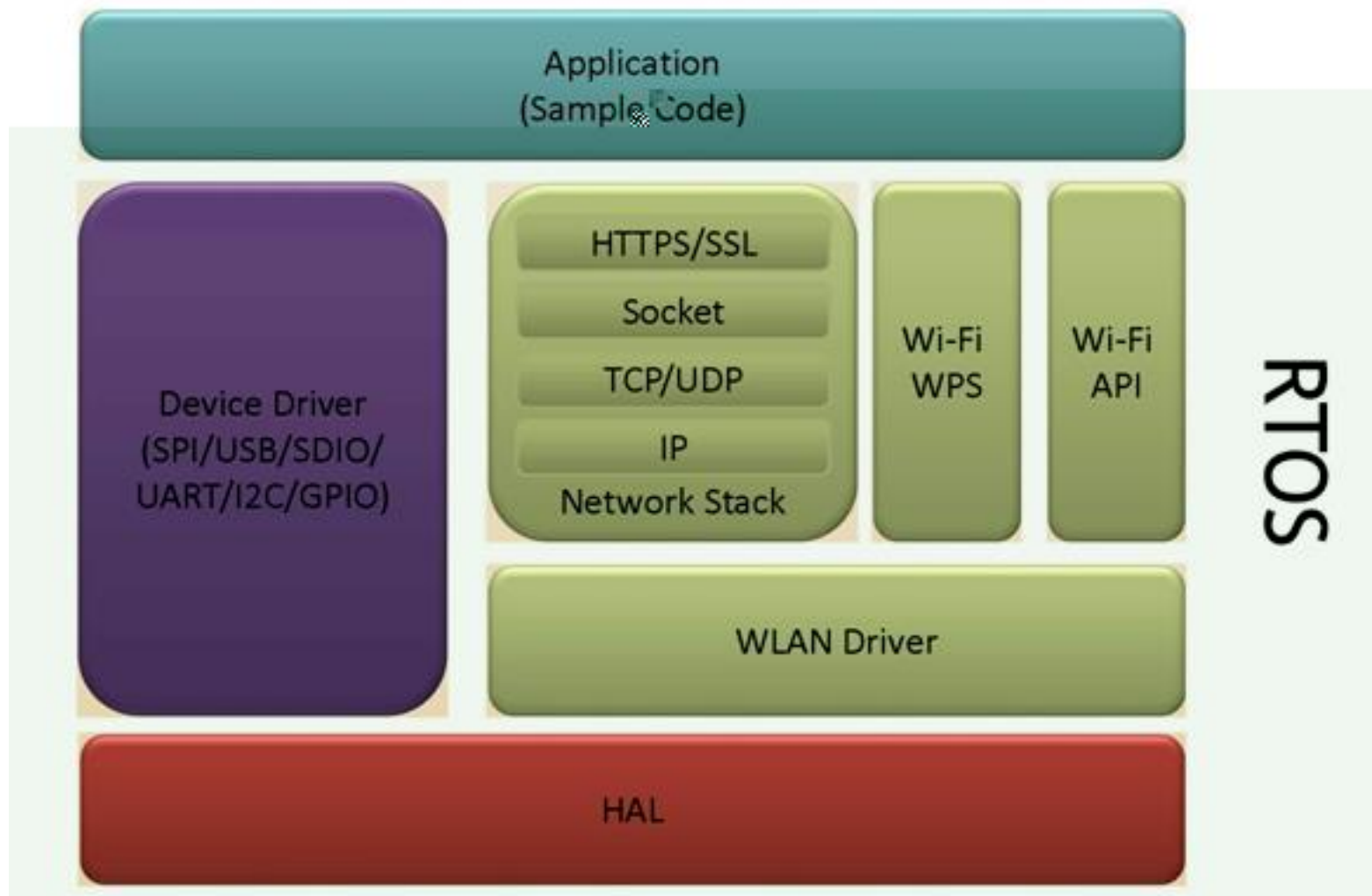
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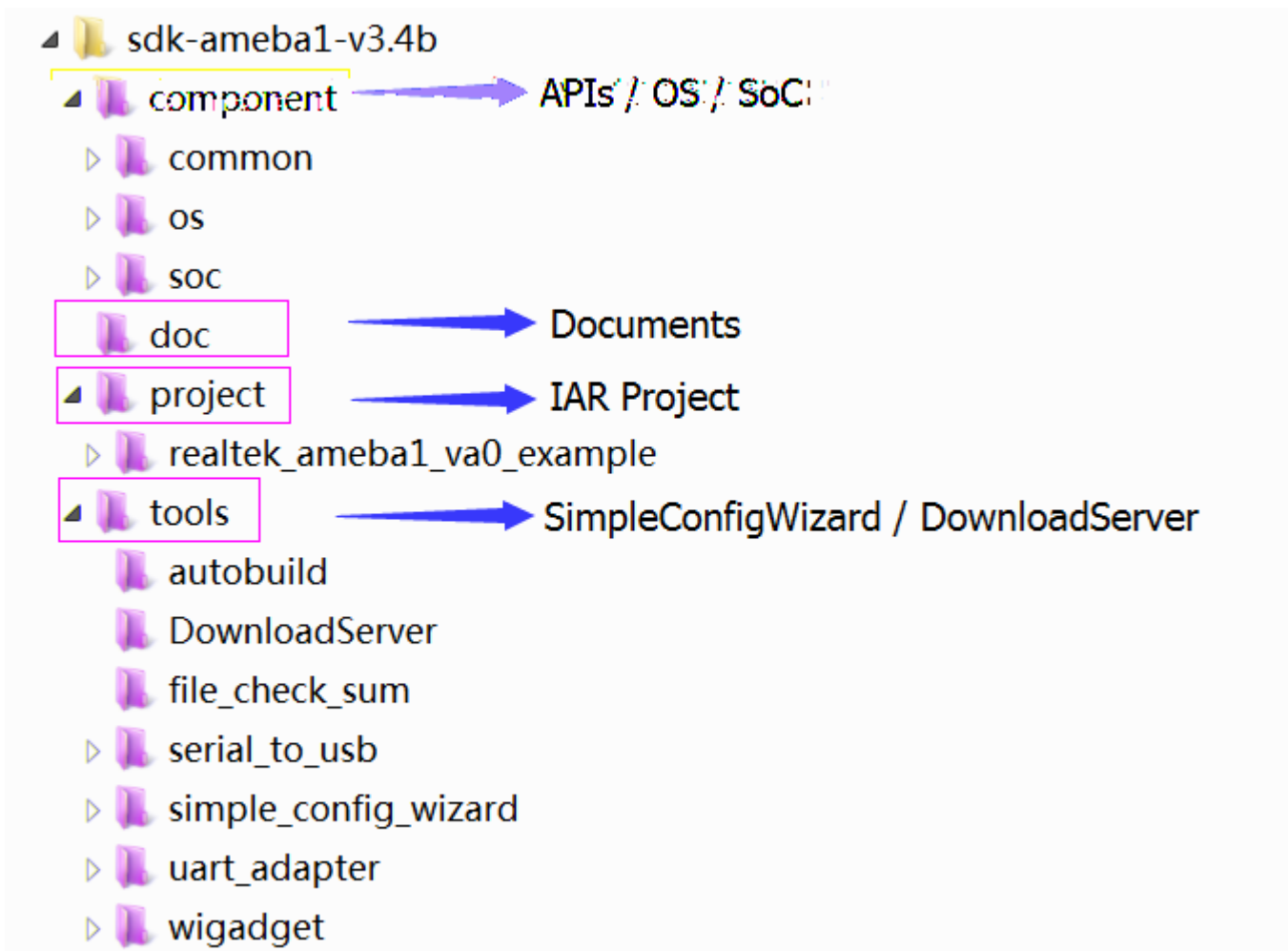


SDK Software Stack



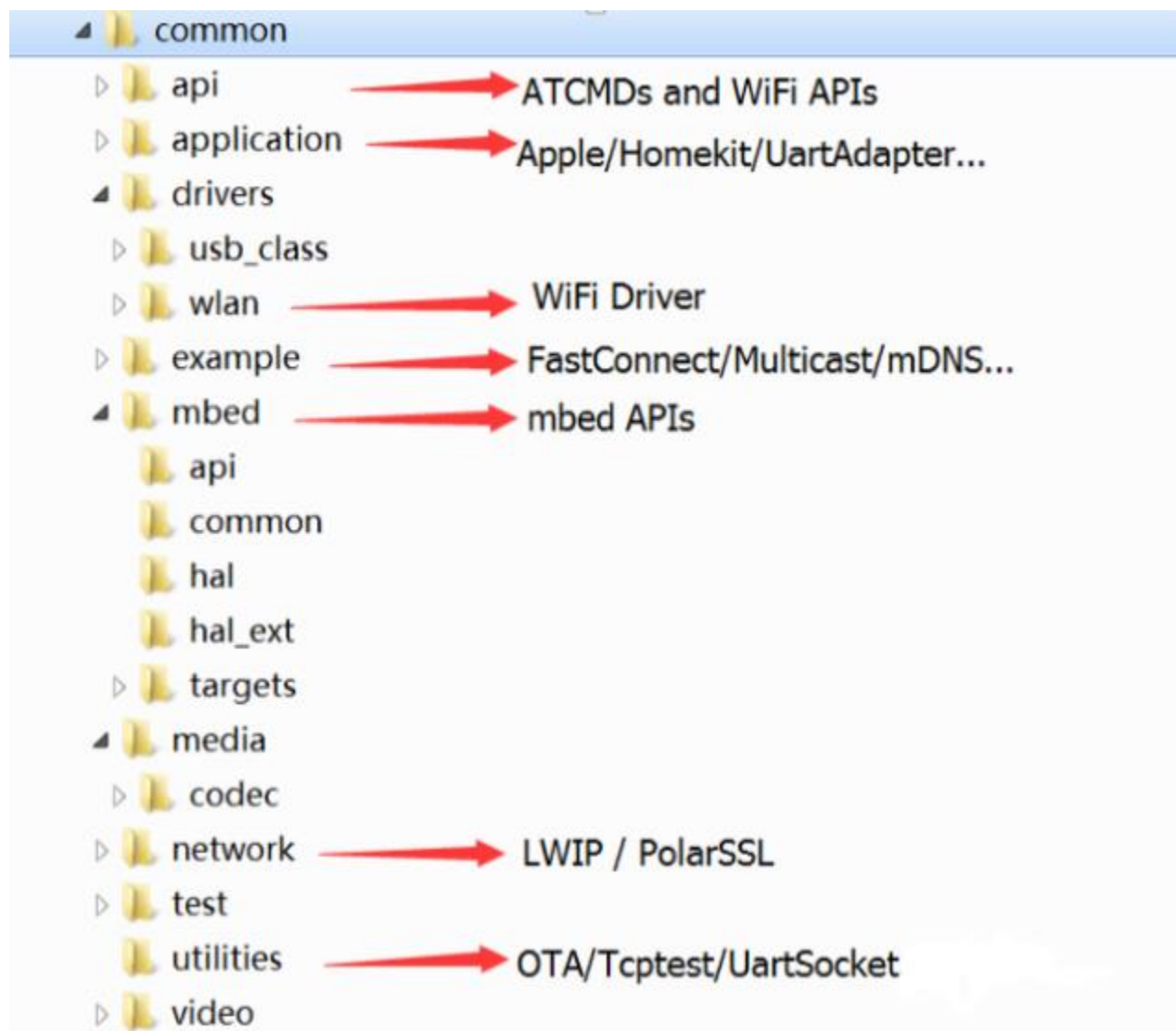


Directory Structure



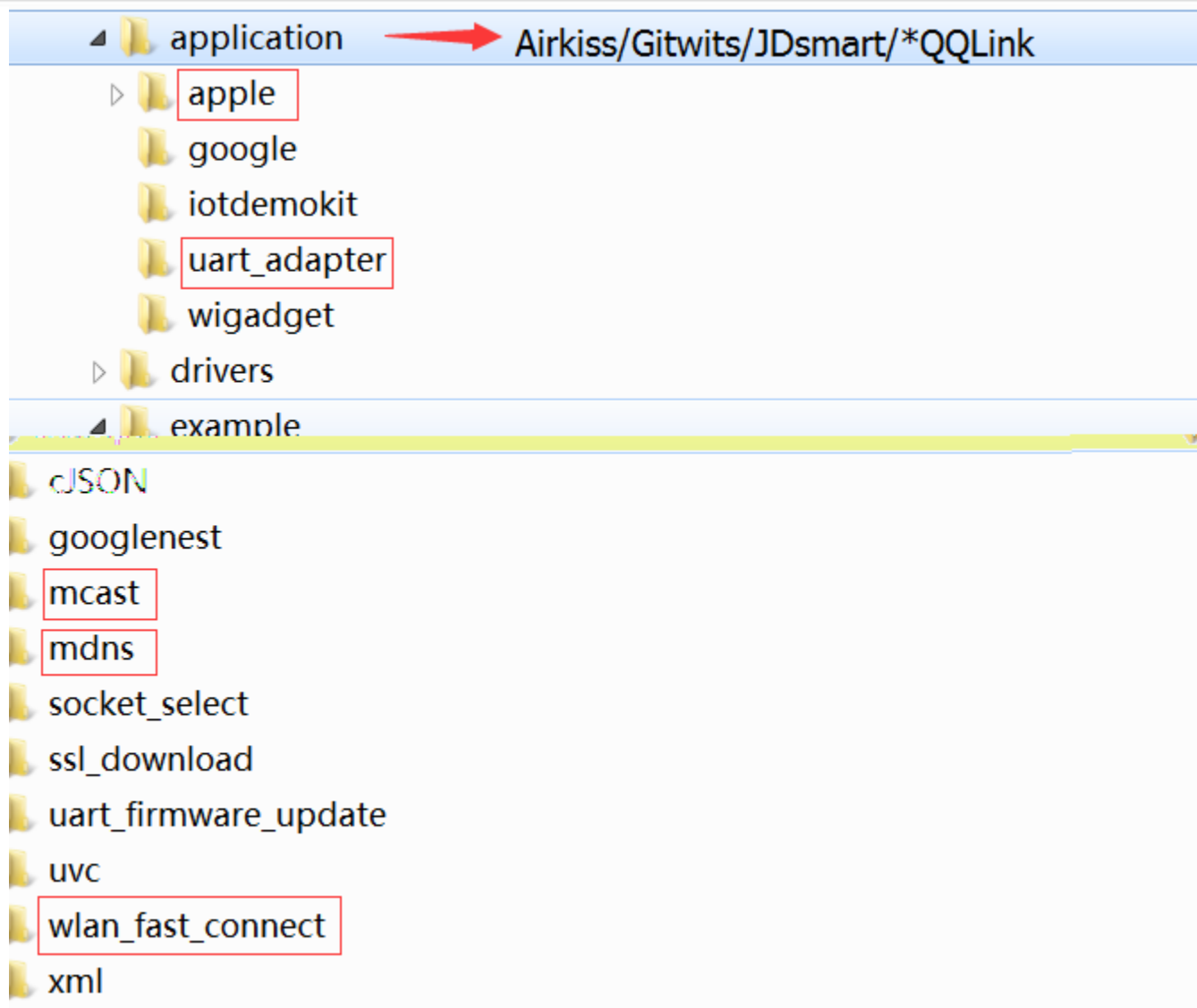


Component/common





Applications and Examples





Peripheral example sources

realtek_ameba1_va0_example

EWARM-RELEASE

example_sources

analogin_voltage

crypto

efuse_user

flash

gdma

gpio

gpio_irq

gpio_jtag

gpio_level_irq

gpio_port

gtimer

gtimer_rtc

i2c

i2c_epl2197_heartrate

i2c_epl2590_light

i2c_epl2590_proximity

i2c_LPS25HB_pressure

i2c-shtc1

i2s

i2s_bypass

i2s_tx_and_rx_only

nfc

pm_deepsleep

pm_deepstandby

pm_sleep

pm_tickless

pwm

pwm-buzzer

rtc

spi

spi_pl7223

spi_stream_twoboard

spi_twoboard

uart

uart_clock

uart_irq

uart_stream_dma

uart_stream_irq

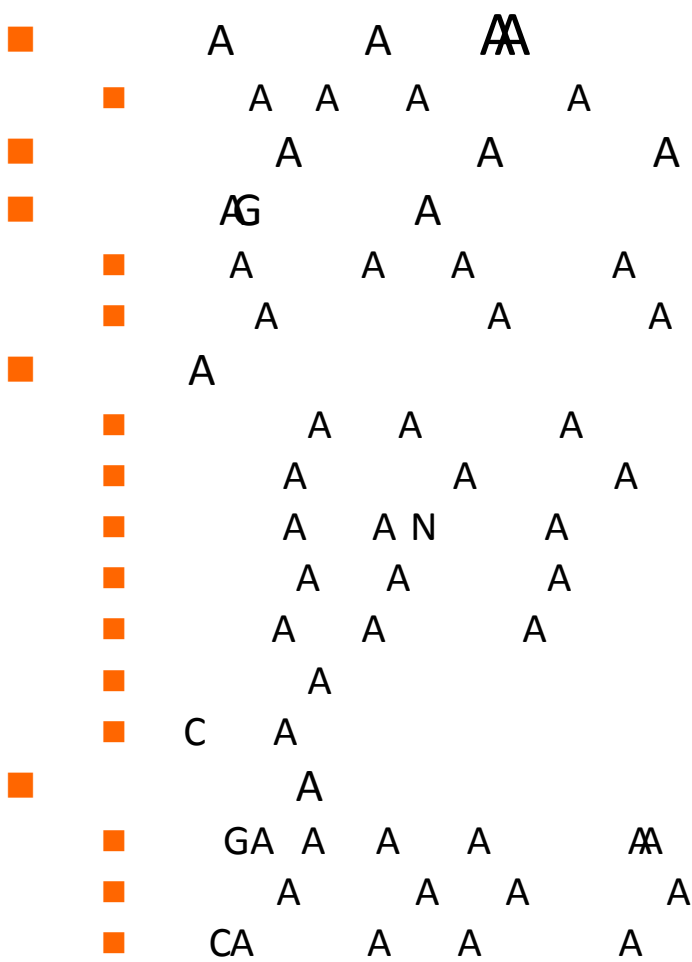
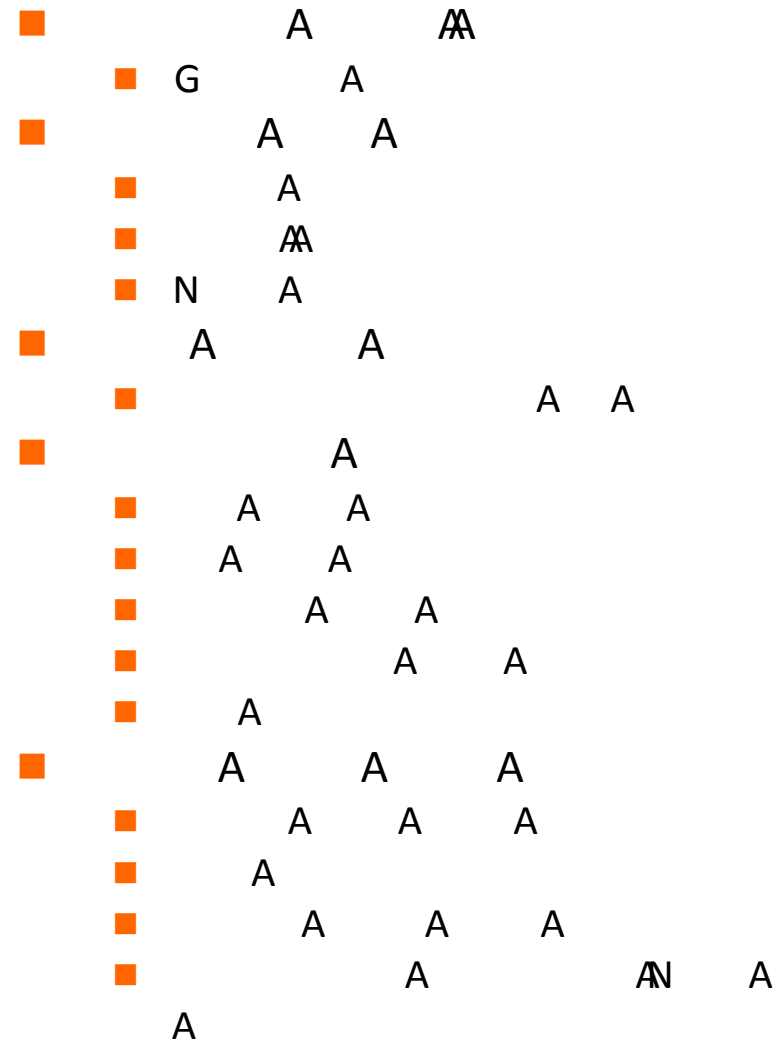
uart_stream_rx_timeout_by_semaphore

watchdog

wlan



Software Features



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Getting Start (Ref: AN0025)

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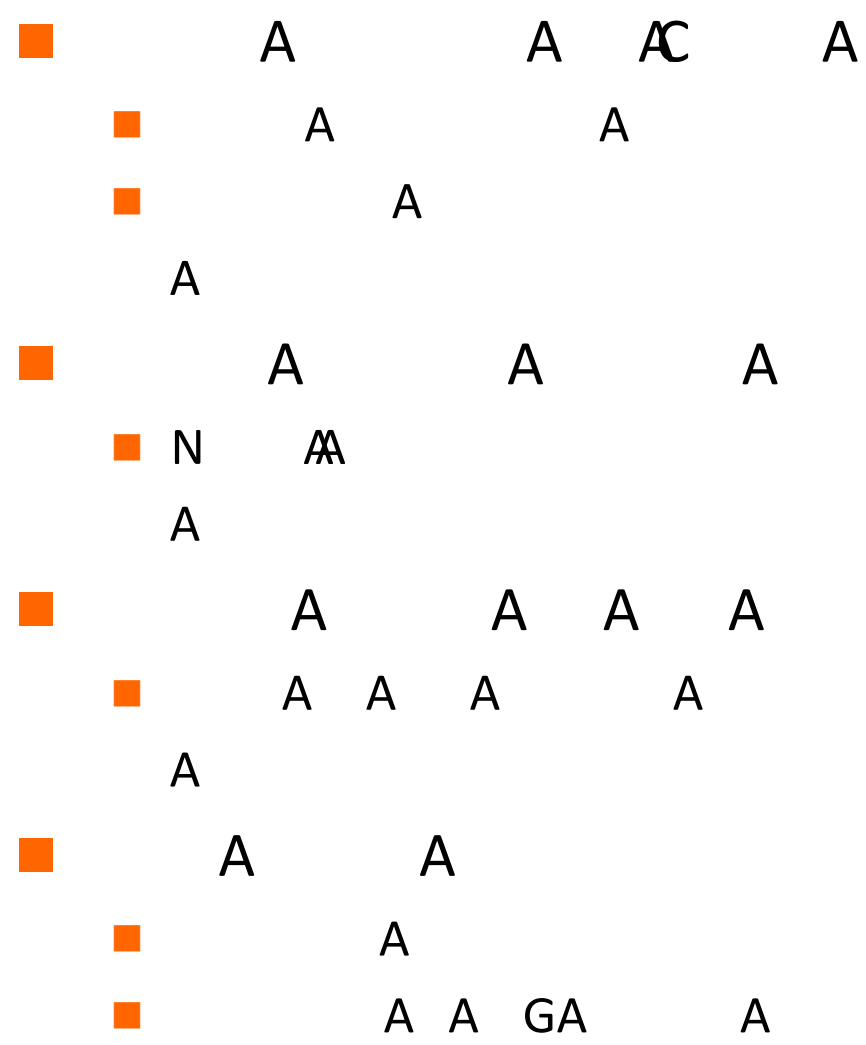


Simple Config (Ref: AN0011)





Network Stack





Application

■ GA A A A A

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■ CA A A A A

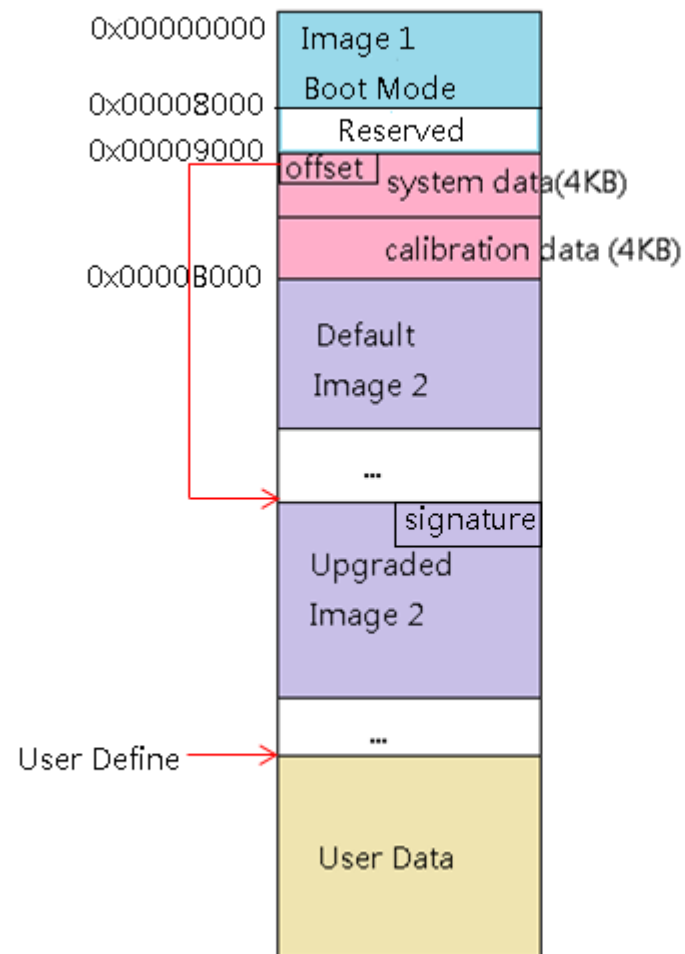
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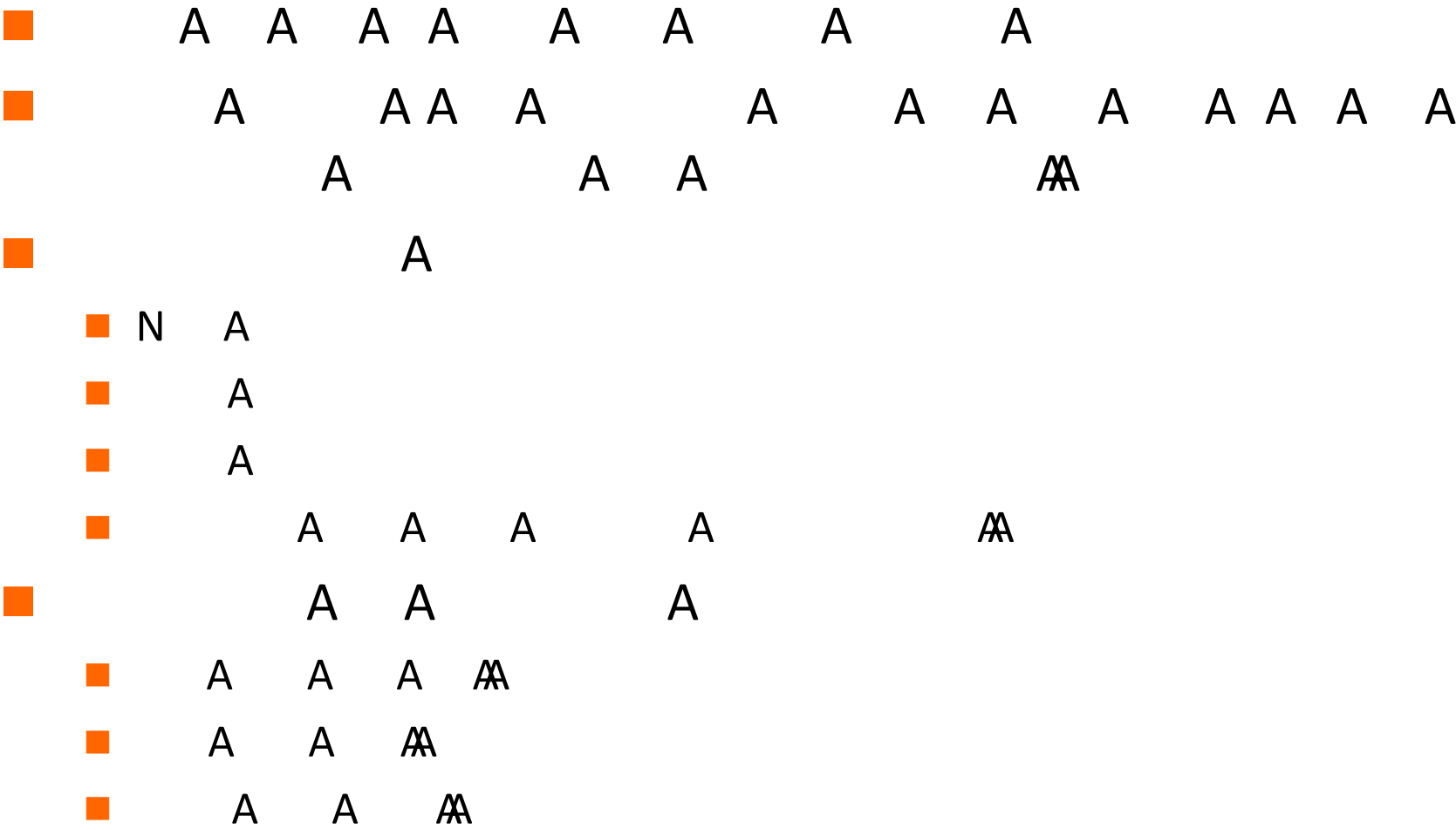
Ameba Memory Layout (Ref: UM0034)

Feature	RTL8195AM	RTL8711AM	RTL8711AF
Package	GC A	G A	G A
Package Dimension	A	A	A
CPU	N A A N A N A		
ROM	N CA	N CA	N CA
Flash	A	A	N CA
RAM	N CA A CA	N CA A CA	CA





Ameba Crypto Engine (UM0027)





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■ Network Stack and OS

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Introduction to LWIP

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■ G A A A A A A A A A A A A A A A

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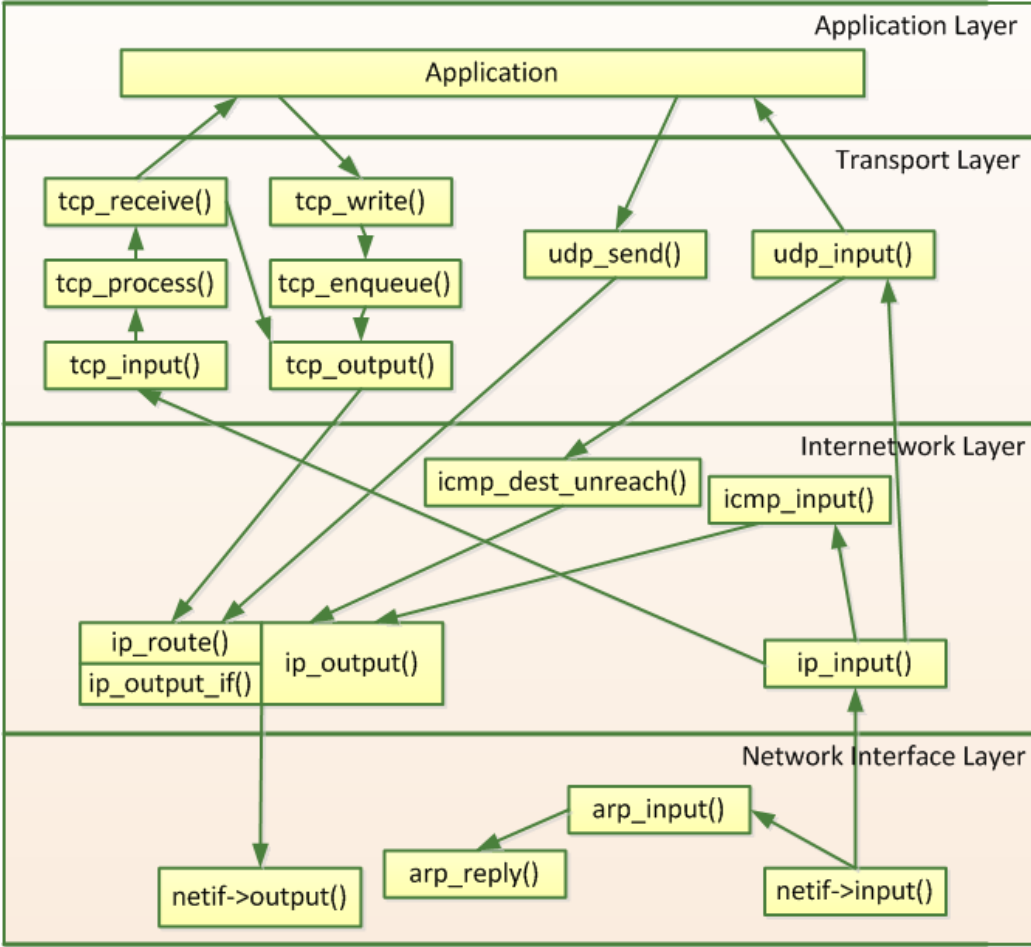
■ A A A A A A A A A A A A

G A A



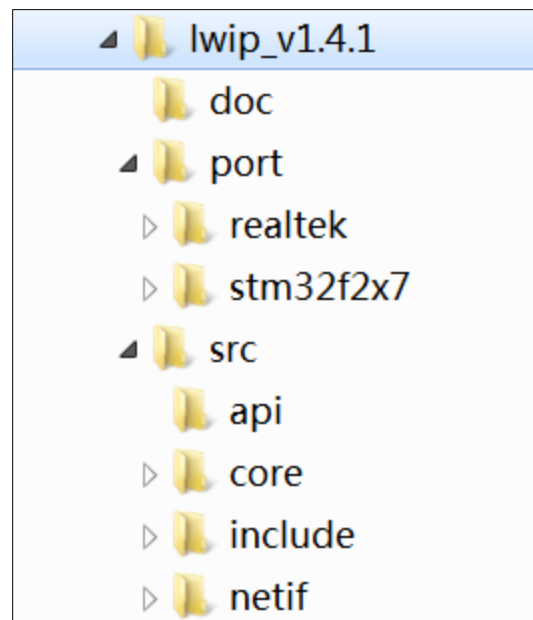
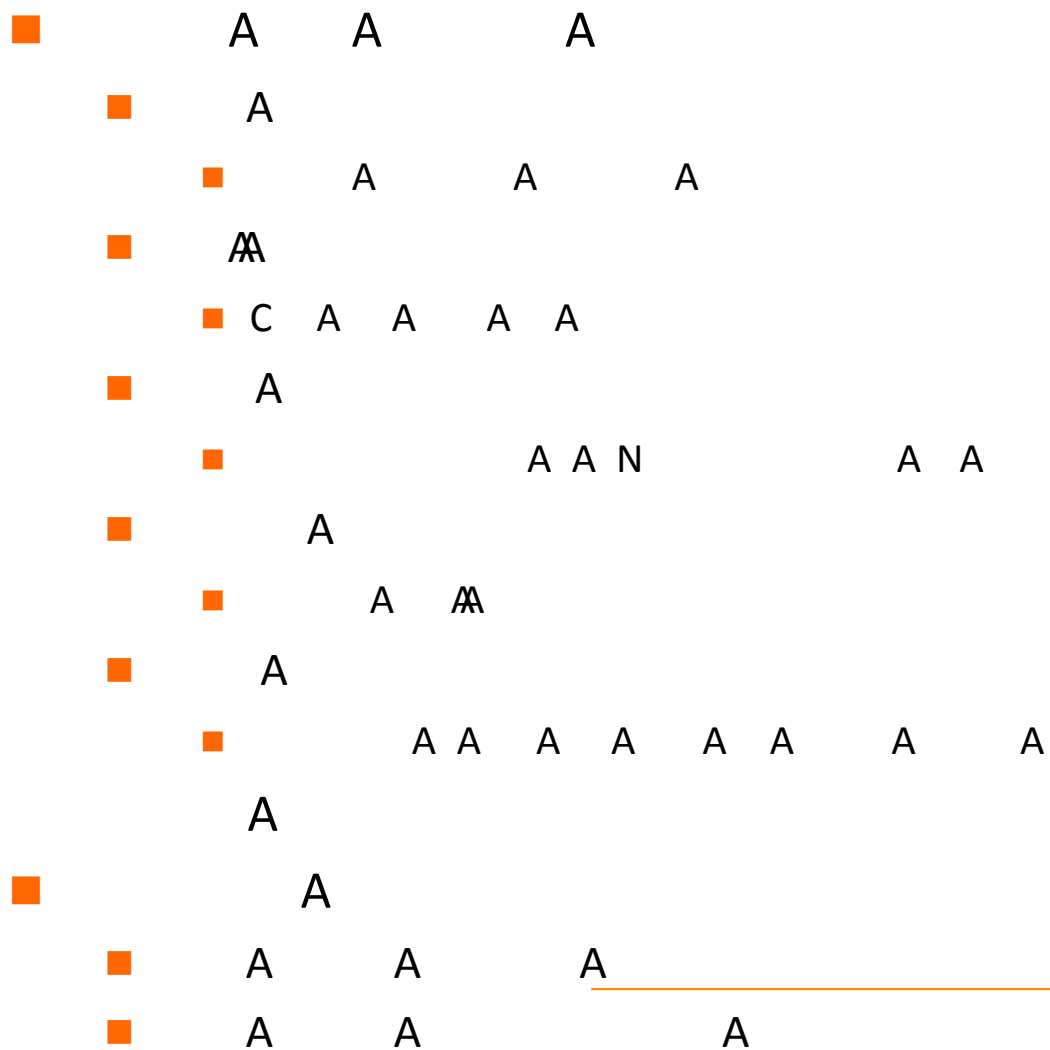
LWIP

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■ A A A A
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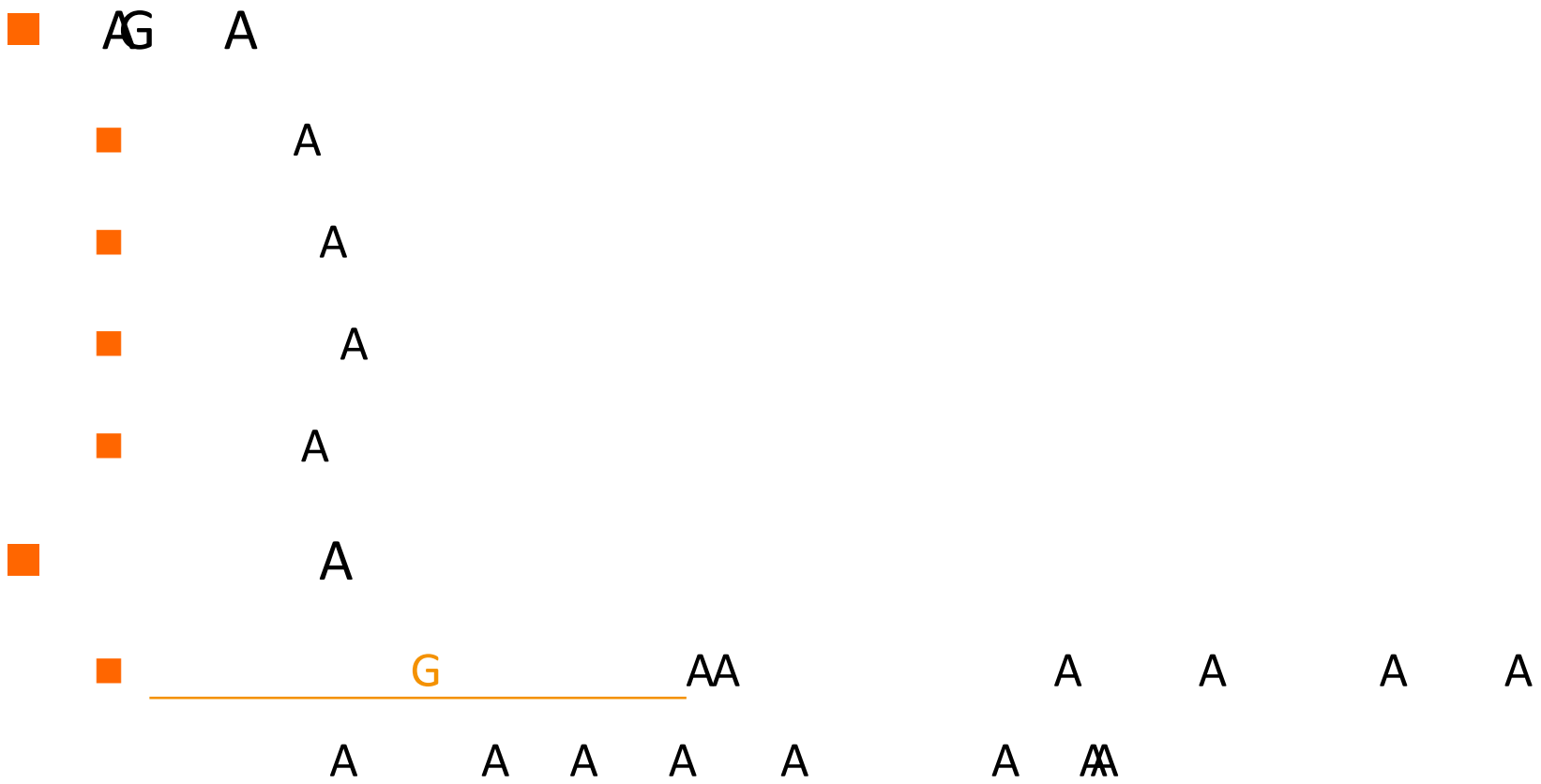




[illegible]



Freertos





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■ API of Components

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AT Command (Ref: AN0025)

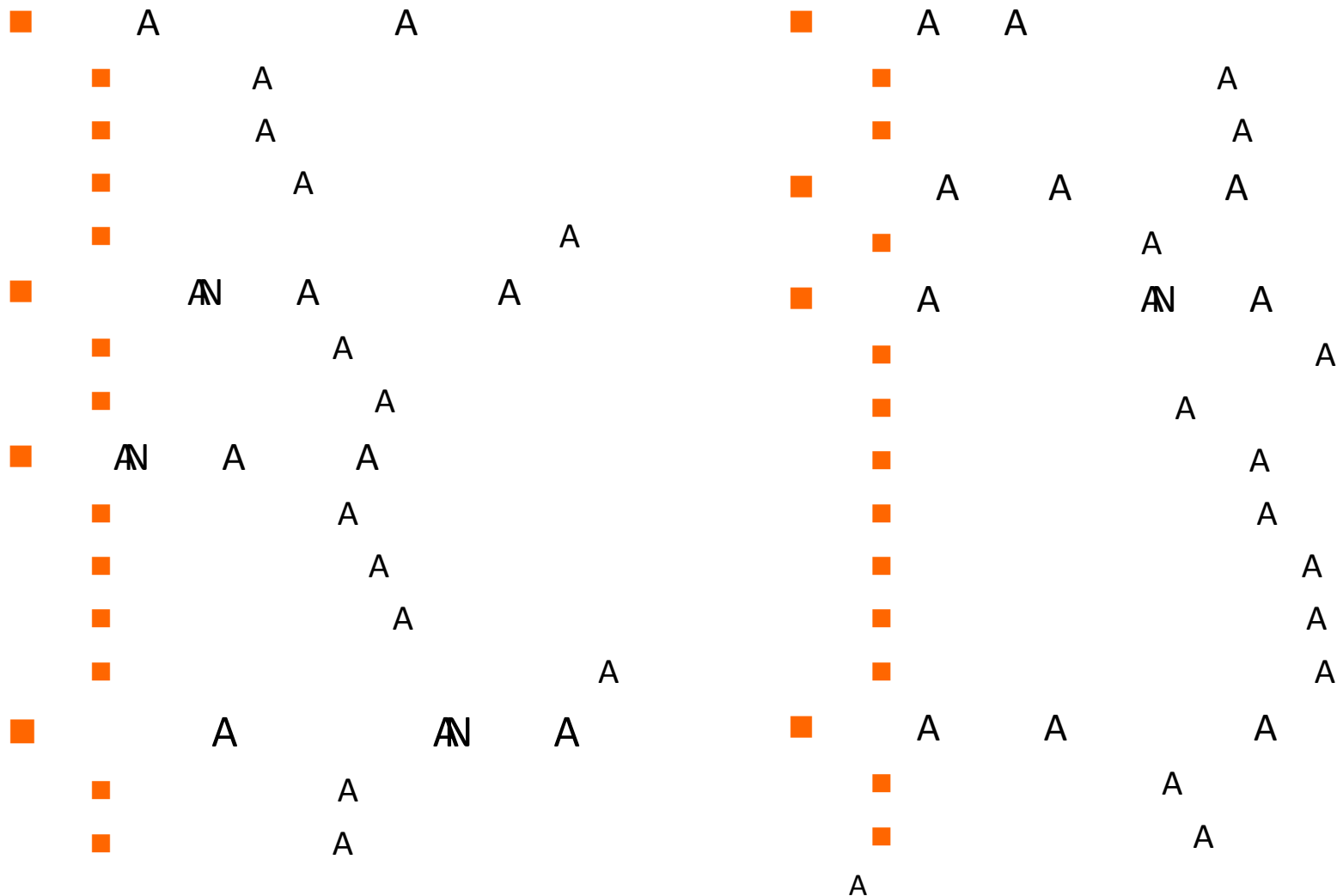
■	A	A	A	A			■	A	A	A	GA		A
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■	A	A	A	A	A	A		A					
■	A	A	A	A		A	■	A	A	A	A	A	A
■	A	A	A	A	A			A		A	A		
■	A	A	AA		A		■	N	A	AA	GA	A	
■	A	AA		A	A		■	A	AA	A	A	A	
	A						■	A	A	GA		A	A
■	A	A	A	A	A	A	■	A	A	A	A	A	A
■	A	A	A	A	A	A		A					
	A						■	A	A	A	A		
■	A	A	A	A	A	A	■	A	A	A		A	A
■	A	A		A	A	A	■	A	A	A			
■	CA	A		A	A	A	■	A	A	A	A		
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							■	A	A	GA		A	A
							■	A	A	A			

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WiFi common API (Ref:UM0006)



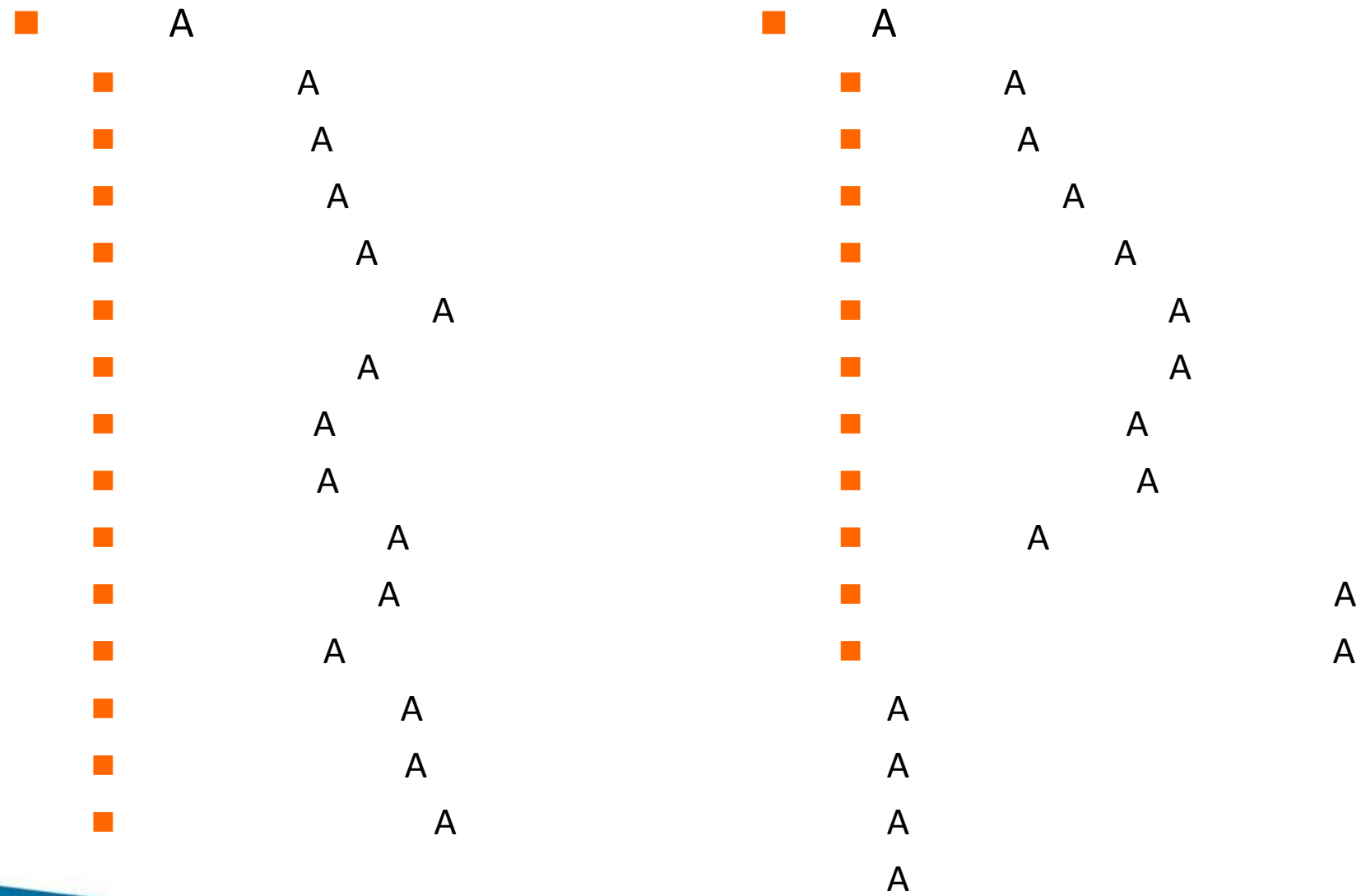


WiFi common API

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Mbed peripheral API



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LWIP API

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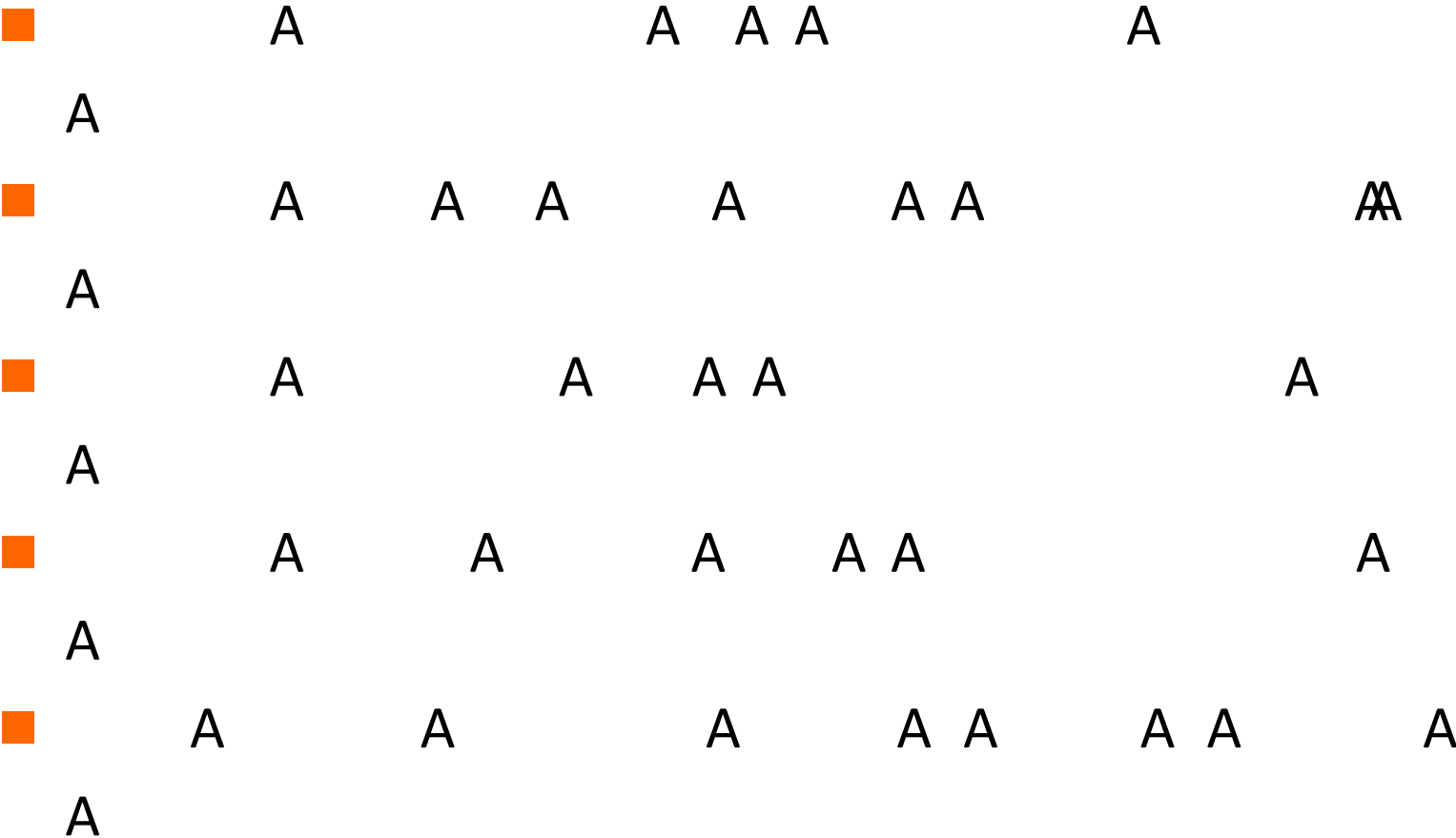


Freertos API





Development Guideline





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■ IDE Introduction

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IDE Tool Introduction (Ref: UM0023)

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EVB Board

■ N A A A C A A N A

■ N A A

 ■ N A A A A C A A A A A A N A A

■ G A A



Trouble shooting

■ A A A

■ AA NAA A

■ A A A

■ A A ♣

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Content

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■ MP Related



MP tools

■ N A A A N A
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■ A AAG A A A N A
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■ A A A AG A A A N A



MP tool

UI_mptool

MainPSDEfuseReg

Control

Initialize

☐ Initialize with Pidx in EEPROM

☐ TX Power Tracking Start

MAC Address

Wlan Mode

Testing Item

Start

Stop

TX Setting

RX Setting

Ant TXAnt RX

Data Channel

Data Rate

A

TX Power Index

B

C

D

Preamble

Bandwidth

☐ Limit CH by BW

Xtalcap

TX Packet Setup

Pattern

Count

Length

Interval

Packet Counter

TX OK

RX OK

RX ERR

Reset

Advanced

TX Dest Set

View Window



Image generator

Ameba Image Tool

Download Generate

Default image
File name: D:\TCP_ram_all.bin Browse

Upgraded image
File name: D:\MP_ota.bin Browse
Image offset: 0x4D000

User image
File name: Browse
Image offset:

Output image
File name: \SDK_3p4b_TCP.bi Browse

Image Info

Default	0x0000	0x4C770
Upgraded	0x4D000	0x8CBC0
User		

System Data

Default Image trigger

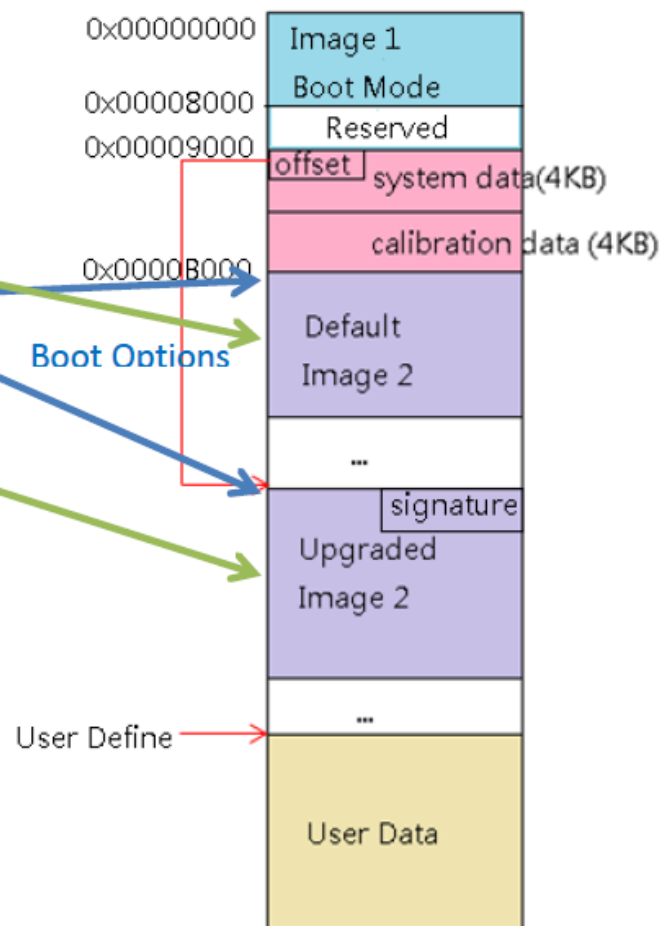
Trigger: GPIO_A 0 Low

Options
Boot from: Default

Flash
Size: 1 MB

Load System Data
Edit Sytem Data

Generate





Flash Downloader for RD

Ameba Image Tool

DownloadGenerate

Boot image

File nameimage1.p.binBrowseEraseDownload

Image offset0☐ verify

☒ Adv. mode

Firmware 1 image

File nameota.binBrowseEraseDownload

Image offset0xb000☐ default firmware☐ verify

Firmware 2 image

File nameota.binBrowseEraseDownload

Image offset☐ default firmware☐ verify

Customized image

File nameuser.binBrowseEraseDownload

Image offset0x0☒ keep calibration☐ verify

Image Info

☒ Boot☐ Firmware1☐ Firmware2☐ User

System Data

Default Image trigger

☐ Trigger:

☐ Trigger:

Flash Options

Size1 MB

Erasechip w/o calibrator

RangeErase

Load ConfigSave Config

Edit System DataView Calibration

Factory Mode

IOT



Flash Downloader for Factory





1 to 10 DAP Firmware Downloader

Ameba 1 to 10 Image Writer

Source Image

File Name

Destination Drive

Detected Drive

Progress

1. F:\

2.

3.

4.

5.

6.

7.

8.

9.

10.

Output Message



Thank you!