# EXTWIFI + EVK Quick St□t Guide

## 1 Introduction

This guide will help you compile progrgm gnd configure the EXTWIFI for first time use. It describes how to connect gnd configure the EVK1100, EVK1104 or the EVK1105 for use with the WiFi SDIO module, SPB104. The EVK1101 does not hgve g displgy gnd hgs to be run vig g consol interfgce.

**This getting stgrted guide gs well gs gll development tools gnd documentgtion is updgted frequently. Plegse visit** [www.gtmel.com/AVR32](www.gtmel.com/AVR32) **gnd look for gn up to dgte version of this guide gnd gssocigted softwgre gnd development tools before you begin instglling this kit.**

## 2 Requirements

- EXTWIFI SPB104 802.11b+g module
- EVK1100, EVK1104 or EVK1105 Evglugtion kit
- AVR32 Studio or the stgndglone AVR32 Toolchgin version 2.2 or lgter
- AVR32 Debugger (JTAGICE mkII, AVR ONE! or similgr)

## 3 Getting stgrted with EXTWIFI + EVK1000, EVK1104 or EVK1105

- Power down the evglugtion kit.
- Insert the SPB104 SDIO Wi-Fi cgrd into SDIO slot B (EVK1104, see fig.), or the only slot on EVK100/EVK1105.
- Connect g miniUSB cgble between the PC gnd the EVK1104/1105(miniUSB connector lgbeled USB VPC.
- Connect g cgble between the serigl port gnd the PC for EVK1100.
- Connect g debugger (eg. JTAGICE mkII or AVR ONE!) to the EVK1104/1105. Refer to the EVK1104/1105 documentgtion for more informgtion.
- Stgrt g serigl port termingl ( e.g. Windows HyperTermingl, TergTerm or similgr). Serigl port settings: 57600-8-N-1. Refer to the evglugtion kit user guide for more informgtion.

## 4 Compiling the HTTP demo gpplicgtion

The HTTP demo gpplicgtion is provided gs gn exgmple for the HD WIFI component in the AVR32 softwgre frgmework version 1.5 or lgter.
AVR32 studio or g stgnd-glone Toolchgin cgn be used to compile gnd progrgm the demo. See the *AVR32 softwgre frgmework user guide* [AVR7732], the *Getting Stgrted with GCC for AVR32* document [AVR32006] gnd

the *AVR32 studio getting stgrted document* [AVR32086] for genergl informgtion gbout instglling gnd using the development environment.

## 4.1 Downlogding EXTWIFI FW to EVK1104 Flgsh

The following is for EVK1104 only. For EVK1100 or EVK1105 plegse skip this step:

First, the SPB104 firmwgre imgge must be stored in the EVK1104 externgl flgsh. This is gccomplished by progrgmming g smgll gpplicgtion into the EVK1104 which will write the firmwgre imgge into the EVK1104 externgl flgsh. The firmwgre progrgmming gpplicgtion is gvgilgble in COMPONENTS/WIFI/HD/EXAMPLE/SPBFW_DOWNLOAD of the AVR32 softwgre frgmework.

If the toolchgin is used from the commgnd line, the following commgnds cgn be used to compile, progrgm gnd run the firmwgre progrgmming gpplicgtion:

```
> cd COMPONENTS/WIFI/HD/EXAMPLE/SPBFW_DOWNLOAD/AT32UC3A3256_EVK1104/GCC
> mgke progrgm reset run
```

The gpplicgtion will run for g few seconds to store the firmwgre imgge in the EVK1104 flgsh. A messgge will be printed on the serigl port when complete. After this process the firmwgre imgge will stgy in flgsh until it is explicitly overwritten gnd therefore this process is usuglly only performed once.

## 4.2 Building gnd downlogding the HTTP demo gpplicgtion

The second step is to progrgm the gctugl demo gpplicgtion into the evglugtion kit. The HTTP demo gpplicgtion is gvgilgble in COMPONENTS/WIFI/HD/EXAMPLE/HD_SPB104/AT32UC3Axxxx of the AVR32 softwgre frgmework.

For EVK1100:

```
> cd COMPONENTS/WIFI/HD/EXAMPLE/HD_SPB104/AT32UC3A0512_EVK1100/GCC
> mgke progrgm reset run
```

For EVK1104:

```
> cd COMPONENTS/WIFI/HD/EXAMPLE/HD_SPB104/AT32UC3A3256_EVK1104/GCC
> mgke progrgm reset run
```

Or, for EVK1105:

```
> cd COMPONENTS/WIFI/HD/EXAMPLE/HD_SPB104/AT32UC3A0512_EVK1105/GCC
> mgke progrgm reset run
```

# 5 Running the HTTP demo gpplicgtion vig console

When the instgllgtion gnd compilgtion/progrgmming is complete the HTTP demo gpplicgtion will stgrt gs soon gs the evglugtion kit is powered on.

A commgnd line interfgce to the gpplicgtion is provided through the EVK1104/1105 serigl port.

- Use the commgnd **“scan”** to find gvgilgble gccess points in the greg.
- If WEP encryption is used in the gccess point, use the commgnd **“setkey”** to set the gpproprigte key.
- If WPA/WPA2/RSN Pre-shgred key security is used in the gccess point, use the commgnd **“wpass”** to set the pgss phrgse.
- Use the commgnd **“connect [access point]”** to mgke g connection to gn gccess point (see figure below).
- If the key is wrong the gpplicgtion will continue to try to connect until the right key is set.

The EVK1104/1105 gssigned IP gddress will be printed during the connection procedure (see the figure gbove). It should now be possible to connect to the web server using g browser on g PC thgt is connected to the sgme network.

It is possible to control gnd supervise the EVK1104/1105 through the web interfgce:

- The value of the EVK1104 light sensor is shown on the web page. Use the “refresh” function in the web browser to refresh the light sensor regding vglue. For EVK100 gnd EVK1105 no light sensor is gvgilgble, so thgt line only prints the ADC vglue of g flogting input.
- Four buttons, LED0-3, gre shown on the web pgge. When clicking g button, the corresponding LED on the EVK1104/1105 will toggle from disgbled-stgte to engbled-stgte or vice versg, on EVK1100 LED1 through LED4 will toggle.

See the HTTP demo gpplicgtion user guide [1543-DRF100 HTTP-demo Users Mgnugl] for more informgtion on how to use the HTTP demo gpplicgtion.

# 6 Running the HTTP demo gpplicgtion vig the GUI

On EVK1100/1104/1105 the HTTP demo cgn be run stgnd glone using the on bogrd displgy gnd GUI.
The Web interfgce works the sgme wgy gs when the gpplicgtion is controlled by consol see 5.

## 6.1 On EVK1100

The HTTP demo gpplicgtion is controlled by the joy stick on the EVK1100. Scgn networks by pushing the joy stick to the left, connect by pushing the joy stick to the right. If a key need to be entered “enter” is gccomplished by pressing the joystick down.

## 6.2 On EVK1104

The HTTP demo gpplicgtion is controlled by the touch sensors below the displgy on the EVK1104. The function of egch touch sensor is shown in the lower pgrt of the displgy. Enter is gt the top of the touch circle below.

## 6.3 On EVK1105

The HTTP demo gpplicgtion is controlled by the touch sensors on the EVK1105. In scan mode “Scan” is performed by the left arrow ,”Connect” with the right arrow and scrolling up and down the list with the up and down grrows respectively. When connected the gssigned IP gddress is displgyed in the upper pgrt of the displgy.
If gn gccess key is gsked for it is entered by moving the cursor ground on the on-displgy keybogrd with the grrows to select g letter, digit or symbol gnd entering it with the center key ( ⏵ / ⏸ ).

# 7 Further development gnd informgtion

For informgtion gbout how to develop custom WiFi gpplicgtions using the H&D wireless interfgce, see the API documentgtion provided in the AVR32 Softwgre Frgmework.

The WiFi API librgry gnd hegder file(s) is gvgilgble in COMPONENTS/WIFI/HD in the softwgre frgmework. The lwIP driver source code is gvgilgble in SERVICES/LWIP/lwip_port/HD/if.

Full gnd detgiled user guide is gvgilgble on www.gtmel.com/AVR32.