# Network-Attached Storage User Guide

## 1. Firmware Images Layout

The u-boot image is about 512KB and located in the NAND or SPI flash between 0 and 0x0100000, be careful to erase it when update new u-boot. And layout of firmware images on NAND flash is as follows

***Note: Please DO NOT erase the UBoot space if it is not necessary***

| Image | Offset | Size |
|---|---|---|
| U-boot | 0x0 | 0x100000 |
| U-boot environment | 0x180000 | 0x20000 |
| Kernel | 0x200000 | 0x600000 |
| File system (Initrd) | 0x800000 | 0x1000000 |

Table 1-1: Firmware NAND Flash Layout

## 2. Network Service

The eth0 static IP is 192.168.58.100. The wireless AP's static IP is 192.168.1.1. The AP's SSID is Network-Attached Storage-AP-* and it has no encryption.

The default network services on the board are Samba, FTP and Telnet.

Username and password for Samba and Telnet's are root:root.

Username and password for Ftp is admin:admin.

## 3. How to Boot From SATA Disk

The default u-boot bootcmd is "bootcmd=nand read.e 0x1200000 0x200000 0x600000;nand read.e 0x2000000 0x800000 0x1000000;bootm 0x1200000 0x2000000" and the bootargs valuable is "bootargs=console=ttyS0,115200"

If you want to port the root filesystem to sata disk partition please type the command below in U-boot environment, which can be modified on your demand.

Marvell>> setenv bootargs 'console=ttyS0,115200 root=/dev/sda1 rw'

Marvell>> setenv bootcmd 'nand read.e 0x1200000 0x200000 0x600000;bootm 0x1200000'

Marvell>> save

Marvell>> boot

## 4. How to Boot From USB Disk

The default u-boot bootcmd is "bootcmd=nand read.e 0x1200000 0x200000 0x600000;nand read.e 0x2000000 0x800000 0x1000000;bootm 0x1200000 0x2000000" and the bootargs valuable is "bootargs=console=ttyS0,115200"

If you want to port the root filesystem to USB disk partition please type the command below in U-boot environment, which can be modified on your demand.

Marvell>> setenv bootargs 'console=ttyS0,115200 root=/dev/sda1 rw rootdelay=10'

//Note: root=/dev/sda1 can be changed to root=/dev/sdb1 or others according to USB partition name

Marvell>> setenv bootcmd 'nand read.e 0x1200000 0x200000 0x600000;bootm 0x1200000'

Marvell>> save

Marvell>> boot

# 5. Programmable Function

## 5.1  Switch Function

The switch action is detected by the daemon "pwrctl –d". The switch has two directions. You can switch button to position A to shut down the system by script /usr/sbin/switch_off (t>2S), switch to position B to excute /usr/sbin/switch_optional which can be customized. See Figure 1-1



Figure 1-1: Network-Attached Storage Switch Indication

## 5.2  Led Control Function

The board has five LEDs and their control commands and functions are as Table 1-1:

| LED Function | Led Color | Light On | Light Off | Blink |
|---|---|---|---|---|
| **System LED** | Blue | pwrctl -o 502 | pwrctl -o 503 | pwrctl -o 504 |
| | Red | pwrctl -o 602 | pwrctl -o 603 | pwrctl -o 604 |
| **Wireless LED** | Yellow | pwrctl -o 302 | pwrctl -o 303 | pwrctl -o 304 |
| | Green | pwrctl -o 702 | pwrctl -o 703 | pwrctl -o 704 |
| **SATA LED** | Blue | None | None | None |

Table 2-1: LED Control Function Table

## 5.3 WOL Function

Network-Attached Storage system support WOL(Wake On Lan) function. The magic packet can be sent by magic packet tool such as *magpac*.exe to turn on the system if the system is powered and connect to network.

## 5.4 WiFi Function

The WiFi controller IC is sd8786 which work in AP mode. The file sd8786_uapsta.bin should be copied to /lib/firmware/mrvl/ directory. The operations to load the driver module, configure and bring up the wifi interface are as follows.

```
/ # insmod /lib/modules/mlan.ko
/ # insmod /lib/modules/sd8xxx.ko
/ # uaputl.exe sys_cfg_ssid $APNAME
/ # uaputl.exe bss_start
/ # ifconfig uap0 192.168.1.1
```

"uaputl.exe --help" for more details.

**FCC Regulations:**

15.19(a)(3):
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

15.105(b):
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following
measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/ TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

●The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

# ▶ RF Exposure Information

This device meets the government's requirements for exposure to radio waves.
This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

●This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.