

DreamPlug User Guide

Thank you for purchasing our DreamPlug – **The Power to Innovate!**

-Aug 28, 2012

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Package contents

	DreamPlug Content List		Remark
1	DreamPlug	1 unit	
2	Detachable AC-DC Power Supply Unit	1 pc	
3	Detachable DC-DC Power Cable	1 pc	
4	Detachable AC Slider	1 pc	
5	Detachable AC Power Cord Adaptor	1 pc	
6	AC power Cord	1 pc	
7	Protective Slide Cover for DreamPlug	1 pc	
8	Protective Slide Cover for Power Supply Unit	1 pc	
9	Ethernet Cable	1 pc	
10	Warranty Card	1 pc	
11	Quick Reference Card	1 pc	
12	External JTAG Debug Module	No	Optional item. Not included

Note 1: All files will be available download: <https://www.globalscaletechnologies.com/t-downloads.aspx>

Note 2: JTAG debug module is sold separately. It's highly recommended for you to purchase this module to use in programming and debugging.

A. For Initial Use

1. To be used as a Plug Computer:



2. To Be Used as a “Desk Top” Computer.

Desktop – 1



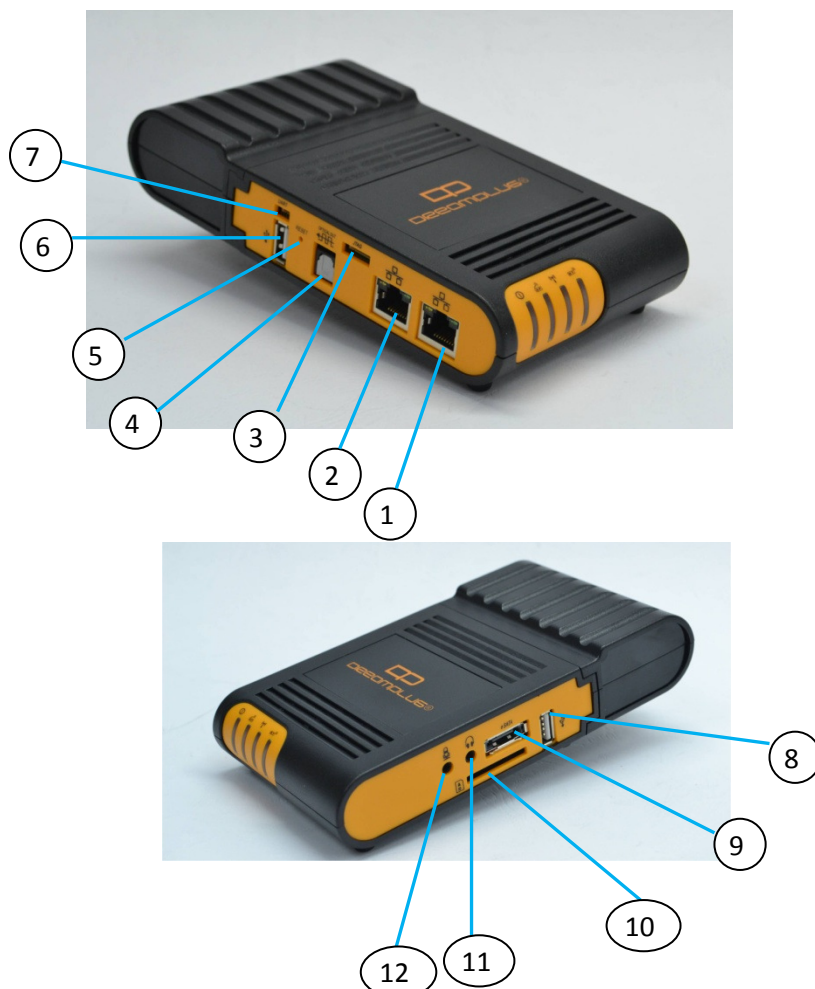
Desktop – 2



3. To Have the “DreamPlug” Wall Mounted.



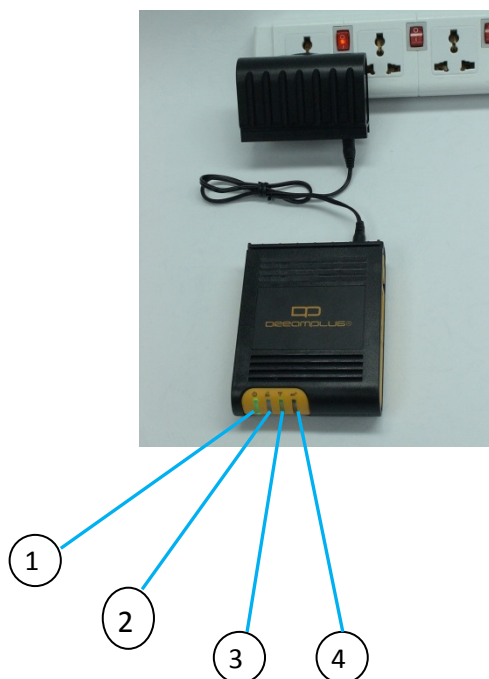
B. DreamPlug Server appearance and connecting ports







Ports description- DreamPlug Server

	Connection port	Description	Remark
1	RJ45 #1	Gigabit Ethernet port 1	CAT5e or CAT6 cable
2	RJ45 #2	Gigabit Ethernet port 2	CAT5e or CAT6 cable
3	JTAG port	Debug interface	For JTAG board connection only
4	Optical out	S/PDIF digital audio out	
5	Reset button	System reset/ restore	
6	USB port #1	USB 2.0 high speed host	
7	UART port	Debug interface	For JTAG board connection only
8	USB port #2	USB 2.0 high speed host	
9	eSATA	eSATA port	
10	SD	Secure Disk card slot	for user expansion/ application
11	Head Phone	Analog audio out	
12	Mic in	Analog microphone in	

C. LED indication



LED indication table

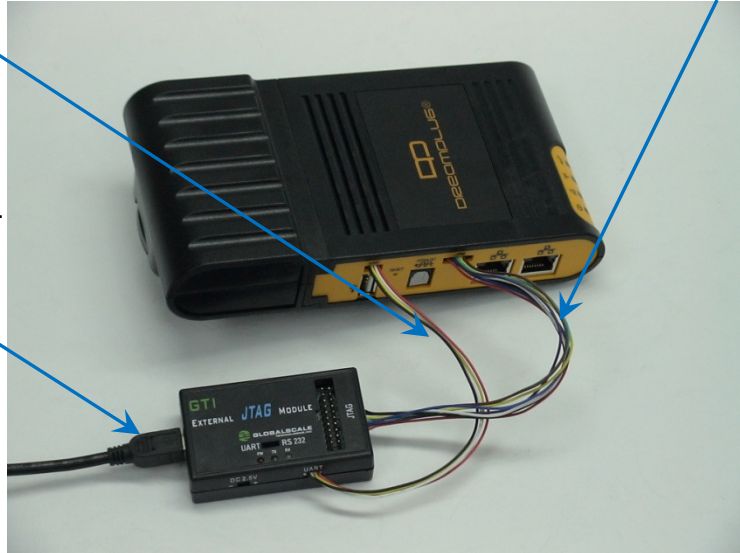
	Icon	LED	Color/ Pattern	Description
1		Power on LED	Solid green	Upon power on, this LED lights up
2		WiFi AP mode	Solid blue	WiFi will go into AP mode as default after boot up
3		WiFi Client mode	Solid green	Light up when change to client mode by user
4		Bluetooth	Blinking blue	Bluetooth will be on as default after boot up

Connect to JTAG board

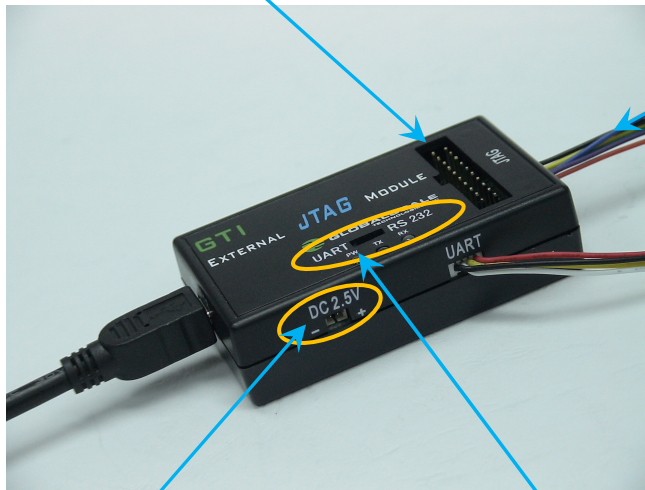
1. Connect 4 pin UART cable

2. Connect 8 pin JTAG cable

3. Connect Mini USB cable here.
The other end connects to
computer's USB port.



This is the standard 20pin JTAG connector which has the same pin signals as 8 pin cable



This DC 2.5V is for Dream Plug CPU
e-fuse programming only, do not use it
for other purpose.

Normally, this switch (or jumper wire)
should be on the left side for UART selection

D. Tools and files you need to start debugging

1. Prepare one PC with Fedora14 Linux operating system
2. Download and install the following tools and utilities

	File name	Description	Where to get it
1	Minicom	Used as Board console	Re-Install command: yum install minicom note 1: Fedora14 has a built-in minicom
2.	Ftdi_sio.ko	FTDI device driver module for Linux	Fedora 14 has already built-in
3.	usbserial.ko	FTDI device driver module for Linux	Fedora 14 has already built-in

3. Setup minicom

minicom -s

Select: Serial port setup

Set the Configure properties as follows:

Bits per sec field to *115200*

Data bits to *8*

Parity to *None*

Stop bit to *1*

Flow Control to *None*

```
+-----+
| A -   Serial Device       : /dev/ttyUSB1   |
| B - Lockfile Location    : /var/lock      |
| C -   Callin Program      :                |
| D -   Callout Program     :                |
| E -   Bps/Par/Bits        : 115200 8N1     |
| F - Hardware Flow Control : No             |
| G - Software Flow Control : No             |
|                                     |
|   Change which setting? █               |
+-----+
| Screen and keyboard |
| Save setup as dfl   |
| Save setup as..    |
| Exit                |
| Exit from Minicom   |
+-----+
```

E. Basic procedures for debugging

1. Connect cables as illustrated in section D.
2. Run terminal program on Linux PC.
3. Type in # minicom –o marvell
4. Power on the DreamPlug Server.

Normally, you will see messages on screen as below:

```
Press CTRL-A Z for help on special keys

U-Boot 2011.06 (Oct 15 2011 - 02:02:08)
Marvell-DreamPlug

SoC:   Kirkwood 88F6281_A0
DRAM:  512 MiB
SF: Detected MX25L1606 with page size 256, total 1 MiB
In:     serial
Out:    serial
Err:    serial
Net:    egiga0, egiga1
88E1121 Initialized on egiga0
88E1121 Initialized on egiga1
Hit any key to stop autoboot:  0
Marvell>>
```

You can press any key to stop auto-boot when you see the boot delay timer is counting down.

After entering the uboot prompt, you can also change the uboot environment variables such as boot delay time, lpaddr, serverip and so on.

If no key has been pressed to interrupt the uboot, it will continue running to the login screen where it urges you to input the login name and password, here is the default login information.

Login : [root](#)

Password: [nosoup4u](#)


```
Ubuntu 9.04 dreamplug_ubuntu ttyS0

dreamplug_ubuntu login: root
Password:
Last login: Tue Feb 15 02:07:27 UTC 2011 on ttyS0
Linux dreamplug_ubuntu 2.6.33.6 #1 PREEMPT Tue Feb 8 03:18:41 EST 2011 armv5tel

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
root@dreamplug_ubuntu:~# █
```

Now, you have the full control right of it.

F. Wi-Fi / Bluetooth testing

DreamPlug Server has a built-in WiFi module which is compliance with 802.11 b/g/n standard and Bluetooth 3.0 +HS.

The WiFi works as both client and AP mode but only one at a time.

The default mode is AP mode every time when it powers on and can be switched to client mode manually as follows:

1. WiFi client mode- enter command as below

```
# wlan.sh
```

Note: wlan.sh is in the folder /usr/sbin

2. Back to WiFi AP mode again.- enter commands as below:

```
# ifconfig wlan0 down
```

```
# rmmod sd8xxx
```

```
# hciconfig hci0 down
```

```
# rmmod bt8xxx
```

```
# sh /root/k2.6.39.4/init_sd8787.sh
```

You may try to put the above commands into one sh file for later easy use.

3. Check Bluetooth device

```
# hciconfig hci0 up
```

You will see hci0 device exists by giving command

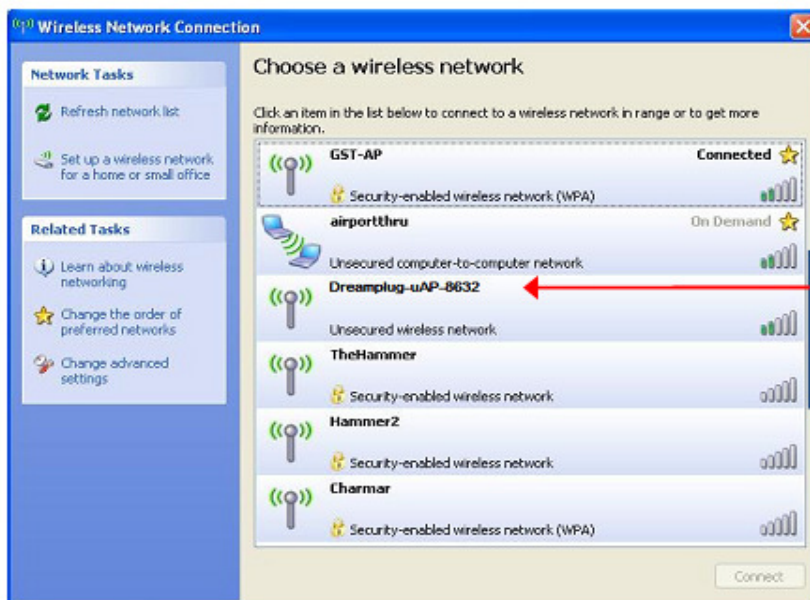
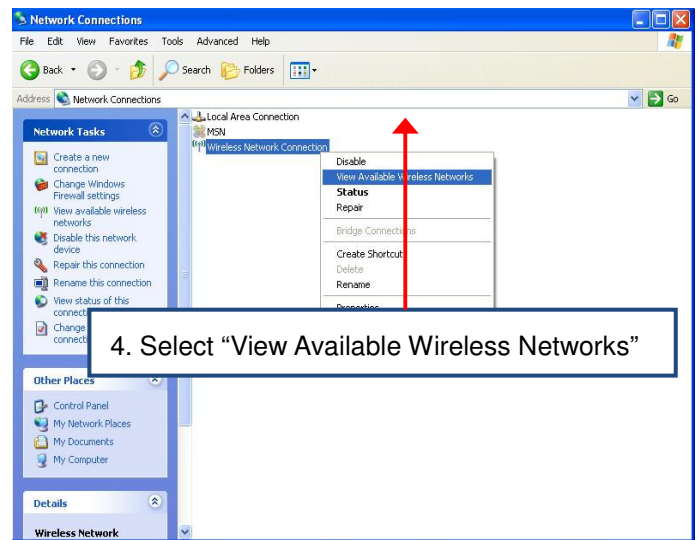
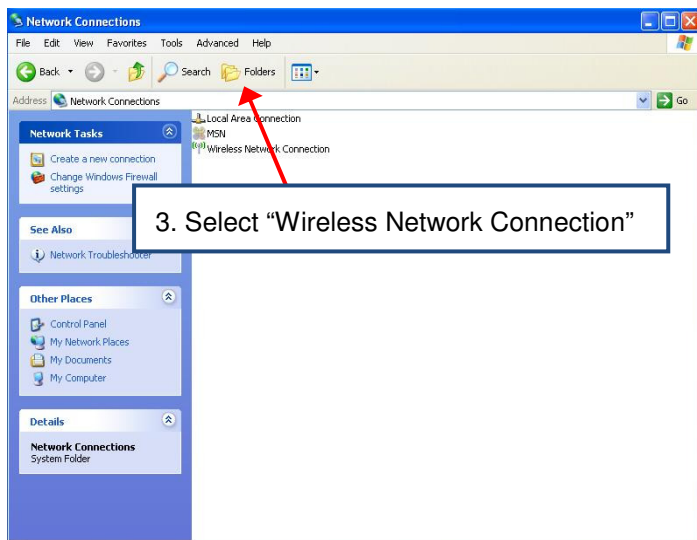
```
# hciconfig
```

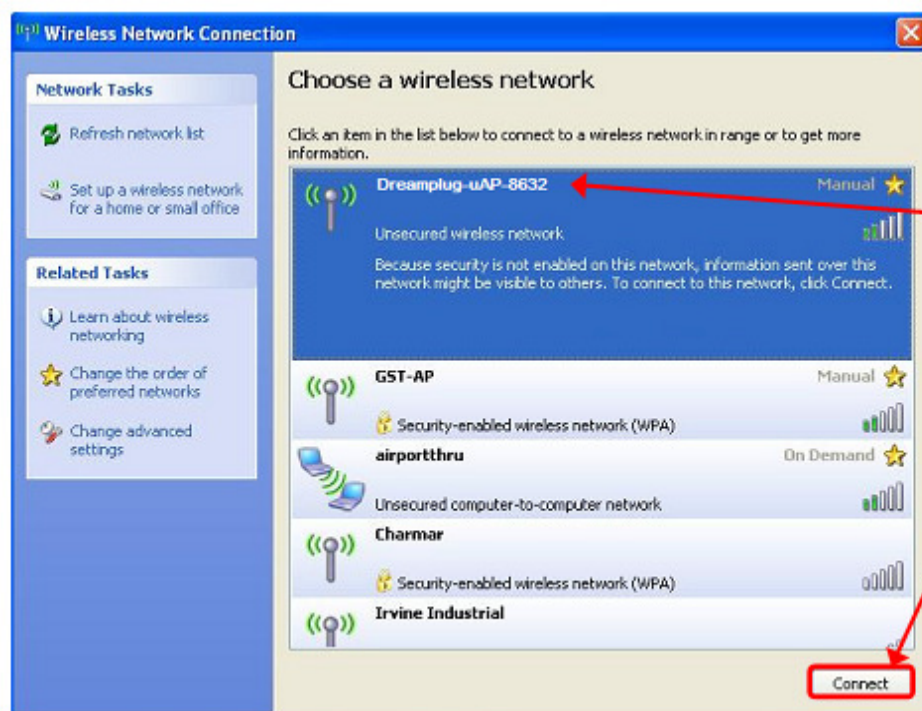
4. Scan BT device near-by

```
# hcitool -l hci0 scan -flush
```

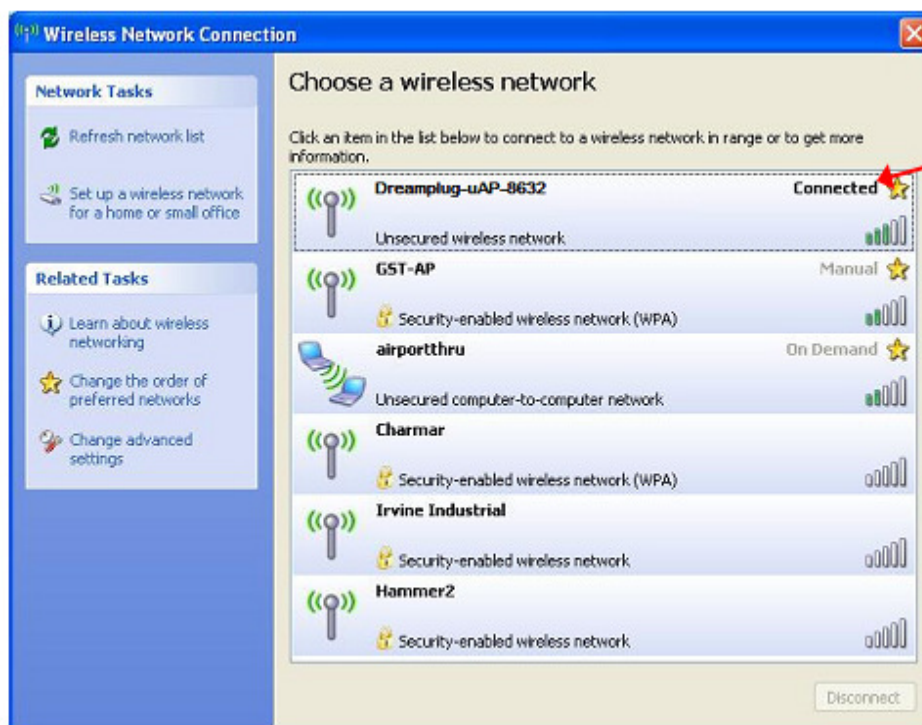
G. Connect to Wi-Fi AP by Windows client

1. Prepare one computer installed with Wi-Fi Lan card, here we use computer with Windows XP operating system for example.
2. Go to “Network Connections”





6. Choose this one and click here to connect.



7. Connected

H. System reset/ restore button



There is a reset hole as shown in the picture above and a button located behind the hole.

In order to activate the function of the button you need to use a pin-like tool inserting into the hole and pressing down the button.

Basically there are two functionalities of this button:

1. System Reset

When pressing down and releasing the button in less than 5 seconds it performs the system reset function which will restart the system.

2. System Restore

When press and hold the button down for more than 6 (approximately) seconds then release it, the original factory default system will be restored to take the place of your current existing system, this includes the kernel and root file system.

- Note:**
1. These two functionalities have to be performed when DreamPlug is running under kernel
 2. Please use power on reset when system is crashed and cannot perform the button reset function

Monitoring the restore process

Here shows you the way of monitoring the restore process if you are interested.

1. Connect the DreamPlug UART port to a Host through GuruPlug JTAG board or any other Serial device.



2. Access to DreamPlug system console by launching Putty or Super Terminal App in Windows, or Minicom in Linux. The console should be configured as 115200, 8n1.
3. Power on the DreamPlug and You will see boot-up messages on screen. Wait until the system runs into kernel level.

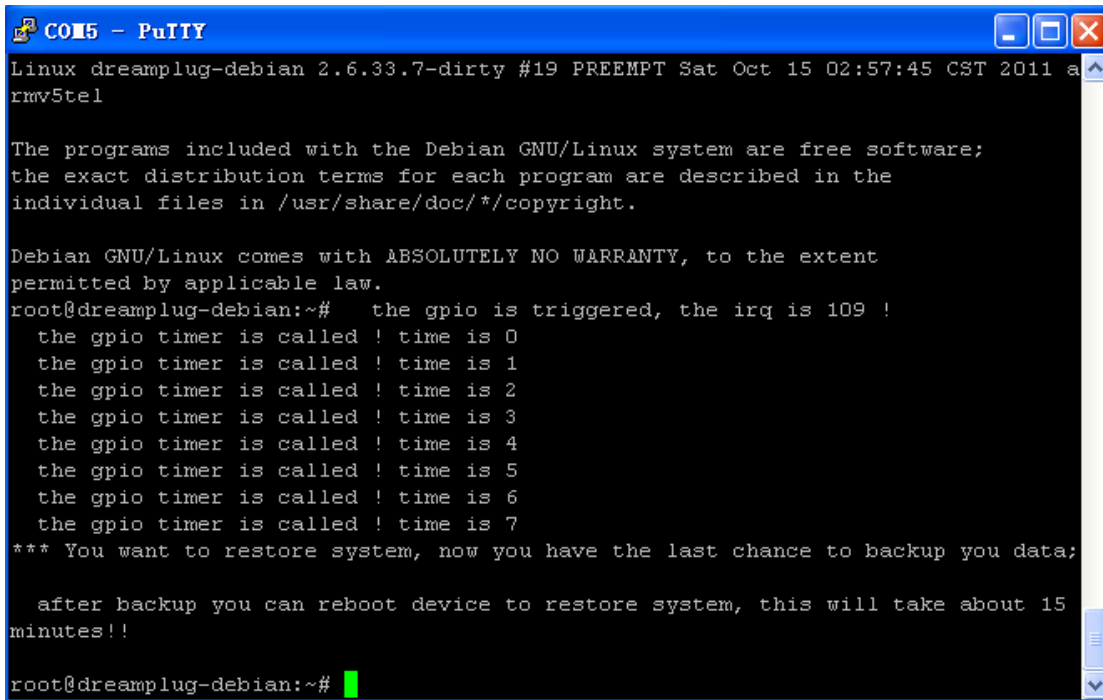
Note, the reset button has no function at U-Boot stage.

```
COM5 - PuTTY
U-Boot 2011.06 (Oct 15 2011 - 02:02:08)
Marvell-DreamPlug

SoC:   Kirkwood 88F6281_A0
DRAM:  512 MiB
SF: Detected MX25L1606 with page size 256, total 1 MiB
In:     serial
Out:    serial
Err:    serial
Net:    egiga0, egiga1
88E1121 Initialized on egiga0
88E1121 Initialized on egiga1
Hit any key to stop autoboot:  0
No link on egiga0
No link on egiga1
ping failed; host 192.168.2.1 is not alive
No link on egiga1
No link on egiga0
ping failed; host 192.168.2.1 is not alive
(Re)start USB...
USB:   Register 10011 NbrPorts 1
USB EHCI 1.00
scanning bus for devices... █
```

4. Once the reset button is pressed down for more than 6 seconds (a timer is used to count up this interval and the Linux kernel prints out an alarm message in console), the restore procedure is recorded and the system keeps

on running as it is. The restore procedure will not take place until next system boot-up, either by pressing the reset button (less than 5seconds) or through a power on reboot.



```

COM5 - PuTTY
Linux dreamplug-debian 2.6.33.7-dirty #19 PREEMPT Sat Oct 15 02:57:45 CST 2011 a
rmv5tel

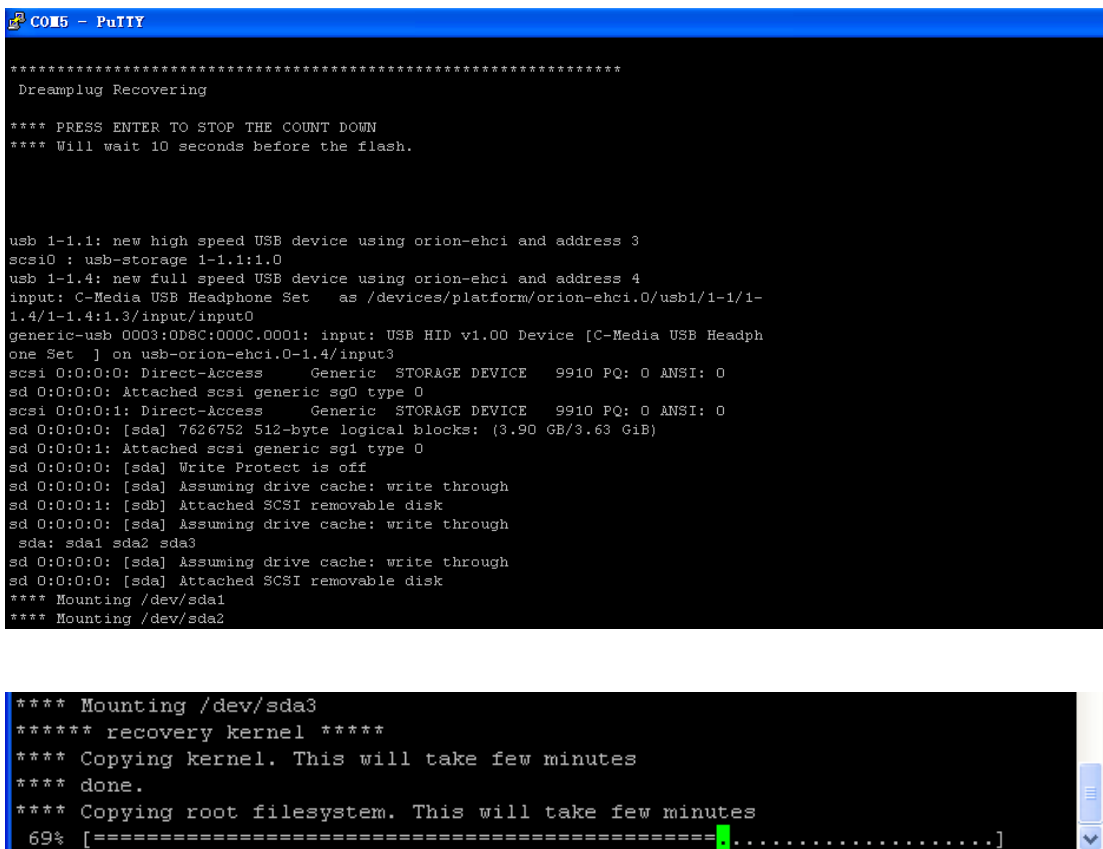
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@dreamplug-debian:~# the gpio is triggered, the irq is 109 !
the gpio timer is called ! time is 0
the gpio timer is called ! time is 1
the gpio timer is called ! time is 2
the gpio timer is called ! time is 3
the gpio timer is called ! time is 4
the gpio timer is called ! time is 5
the gpio timer is called ! time is 6
the gpio timer is called ! time is 7
*** You want to restore system, now you have the last chance to backup you data;
after backup you can reboot device to restore system, this will take about 15
minutes!!
root@dreamplug-debian:~#

```

Note: It is your last chance to back up the current system if you feel like to, the system will be replaced by factory default after reset or power on.

5. Once reboot, the DreamPlug starts to restore the kernel and root file system automatically. This procedure will takes about 15minutes.



```

COM5 - PuTTY
*****
Dreamplug Recovering

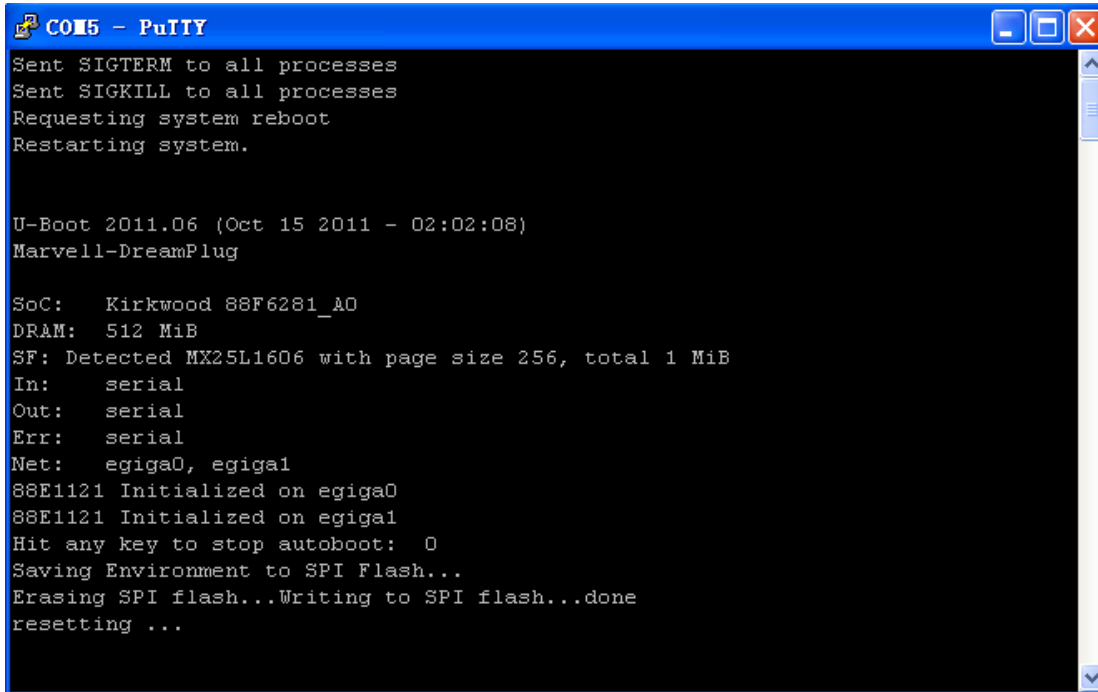
**** PRESS ENTER TO STOP THE COUNT DOWN
**** Will wait 10 seconds before the flash.

usb 1-1.1: new high speed USB device using orion-ehci and address 3
scsi0 : usb-storage 1-1.1:1.0
usb 1-1.4: new full speed USB device using orion-ehci and address 4
input: C-Media USB Headphone Set as /devices/platform/orion-ehci.0/usb1/1-1/1-
1.4/1-1.4:1.3/input/input0
generic-usb 0003:0D8C:000C.0001: input: USB HID v1.00 Device [C-Media USB Headph
one Set ] on usb-orion-ehci.0-1.4/input3
scsi 0:0:0:0: Direct-Access Generic STORAGE DEVICE 9910 PQ: 0 ANSI: 0
sd 0:0:0:0: Attached scsi generic sg0 type 0
scsi 0:0:0:1: Direct-Access Generic STORAGE DEVICE 9910 PQ: 0 ANSI: 0
sd 0:0:0:0: [sda] 7626752 512-byte logical blocks: (3.90 GB/3.63 GiB)
sd 0:0:0:1: Attached scsi generic sg1 type 0
sd 0:0:0:0: [sda] Write Protect is off
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:1: [sdb] Attached SCSI removable disk
sd 0:0:0:0: [sda] Assuming drive cache: write through
sda: sda1 sda2 sda3
sd 0:0:0:0: [sda] Assuming drive cache: write through
sd 0:0:0:0: [sda] Attached SCSI removable disk
**** Mounting /dev/sda1
**** Mounting /dev/sda2

**** Mounting /dev/sda3
***** recovery kernel *****
**** Copying kernel. This will take few minutes
**** done.
**** Copying root filesystem. This will take few minutes
69% [=====.....]

```

6. When the recovery is completed, the system reset itself and boot up with the factory default configuration.



```

COM5 - PuTTY
Sent SIGTERM to all processes
Sent SIGKILL to all processes
Requesting system reboot
Restarting system.

U-Boot 2011.06 (Oct 15 2011 - 02:02:08)
Marvell-DreamPlug

SoC:   Kirkwood 88F6281_A0
DRAM:  512 MiB
SF: Detected MX25L1606 with page size 256, total 1 MiB
In:     serial
Out:    serial
Err:    serial
Net:    egiga0, egiga1
88E1121 Initialized on egiga0
88E1121 Initialized on egiga1
Hit any key to stop autoboot:  0
Saving Environment to SPI Flash...
Erasing SPI flash...Writing to SPI flash...done
resetting ...
  
```

I. Download sites

To download the files for Dreamplug server, please visit:

<http://www.globalscaletechnologies.com/t-downloads.aspx>

Other useful resource links are:

<http://www.plugcomputer.org/>

<http://plugcomputer.org/plugwiki/index.php/GuruPlug>