

Set Up a New Debian File System in DreamPlug Development Kit

V 0.2

I. Introduction

DreamPlug is a powerful, low-cost development platform, which is based on Marvell high-performance, highly integrated controller 88F6281. The DreamPlug internal micro SD card for boot-up has two partitions- one is a DOS file system(fat16) where the kernel image is stored, the other partition is Linux file system(ext3) with a root file system. The default file system of DreamPlug is Ubuntu 9.04. This document provides the procedure to set up a new file system- Debian5.0 for the DreamPlug to take the place of the pre-installed Ubuntu 9.04.

II. Prerequisites

NOTE: We recommend that only experienced Linux programmers should undertake this project, and done at their own risk, as any changes from the original factory settings will invalidate the warranty.

The prerequisites for set-up a new file system on DreamPlug are mentioned below:

1. Linux Host or Windows PC with GParted installed.
2. Globalscale External JTAG Board for access to the DreamPlug console.
3. 2GB or above USB storage disk, used for another boot-up device.
4. Debian file system for DreamPlug is: "dreamplug_debian_v0.2.tar.gz". Debian files are available at the following websites:
<http://www.globalscaletechnologies.com/t-downloads.aspx>
<http://code.google.com/p/dreamplug/downloads/list>

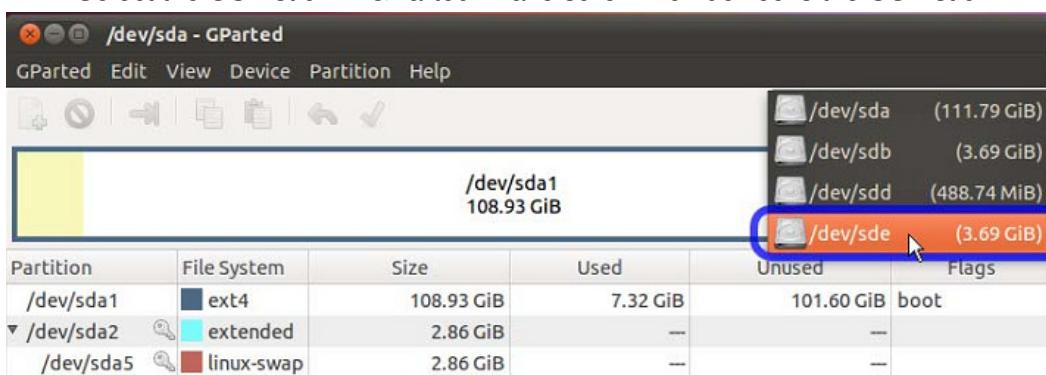
III. Procedure

1. Use GParted to create an ext3 file system in the USB stick

- 1.1 Connect the USB storage disk to the Linux Host and launch the GParted Partition Editor. If the GParted is not installed, please issue the following command in your Host(assuming the network is connected) for auto-installation.

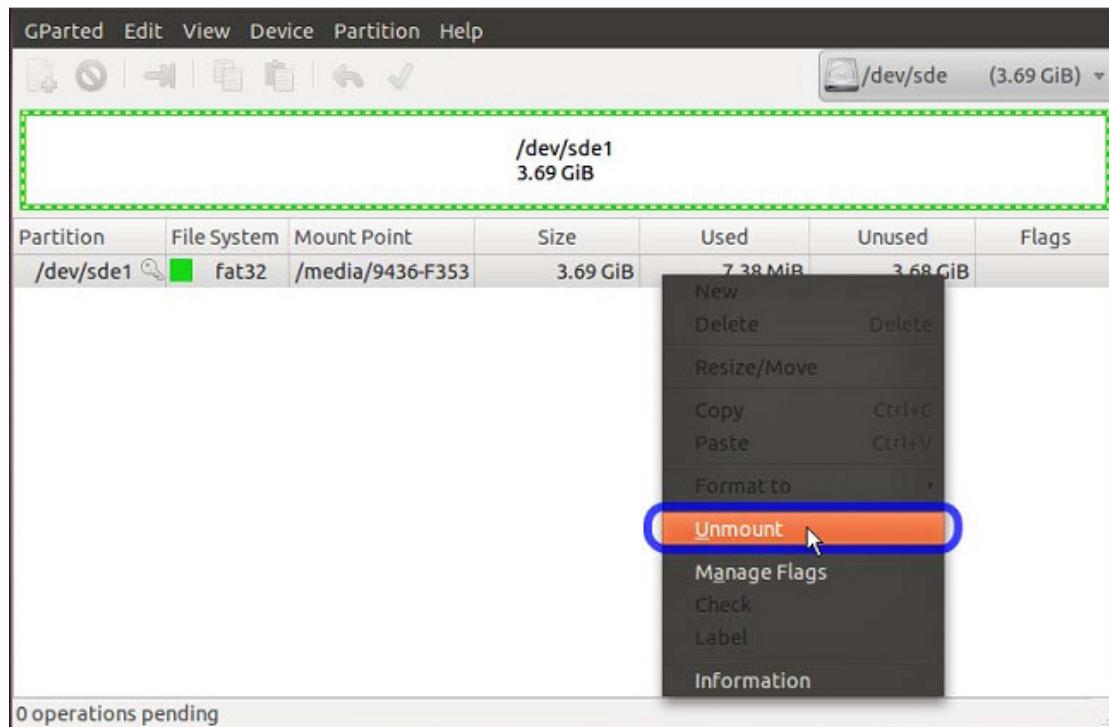
```
#yum -y install gparted
```

- 1.2 Select the USB stick in GParted. Make sure which device is the USB stick.

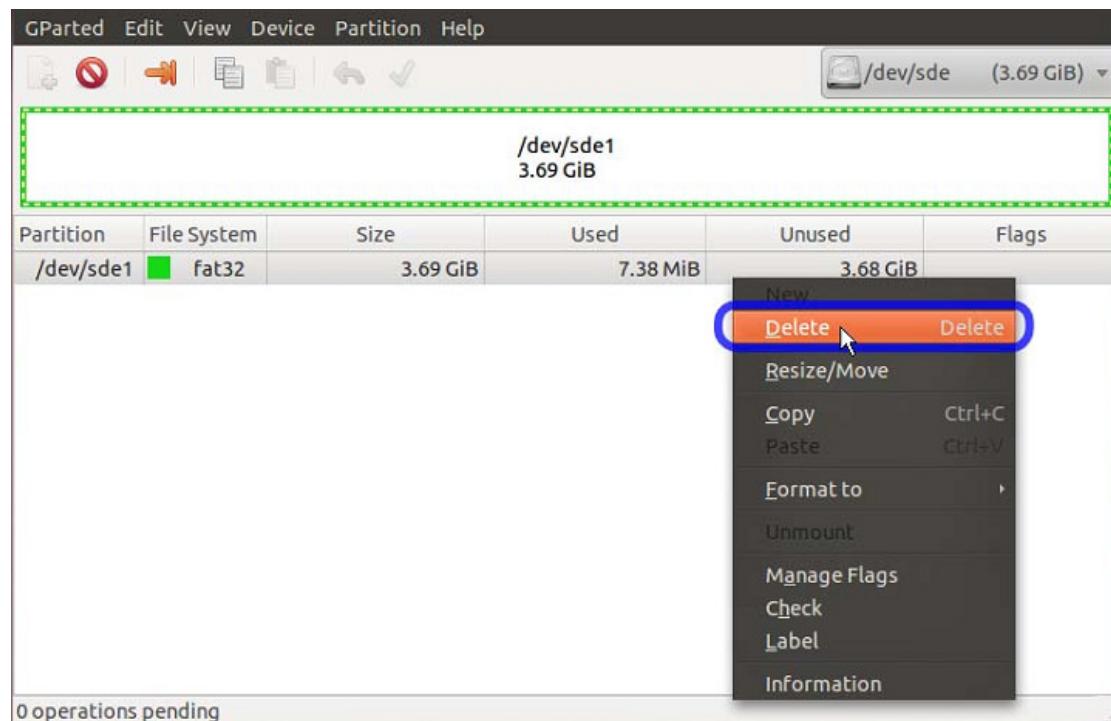


Here let's assume the USB stick is detected as /dev/sde by the Host.

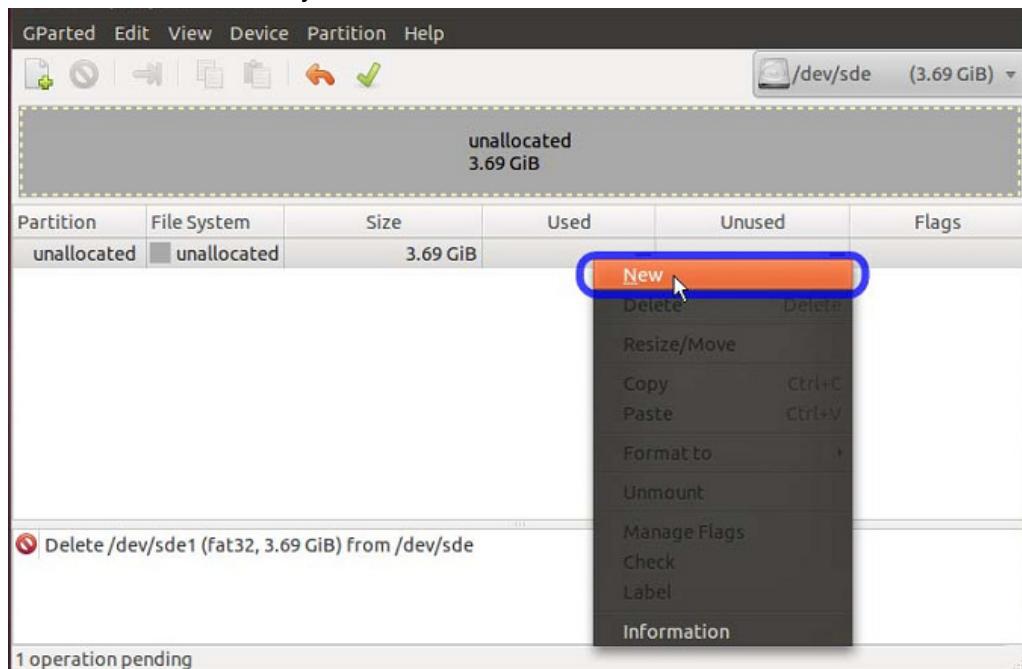
1.3 Unmount all partitions in the USB stick



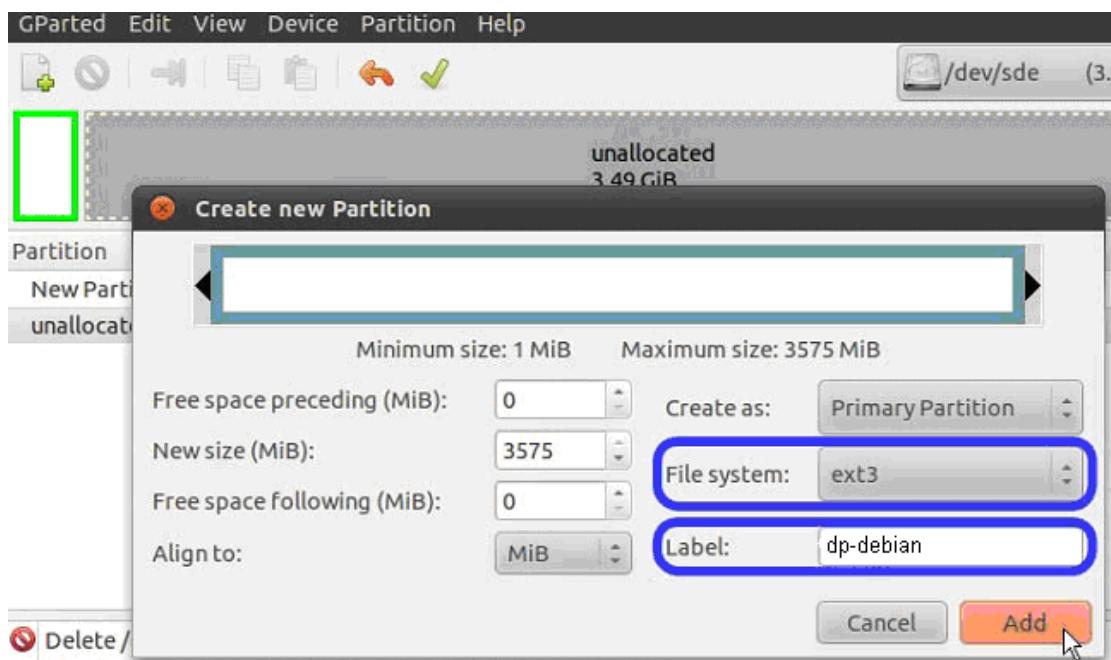
1.4 Delete all partitions in the USB stick, Noted that when this behavior is applied, all data in the USB stick will be lost.



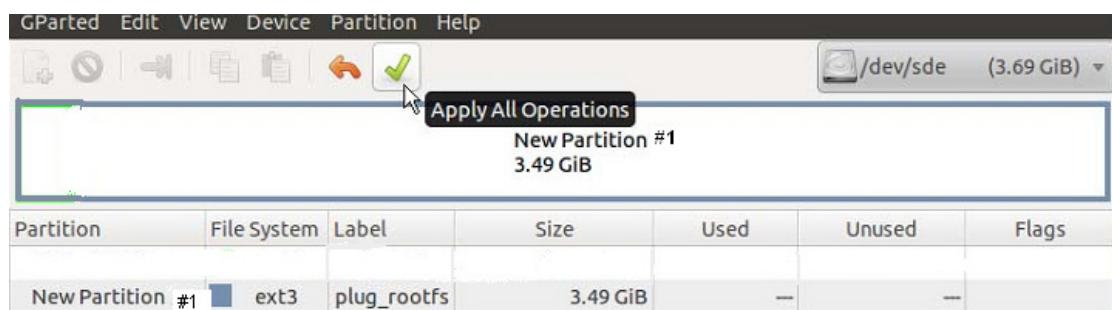
1.5 Create a new ext3 file system in the USB stick.



Select “ext3” in the File System field and enter a label name (e.g. “dp-debian”) in the Label field, then click “Add”:



1.6 To apply the operation to the USB stick, please click the :



When the above steps are correctly performed, the USB stick is ready to be used for Debian file system.

2 Untar and copy the dreamplug_debian_v0.2.tar.gz to this newly prepared USB stick.

2.1 Plug the USB stick to the Host and execute the following command as root user in the Host Terminal.

The example here shows the dreamplug_debian_v0.2.tar.gz has been downloaded to /home/ folder in the Host, and the USB stick is mounted to /media/usb0 in the Host also.

```
# cd /media/usb0
# tar -xzvf /home/dreamplug_debian_v0.2.tar.gz .
...
# cp /home/dreamplug_debian_v0.2.tar.gz home/
...(we will untar this tar file to the internal boot uSD in DreamPlug later)
# cd ../
# sync
# umount /media/usb0
```

Now, the USB stick with debian file system is ready for the boot up device of DreamPlug.

3 Boot-up the DreamPlug from the debian USB stick.

3.1 Connect one end of the External JTAG Box to the DreamPlug via 4-pin UART cable, the other end to Windows PC via USB cable.

Insert the USB stick with Debian file system to the Dreamplug then launch a terminal program such as Putty /Tera Term and Winscp in PC and access to the system console of DreamPlug through SSH protocol.

Regarding the driver and setup of “Globalscale External JTAG Board” for Windows PC, please refer to the following website:

http://plugcomputer.org/plugwiki/index.php/Serial_terminal

<http://www.ftdichip.com/Drivers/VCP.htm>

3.2 Power on the DreamPlug you will see the boot-up messages on the console then stop the auto boot by pressing any key.

3.3 Change the UBoot parameters to boot from the USB stick.

In the UBoot prompt, type the following command to set the UBoot variables

Marvell>>setenv x_bootargs_root root=/dev/sdc1 rootdelay=10

Marvell>>saveenv

Note, you can enter “printenv” to make sure the setting environment is correct before saving it.

```

88E1121 Initialized on egiga1
Hit any key to stop autoboot: 0
Marvell>> printenv
bootcmd=setenv ethact egiga0; ${x_bootcmd_ether}; setenv ethact egiga1; ${x_};
bootdelay=3
baudrate=115200
x_bootcmd_ether=ping 192.168.2.1
x_bootcmd_usb=usb start
x_bootcmd_kernel=fatload usb 0 0x6400000 uImage
x_bootargs=console=ttyS0,115200
ethaddr=02:50:43:f5:34:ff
ethact=egiga0
eth1addr=02:50:43:0f:ff:0a
x_bootargs_root=root=/dev/sda2 rootdelay=10
stdin=serial
stdout=serial
stderr=serial

Environment size: 524/4092 bytes
Marvell>> setenv x_bootargs_root root=/dev/sdc1 rootdelay=10
Marvell>> saveenv
Saving Environment to SPI Flash...
Erasing SPI flash...Writing to SPI flash...done
Marvell>> █

```

Usually, the external USB stick is always recognized as /dev/sdc , while the internal boot uSD card is /dev/sda1 and /dev/sda2.

3.4 Reset the DreamPlug, so it should boot up from the external USB stick with Debian system. Login to the DreamPlug as “root” user with password“nosoup4u” .

4 Transplant the debian file system to the internal uSD card.

4.1 Mount the 2nd partition of u-SD card (/dev/sda2) to the system which now is boot-up from the external USB stick so it can be prepared for read and write.

In other words mount the /dev/sda2 of the internal uSD to /mnt of the external USB stick then delete everything in the /dev/sda2.

```

#mount /dev/sda2 /mnt/
#cd /mnt/
#rm -rf *

```

```

guruplug-debian:~# mount /dev/sda2 /mnt/
kjournald starting. Commit interval 5 seconds
EXT3-fs (sda2): using internal journal
EXT3-fs (sda2): mounted filesystem with writeback data mode
guruplug-debian:~# cd /mnt/
guruplug-debian:/mnt# rm -rf * █

```

4.2 Extract the dreamplug_debian_v0.2.tar.gz to the /dev/sda2 by running

```
# tar -zxvf /home/dreamplug_debian_v0.2.tar.gz .
```

4.3 While the untar is done, unmount the /dev/sda2 safely

```
./var/cache/man/de/index.db
./var/cache/man/sv/
./var/cache/man/sv/index.db
./var/cache/man/local/
./var/cache/man/tr/
./var/cache/man/tr/index.db
./var/cache/man/cat2/
./var/cache/man/pl.UTF-8/
./var/cache/man/pl.UTF-8/index.db
./var/cache/lighttpd/
./var/cache/lighttpd/uploads/
./var/cache/lighttpd/compress/
./var/cache/samba/
./var/cache/samba/browse.dat
./var/cache/samba/printing/
./var/cache/samba/printing/printers.tdb
guruplug-debian:/mnt# cd ..
guruplug-debian:/# sync
guruplug-debian:/# umount /mnt/█
```

Now, the debian file system has been loaded into the internal uSD, reboot the DreamPlug again with USB stick still in place.

5 Change the UBoot parameters in order to boot the DreamPlug from the internal uSD, steps are as follows:

5.1 Stop the auto boot in the DreamPlug console, type the following commands in the UBoot prompt:

```
Marvell>>setenv x_bootargs_root root=/dev/sda2 rootdelay=10
Marvell>>saveenv
Marvell>>reset
```

```
88E1121 Initialized on egiga1
Hit any key to stop autoboot: 0
Marvell>> printenv
bootcmd=setenv ethact egiga0; ${x_bootcmd_ether}; setenv ethact egiga1; ${x_};
bootdelay=3
baudrate=115200
x_bootcmd_ether=ping 192.168.2.1
x_bootcmd_usb=usb start
x_bootcmd_kernel=fatload usb 0 0x6400000 uImage
x_bootargs=console=ttyS0,115200
ethaddr=02:50:43:f5:34:ff
ethact=egiga0
eth1addr=02:50:43:0f:ff:0a
x_bootargs_root=root=/dev/sdc1 rootdelay=10
stdin=serial
stdout=serial
stderr=serial

Environment size: 524/4092 bytes
Marvell>> setenv x_bootargs_root root=/dev/sda2 rootdelay=10
Marvell>> saveenv
Saving Environment to SPI Flash...
Erasing SPI flash...Writing to SPI flash...done
Marvell>> █
```

Remove the external USB stick and reset the DreamPlug. Now the DreamPlug should boot up with a fresh debian file system in the internal uSD.