SheevaPlug ?????????? Linux ???????CPU ?? Marvell ??????? ARM ??????????

- CPU ????Marvell RISC Architecture ARM 1.2 GHz
- RAM ????DDR2 512MB
- NAND FLASH?512MB
- ????????USB2.0 x1, SDHC x1
- 1000/100 ??
- ?????? 5W
- ???? Linux 2.6.x
- ?????? Ubuntu
- ?????Gigabit Network x1, JTAG mini USB
- ?????110mm (L) x 69.5mm (W) x 48.5 mm (H)

Plug Computer ????????? Linux??? IP PBX ??????????
Marvell ??????????????? Plug Computer???????????????????????? "free your imagination"??????
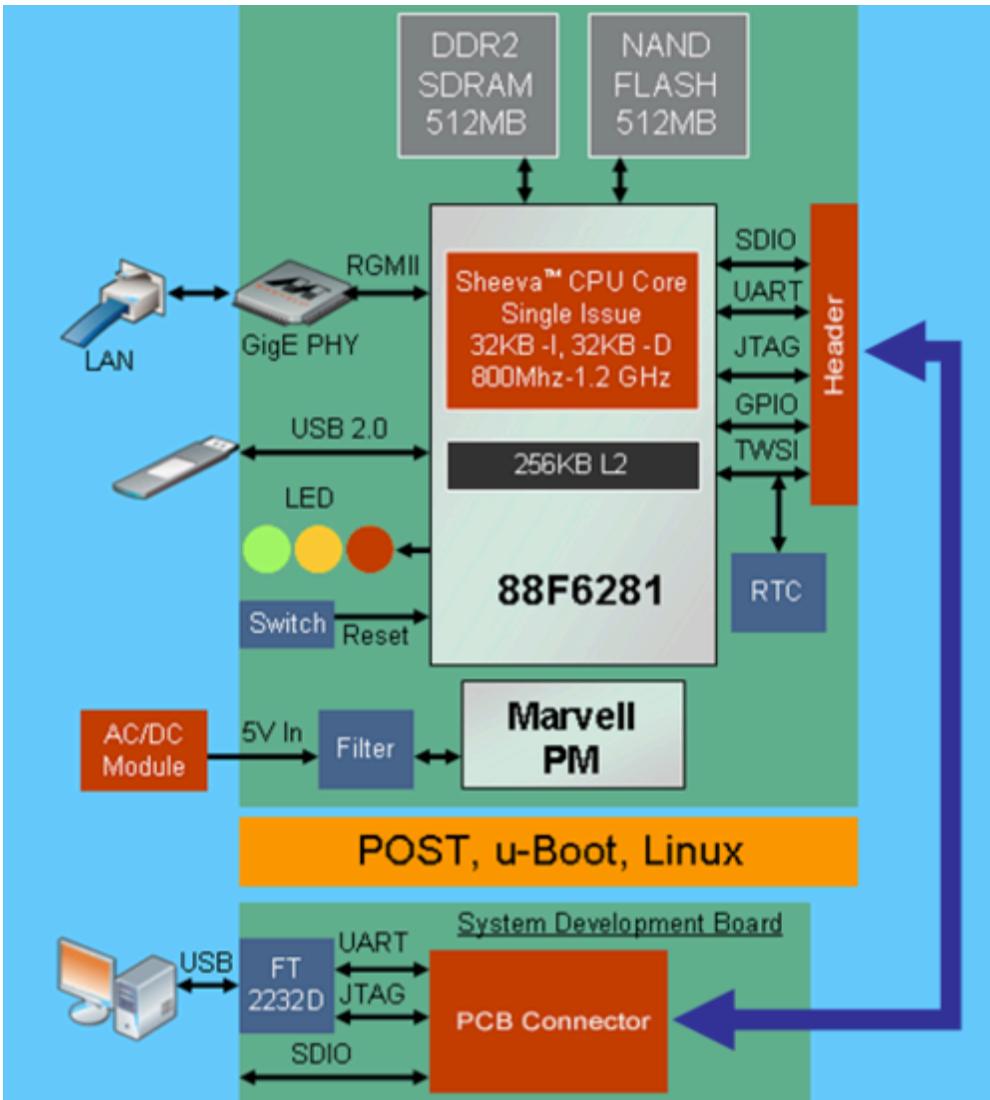http://plugcomputer.org/ ?

???? Plug Computer ??????????????????????? ARM CPU ???????? x86 ???????
???????? Plug Computer ??? Asterisk ????????? FreePBX ????????????????
http://www.plugpbx.org/

???????

SheevaPlug ?????

- [Blog@OSSLab]????5W????IP PBX??
- SheevaPlug ???

????

- Install Debian on sheevaplug
- Install ubuntu
- Plug Computer Console
- PlugPBX
- PlugPBX ???? - Sipp
- SheevaPlug ???
- U-Boot ??
- ??uboot

- Install Asterisk/FreePBX on SheevaPlug

????

???? SheevaPlug ????????? Ubuntu ??????????? 512MB NAND Flash?

SSH Login: **root / nosoup4u**

?? mini-USB ?? SheevaPlug

?? SheevaPlug ????????????????????????? Ubuntu???????

1. ???? DHCP Server????????? IP ??????
   Ubuntu ???????? DHCP ??????????? DHCP Server ? IP ??????? SheevaPlug ??? IP ??????? PuTTY ? SSH ???? SheevaPlug?
2. ? Windows ??????? FTDI 2232 ?????? Windows ???? mini-USB cable ? RS232 ???? SheevaPlug?? Linux ????????? [Serial terminal](#)?

??????????????????????????

// ?? FTDI 2232 Driver

[SheevaPlug_Host_SWsupportPackageWindowsHost1.2.zip](#)

Driver ???????????????? SheevaPlug ??????? WindowsXP ? mini-USB ????? WindowsXP ?????????????????? ??WindowsXP ???????????????????????? driver?

// ????? COM ????
? SheevaPlug ??????? WindowsXP ? mini-USB ???
WindowsXP > ?? > ?? > ??? > ????? > ?????? > ???? > ?????

    ??? (COM ? LPT)
    --> USB Serial Port (COM9)

NOTE: ?????? COM9?????????????????

// ? PuTTY ??????
?? PuTTY?

    Connection type : Serial
    Serial line : COM9
    Speed : 115200

?????????????? Enter??????? debian ?????

??? Ubuntu ??????
// ??????

root@debian:~# cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=9.04
DISTRIB_CODENAME=jaunty
DISTRIB_DESCRIPTION="Ubuntu jaunty (development branch)"

```
root@debian:~# uname -a
Linux debian 2.6.22.18 #1 Thu Mar 19 14:46:22 IST 2009 armv5tejl GNU/Linu
```

// CPU

```
root@debian:~# cat /proc/cpuinfo
Processor       : ARM926EJ-S rev 1 (v5l)
BogoMIPS        : 1192.75
Features        : swp half thumb fastmult edsp
CPU implementer : 0x56
CPU architecture: 5TE
CPU variant     : 0x2
CPU part        : 0x131
CPU revision    : 1
Cache type      : write-back
Cache clean     : cp15 c7 ops
Cache lockdown  : format C
Cache format    : Harvard
I size          : 16384
I assoc         : 4
I line length   : 32
I sets          : 128
D size          : 16384
D assoc         : 4
D line length   : 32
D sets          : 128

Hardware        : Feroceon-KW
Revision        : 0000
Serial          : 0000000000000000
```

// RAM

```
root@debian:~# cat /proc/meminfo
MemTotal:      515636 kB
MemFree:       486128 kB
Buffers:            0 kB
Cached:         12352 kB
SwapCached:         0 kB
Active:         10400 kB
Inactive:        6316 kB
SwapTotal:          0 kB
SwapFree:           0 kB
Dirty:              0 kB
Writeback:          0 kB
AnonPages:       4380 kB
Mapped:          2804 kB
Slab:            9844 kB
```

```
SReclaimable:     796 kB
SUnreclaim:      9048 kB
PageTables:       216 kB
NFS_Unstable:       0 kB
Bounce:             0 kB
CommitLimit:    257816 kB
Committed_AS:    8576 kB
VmallocTotal:   122880 kB
VmallocUsed:      564 kB
VmallocChunk:   122296 kB
```

// Installed Package

```
root@debian:~# dpkg -l
Desired=Unknown/Install/Remove/Purge/Hold
| Status=Not/Inst/Cfg-files/Unpacked/Failed-cfg/Half-inst/trig-aWait/Trig-pend
|/ Err?=(none)/Hold/Reinst-required/X=both-problems (Status,Err: uppercase=bad)
||/ Name          Version       Description
+++-=============-==============-============================================
ii  adduser        3.110ubuntu2   add and remove users and groups
ii  apt            0.7.19ubuntu1  Advanced front-end for dpkg
ii  apt-utils      0.7.19ubuntu1  APT utility programs
ii  base-files     5ubuntu1       Debian base system miscellaneous files
ii  base-passwd    3.5.19         Debian base system master password and group
ii  bash           3.2-4ubuntu1   The GNU Bourne Again SHell
ii  belocs-locales 2.4-4ubuntu2   tools for compiling locale data files
ii  bsdutils       1:2.14-1ubuntu Basic utilities from 4.4BSD-Lite
ii  busybox-initra 1:1.10.2-2ubun Standalone shell setup for initramfs
ii  bzip2          1.0.5-1ubuntu1 high-quality block-sorting file compressor -
ii  ca-certificate 20080809       Common CA certificates
ii  console-setup  1.28ubuntu4    Set up the font and the keyboard on the cons
ii  console-termin 4.26-2.1       Fixed-width fonts for fast reading on the Li
ii  coreutils      6.10-6ubuntu1  The GNU core utilities
ii  cpio           2.9-14ubuntu1  GNU cpio -- a program to manage archives of
ii  cron           3.0pl1-105ubun management of regular background processing
ii  cryptsetup     2:1.0.6-7ubunt configures encrypted block devices
ii  dash           0.5.4-12ubuntu POSIX-compliant shell
ii  debconf        1.5.24ubuntu2  Debian configuration management system
ii  debconf-i18n   1.5.24ubuntu2  full internationalization support for debcon
ii  debianutils    2.30ubuntu2    Miscellaneous utilities specific to Debian
ii  dhcp3-client   3.1.1-5ubuntu1 DHCP client
ii  dhcp3-common   3.1.1-5ubuntu1 common files used by all the dhcp3* packages
ii  diff           2.8.1-12ubuntu File comparison utilities
ii  dmsetup        2:1.02.27-4ubu The Linux Kernel Device Mapper userspace lib
ii  dosfstools     3.0.1-1        utilities for making and checking MS-DOS FAT
ii  dpkg           1.14.24ubuntu1 Debian package management system
ii  e2fslibs       1.41.3-1ubuntu ext2 filesystem libraries
ii  e2fsprogs      1.41.3-1ubuntu ext2/ext3/ext4 file system utilities
```

ii eject   2.1.5+deb1+cvs ejects CDs and operates CD-Changers under Li
ii file   4.26-2   Determines file type using "magic" numbers
ii findutils   4.4.0-2ubuntu3 utilities for finding files--find, xargs
ii gcc-4.3-base   4.3.2-2ubuntu1 The GNU Compiler Collection (base package)
ii gnupg   1.4.9-3ubuntu1 GNU privacy guard - a free PGP replacement
ii gpgv   1.4.9-3ubuntu1 GNU privacy guard - signature verification t
ii grep   2.5.3~dfsg-6ub GNU grep, egrep and fgrep
ii gzip   1.3.12-6ubuntu The GNU compression utility
ii hashalot   0.3-5   Read and hash a passphrase
ii hostname   2.95   utility to set/show the host name or domain
ii ifupdown   0.6.8ubuntu15 high level tools to configure network interf
ii initramfs-tool 0.92bubuntu18 tools for generating an initramfs
ii initscripts   2.86.ds1-61ubu Scripts for initializing and shutting down t
ii iproute   20080725-2   networking and traffic control tools
ii iputils-ping   3:20071127-1   Tools to test the reachability of network ho
ii kbd   1.14.1-4ubuntu Linux console font and keytable utilities
ii klibc-utils   1.5.14-1~exp1u small utilities built with klibc for early b
ii klogd   1.5-5ubuntu2   Kernel Logging Daemon
ii language-pack- 1:8.10+2008102 translation updates for language English
ii language-pack- 1:8.10+2008102 translations for language English
ii laptop-detect 0.13.7ubuntu1 attempt to detect a laptop
ii less   418-1   Pager program similar to more
ii libacl1   2.2.47-2   Access control list shared library
ii libatm1   2.4.1-17.2   shared library for ATM (Asynchronous Transfe
ii libattr1   1:2.4.43-1   Extended attribute shared library
ii libblkid1   1.41.3-1ubuntu block device id library
ii libbz2-1.0   1.0.5-1ubuntu1 high-quality block-sorting file compressor l
ii libc6   2.9-0ubuntu7   GNU C Library: Shared libraries
ii libcap1   1:1.10-14build support for getting/setting POSIX.1e capabil
ii libcomerr2   1.41.3-1ubuntu common error description library
ii libcups2   1.3.9-11ubuntu Common UNIX Printing System(tm) - libs
ii libcurl3-gnutl 7.18.2-8ubuntu Multi-protocol file transfer library (GnuTLS
ii libdb4.2   4.2.52+dfsg-5 Berkeley v4.2 Database Libraries [runtime]
ii libdb4.6   4.6.21-12   Berkeley v4.6 Database Libraries [runtime]
ii libdb4.7   4.7.25-6ubuntu Berkeley v4.7 Database Libraries [runtime]
ii libdevmapper1. 2:1.02.27-4ubu The Linux Kernel Device Mapper userspace lib
ii libedit2   2.11~20080614- BSD editline and history libraries
ii libfribidi0   0.10.9-1   Free Implementation of the Unicode BiDi algo
ii libgcc1   1:4.3.2-2ubunt GCC support library
ii libgcrypt11   1.4.1-2ubuntu1 LGPL Crypto library - runtime library
ii libgnutls26   2.4.2-4   the GNU TLS library - runtime library
ii libgpg-error0 1.4-2ubuntu7   library for common error values and messages
ii libgpm2   1.20.4-3ubuntu General Purpose Mouse - shared library
ii libidn11   1.10-3   GNU libidn library, implementation of IETF I
ii libkeyutils1   1.2-9   Linux Key Management Utilities (library)
ii libklibc   1.5.14-1~exp1u minimal libc subset for use with initramfs
ii libkrb53   1.6.dfsg.4~bet MIT Kerberos runtime libraries
ii libldap-2.4-2 2.4.11-0ubuntu OpenLDAP libraries
ii liblocale-gett 1.05-4build1   Using libc functions for internationalizatio
ii liblockfile1   1.08-3   NFS-safe locking library, includes dotlockfi

ii liblzo2-2   2.03-1   data compression library
ii libmagic1   4.26-2   File type determination library using "magic
ii libncurses5   5.7+20081220-1 shared libraries for terminal handling
ii libncursesw5 5.7+20081220-1 shared libraries for terminal handling (wide
ii libnewt0.52   0.52.2-11.3ubu Not Erik's Windowing Toolkit - text mode win
ii libpam-modules 1.0.1-5ubuntu1 Pluggable Authentication Modules for PAM
ii libpam-runtime 1.0.1-5ubuntu1 Runtime support for the PAM library
ii libpam0g   1.0.1-5ubuntu1 Pluggable Authentication Modules library
ii libpcre3   7.8-2ubuntu1   Perl 5 Compatible Regular Expression Library
ii libpopt0   1.14-4   lib for parsing cmdline parameters
ii libreadline5 5.2-3build1   GNU readline and history libraries, run-time
ii libsasl2-2   2.1.22.dfsg1-2 Cyrus SASL - authentication abstraction libr
ii libsasl2-modul 2.1.22.dfsg1-2 Cyrus SASL - pluggable authentication module
ii libselinux1   2.0.65-5   SELinux shared libraries
ii libsepol1   2.0.30-2   Security Enhanced Linux policy library for c
ii libslang2   2.1.3-3ubuntu3 The S-Lang programming library - runtime ver
ii libsqlite3-0   3.5.9-6   SQLite 3 shared library
ii libss2   1.41.3-1ubuntu command-line interface parsing library
ii libssl0.9.8   0.9.8g-15ubunt SSL shared libraries
ii libstdc++6   4.3.2-2ubuntu1 The GNU Standard C++ Library v3
ii libtalloc1   1.2.0~git20080 hierarchical pool based memory allocator
ii libtasn1-3   1.5-1   Manage ASN.1 structures (runtime)
ii libtext-charwi 0.04-5build1   get display widths of characters on the term
ii libtext-iconv- 1.7-1build1   converts between character sets in Perl
ii libtext-wrapi1 0.06-6   internationalized substitute of Text::Wrap
ii libusb-0.1-4   2:0.1.12-13   userspace USB programming library
ii libuuid1   1.41.3-1ubuntu universally unique id library
ii libvolume-id1 136-4   volume identification library
ii libwbclient0   2:3.2.5-3ubunt client library for interfacing with winbind
ii libwrap0   7.6.q-16   Wietse Venema's TCP wrappers library
ii libx11-6   2:1.1.5-2ubunt X11 client-side library
ii libx11-data   2:1.1.5-2ubunt X11 client-side library
ii libxau6   1:1.0.4-1   X11 authorisation library
ii libxcb-xlib0   1.1-1.1   X C Binding, Xlib/XCB interface library
ii libxcb1   1.1-1.1   X C Binding
ii libxdmcp6   1:1.0.2-3   X11 Display Manager Control Protocol library
rc libxext6   2:1.0.4-1   X11 miscellaneous extension library
rc libxmuu1   2:1.0.4-1   X11 miscellaneous micro-utility library
ii locales   2.7.9-5   common files for locale support
ii lockfile-progs 0.1.11ubuntu2 Programs for locking and unlocking files and
ii login   1:4.1.1-6ubunt system login tools
ii logrotate   3.7.7-2ubuntu1 Log rotation utility
ii lsb-base   3.2-20ubuntu2 Linux Standard Base 3.2 init script function
ii lsb-release   3.2-20ubuntu2 Linux Standard Base version reporting utilit
ii lzma   4.43-14ubuntu1 Compression method of 7z format in 7-Zip pro
ii makedev   2.3.1-88   creates device files in /dev
ii mawk   1.3.3-13ubuntu a pattern scanning and text processing langu
ii mime-support   3.44-1   MIME files 'mime.types' & 'mailcap', and sup
ii mktemp   1.5-9   tool for creating temporary files
ii module-init-to 3.3-pre11-4ubu tools for managing Linux kernel modules

```
ii  mount       2.14-1ubuntu4  Tools for mounting and manipulating filesyst
ii  mtd-tools    20080508-1ubun dummy package for transition purposes
ii  mtd-utils    20080508-1ubun Memory Technology Device Utilities
ii  nano        2.0.7-4       free Pico clone with some new features
ii  ncurses-base  5.7+20081220-1 basic terminal type definitions
ii  ncurses-bin   5.7+20081220-1 terminal-related programs and man pages
ii  net-tools    1.60-21ubuntu1 The NET-3 networking toolkit
ii  netbase      4.34ubuntu1    Basic TCP/IP networking system
ii  netcat       1.10-38       TCP/IP swiss army knife -- transitional pack
ii  netcat-traditi 1.10-38       TCP/IP swiss army knife
ii  ntpdate      1:4.2.4p4+dfsg client for setting system time from NTP serv
ii  openssh-client 1:5.1p1-4ubunt secure shell client, an rlogin/rsh/rcp repla
ii  openssh-server 1:5.1p1-4ubunt secure shell server, an rshd replacement
ii  openssl      0.9.8g-15ubunt Secure Socket Layer (SSL) binary and related
ii  passwd       1:4.1.1-6ubunt change and administer password and group dat
ii  perl-base    5.10.0-19ubunt minimal Perl system
ii  procps       1:3.2.7-9ubunt /proc file system utilities
ii  python       2.5.2-3ubuntu1 An interactive high-level object-oriented la
ii  python-minimal 2.5.2-3ubuntu1 A minimal subset of the Python language (def
ii  python2.5    2.5.4-0ubuntu1 An interactive high-level object-oriented la
ii  python2.5-mini 2.5.4-0ubuntu1 A minimal subset of the Python language (ver
ii  readline-commo 5.2-3build1   GNU readline and history libraries, common f
ii  samba        2:3.2.5-3ubunt a LanManager-like file and printer server fo
ii  samba-common   2:3.2.5-3ubunt Samba common files used by both the server a
ii  sed         4.1.5-8       The GNU sed stream editor
ii  startup-tasks  0.3.9-8       definitions of essential tasks to run on sta
ii  sudo         1.6.9p17-1ubun Provide limited super user privileges to spe
ii  sysklogd     1.5-5ubuntu2   System Logging Daemon
ii  system-service 0.3.9-8       definitions of essential system services
ii  sysv-rc      2.86.ds1-61ubu System-V-like runlevel change mechanism
ii  sysvinit-utils 2.86.ds1-61ubu System-V-like utilities
ii  tar         1.20-1        GNU version of the tar archiving utility
ii  tasksel      2.73ubuntu13   Tool for selecting tasks for installation on
ii  tasksel-data   2.73ubuntu13   Official tasks used for installation of Debi
ii  tcpd         7.6.q-16      Wietse Venema's TCP wrapper utilities
ii  tzdata       2008i-3       time zone and daylight-saving time data
ii  ubuntu-keyring 2008.03.04    GnuPG keys of the Ubuntu archive
ii  ubuntu-minimal 1.131        Minimal core of Ubuntu
ii  ucf         3.0011        Update Configuration File: preserve user cha
ii  udev         136-4         rule-based device node and kernel event mana
ii  unzip        5.52-12ubuntu1 De-archiver for .zip files
ii  update-inetd   4.31         inetd configuration file updater
ii  upstart      0.3.9-8       event-based init daemon
ii  upstart-compat 0.3.9-8       compatibility for System-V-like init
ii  upstart-logd   0.3.9-8       boot logging daemon
ii  util-linux    2.14-1ubuntu4 Miscellaneous system utilities
ii  uuid-runtime   1.41.3-1ubuntu universally unique id library
ii  vim-common    2:7.2.079-1ubu Vi IMproved - Common files
ii  vim-tiny     2:7.2.079-1ubu Vi IMproved - enhanced vi editor - compact v
ii  whiptail     0.52.2-11.3ubu Displays user-friendly dialog boxes from she
```

rc x11-common   1:7.4~5ubuntu1 X Window System (X.Org) infrastructure
ii xkb-data   1.3-2ubuntu5   X Keyboard Extension (XKB) configuration dat
ii zlib1g   1:1.2.3.3.dfsg compression library - runtime

// Disk usage

```
root@debian:~# df -h
Filesystem       Size  Used Avail Use% Mounted on
rootfs          507M  148M  360M  30% /
tmpfs           252M    0  252M   0% /lib/init/rw
varrun          252M  36K  252M   1% /var/run
varlock         252M    0  252M   0% /var/lock
udev            252M 8.0K  252M   1% /dev
tmpfs           252M    0  252M   0% /dev/shm
tmpfs           252M    0  252M   0% /var/cache/apt
```

```
root@debian:~# mount
rootfs on / type rootfs (rw)
tmpfs on /lib/init/rw type tmpfs (rw,nosuid,mode=0755)
/proc on /proc type proc (rw,noexec,nosuid,nodev)
sysfs on /sys type sysfs (rw,noexec,nosuid,nodev)
varrun on /var/run type tmpfs (rw,nosuid,mode=0755)
varlock on /var/lock type tmpfs (rw,noexec,nosuid,nodev,mode=1777)
udev on /dev type tmpfs (rw,mode=0755)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev)
devpts on /dev/pts type devpts (rw,noexec,nosuid,gid=5,mode=620)
tmpfs on /var/cache/apt type tmpfs (rw,noatime)
```

// top

```
top - 02:28:18 up 2:24, 1 user, load average: 0.22, 0.15, 0.10
Tasks: 34 total, 1 running, 33 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.0%us, 0.0%sy, 0.0%ni,100.0%id, 0.0%wa, 0.0%hi, 0.0%si, 0.0%st
Mem:   515636k total,   30784k used,  484852k free,       0k buffers
Swap:      0k total,      0k used,      0k free,   13104k cached

 PID USER    PR NI VIRT RES SHR S %CPU %MEM   TIME+  COMMAND
   1 root    18  0 2896 1896 576 S 0.0 0.4  0:51.94 init
   2 root    10 -5    0    0   0 S 0.0 0.0  0:00.00 kthreadd
   3 root    34 19    0    0   0 S 0.0 0.0  0:00.00 ksoftirqd/0
   4 root    10 -5    0    0   0 S 0.0 0.0  0:00.00 events/0
   5 root    20 -5    0    0   0 S 0.0 0.0  0:00.01 khelper
  50 root    16 -5    0    0   0 S 0.0 0.0  0:00.00 kblockd/0
  53 root    10 -5    0    0   0 S 0.0 0.0  0:00.00 khubd
  55 root    10 -5    0    0   0 S 0.0 0.0  0:00.06 kmmcd
  69 root    25  0    0    0   0 S 0.0 0.0  0:00.00 crypto
  70 root    25  0    0    0   0 S 0.0 0.0  0:00.00 crypto_ret
  75 root    20  0    0    0   0 S 0.0 0.0  0:00.00 pdflush
```

```
 76 root    15  0   0   0   0 S  0.0  0.0  0:00.86 pdflush
 77 root    15 -5   0   0   0 S  0.0  0.0  0:00.00 kswapd0
 78 root    15 -5   0   0   0 S  0.0  0.0  0:00.00 aio/0
215 root    11 -5   0   0   0 S  0.0  0.0  0:00.06 mtdblockd
216 root    20 -5   0   0   0 S  0.0  0.0  0:00.00 nftld
239 root    11 -5   0   0   0 S  0.0  0.0  0:00.00 kcryptd/0
```

??? UBoot ??

U-Boot 1.1.4 (Mar 19 2009 - 16:06:59) Marvell version: 3.4.16

NOTE:

??? UBoot ????? SDHC ???????? UBoot ??????? U-Boot ??

F.A.Q

?????? U-Boot ??????? NAND ? Ubuntu ???????

Ans : ????? U-Boot ?????????

Marvell>> resetenv
Marvell>> reset
…
…
Marvell>> setenv bootcmd 'nand read.e 0x800000 0x100000 0x400000; bootm 0x800000'
Marvell>> setenv bootargs console=ttyS0,115200
mtdparts=nand_mtd:0x400000@0x100000(uImage),0x1fb00000@0x500000(rootfs) rw root=/dev/mtdblock1
rw
Marvell>> saveenv
Marvell>> reset

?????

- [PlugPBX] SheevaPlug Setup
- [PlugComputer] PlugWiki
- [PlugComputer] Forum
- Upgrading SheevaPlug's U-Boot
- Debian on Plug Computers like the SheevaPlug
- A Note On Setting Up the SheevaPlug Linux Plug Computer