GadgetPC
Single Board Computer

Quick Start Guide

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Overview

Thank you for your purchase of the GadgetPC Single Board Computer. GadgetPC is a powerful computer board that is capable of running high-level operating systems such as Linux.

This document describes how to quickly get started with GadgetPC and includes the following steps:

- Requirements
- Hardware Setup
- Software Setup

Requirements

GadgetPC can be used for many different applications. The minimum requirements to run Linux are:

- GadgetPC
- USB Flash Drive
- A Windows PC to install and run GadgetPC software and Linux Control Panel

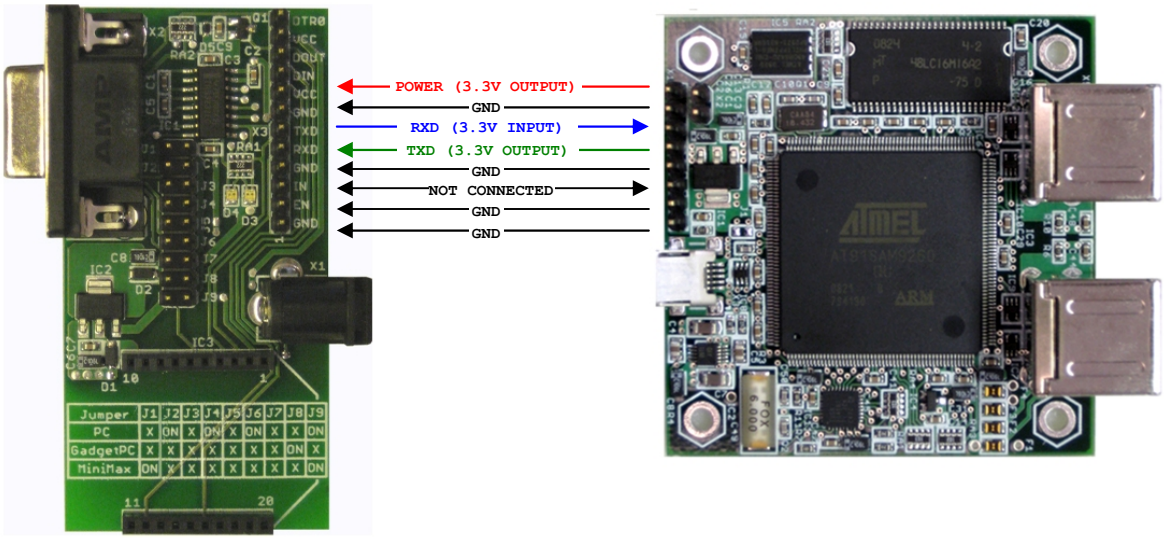
Optional accessories for use with Linux:

- BRD-RS232-TTL-1: Connects GadgetPC to your PC's serial port for console output
- DUB-E100: D-Link DUB-E100 Ethernet USB Adapter: For 100 Mbit Ethernet capability on GadgetPC
- ADP-5V1A-MiniUSB: MiniUSB Power Adapter: This option allows standalone operation of GadgetPC without having to power from a PC's USB port

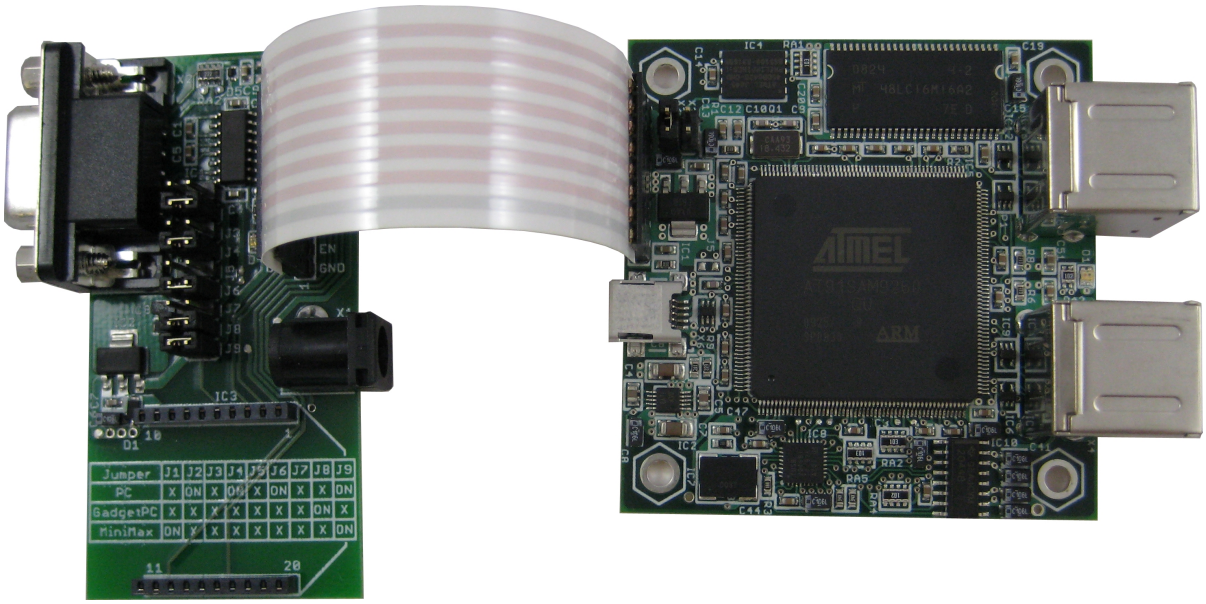
These accessories already included in GadgetPC Development Kit.

Connecting GadgetPC to your PC's serial port

To connect GadgetPC to your PC's serial port, you should use BRD-RS232-TTL-1 RS232 to TTL Converter peripheral board. The image below shows how to connect GadgetPC (at the right side) to BRD-RS232-TTL-1 (at the left side).



The image below shows BRD-RS232-TTL-1 actually connected to GadgetPC using flex cable.



BRD-RS232-TTL-1 peripheral board is supplied with the **GadgetPC Development Kit** or the **GadgetPC Wi-Fi Kit** or it can be purchased as a separate option.

Go to this link www.bipom.com/products/us/851715.html to buy board online on BiPOM web.

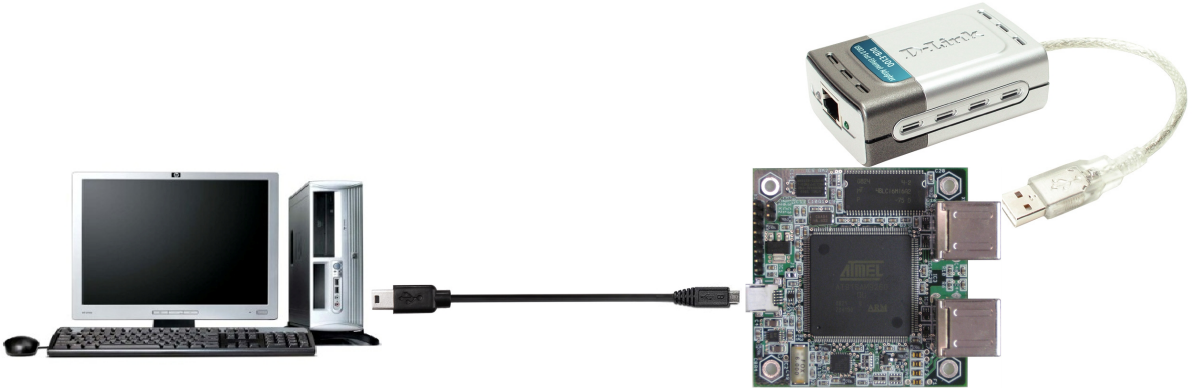
Hardware Setup

1. Place the GadgetPC board on a clean, non-conductive surface.

2. Connect the provided USB Device Cable to the USB Device port on the GadgetPC.

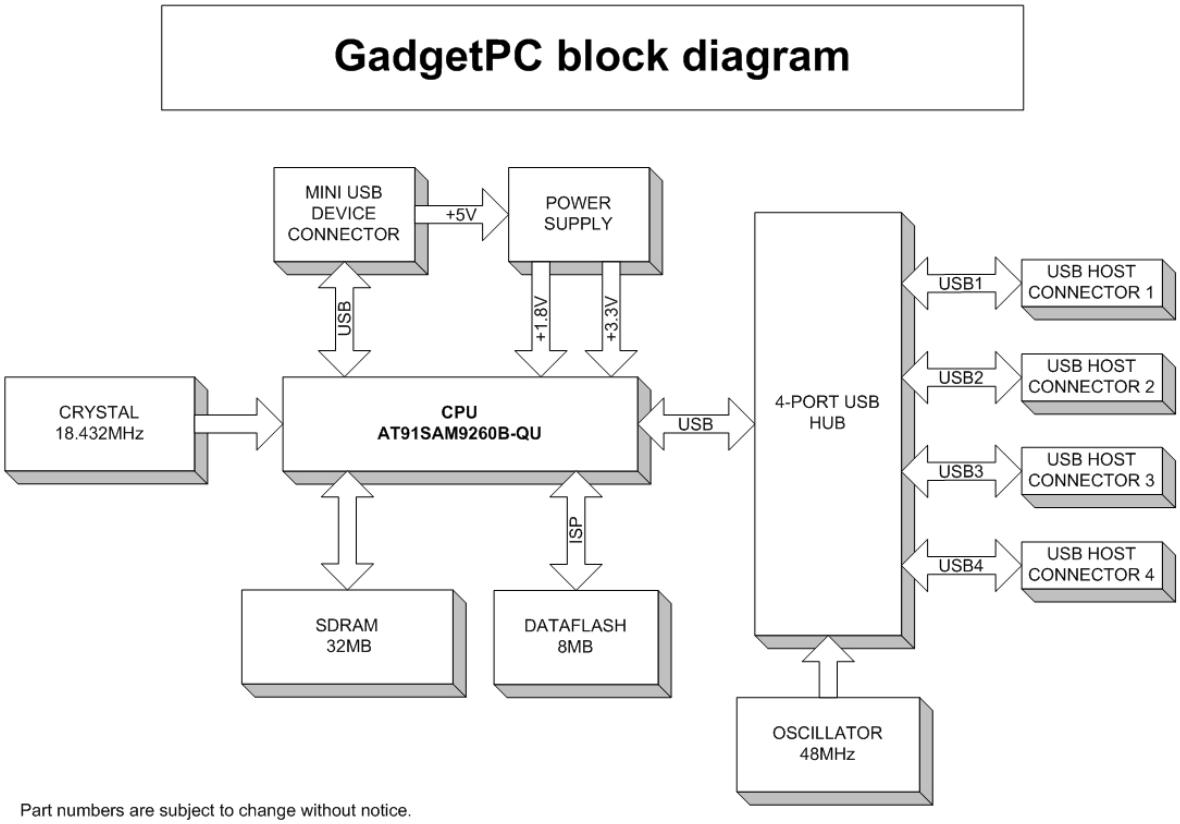
3. Connect the other end of the USB Device Cable to an available USB port on your PC. GadgetPC can be powered from your PC's USB port and does not require an external power supply.

4. Connect the optional D-Link DUB-E100 Ethernet USB Adapter to a USB Host port of GadgetPC. It does not matter which USB port is used.



Or connect the optional D-Link WUA-1340 Wireless G USB Adapter to a USB Host port of GadgetPC. It does not matter which USB port is used.

Functional Block Diagram



Part numbers are subject to change without notice.

Software Setup

GadgetPC first boots up from on-board DataFlash memory. Compressed Linux image is decompressed to GadgetPC's on-board RAM and executed. This loads Linux kernel, drivers, and applications such as BusyBox. Much like the Linux distributions on regular PC's, GadgetPC Linux runs from RAM.

GadgetPC's Linux distribution includes standard Linux kernel drivers as well as BiPOM-supplied drivers for various popular USB devices.

GadgetPC automatically detects USB Flash Drives (for example, Thumb drives). To make GadgetPC run your own applications and any custom commands, place commands to special shell file (Bash Shell) with the name ***user_cmds.sh***. This file is in ***sh*** folder in root directory on USB Flash Drive. Also you can configure the Linux with **Linux Control Panel**. This software allows to change many options like Network settings, Hardware list etc,

Here are the steps to configure and run GadgetPC Linux:

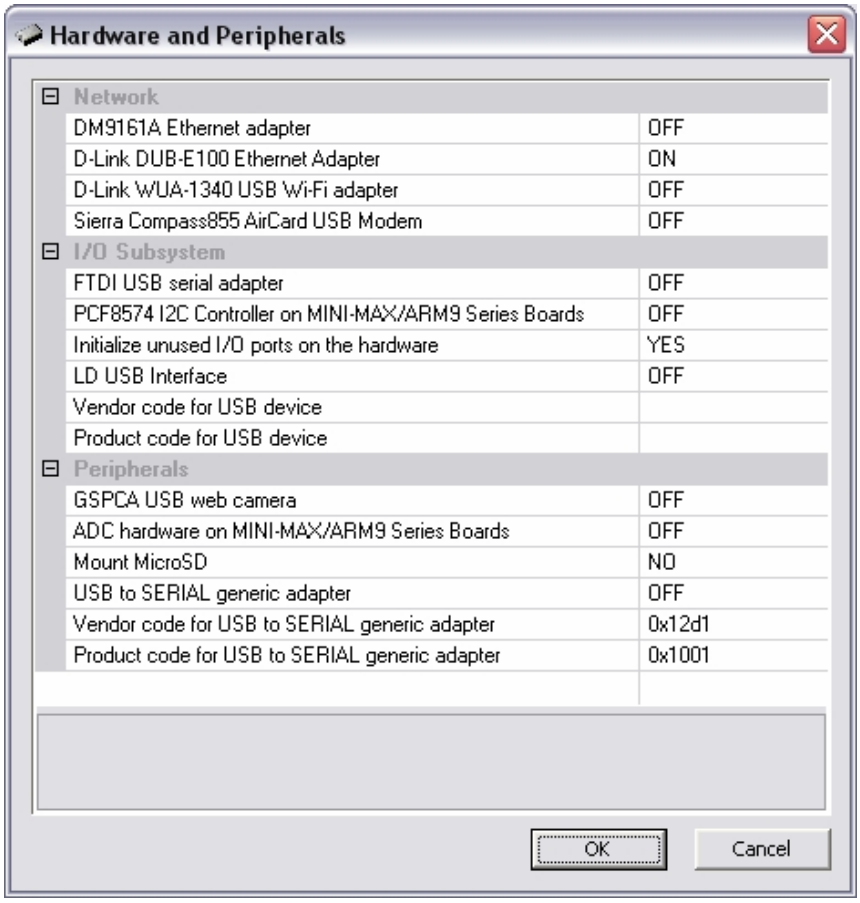
1) Download latest **GadgetPC Linux Release (Windows Installation)** from www.bipom.com/products/us/3087908.html and install it.

2) In order to configure **GadgetPC Linux**, start **Linux Control Panel** software from **Start -> All Programs -> GadgetPC -> Linux Control Panel**. After **Linux Control Panel** starts, open ***vars.sh*** file that is located in ***c:\bipom\devtools\GadgetPC\sh*** (if you installed Linux Control Panel to default path).

Select **File → Open** from the menu and open ***vars.sh*** file in ***sh*** folder. By default, the program will start from the folder where GadgetPC release was installed.

When you open ***vars.sh*** file, you will see configuration group icons such as **Hardware & Peripherals**, **Software, System** and **Network**.

Now you can double click on any icon to view and edit all possible configuration options for that group.



You can change any options as needed and click the OK button. The options correspond to the configuration variables in ***vars.sh*** file. You can read the description of each variable in the chapter titled **Linux Configuration File**.

The bottom area of Variables Dialog gives a short description and name of variable from ***vars.sh*** file. When you change the option, that variable will be changed in ***vars.sh***.

In order to save your changes, select **File → Save** from the menu. This saves all the changes back to ***vars.sh*** on your computer.

The current GadgetPC release has 5 sections:

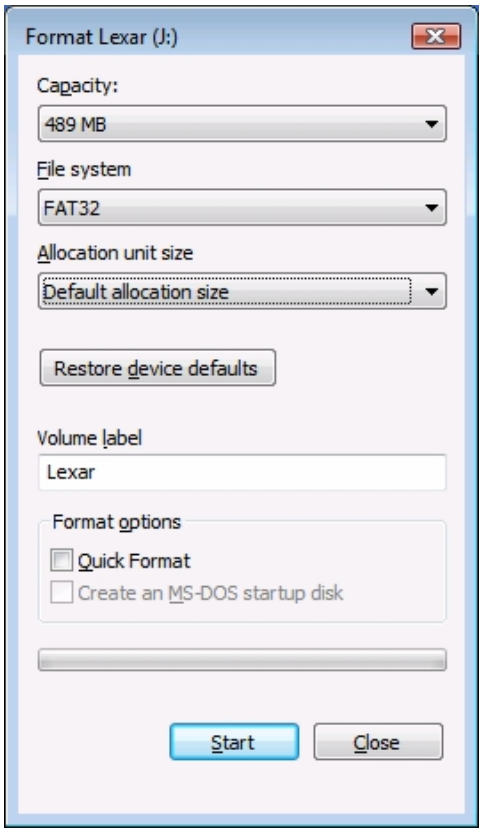
- Hardware and Peripherals – allows enabling/disabling of embedded hardware and peripherals
- System - allows configuring of system parameters
- Network - allows configuring of network parameters
- Software - allows configuring various software packages in GadgetPC Linux
- User Defined Options - allows configuring of user defined variables

IMPORTANT: Normally you should not edit the Linux shell (***.sh***) files such as ***vars.sh***, ***user_cmds.sh*** manually**.** You should use the **Linux Control Panel** instead. But if you want to edit these shell files manually with a text editor, please keep in mind that these are **UNIX script** files and almost all **Windows** editors will corrupt them. This will cause the files to be not executable under Linux. You can use the **Micro-IDE** editor that works with ***.sh*** files. Also, do NOT rename predefined variables and avoid modifying them manually. Instead, use the **Linux Control Panel** to modify predefined variables.

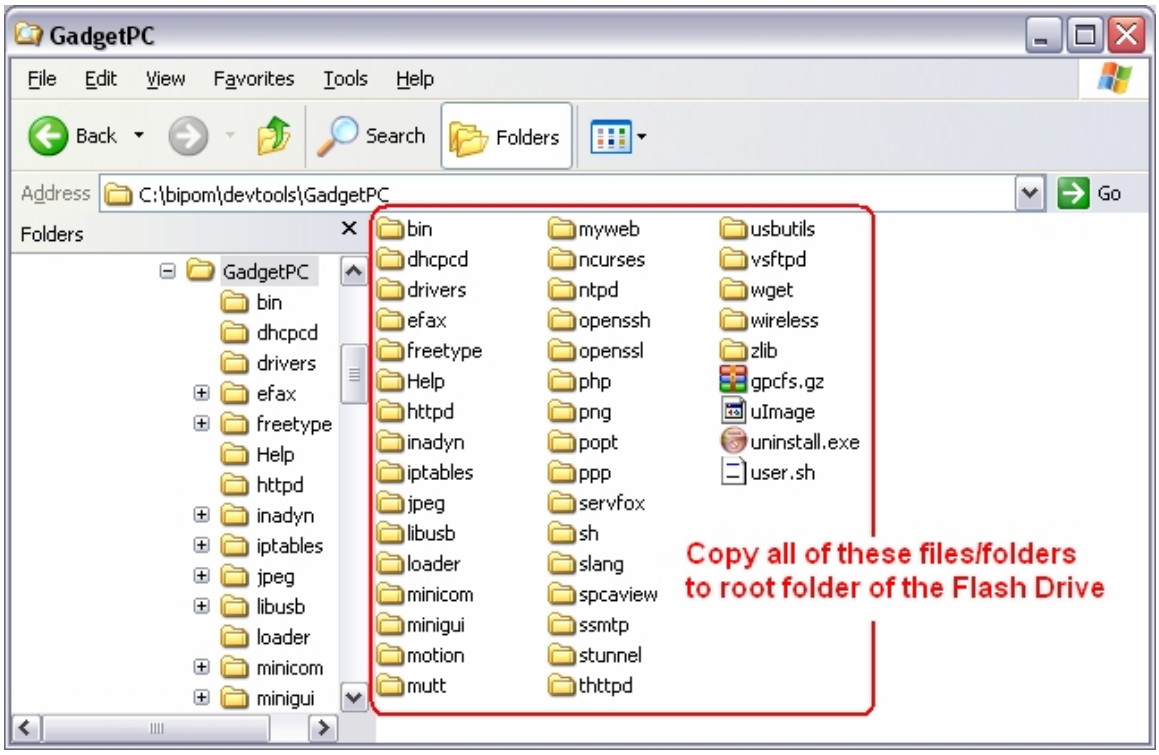
3) You can edit ***user_cmds.sh*** in Micro-IDE if you need start your programs at boot time. This file will be executed after Linux boots up. This file also located in ***c:\bipom\devtools\GadgetPC\sh*** (if you installed release to default path).

4) Plug the USB Flash Drive to your PC's USB port. Skip to Step 5 if the USB Flash Drive is already formatted.

5) Format the USB Flash Drive with FAT32 format on Windows if the USB Flash Drive has not yet been formatted:

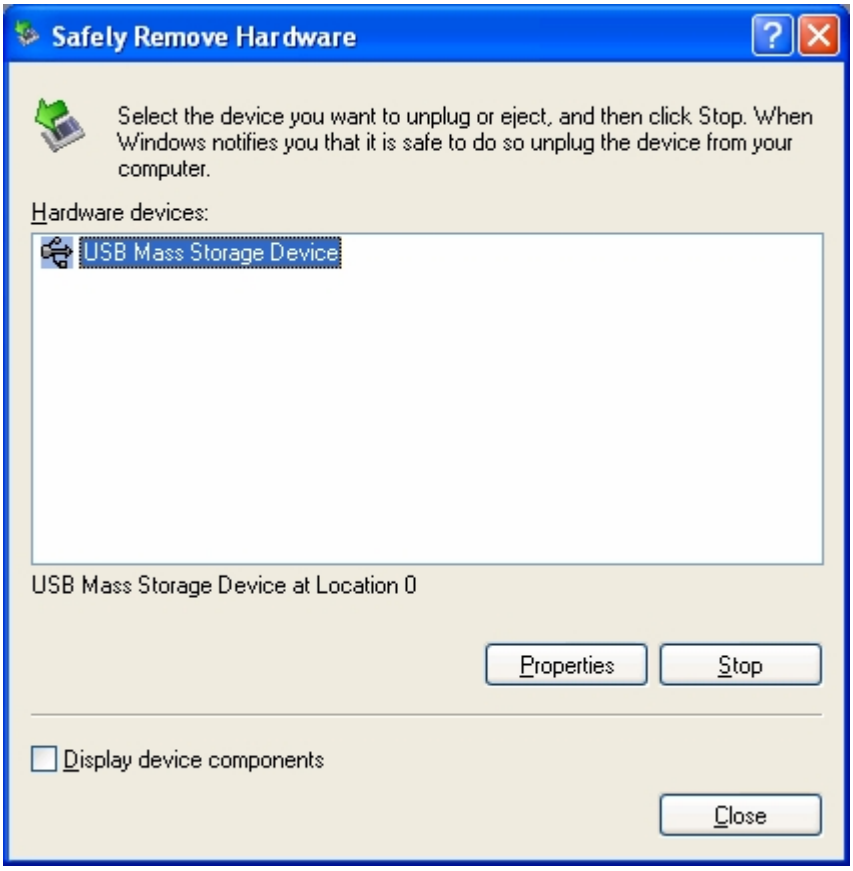


6) Copy all other files/folders from folder where you installed **GadgetPC Linux Release** to the root directory of your USB Flash Drive.



7) Stop your USB Flash Drive using the “Safely Remove Hardware” icon on your Windows taskbar:

When you click “Safely Remove Hardware” icon, the “Safely Remove Hardware” dialog will appear. Click Stop to stop the USB Mass Storage Device (your USB Flash Drive)

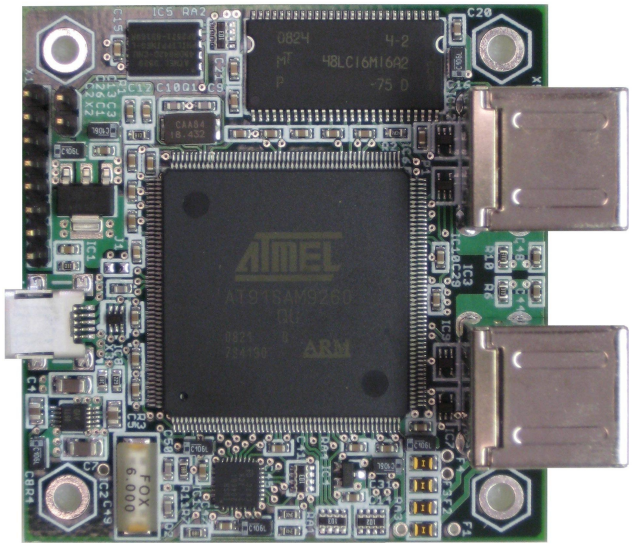


Shortly after you click the Stop button, a message will appear:

indicating that it is safe to remove the USB Flash Drive.

Remove from USB Flash Drive your PC.

8) Insert the USB Flash Drive to any unused USB port of GadgetPC.



9) Remove power from GadgetPC and reapply power. GadgetPC will boot Linux and within few seconds it will be ready to use.

Linux Control Panel (LCP)

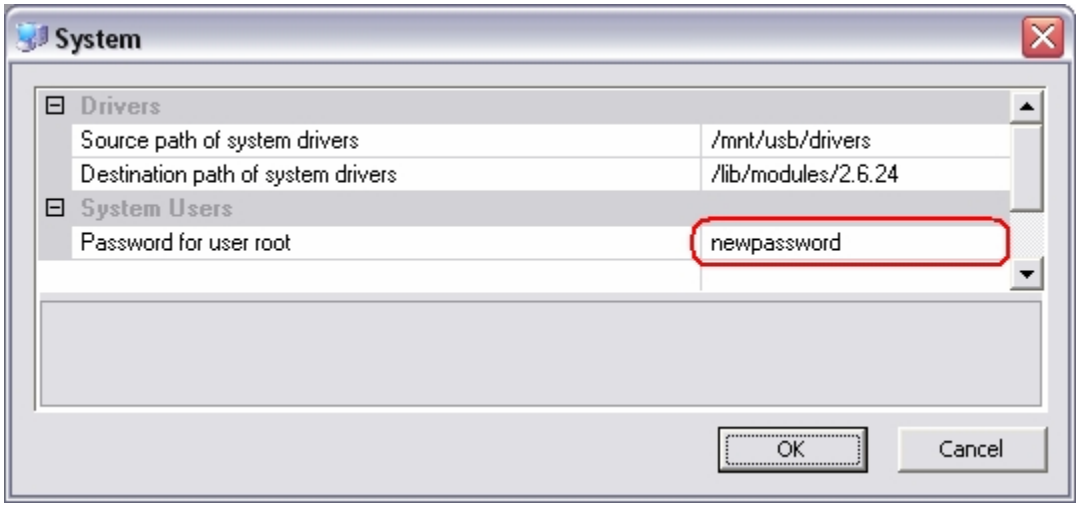
This section describes the Linux Control Panel in more detail.

Start **Linux Control Panel** software from **Start -> All Programs -> GadgetPC -> Linux Control Panel**. After **Linux Control Panel** starts, use the **File -> Open** command to open ***vars.sh*** file that is located in ***c:\bipom\devtools\GadgetPC\sh*** (if you installed Linux Control Panel to default path).

When you open ***vars.sh*** file, you will see configuration group icons such as **Hardware & Peripherals**, **Software, System** and **Network**.

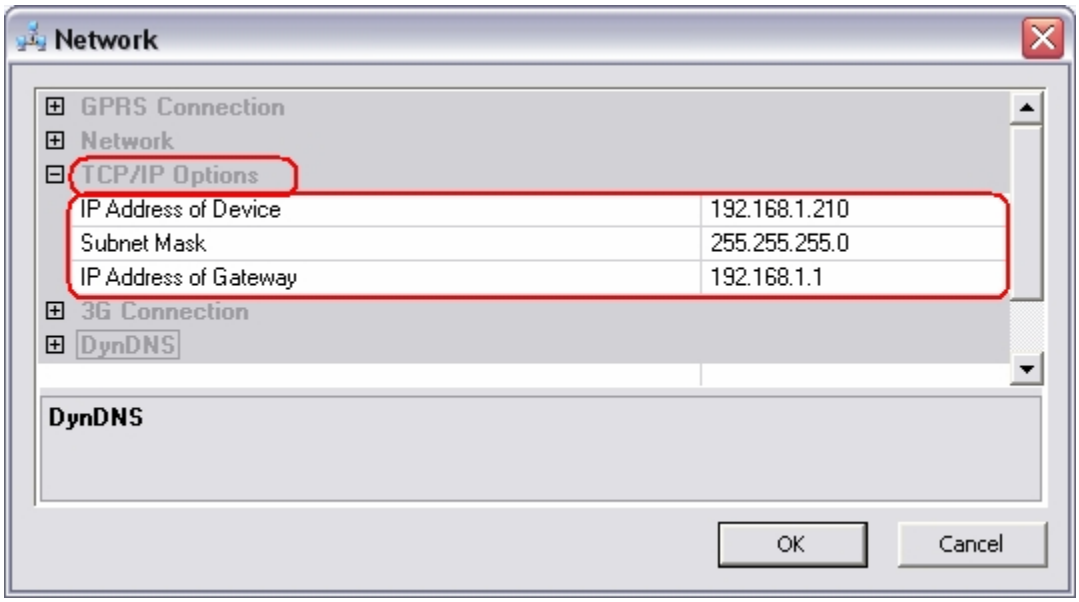
How to change password of 'root' user

Double click **System** icon. In the window that opens, enter new password text in field **'Password for user root'**



How to configure network (TCP/IP)

Double click **Network** icon. Go to **TCP/IP Options** group. Enter correct IP address of Gateway, Subnet Mask and IP address what will be assigned for GadgetPC board. These parameters should match the Local Area Network (LAN) where GadgetPC will reside. Make sure that the IP address that you assign to GadgetPC does not conflict with an existing IP address on the LAN.



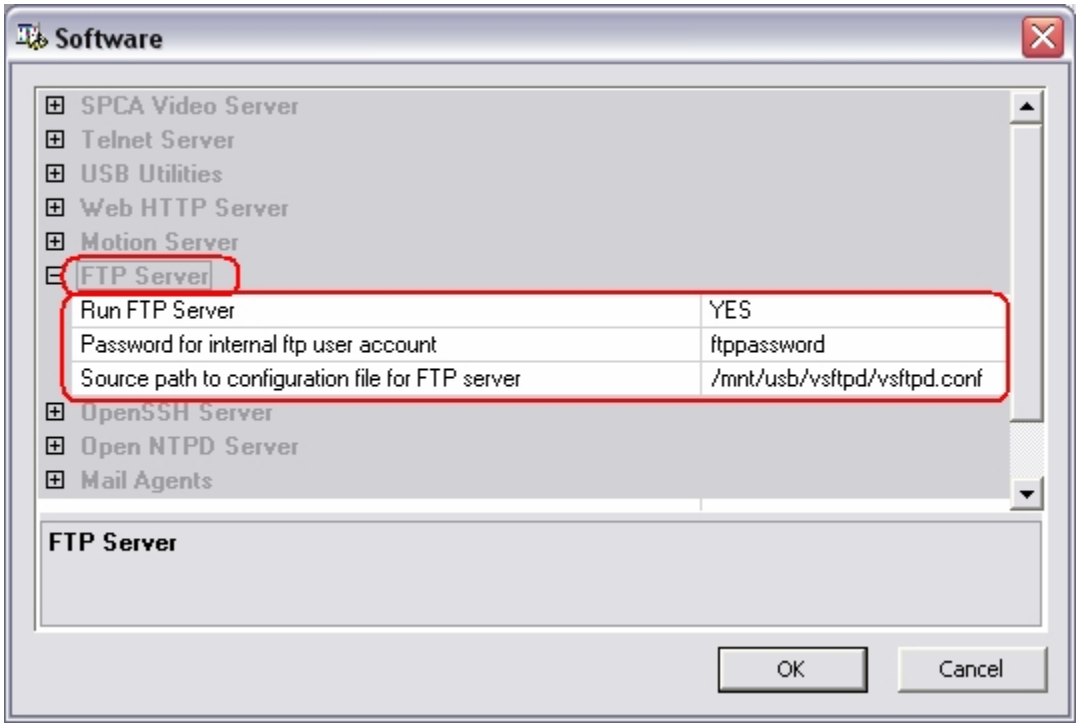
How to configure FTP server

Double click **Software** icon. Go to **FTP Server** group. In this group you can configure three variables:

Run FTP Server: Select YES or NO. If you select YES then FTP server will run at boot time. Select NO if you want to disable FTP server.

Password for internal FTP user account: You can leave this option as is.

Source path to configuration file for FTP Server: Here you can enter any valid Linux path to FTP Server configuration file.



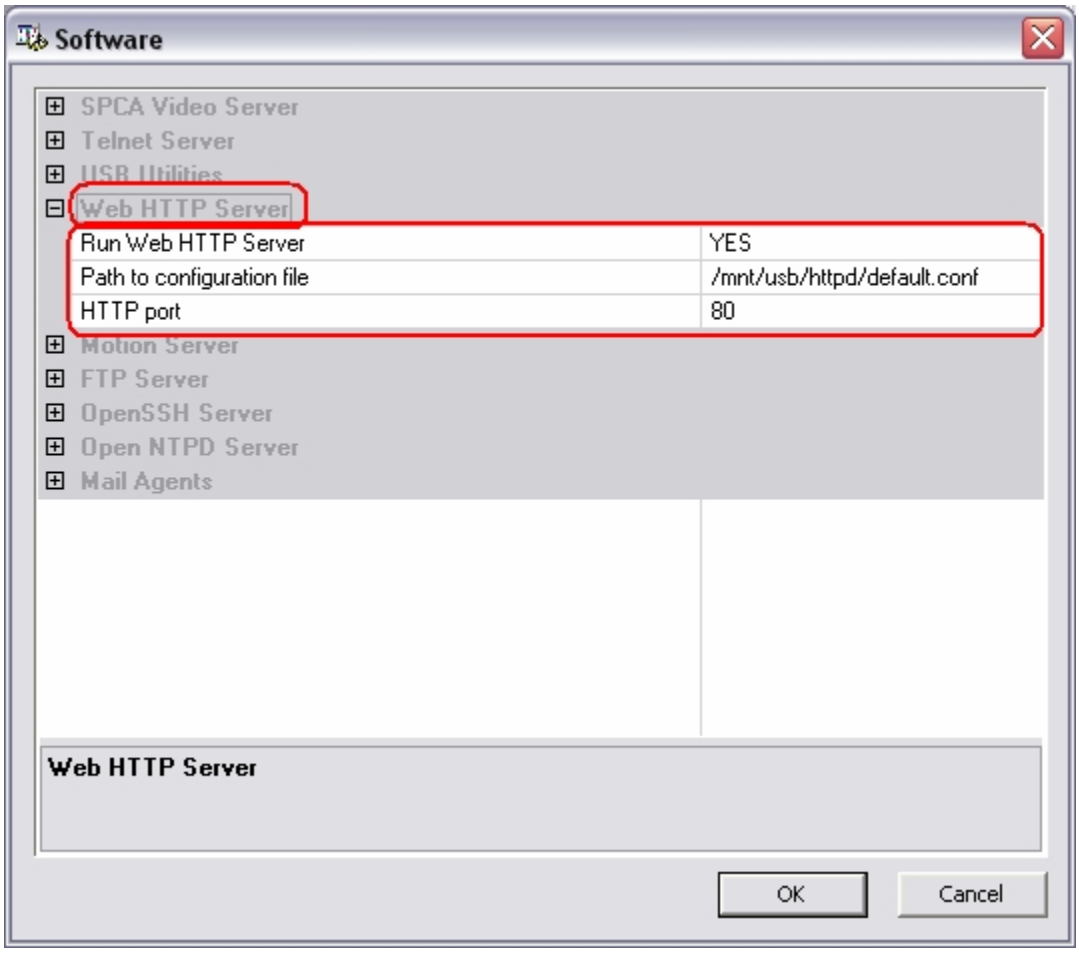
How to configure HTTP (Web) Server

Double click **Software** icon. Go to **Web HTTP Server** group. In this group you can configure three variables:

Run Web HTTP Server: Select YES or NO. If you select YES then HTTP server will run at boot time. Select NO if you want to disable HTTP server.

HTTP Port: Here you can set TCP port number for the HTTP server. By default this is set to 80.

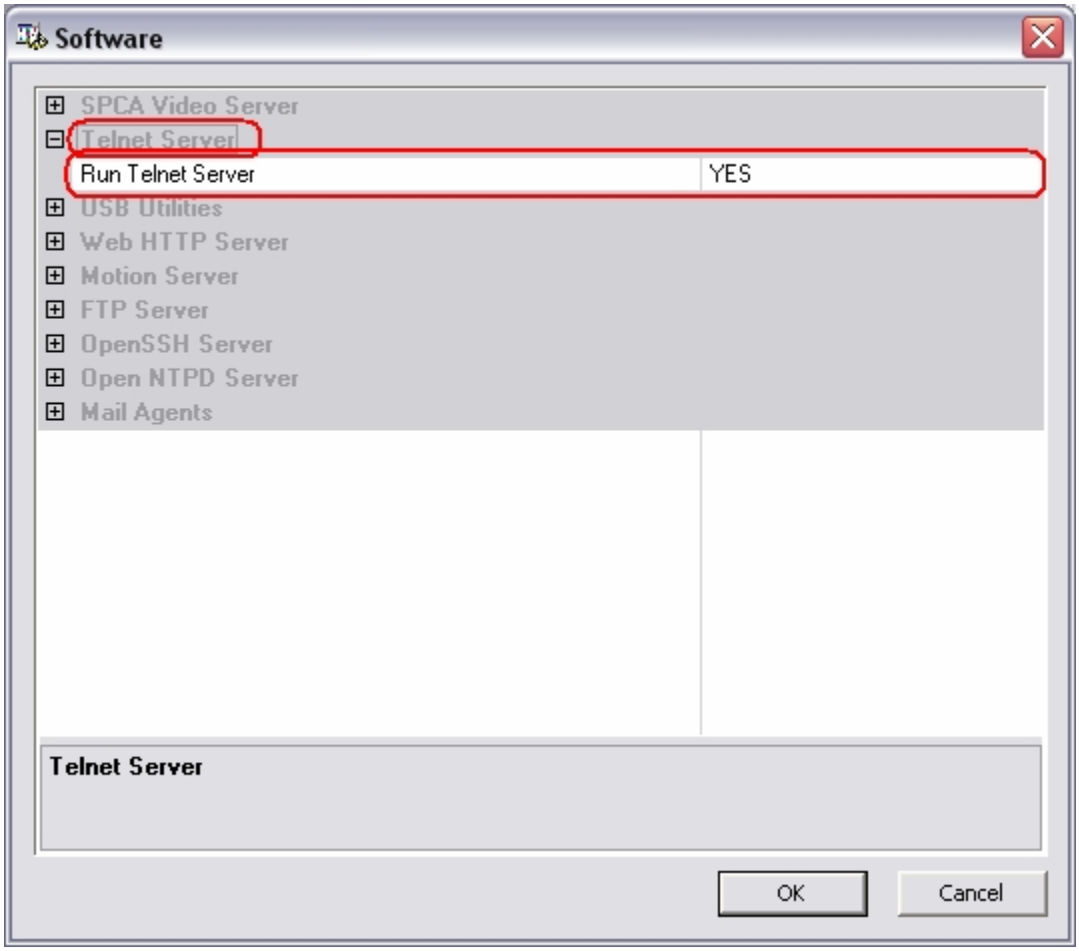
Path to configuration file: Here you can enter any valid Linux path to HTTP Web Server configuration file.



How to configure TELNET server

Double click **Software** icon. Go to **Telnet Server** group. In this group you can configure only one variable:

Run Telnet Server: Select YES or NO. If you select YES, then Telnet server will run at boot time. Select NO to disable Telnet server.



How to configure SSH Server

Double click **Software** icon. Go to **OpenSSH Server** group. In this group you can configure few variables:

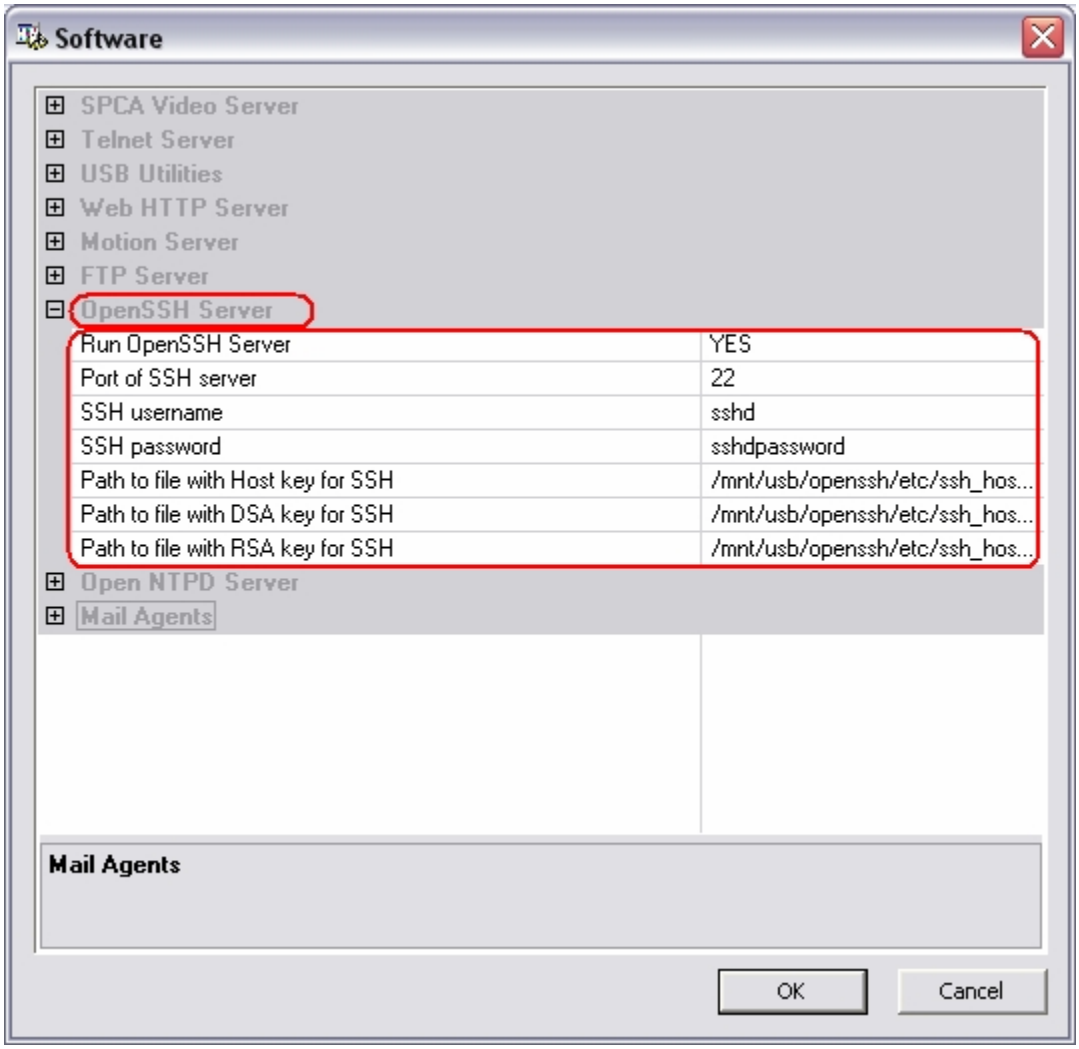
Run OpenSSH Server: Select YES or NO. If you select YES, then SSH server will run at boot time. Select NO if you want to disable SSH server.

Port of SSH Server: Here you can set TCP port number of SHH server. By default this is set to 22.

SSH Username: Here you can change the name of the user who will be allowed to connect to SSH server.

SSH Password: Here you can change the password for the SSH user.

We do not recommend editing other options for SSH server.

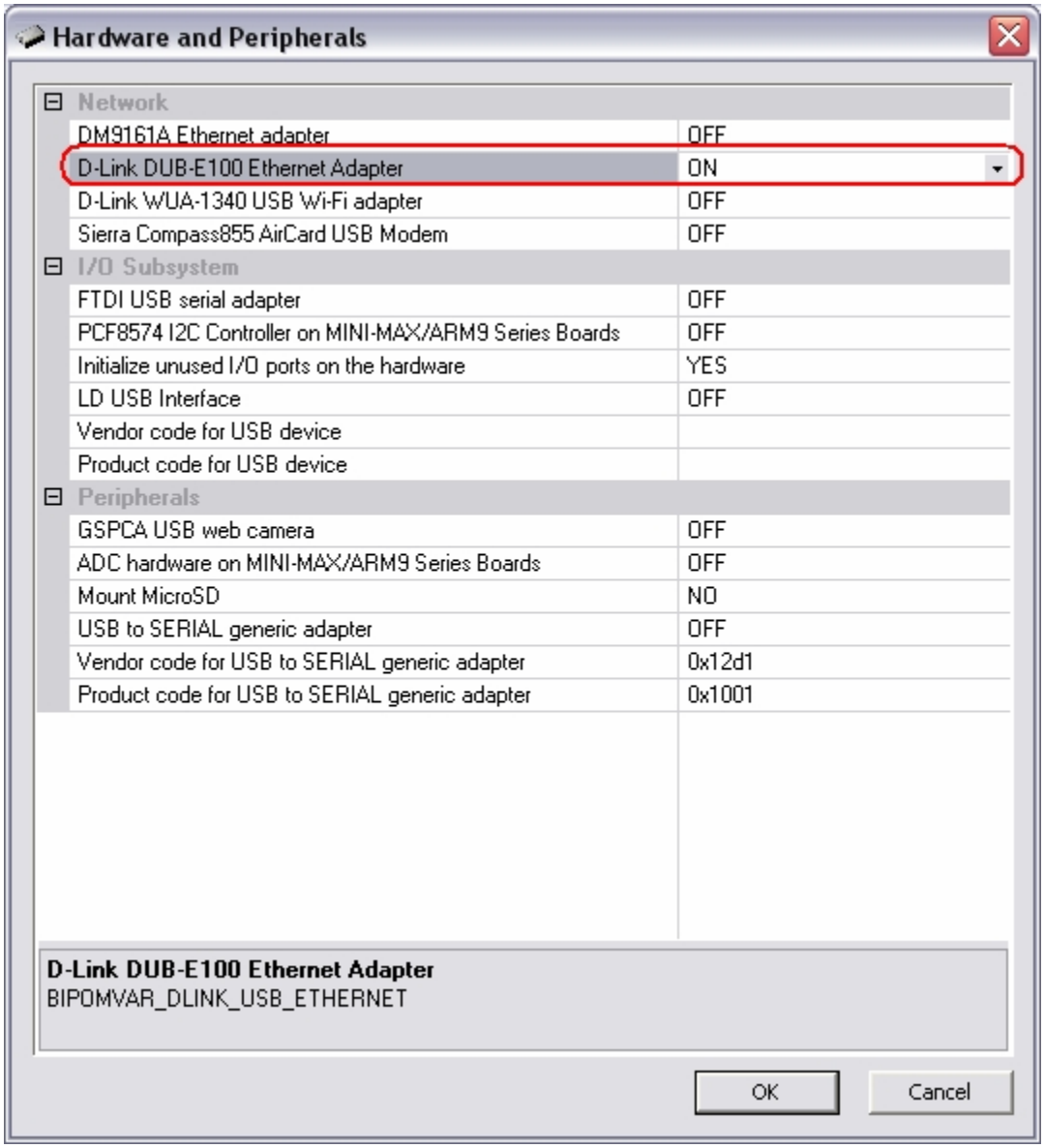


How to enable D-Link DUB-E100 Ethernet Adapter

Double click **Hardware** icon. Go to **Network** group. In this group you can find the variable **D-Link DUB-E100 Ethernet Adapter**. You can set it to ON or OFF.

ON – enable this device.
OFF – disable this device.

If device is enabled, then all required drivers will be loaded to memory when Linux is started.

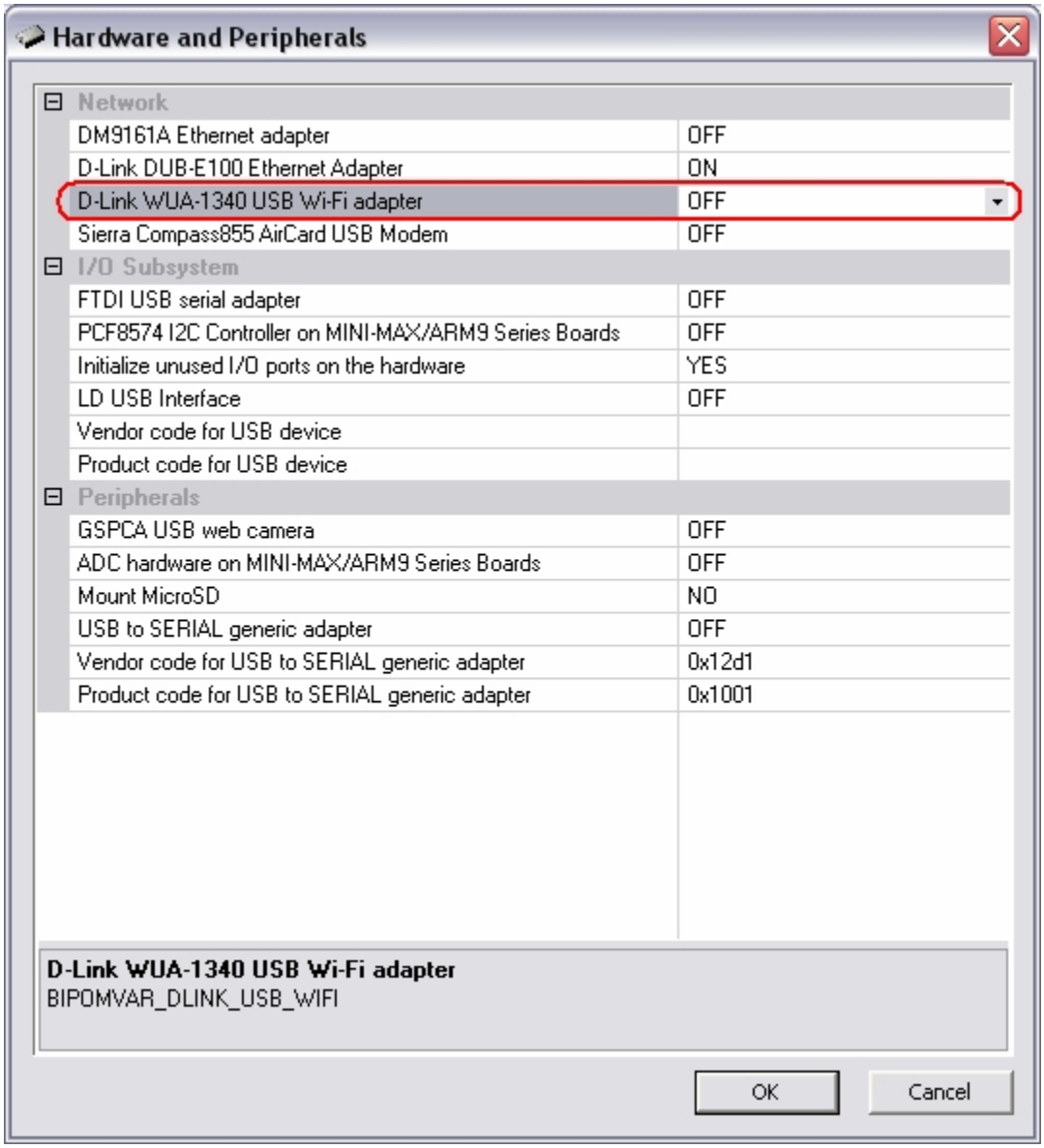


How to enable D-Link WUA-1340 Wi-Fi Adapter

Double click **Hardware** icon. Go to **Network** group. In this group you can find the variable **D-Link WUA-1340 Wi-Fi Adapter**. You can set it to ON or OFF.

ON – enable this device.
OFF – disable this device.

If device is enabled, then all required drivers will be loaded to memory when Linux is started.

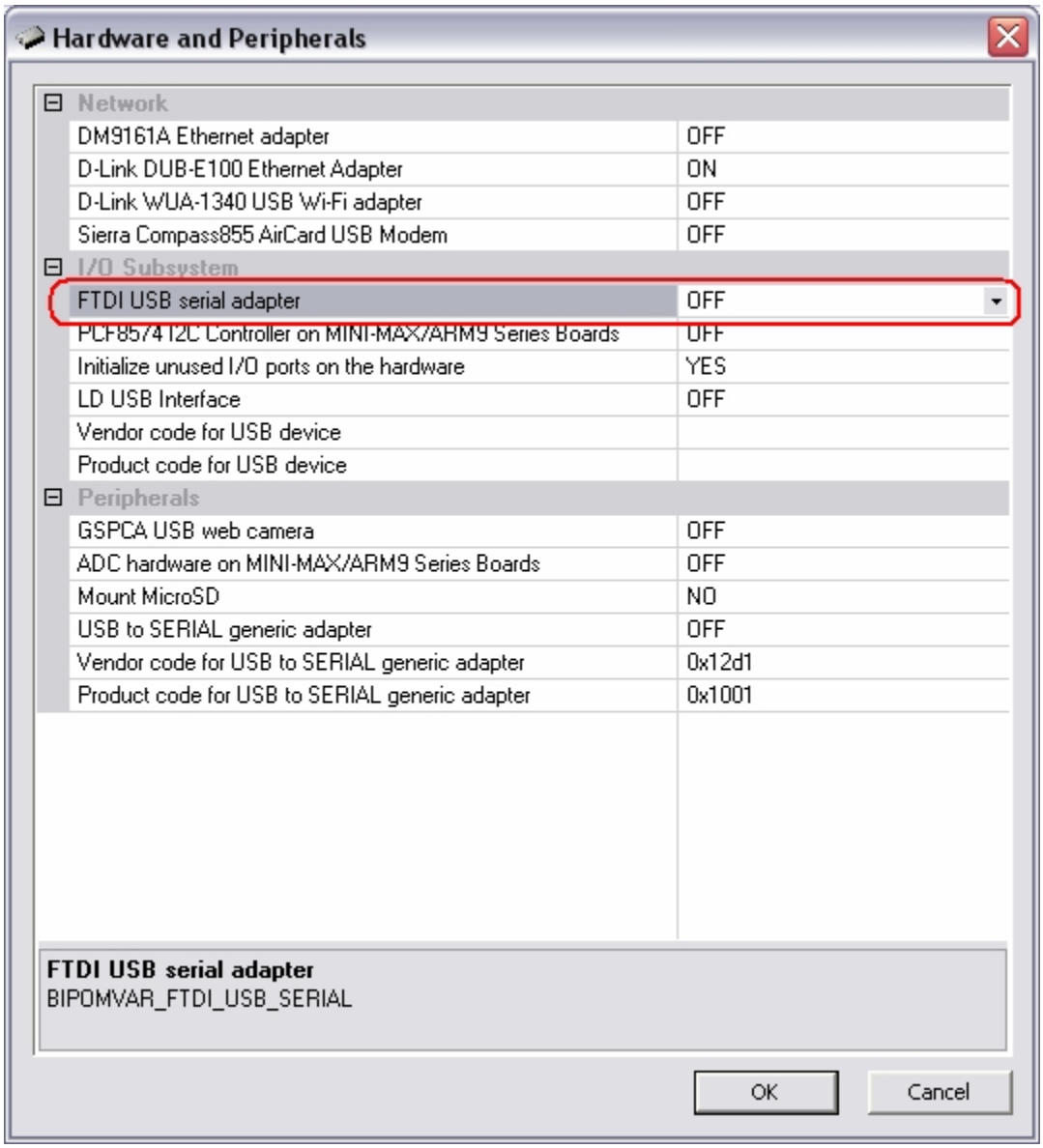


How to enable FTDI USB Serial Adapter

Double click **Hardware** icon. Go to **I/O Subsystem** group. In this group you can find the variable **FTDI USB Serial Adapter**. You can set it to ON or OFF.

ON – enable this device.
OFF – disable this device.

If device is enabled, then all required drivers will be loaded to memory when Linux is started.

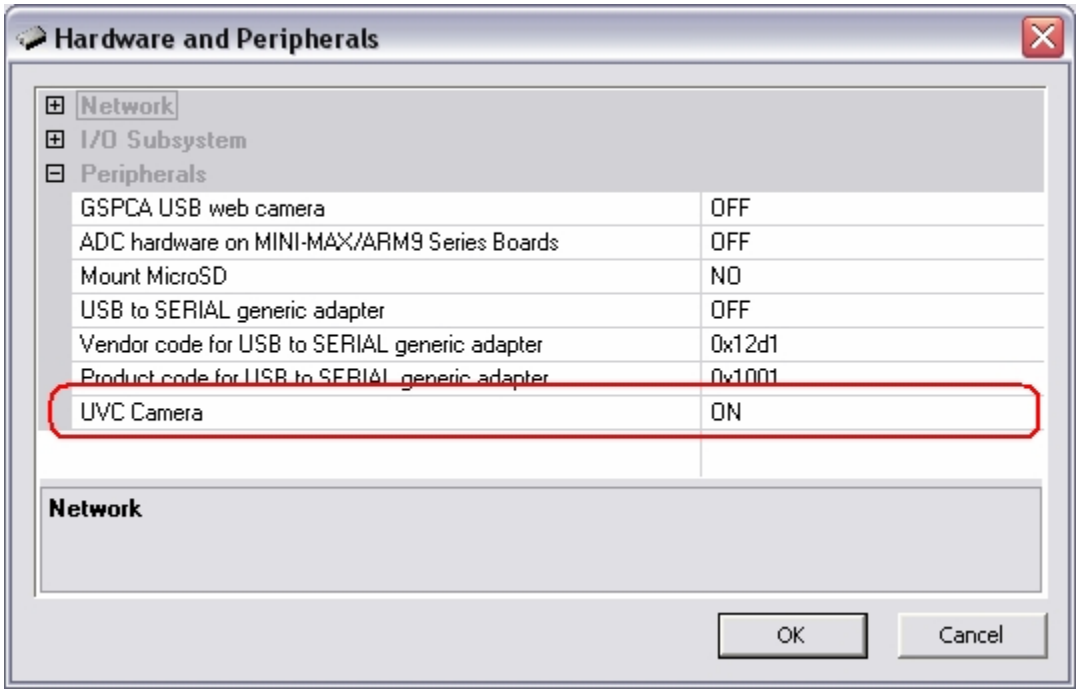


How to configure UVC camera server

Double click **Hardware** icon. Go to **Peripherals** group. In this group you can find the variable **UVC Camera**. You can set it to ON or OFF.

ON – enable this device.
OFF – disable this device.

If device is enabled, then all required drivers will be loaded to memory when Linux is started.



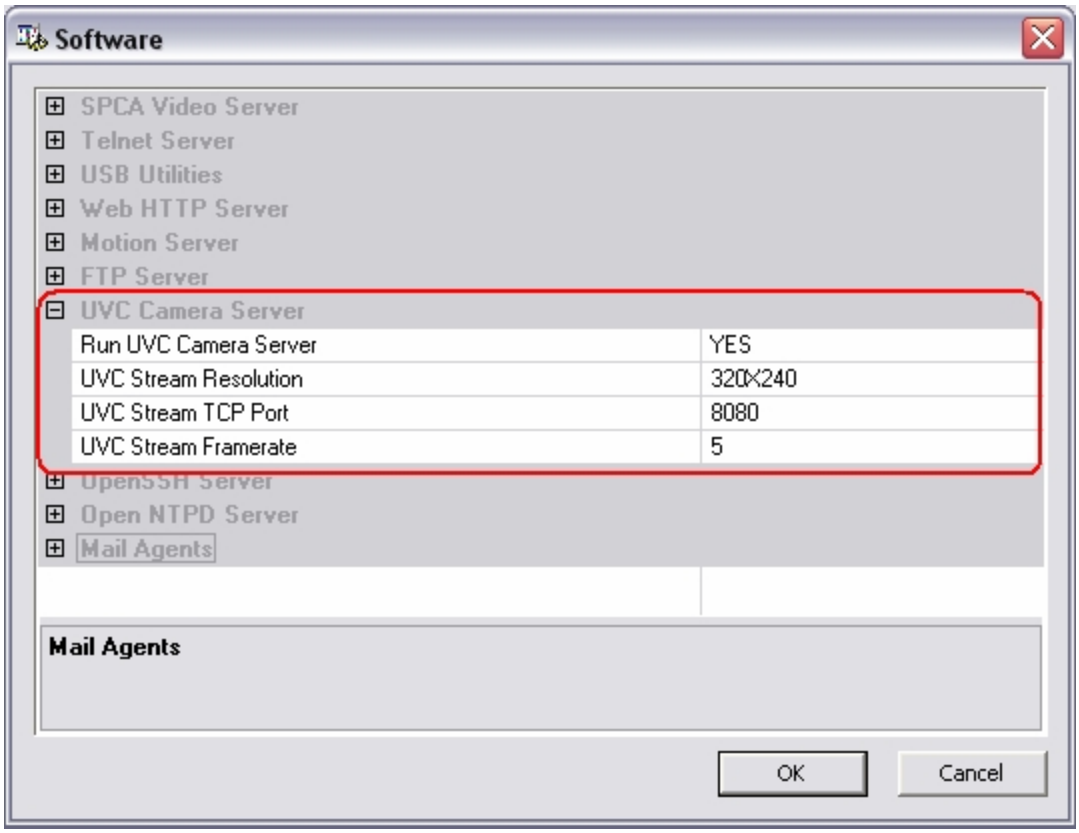
Now you should configure UVC Stream parameters.
Double click **Software** icon. Go to **UVC Camera Server** group. In this group you can find 4 variables (please see image below):

Run UVC Camera Server: Select YES or NO. If you select YES then UVC camera server will run at boot time. Select NO if you want to disable UVC camera server.

UVC Stream Resolution: Select resolution of the stream. Available options: 320x240 and 640x480.

UVC Stream Port: Here you can set TCP port number for the UVC camera server. By default this is set to 8080.

UVC Stream Framerate: Here you can set Framerate for the UVC camera server. By default this is set to 5.

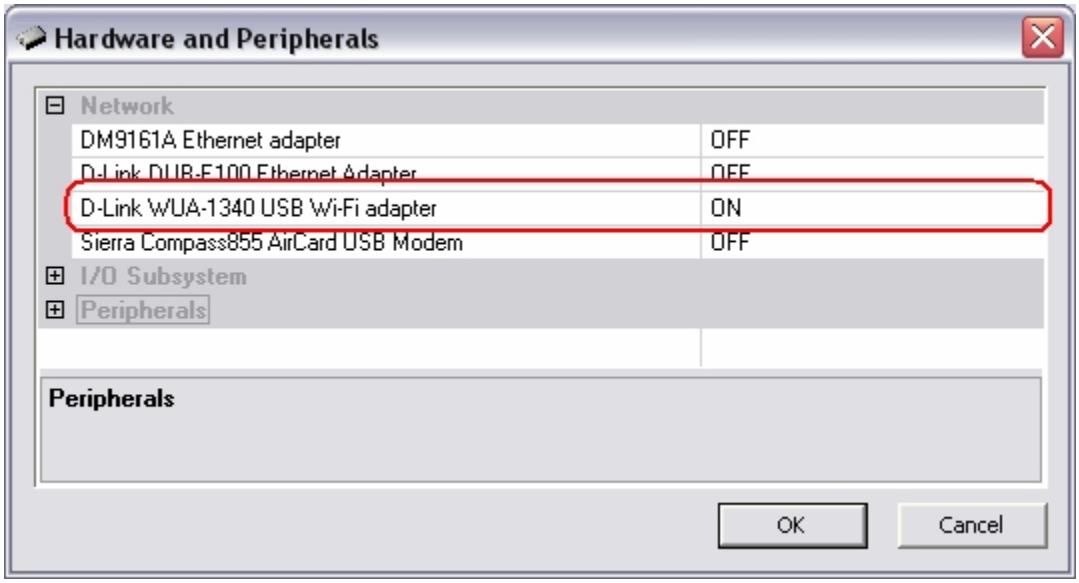

Software
SPCA Video Server
Telnet Server
USB Utilities
Web HTTP Server
Motion Server
FTP Server
UVC Camera Server
Run UVC Camera Server
YES
UVC Stream Resolution
320X240
UVC Stream TCP Port
8080
UVC Stream Framerate
5
OpenSSH Server
Open NTPD Server
Mail Agents
Mail Agents
OK
Cancel

How to configure Wi-Fi

Double click **Hardware** icon. Go to **Network** group. In this group you can find the variable **D-Link WUA-1340 USB Wi-Fi Adapter**. You can set it to ON or OFF.

ON – enable this device.
OFF – disable this device.

If device is enabled, then all required drivers will be loaded to memory when Linux is started.



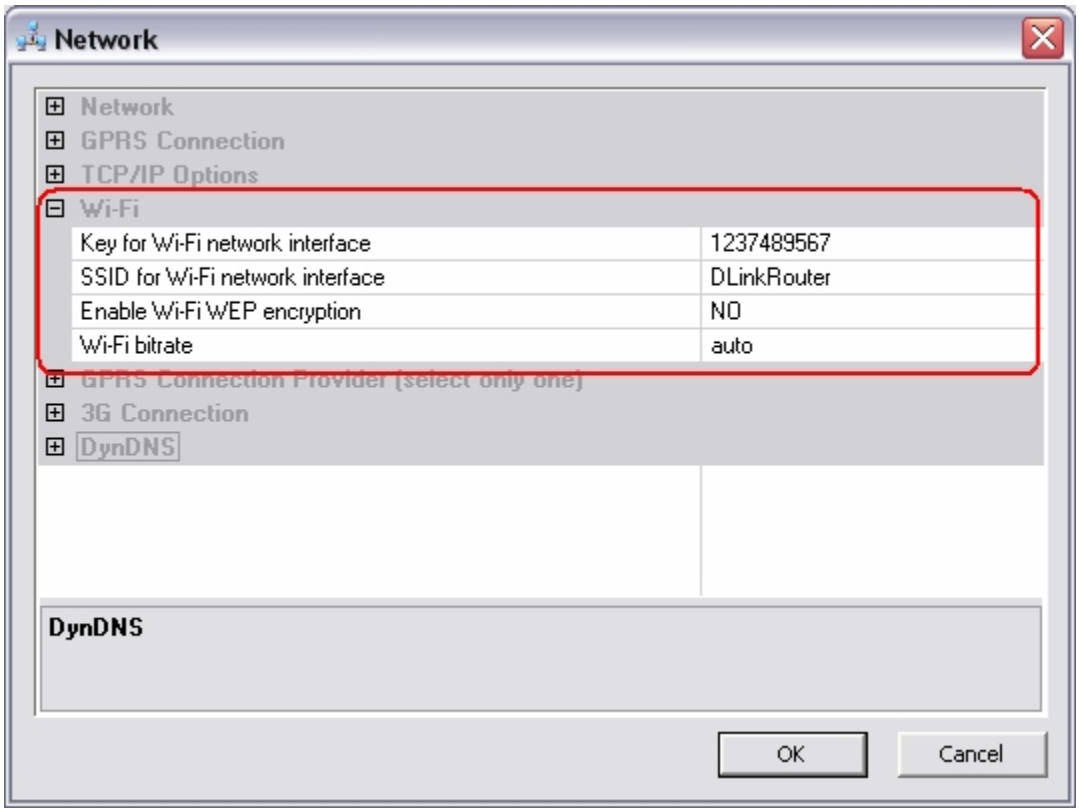
Now you should configure Wi-Fi Network parameters.
Double click **Network** icon. Go to **Wi-Fi** group. In this group you can find 4 variables (please see image below):

Key for Wi-Fi network interface: Here you can enter KEY for Wi-Fi network (if required). It will be used if **Enable Wi-Fi WEP encryption** variable set to **YES**.

SSID for Wi-Fi network interface: Here you can enter SSID for Wi-Fi network (a name that identifies a particular Wi-Fi network).

Enable Wi-Fi WEP encryption: This option enable/disable WEP Encryption. If your Wi-Fi network required WEP encryption then you should set this variable to **YES** and enter correct KEY for **Key for Wi-Fi network interface** variable**.** By default this is set to **NO**.

Wi-Fi bitrate: Here you can set bitrate for Wi-Fi network. Available options are: **auto**, **1M**, **54M**. By default this is set to **auto**.


Network
Network
GPRS Connection
TCP/IP Options
Wi-Fi
Key for Wi-Fi network interface
1237489567
SSID for Wi-Fi network interface
DLinkRouter
Enable Wi-Fi WEP encryption
NO
Wi-Fi bitrate
auto
GPRS Connection Provider (select only one)
3G Connection
DynDNS
DynDNS
OK
Cancel

Linux Configuration File

vars.sh file contains shell variables that are used by other shell files to configure various aspects of GadgetPC Linux. The following describes the various configuration options in more detail. You can edit ***vars.sh*** and other ****.sh*** files to match your Linux system needs.

Lines starting with '#' sign are comment lines and have no effect on configuration. Echo command prints useful information to console. By default, console output goes to GadgetPC's serial port.

The ***vars.sh*** is located in the ***/sh*** directory of USB Flash Drive. This directory also has other configuration files.

Current GadgetPC release has the following configuration files (more files may be added as the software is upgraded and more hardware devices and software packages are added):

Filename	Description
init_at91sam_adc.sh	Configure ADC hardware on MINI-MAX/ARM9 Series Boards
init_dlink_usb_eth.sh	Configure D-Link DUB-E100 Ethernet Adapter
init_dlink_usb_wifi.sh	Configure D-Link WUA-1340 USB Wi-Fi adapter
init_dm9161a.sh	Configure DM9161A Ethernet adapter on MINI-MAX/ARM9 boards
init_usb_serial_generic.sh	Initialize USB to SERIAL generic driver
init_ftdi_usb_serial.sh	Configure FTDI USB to serial adapter
init_gspca_usb_webcam.sh	Configure GSPCA USB web camera interface
init_i2c_pcf8574.sh	Configure I2C interface
init_microsd.sh	Mount MicroSD card
init_ports.sh	Set unused I/O port
init_ld_usb_interface.sh	Initialize LD USB interface
init_cdc.sh	Install CDC ACM driver
mail_agent.sh	Configure mail agent
motion_server.sh	Configure and start Motion server
ntpd_server.sh	Configure and start NTPD server
spca_video_server.sh	Configure and start SCPA Video server
ssh_server.sh	Configure and start SSH server
system.sh	Configure common system parameters
telnet_server.sh	Configure and start TELNET server
usb_utils.sh	Create links to support USB utilities
user_cmds.sh	User can add new commands here.
vars.sh	Set configuration variables which used in other files
web_server.sh	Configure and start HTTP server
ftp_server.sh	Configure and start FTP server
3g.sh	Initialize 3G Connection
gprs.sh	Unblock SIM card if need and start GPRS connection
ppp.sh	Install and configure PPP
after_drivers_installed.sh	This shell file will be run after all driver will be installed

You should NOT edit any ***.sh*** files except ***vars.sh*** and ***user_cmds.sh***
You can modify the variables in ***vars.sh*** to configure the Linux system using **Linux Control Panel** as described previously.
user_cmds.sh file is called after the system is initialized. You can add here any UNIX shell commands available in current **GadgetPC Linux Release** or call any software developed for **GadgetPC Linux Release**. By default, ***user_cmds.sh*** is empty.

Appendix A describes all predefined variables from ***vars.sh*** available in current GadgetPC Linux Release.

Appendix A: Linux Configuration Variables

Variable Name : **BIPOMVAR_DM9161A_ETHERNET**
Value : **ON | OFF**
Description : If set to **ON** then script will configure DM9161 Ethernet adapter.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_DLINK_USB_ETHERNET**
Value : **ON | OFF**
Description : If set to **ON** then script will configure D-Link DUB-E100 Ethernet adapter.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_GSPCA_USB_WEBCAM**
Value : **ON | OFF**
Description : If set to **ON** then script will configure GSPCA USB web camera.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_DLINK_USB_WIFI**
Value : **ON | OFF**
Description : If set to **ON** then script will configure D-Link WUA-1340 USB Wi-Fi adapter.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_FTDI_USB_SERIAL**
Value : **ON | OFF**
Description : If set to **ON** then script will configure FDTI USB to serial adapter.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_AT91SAM_ADC**
Value : **ON | OFF**
Description : If set to **ON** then script will configure ADC hardware on MINI-MAX/ARM9 Series Boards.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_I2C_PCF8574**
Value : **ON | OFF**
Description : If set to **ON** then script will configure PCF8574 I2C Controller on MINI-MAX/ARM9 Series Boards.
If set to **OFF** then script will skip configuration code for this device.

Variable Name : **BIPOMVAR_MICROSD**
Value : **ON | OFF**
Description : If set to **ON** then script will mount MicroSD card.
If set to **OFF** then script will not mount this device.

Variable Name : **BIPOMVAR_CONFIGURE_UNUSED_PORT_PINS**
Value : **ON | OFF**
Description : If set to **ON** then script will initialize unused I/O ports on the hardware.
If set to **OFF** then I/O ports will be in not initialized state.

Variable Name : **BIPOMVAR_ROOT_PWD**
Value : **Text string**
Description : This parameter sets password for ‘root’ user on Linux system.

Variable Name : **BIPOMVAR_DRIVER_SOURCE_PATH**
Value : **UNIX** style path
Description : This parameter sets path to directory where system drivers are located.

Variable Name : **BIPOMVAR_DRIVER_INSTALL_PATH**
Value : **UNIX** style path
Description : This parameter sets path to directory where system drivers are copied.

Variable Name : **BIPOMVAR_HOST_IP**
Value : **IP address**
Description : This parameter sets IP address of device.

Variable Name : **BIPOMVAR_NETMASK**
Value : **IP address**
Description : This parameter sets subnet mask.

Variable Name : **BIPOMVAR_GATE_IP**
Value : **IP address**
Description : This parameter sets IP address of gateway.

Variable Name : **BIPOMVAR_WIFI_ENCRIPTION_WEP**
Value : **YES | NO**
Description : Enable Wi-Fi WEP encryption

Variable Name : **BIPOMVAR_WIFI_KEY**
Value : **Text string**
Description : This parameter sets KEY for Wi-Fi network interface (if used).

Variable Name : **BIPOMVAR_WIFI_SSID**
Value : **Text string**
Description : This parameter sets SSID for Wi-Fi network interface (if used).

Variable Name : **BIPOMVAR_WIFI_BITRATE**
Value : **List of predefined values**
Description : This parameter sets BitRate for Wi-Fi network interface (if used).
Allowed values: auto, 1M, 54M

Variable Name : **BIPOMVAR_TELNET_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run TELNET server.
If set to NO then script will not run TELNET server.

Variable Name : **BIPOMVAR_WEB_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run HTTP server.
If set to NO then script will not run HTTP server.

Variable Name : **BIPOMVAR_HTTP_CFG_FILE_PATH**
Value : **UNIX style path**
Description : This parameter sets path to configuration file

Variable Name : **BIPOMVAR_HTTP_PORT**
Value : **INT (integer number)**
Description : This parameter sets HTTP port

Variable Name : **BIPOMVAR_FTP_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run FTP server.
If set to NO then script will not run FTP server.

Variable Name : **BIPOMVAR_FTP_PWD**
Value : **Text string**
Description : This parameter sets password for user ‘ftp’.
This is internal user which is required for FTP server properly work.

Variable Name : **BIPOMVAR_OPEN_SSH_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run SSH server.
If set to NO then script will not run SSH server.

Variable Name : **BIPOMVAR_SSH_USER**
Value : **Text string**
Description : This parameter sets SSH username.

Variable Name : **BIPOMVAR_SSH_PWD**
Value : **Text string**
Description : This parameter sets SSH password.

Variable Name : **BIPOMVAR_SSH_HOST_KEY_PATH**
Value : **UNIX style path**
Description : This parameter sets path to HOST KEY file

Variable Name : **BIPOMVAR_SSH_DSA_KEY_PATH**
Value : **UNIX style path**
Description : This parameter sets path to DSA KEY file

Variable Name : **BIPOMVAR_SSH_RSA_KEY_PATH**
Value : **UNIX style path**
Description : This parameter sets path to RSA KEY file

Variable Name : **BIPOMVAR_OPEN_NTPD_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run NTPD server.
If set to NO then script will not run NTPD server.

Variable Name : **BIPOMVAR_NTPD_USER**
Value : **Text string**
Description : This parameter sets NTPD username.

Variable Name : **BIPOMVAR_NTPD_PWD**
Value : **Text string**
Description : This parameter sets NTPD password.

Variable Name : **BIPOMVAR_NTPD_CFG_FILE_PATH**
Value : **UNIX style path**
Description : This parameter sets path to configuration file of NTPD server

Variable Name : **BIPOMVAR_MAIL_AGENT**
Value : **YES | NO**
Description : If set to YES then script will run mail agent.
If set to NO then script will not run mail agent.

Variable Name : **BIPOMVAR_USB_UTILS**
Value : **YES | NO**
Description : If set to YES then script creates links to support USB utilities.
If set to NO then script will skip configuration of USB utilities.

Variable Name : **BIPOMVAR_SPCA_VIDEO_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run SPCA Video Server.
If set to NO then script will not run SPCA Video Server.

Variable Name : **BIPOMVAR_MOTION_SERVER**
Value : **YES | NO**
Description : If set to YES then script will run Motion Server.
If set to NO then script will not run Motion Server.

Variable Name : **BIPOMVAR_MOTIONSRV_CFG_FILE_PATH**
Value : **UNIX style path**
Description : This parameter sets path to configuration file of motion server

Variable Name : **BIPOMVAR_USB_MOUSE**
Value : **ON** | **OFF**
Description : This parameter enable/disable USB mouse driver

Variable Name : **BIPOMVAR_LD_USB**
Value : **ON** | **OFF**
Description : This parameter enable/disable LD USB Interface

Variable Name : **BIPOMVAR_FTDI_VENDORID**
Value : **TEXT**
Description : This parameter allows entering Vendor ID text for FTDI driver

Variable Name : **BIPOMVAR_FTDI_ PRODUCTID**
Value : **Text**
Description : This parameter allows to entering Product ID text for FTDI driver

Variable Name : **BIPOMVAR_SSH_PORT**
Value : **INT**
Description : This parameter set port for SSH server

Variable Name : **BIPOMVAR_3G_DEVICE_NAME**
Value : **TEXT**
Description : 3G Device Name

Variable Name : **BIPOMVAR_3G_START_DELAY**
Value : **INT**
Description : Delay before start 3G connection (in seconds)

Variable Name : **BIPOMVAR_3G_POST_DELAY**
Value : **INT**
Description : Delay after start 3G connection (in seconds)

Variable Name : **BIPOMVAR_USB_SERIAL_GENERIC_VENDOR**
Value : **TEXT**
Description : Vendor code for USB to SERIAL generic adapter

Variable Name : **BIPOMVAR_USB_SERIAL_GENERIC_PRODUCT**
Value : **TEXT**
Description : Product code for USB to SERIAL generic adapter

Variable Name : **BIPOMVAR_USB_SERIAL_GENERIC**
Value : **ON | OFF**
Description : Enable/disable USB to SERIAL generic adapter

Variable Name : **BIPOMVAR_GPRS_DELAY_AFTER_PPPD_RUN**
Value : **INT**
Description : Delay before start PPP service (in seconds)

Variable Name : **BIPOMVAR_GPRS_DELAY_AFTER_PIN_SEND**
Value : **INT**
Description : Delay for registration modem on GPRS network (in seconds)

Variable Name : **BIPOMVAR_GPRS_DELAY_BEFORE_PIN_SEND**
Value : **INT**
Description : Delay before sending PIN (in seconds)

Variable Name : **BIPOMVAR_GPRS_DEVICE_NAME**
Value : **PATH**
Description : GPRS device name

Variable Name : **BIPOMVAR_GPRS_PIN_CODE**
Value : **TEXT**
Description : PIN code of SIM card

Variable Name : **BIPOMVAR_GPRS_SEND_PIN**
Value : **YES | NO**
Description : Send PIN code to unlock SIM card in GPRS modem

Variable Name : **BIPOMVAR_GPRS_INTERNET_CONNECTION_LIFE**
Value : **YES | NO**
Description : Start Life;) GPRS Internet Connection

Variable Name : **BIPOMVAR_GPRS_INTERNET_CONNECTION_VERIZONE**
Value : **YES | NO**
Description : Start Verizone GPRS Internet Connection

Variable Name : **BIPOMVAR_PPP_GENERIC**
Value : **YES | NO**
Description : Install PPP

Variable Name : **BIPOMVAR_3G_INTERNET_CONNECTION_PEOPLENET**
Value : **YES | NO**
Description : Start People.Net 3G Internet Connection

Variable Name : **BIPOMVAR_UVC_CAMERA**
Value : **ON | OFF**
Description : Enable UVC Camera

Variable Name : **BIPOMVAR_UVC_VIDEO_SERVER**
Value : **YES | NO**
Description : Run UVC Camera Server

Variable Name	:	**BIPOMVAR_UVC_STREAM_RESOLUTION**
Value	:	**List of predefined values**
Description	:	This parameter sets UVC Stream resolution in pixels Allowed values are: 320x240 and 640x480
Variable Name	:	**BIPOMVAR_UVC_STREAM_PORT**
Value	:	**INT**
Description	:	This parameter sets TCP port for UVC Stream
Variable Name	:	**BIPOMVAR_UVC_STREAM_FRAMERATE**
Value	:	**INT**
Description	:	This parameter sets framerate value for UVC Stream
Variable Name	:	**BIPOMVAR_INIT_CDC**
Value	:	**YES | NO**
Description	:	This parameter sets enable / disable CDC ACM

(The USB Control Device Class Abstract Control Model)