# Debian 8.5 minimal server For MZBSWIP User Guide GIGABYTE Software

Document No.: GN - MZBSWIP-GUI-00

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## SOFTWARE STATEMENT

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# **0.** General Information

### **0.1.** Issue Control

This document was edited with **Microsoft Word**, **Version 2010**. The graphic drawings are originally sketched in **Microsoft PowerPoint Version 2010**.

### **0.2.** Record of Changes

#### Table 0-1. Record of Changes

Issue	Date	Authors	Reason for Changes
0.1	2016/06/20	Brian, Lu	First version.
0.2	2016/07/01	Brian, Lu	Add installing tool , figure for install debian and test phone
			jack. Remove hsuart chapter.
0.3	2016/08/26	Brian, lu	Add 3G and hsuart chapter

#### 0.3. References

NO	Document title

0.4. Acronyms

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## 1. Install Debian

- 1.1. Prepare devices and software
- 1. USB stick
- 2. Image to USB tool Win32DiskImager
- 3. Debian 8.5 x64
- 1.2. Create a bootable USB stick on Windows

Open the Win32 Disk Imager with Windows OS and as follow figure1. Step1: select your USB device

Step2: Find "debian-8.5.0-amd64-CD-1.iso" file where you download. Step3: Click "Write" button

👒 Win32 Disk Imager	
Image File	Device Step 1
D:/5.OS/debian-8.5.0-amd64-CD-1.iso	
Copy MD5 Hash:	Step 2
riogress	
Version: 0.9.5 Cancel Read	Write Exit
	Step 3



- 1.3. Power on MZBSWIP and setting
- 1. Insert your USB stick to machine before you power on the machine.
- 2. Power on your machine and press "Delete" to enter BOIS setup.
- 3. Make sure your BIOS version is **F1**.
- 4. After select "Save and Exit" option, select "Restore Defaults" to use defaults setting. See figure2.
- 5. Select "Advanced" option and "OS selection" to set Linux System. See figure3 and figure4.

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Figure2



Figure3

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Aptio Setup U Advanced	ltility – Copyright (C) 2016 Amer	ican Megatrenc
OS Selection CSM Support LAN PXE OpROM LAN EFI driver	Limux System  [Always] [Disabled] [Disabled]	Allows yo operating installed
	Ŀ₹	
		+++: Selec f4: Selec Enter: Se +/-: Chan F1: Genera F2: Previo
		F3: Optim F4: Save : ESC: Exit
Version 2.17	.1249. Copyright (C) 2016 America Figure4	an Megatrends,

- 1.4. Boot from USB device and install debian 8.5
- 1. After save and exit BIOS setup, press F12 to boot from USB device and select UEFI : <your USB stick, Partition 1> option. See figure5.
- 2. Connect ethernet cable to lan 1 port when you start to install debian 8.5(Recommend). If you don't do this you will need to configure network interfaces by hand
- 3. Follow below step to start installing debian.



Figure5

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## Step 1: Select graphical install



Step 2: Select language and continue

				(0)	debian <sup>®</sup>
Select a language					
Choose the language to default language for the Language:	to be used for the inst ne installed system.	tallation proces	s. The selected l	anguage will also	be the
Chinese (Simplified) Chinese (Traditional) Croatian Czech Danish Dutch Dzongkha	<ul> <li>中文(简体)</li> <li>中文(繁創)</li> <li>Hrvatski</li> <li>Čeština</li> <li>Dansk</li> <li>Nederlands</li> <li>Kem</li> </ul>	ħ			
English	English				
Esperanto Estonian Finnish French Galician Georgian German Greak	<ul> <li>Esperanto</li> <li>Eesti</li> <li>Suomi</li> <li>Français</li> <li>Galego</li> <li>Jañogogo</li> <li>Deutsch</li> <li>Ettanuk é</li> </ul>				~
Screenshot				Go Back	Continue
		NOC			
	7		T		Chief

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Step 3: Select location and continue



Step 4: Configure locales and continue. If there is defined for the combination of language and country you have selected. You won't see this step.

		debian
onfigure locales		
here is no locale d elect your prefere listed in the seco	efined for the combination of langu nce from the locales available for th nd column.	age and country you have selected. You can now the selected language. The locale that will be used
ountry to base defa	ult locale settings on:	
ustralia	- en AU,UTE-8	[^
lotswana	- en BW.UTF-8	
anada	- en CA.UTF-8	
long Kong	- en_HK.UTF-8	
ndia	- en_IN	- All a state of the state of t
reland	- en_IE.UTF-8	
lew Zealand	- en_NZ.UTF-8	
ligeria	- en_NG	=
hilippines	- en_PH.UTF-8	
ingapore	- en_SG.UTF-8	
South Africa	- en_ZA.UTF-8	
United Kingdom	- en_GB.UTF-8	
United States	- en_US.UTF-8	Construction of the local division of the lo
Zambia	- en_ZM	
Zimbabwe	- en_ZW.UTF-8	L
creenshot	lelp	Go Back Continue
	/10	

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Step 5: Configure the keyboard and continue



Step 6: Detect network hardware. Select "No" and continue. It will mention on next chapter.



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Step 7: Configure the network. Select eth0 and continue.



Step 8: Configure the network. Set hostname and continue



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Step 9: Configure the network. Set domain name and continue

		debia
Configure the network		
The domain name is the part of something that ends in .com, something up, but make sure Domain name:	f your Internet address to the right net, .edu, or .org. If you are settin you use the same domain name on a	of your host name. It is often g up a home network, you can make all your computers.
		119421119921111994
	*	
Screenshot		Go Back Continu
	400	

Step 10: Set up users and passwords. Continue to next step.

p users and passwords need to set a password for 'root', the sys root access can have disastrous results, lasy to guess. It should not be a word for clated with you. ad password will contain a mixture of lett ar intervals. Toot user should not have an empty pass shed and the system's initial user accoun hand. that you will not be able to see the pass <i>password:</i>	tem administrative account. A malicious or unqualified so you should take care to choose a root password th and in dictionaries, or a word that could be easily ers, numbers and punctuation and should be changed word. If you leave this empty, the root account will be will be given the power to become root using the "su word a you type it.	ebia I user hat is I at do"
p users and passwords need to set a password for 'root', the sys root access can have disastrous results, lasy to guess. It should not be a word for clated with you. of password will contain a mixture of lett lar intervals. Toot user should not have an empty pass bled and the system's initial user account nand. that you will not be able to see the pass password:	tem administrative account. A malicious or unqualified so you should take care to choose a root password th and in dictionaries, or a word that could be easily ers, numbers and punctuation and should be changed word. If you leave this empty, the root account will be will be given the power to become root using the "su word a¥ you type it.	l user hat is l at do"
need to set a password for 'root', the sys root access can have disastrous results, hasy to guess. It should not be a word fo clated with you. of password will contain a mixture of let lar intervals. oot user should not have an empty pass hed and the system's initial user account nand. that you will not be able to see the pass <i>password</i> :	tem administrative account. A malicious or unqualified so you should take care to choose a root password th und in dictionaries, or a word that could be easily ers, numbers and punctuation and should be changed word. If you leave this empty, the root account will be will be given the power to become root using the "su word a¥ you type it.	d use hat is 1 at do"
od password will contain a mixture of leti lar intervals. oot user should not have an empty pass pled and the system's initial user account hand. that you will not be able to see the pass <i>password:</i>	ers, numbers and punctuation and should be changed word. If you leave this empty, the root account will be : will be given the power to become root using the "su word ay you type it.	d at do"
oot user should not have an empty pass bled and the system's initial user account nand. that you will not be able to see the pass <i>password:</i>	word. If you leave this empty, the root account will be will be given the power to become root using the 'su word a¥ you type it.	do"
password:		
		_
se enter the same root password again t Inter password to verify:	o verify that you have typed it correctly.	
enshot	Go Back Cor	ntinu
	/10G	
		N.Co
		10

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#### Step 11: Set up users and passwords and. Continue to next step



Step 12: Set up users and passwords and. Continue to next step



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Step 13: Set up users and passwords and. Continue to next step



Step 14: Partition disks. Select "Guided – use entire disk" and continue.



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Step 15: Partition disks. Select "MMC/SD card #1 (mmcblk0)" and continue.



Step 16: Partition disks. Select "All file in one partition" and continue.



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Step 17: Partition disks. Select "Finish partitioning and write changes to disk" and continue.



Step 18: Partition disks. Select "Yes" and continue.

	debian
artition disks	
If you continue, the changes listed below will be writter	n to th <mark>e disks.</mark> Otherwise, you will be able to make
WARNING: This will destroy all data on any partitions yo are going to be formatted.	u have removed as well as on the partitions that
The partition tables of the following devices are change MMC/SD card #1 (mmcblk0)	d:
The following partitions are going to be formatted: partition #1 of MMC/SD card #1 (mmcblk0) as ESP partition #2 of MMC/SD card #1 (mmcblk0) as ext4 partition #3 of MMC/SD card #1 (mmcblk0) as swap I	
Write the changes to disks?	
Screenshot	Continue
	· pr Aller ou
	TANK AND

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Step 19: Configure the package manager. Select "Yes" and continue.



Step 20: Configure the package manager. Select country and continue.



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Step 21: Configure the package manager and continue.



Step 22: Configure the package manager and continue.



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Step 23: Configuring popularity-contest and continue.



Step 24: Software selection. Don't select Debian desktop environment and any graphical user interface.



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Step 25: Finish the installation.



4. After finish the installation, if you can't download packages form internet and see "Media change: please insert the disc labeled". Please do as follows.

\$ vi /etc/apt/sources.list

Comment out "deb cdrom:[Debian GNU/Linux 8.5.0 \_Jessie\_ - Official amd64 CD Binary-1 20160604-15:35]/ jessie main". See figure6

<pre># deb cdrom:[Debian GNU/Linux 8.5.0 _Jessie Official amd64 CD Binary-1 20160604-15:35]/ jessie main</pre>
#deb cdrom:[Debian GNU/Linux 8.5.0 _Jessie Official amd64 CD Binary-1 20160604-15:35]/ j essie main
deb http://ftp.tw.debian.org/debian/ jessie main deb-src http://ftp.tw.debian.org/debian/ jessie main
<pre>deb http://security.debian.org/ jessie/updates main deb-src http://security.debian.org/ jessie/updates main</pre>
<pre># jessie-updates, previously known as 'volatile' deb http://ftp.tw.debian.org/debian/ jessie-updates main deb-src http://ftp.tw.debian.org/debian/ jessie-updates main</pre>



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# 2. Peripheral Devices

### **2.1.** Install tool

\$ su root
\$ apt-get install make
\$ apt-get install linux-headers-\$(uname -r)

#### **2.2.** WiFi driver

1. Edit /etc/apt/sources.list and Insert "deb http://httpredir.debian.org/debian/ jessie main contrib non-free" string.

\$su root \$ vi /etc/apt/sources.list

2. Update packages and install package

\$ apt-get update && apt-get install firmware-iwlwifi

Download firmware from <u>https://packages.debian.org/sid/kernel/firmware-iwlwifi</u> The file name should be call "firmware-iwlwifi\_20160110-1\_all.deb"

\$ dpkg -- i firmware-iwlwifi\_20160110-1\_all.deb

- 3. Reboot debian
- 4. For more information. Please see below website

https://wiki.debian.org/iwlwifi

- **2.3.** Ethernet driver
- 1. Please contact FAE or gigabyte website to get this driver.
- 2. Extract file and install

\$su root \$ tar -jxvf 0005-r8168-8.042.00.tar.bz2 \$ cd r8168-8.042.00 \$ ./autorun.sh

#### **2.4.** SD card driver

- 1. Download the SD card driver package from gigabyte website.
- 2. Extract the package and install

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\$ su root

- \$ tar zxvf realtek-cr-scsi-1.4.4.tar.gz
- \$ cd realtek-cr-scsi-1.4.4
- \$ make
- \$ make install
- \$ modprobe rts-cr-core
- \$ modprobe rts-cr-host
- **2.5.** GPIO driver
- 1. If you need to use GPIO driver, please contact our FAE to get driver
- 2. Extract the package and install
  - \$ su root
    \$ tar zxvf gpiodrv.tar.gz
    \$ cd gpiodrv
    \$ make
    \$ insmod gpiodrv.ko

## **2.6.** HSUART driver

- 1. If you need to use HSUART driver, please contact our FAE to get driver.
- 2. Extract the package and install.
  - \$ su root
  - \$ tar zxvf hsuart.tar.gz
  - \$ cd hsuart
  - \$ make
  - \$ insmod gigahsuart.ko

## 3. Test

**3.1.** GPIO

1. Change file permission.

\$su root
\$ chmod 777 /sys/kernel/gpiodrv/gpio\_\*

2. Choose the register you want to control

\$ echo "0xFED8C400" > /sys/kernel/gpiodrv/gpio\_pin
You can choose register as below

0xFED8C400	0xFED8C408
0xFED8C410	0xFED8C418

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0xFED8C420	0xFED8C428
0xFED8C438	0xFED8C440
0xFED85400	0xFED85410
0xFED85430	

3. Control the gpio low and you can see the LED lights on.

\$ echo "0" > /sys/kernel/gpiodrv/gpio\_value

4. Control the gpio high and you can see the LED lights off.

\$ echo "1" > /sys/kernel/gpiodrv/gpio\_value

- 3.2. Bluetooth
- 1. please reference below website Pairing using CLI chapter https://wiki.debian.org/BluetoothUser
- **3.3.** Phone Jack
- 1. Install tool \$ su root \$ apt-get install alsa-utils \$ apt-get install sox \$ apt-get install libsox-fmt-all
- 2. Playing Ensure your "Simple mixer control 'Master" setting is on. \$ amixer

If show "off" in "Master" setting. Turn on it. \$ amixer set Master 100% on

\$ su root \$ play test.mp3

3. Recording

Ensure your "Simple mixer control 'Capture" setting is on \$ amixer

If show "off" in "Capture" setting. Turn on it. \$ amixer set 'Capture' cap

Check your devices. After run command, it will show below example information. \$arecord -1

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Ex:

\*\*\*\* List of CAPTURE Hardware Devices \*\*\*\* card 0: PCH [HDA Intel PCH], device 0: ALC255 Analog [ALC255 Analog] Subdevices: 1/1 Subdevice #0: subdevice #0

Start recording \$ arecord -D plughw:0,0 MIC.wav -v -f cd & %plughw: card number, device number

Stop recording \$ killall arecord

play your recording \$ play MIC.wav

### 3.4. HSUART

- 1. Make sure your console cable is connecting MZBSWIP SERPO1 > 2 or MUSB1 port to target machine. Please open the terminal and set your baud rate 115200.
- 2. Use root to login

\$su root

3. Test to send

\$echo "<send message>" > /sys/kernel/ghsuart/uart3

Note: if you use SERPO2 change command as below.

\$echo "<send message>" > /sys/kernel/ghsuart/uart4

4. Test to receive and input any message on your connect machine's terminal. After input message, input command line to read message as below.

\$cat /sys/kernel/ghsuart/uart3

Now, you can see the message on your MZBSWIP

### **3.5.** 3G Network

1. Check 3G network interface.

\$ cat /etc/udev/rules.d/70-persistent-net.rules

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You should see USB device information similar with below message.

# USB device 0x:0x (cdc\_ether)
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?\*",
ATTR{address}=="00:1e:10:1f:00:00", ATTR{dev\_id}=="0x0", ATTR{type}=="1",
KERNEL=="eth\*", NAME="ethx"

2. Set network interface to get ip address.

\$ ifconfig eth3 up
\$ echo -e 'at^ndisdup=1,1,"internet"\r' > /dev/ttyUSB2
\$ dhclient eth3

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