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1. Introduction

M-9G45A is an ARM9-based Linux ready System on Module. The M-9G45A is equipped with an ATMEL AT9SAM9G45 SoC and many peripherals include:

- ATMEL AT91SAM9G45 400MHz
- 128MB DDR2 RAM, 256MB NAND Flash, 2MB DataFlash
- One 10/100Mbps Ethernet with MAC/PHY and transformer
- 24-bit CMOS LCD interface up to 1280 x 860
- Four wire touch screen
- One USB 2.0 high speed (480Mbps) Host Ports, One USB client port
- Multimedia Card Interface for SD memory card
- Four UARTs with RS-485 data direct control
- On board Real Time Clock and watchdog timer with Lithium battery
- I2S bus for audio I/O
- I2C bus for GPIO expansion
- 15 Programmable Digital I/O Port
- Serial console (Debug) port (RS-232)
- Serial Peripheral Interface (SPI) Ports
- Linux 2.6.38 OS

Linux 2.6.38 OS is pre-installed in the flash disk of M-9G45A and many powerful utility programs are also included. Therefore, M-9G45A is ready to drop in your design to save your time in software porting and hardware debug.
2. Layout

Front View

Rear View

Function Block Diagram
3. Hardware Specifications

CPU / Memory
- SoC: ATMEL AT91SAM9G45
- CPU: ARM926EJ-S ARM Thumb Processor with Memory Management Unit (MMU)
- Clock: 400MHz
- SDRAM: 128MB
- Flash: 256MB NAND Flash and 2MB DataFlash

Network
- Ethernet: 10/100Mbps with MACPHY and Transformer
- PHY: DAVCOM DM9161
- Transformer: 1.5 Kv isolation
- Signal: ETX0+, ETX0-, ERX0+, ERX0-

USB Port
- Host: USB 2.0 full speed (12Mbps) Host x2
- Signal: USB A+, USB A-
- Device: Udddata+, Udddata-, Udio

UART
- Four Universal Asynchronous Receiver and Transmitter
- Data Bits: 5 to 9 bits
- Parity: None, Even, Odd, Mark, Space
- Stop: 1, 1.5, 2 bits
- Baud Rate: Up to 921.6 Kbps
- Flow Control: RTS/CTS, XON/XOFF, None
- RS-485 Driver Control Signal (RTS1–RTS4)
- Signal Level: CMOS/3.3V compatible
- COM1: TXD1, RXD1, RTS1, CTS1, DCD1, DTR1, DSR1 (Software configurable RS-232/485 mode)
- COM2: TXD2, RXD2, RTS2, CTS2 (Software configurable RS-232/485 mode)
- COM3: TXD3, RXD3, RTS3, CTS3 (Software configurable RS-232/485 mode)
- COM4: TXD4, RXD4, RTS4, CTS4 (Software configurable RS-232/485 mode)

I2C Bus (Inter-IC Bus)
- Compatible with standard two-wire serial memory interface
- Supported Devices: (built-in)
  - Real Time Clock: ST M41T81 (option: Ricoh RS5C372A)
  - Watchdog Timer: ST M41T81
  - Backup Battery: Lithium Battery (BR 1225 3V 48mAh)
- GPIO Controller: NXP PCA9539 (32 GPIO)
  - Signal: **TWD, TWDK**

**I2S (Internal IC Sound)**
- Transmitter: **TSCK, TWS, TSD**
- Receiver: **RSCK, RWS, RSD**
- Audio clock: **Audio Clk**
- Supported Device: Audio codec TI TLV320AIC23

**SPI (Serial Peripheral Interface)**
- Two chip Selects with external decoder
- Three wires signals: MISO, MOSI and SPCK clock
- Signal: **MISO, MOSI, SPCK, NPCS1, NPCS2**
- Supported Device: ATMEL DataFlash

**Multimedia Card Interface**
- Compatible with SD memory card Specification 1.0
- Signal: **MCCDA, MCCK, MCDA0, MCDA1, MCDA2, MCDA3, CD, WP**

**Programmable DIO**
- 15 General Purpose I/O can be programmable as digital input or output
- Signal Level: CMOS/TTL Compatible
- Input:
  - Low level: -0.3V min / +0.8V max
  - High level: +2.0V min / +3.6V max
- Output:
  - Low level: +0.4V min @ 0.3mA
  - High level: +3.3V min @ 0.3mA
- Signal: **I/O_0 to I/O_14**

**LCD Bus**
- Signal:
  - LCD.R0~LCD.R7: Red color bus
  - LCD.G0~LCD.G7: Green color bus
  - LCD.B0~LCD.B7: Blue color bus
  - LCD.DE: LCD data enable
  - LCD.DIM: LCD brightness (PWM)
  - LCD.HSync: LCD H. Sync
  - LCD.VSync: LCD V. Sync
  - LCD.BKLG: LCD backlight on/off
  - LCD.DotCLK: LCD dot clock
Touch Screen

- Signal:
  - TS.top: Touch top input
  - TS.bottom: Touch bottom input
  - TS.right: Touch right input
  - TS.left: Touch left input

Predefine Pins

- Reset Button (CN1, pin#11, \textit{RST\#1}), input
- Buzzer (CN1, pin#22, \textit{BUZR}) output
- System reset (CN1, pin#13) CMOS output
- System ready LED (CN1, pin#1, \textit{RDY\_LED}) output
- LAN activity LED (CN1, pin#3, \textit{ACT\_LED}) output
- External battery input (CN1, pin#5, \textit{V.BAT}) input

Debug Port: JP4

- Serial Console: RS-232 TX/RX
  - Signal: \textit{D TXD\_232}, \textit{DRXD\_232}

Power

- Input: 3.0 to 3.6VDC (3.3V nominal)
- Consumption: 240mA (max.) / 170mA (nominal)
## 4. Pin Assignment and Definition

<table>
<thead>
<tr>
<th>Function</th>
<th>M-9G45A</th>
<th>M-9G45A</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ready LED)</td>
<td>RDY LED</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>(LAN LED)</td>
<td>ACT LED</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(Battery In)</td>
<td>V.BAT</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>(I2C)</td>
<td>TWD</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>(I2C)</td>
<td>TWCK</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>(Reset Button)</td>
<td>RST#1</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>(System Reset)</td>
<td>RST#0</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>(GPIO/IRQ)</td>
<td>PIO6</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>(GPIO/PCLK)</td>
<td>PIO7</td>
<td>17</td>
<td>18</td>
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<tr>
<td>(GPIO)</td>
<td>PIO8</td>
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<td>22</td>
</tr>
<tr>
<td>(GPIO)</td>
<td>PIO10</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>(Console)</td>
<td>TX 232</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>(GPIO)</td>
<td>VCC3</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Function</td>
<td>M-9G45A</td>
<td>M-9G45A</td>
<td>Function</td>
</tr>
<tr>
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<td>------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>(LAN)</td>
<td>ETX0-</td>
<td>ETX0+</td>
<td>(LAN)</td>
</tr>
<tr>
<td>(LAN)</td>
<td>ERX0-</td>
<td>ERX0+</td>
<td>(LAN)</td>
</tr>
<tr>
<td>GND</td>
<td>5</td>
<td>6</td>
<td>GND</td>
</tr>
<tr>
<td>(USB Device)</td>
<td>Udio</td>
<td>LCD.G0</td>
<td>(Green)</td>
</tr>
<tr>
<td>(USB Device)</td>
<td>Uddata+</td>
<td>LCD.G1</td>
<td>(Green)</td>
</tr>
<tr>
<td>(USB Device)</td>
<td>Uddata-</td>
<td>LCD.G2</td>
<td>(Green)</td>
</tr>
<tr>
<td>(USB Host)</td>
<td>USB A-</td>
<td>LCD.G3</td>
<td>(Green)</td>
</tr>
<tr>
<td>(USB Host)</td>
<td>USB A+</td>
<td>LCD.G4</td>
<td>(Green)</td>
</tr>
<tr>
<td>GND</td>
<td>17</td>
<td>18</td>
<td>LCD.G5</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R0</td>
<td>LCD.G6</td>
<td>(Green)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R1</td>
<td>LCD.G7</td>
<td>(Green)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R2</td>
<td>LCD.G8</td>
<td>(Green)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R3</td>
<td>LCD.B0</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R4</td>
<td>LCD.B1</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R5</td>
<td>LCD.B2</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R6</td>
<td>LCD.B3</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(Red)</td>
<td>LCD.R7</td>
<td>LCD.B4</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(LCD Data Enable)</td>
<td>LCD.DE</td>
<td>LCD.B5</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(LCD Contrast)</td>
<td>LCD.DIM</td>
<td>LCD.B6</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(LCD H. Sync)</td>
<td>LCD.HSync</td>
<td>LCD.B7</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(LCD V. Sync)</td>
<td>LCD.VSync</td>
<td>LCD.BKLGT</td>
<td>(Blue)</td>
</tr>
<tr>
<td>(LCD PWR)</td>
<td>LCD.DotCLK</td>
<td>LCD.DotCLK</td>
<td>(LCD Dot Clock)</td>
</tr>
<tr>
<td>GND</td>
<td>45</td>
<td>46</td>
<td>GND</td>
</tr>
<tr>
<td>GND</td>
<td>47</td>
<td>48</td>
<td>GND</td>
</tr>
<tr>
<td>VCC3</td>
<td>49</td>
<td>50</td>
<td>VCC3</td>
</tr>
</tbody>
</table>
### 4.1 Factory Default Settings

**LAN 1 IP Address:** 192.168.2.127  
**Login:** root or guest (telnet guest only)  
**Password:** root or guest (telnet guest only)  
**Serial Console Port:**  
- Baud rate: 115200  
- Data format: 8 Bits, No Parity, 1 Stop bit (N,8,1)  
- Flow Control: None  
- Terminal type: VT100
4.2 Power on and System Boot up
Once M-9G45A is correctly power on, it will start boot Linux kernel and mount file system. You can use Ethernet and telnet and login M-9G45A. Once kernel loaded, it will find /sbin/init and execute it. The initialization configuration is at /etc/inittab. Once boot up, you can use telnet to login M-9G45A.

4.3 Inittab and Run Levels
Inittab contains information of system initialization. The system initialization script /etc/rcS.d runs first then the run level 5 /etc/rc5.d. M-9G45A uses run level for system setup and the default run level is number 5. Please refer to introduction to linux (http://tille.garrels.be/training/tldp/) for information about run level. Following is the run levels setting:

Run level 0: halt
Run level 1 is single user (login and service are disabled)
Run level 2~5 are multiple users
Run level 6 is reboot

Please refer to loader menu section for selection of run level.

4.4 Default Started Service
1. amgrd (Artila broadcast search daemon)
2. ssh (secured shell) with sftp
3. syslog/klogd (system and kernel log)
4. telnet server (disable root with /etc/securetty)
5. ftp server (vsftp)
6. web server (lighttpd)
7. Ready LED (debug LED for internal use)
8. Auto start GTK+ demo
9. Xserver GUI
4.5 Network Settings

Use `vi` editing tool to edit the `/etc/network/interfaces` for network setting. The default setting is static IP 192.168.2.127. M-9G45A also supports Wireless LAN. Use

```
wireless_essid XXX
wireless_key YYY
```

To add SSID and WEP key if necessary. XXX is SSID and YYY is WEP Key.

M-9G45A supports USB WLAN adaptor (Ralink RT2571). You can enable the driver module (rt73usb) by adding `rt73usb` in

```
/etc/modules
```

4.6 File System

The 256MB NAND Flash memory of M-9G45A contains Boot loader (uBoot), Linux Kernel, Root File System and user disk (/home). The file system and disk space are shown as follow.
4.7 Devices List

The supported devices are shown at /dev directory. Following list are most popular ones:

1. ttyS0: serial console port
2. ttyS1 to ttyS4: serial port 1 to port 4
3. sda to sdb: USB flash disk
4. ttyUSB0 to ttyUSB1: USB RS-232 adaptor (usbserial.ko)
5. gpio: General Purpose digital I/O
6. ttyACM0 and ttyACM1: USB Modem (CDC compliant)
7. spi0, spi1: SPI bus controller
8. mmc: SD driver
9. rtc0: m41t81 real time clock device (default)
10. rtc1: rs5c372a real time clock device (M-9G45A compatible)

4.8 Utility Software

M-9G45A includes busybox utility collection and Artila utility software and there are placed at:

/sbin
/bin
/usr/bin
/use/sbin

Please refer to Appendix for the utility collection list.
4.9 Mounting USB Device by udev

M-9G45A supports udev which can automatically load the device driver when plugging your USB device.

4.10 Web Page Directory

The web pages are placed at `/usr/www` and the `/etc/lighttpd.conf` contains the lighttpd web server settings. The home page name should be `index.html`.

4.11 Adjust the System Time

To adjust the RTC time, you can follow the command:

```bash
date MMDDhhmmYYYY
```

where

- `MM=Month (01~12)`
- `DD=Date (01~31)`
- `hh=Hour`
- `mm=minutes`
- `YYYY=Year`
hwclock –w

To write the date information to RTC.

User can also use NTP client utility in Artila CD to adjust the RTC time.

\texttt{ntpclient [time server ip]}

4.12 SSH Console

M-9G45A supports SSH. If you use Linux computer, you can use SSH command to login M-9G45A.

The configuration of SSH and key are located at \texttt{/etc/ssh}.

The key generation program is available at \texttt{/usr/bin}.

4.13 Welcome Message

To modify the welcome message, user can use text edit to modify the \texttt{/etc/motd}.

4.14 Putty Console Software

For Windows user, you can download the putty software at http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html to use SSH to login M-9G45A.

4.15 \texttt{ipkg} Package Software Management

\texttt{ipkg} is a light software package utility. It can be used to install, upgrade and remove the software package for M-9G45A. Currently user can use ipkg to install the software package from Artila FTP.

You can find the configuration at \texttt{ipkg.conf}.

When M-9G45A is connected to network and issue command:

\texttt{ipkg update}

To update the package list and use

\texttt{ipkg install}

To install software package and

\texttt{ipkg remove}

To remove software
ipkg list
To list available software

ipkg list_installed
To list software installed

Please refer to Appendix for more about ipkg.

4.16 Install GNU Toolchain
Find a PC with Linux OS installed as followed:
Fedore 7, ubuntu 7.04, OpenSUSE 10.2, Mandriva 2008, Debian 5.0, Centos (RedHat) 5 and above.

Login as a root user then copy the arm-linux-4.3.2.tar.gz to root directory of PC. Under root directory, type following command to install the M-9G45A Toolchain:

#tar -xvfj arm-linux-4.3.3.tar.bz2

The toolchain file name are:

arm-linux-gnueabi-gcc
arm-linux-gnueabi-g++
arm-linux-gnueabi-strip

Version: gcc 4.3.3, glibc 2.9, binutils 2.18

For Windows user, please download the toolchain from CodeSourcery at
009q1-203-arm-none-linux-gnueabi.exe

The toolchain file name are:

arm-none-linux-gnueabi-gcc
arm-none-linux-gnueabi-g++
arm-none-linux-gnueabi-strip

Version: gcc 4.3.3, glibc 2.8, binutils 2.19

4.17 Getting Started with the Hello Program
There are many example programs on Artila FTP. To compile the sample you can use the Make file and type:

make

To compile and link the library. Once done, use ftp command

ftp 192.168.2.127

Then login with password. Use bin command to set transfer mode to binary

ftp>bin

To transfer the execution file to M-9G45A user disk (/home/guest) and use

chmod +x file.o
To change it to execution mode and

`.file.o`

to run the program.

### 4.18 Auto Start Program on Boot

To start a program on boot, you can use `/etc/rc.local`.

For example to use `vi` to edit `rc.local`

```sh
hello &
exit 0
```

Hello will be executed after system boot up. `rc.local` has the similar function as `/etc/rc` in M-9G45A.
5. Artila Utility Software

The introduction of Artila utility software as follow:

5.1 update
Update loader, environment file and kernel image. Type `update --help` to find the command usage.

Update can only operate under supervisor mode (password: root). Please use command `su` and login as root.

5.2 setuart
Configure serial port setting. An example show as followed to configure port 1 as RS-485 interface with baud rate 921600.

5.3 version
Find out the version of OS.
5.4 gpioctl

The gpio can be configured by `gpioctl` and the usage is as shown followed.

```
root@MatrixG45A:~# gpioctl --help
Usage: gpioctl [OPTIONS]

  -h, --help        display this help and exit
  -v, --version     output version information and exit
  -l, --id 0\,1\,...1 GPIO number
  -s, --state 0\,1   GPIO state, 1:HIGH, 0:LOW
  -m, --mode 0\,1    GPIO mode, i:INPUT, o:OUTPUT
  -a, --all         Show all GPIO state and node

root@MatrixG45A:~# gpioctl --all
GPIO count:9

ID   State    Mode
-----  --------  ----
GPI08  State:High, Mode:Input
GPI09  State:High, Mode:Input
GPI10  State:High, Mode:Input
GPI11  State:High, Mode:Input
GPI12  State:High, Mode:Input
GPI13  State:High, Mode:Input
GPI14  State:High, Mode:Input
GPI15  State:High, Mode:Input
```

5.5 lcdctl

The lcdctl is used to configure LCD setting and the usage is as shown followed.

```
root@MatrixG45A:~# lcdctl --help
Usage: lcdctl [OPTIONS]

  -s, --node[0-9]  Set LCD Default Mode: [800x600]
                    support: 640x480, 800x600, 1024x768
  -r, --res[0-9]   Set LCD Resolution (Width x Height) with 16qpp.
  -p, --pixelclock[0-9] Set LCD Pixelclock (Hz).
  -u, --uiwidth[0-9] Set LCD UI Width (Pixel).
  -l, --left[0-9]   Set LCD Left Margin (Pixel).
  -t, --top[0-9]    Set LCD Top Margin (Pixel).
  -b, --bottom[0-9] Set LCD Bottom Margin (Pixel).
  -r, --right[0-9]  Set LCD Right Margin (Pixel).
  -c, --corner[0-9] Set LCD Corner Margin (Pixel).
  -e, --help       Display this help and exit
  -v, --version    Output version information and exit

lcdctl (Version: 1.9)
```

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6. Loader Menu

Loader menu helps user to select the run level of system boot up. User need to use serial console to enter loader menu. Please configure the serial port of terminal as follow:

- Baud Rate: 115200
- Data bits: 8
- Parity: N
- Stop bit: 1
- Flow Control: None
- Terminal type: VT100

Once power up M-9G45A, please repeatedly keying "@" and you will see the loader menu appear as follow:

If you miss the timing, please power on again the M-9G45A and do it again. Select U will prompt the run level selection message. Run level 0 is halt, run level 1 is single user (disable login and service). Run level 2~5 are multiple users and run level 6 is reboot. To view the run level configuration, please check:

/etc/inittab
7. Frequently Asked Question

7.1 Forgot Password
If you forgot the password for login, please use serial console and use run level 1 to boot system. Use passwd to change the password setting.

7.2 Forgot the IP Address
If you forgot the M-9G45A IP address, you can use the Java Manager available on Artila FTP to search the IP address of M-9G45A.

Or use serial console port to find out the IP address by `ifconfig`.

7.3 System Fail to Boot
If you mess up the root file system and make the system fail to boot, M-9G45A will automatically switch to boot from DataFlash file system and a console menu will show up at console port to help user perform system recovery. **System Recovery Section** will tell you how to recover the system.
8. System Recovery

If NAND Flash file system does fail, DataFlash file system will automatically boot up and a Console Menu at console port will appear as follow:

8.1 Update Image

This option can recover the loader, kernel and file system by using an USB disk. The USB disk contains the images files with the path as follow:

- **Loader**: `M9G45A/m9g45a.alf`
- **Kernel**: `M9G45A/M9G45-K`
- **File system**: `M9G45A/M9G45-R`

The files are available on Artila FTP. Please prepare an USB disk with vFAT file system and copy the image files to it before choosing this option.

8.2 Make Filesystem

This option is used to create customized file system. Before using this function, you need to copy the folder of `mkimage` on the Artila FTP to an USB disk. This function will create a new file system image for users and they can use it to duplicate the customized file system to other M-9G45A.

8.3 Recovery Env.

The option will recover the environment files as default setting. Use this function only when the NAND file system crash.

8.4 Show Info

Show the version information of M-9G45A.

8.5 Reboot

Reboot the NAND flash file system.
8.6 Update Image Starts

![Image of update image starts]

8.7 Update Image Completes

![Image of update image completes]

8.8 Make Files System Starts

![Image of make files system starts]

**Note**

1. Use Arrow keys up and down to selection the functions.
2. Use Arrow keys left and right to go to higher or lower levels of menu screen.
3. To force system go into DataFlash booting, repeatedly keying "!" (Shift +1) right after M-9G45A power on.
9. Appendix

9.1 Utility Collection

- busybox: tiny utility collection
- sysvinit: standard Linux initialization
- util-linux-mount/umount: support long file name
- ssh: support sftp server
- usbutils: USB id program
- lightpd: web server
- wget: used in ipkg software
- iptables: IP routing
- ipkg: software package management
- procps: support webmin process management
- vsftpd: ftp server
- bash: GNU shell
- wireless tools: wireless LAN utility
- ppp: ppp dial up utility
- psmics: procps supplement
- artila utility: handy utility added by Artila

You can find more utility on Artila FTP and use ipkg to install the utility.

9.2 ipkg Software Package Management

M-9G45A uses ipkg to manage the software installation, upgrade and removal. Artila will continuously add the kernel module and utility on Artila FTP, user can install these software from Artila FTP. In addition user can also setup your FTP server to update the software you want.

How to setup ipkg via internet

enable DHCP

$ udhcpc eth0

make sure your network environment can access internet

$ ping www.artila.com

modify /etc/ipkg.conf

add the following two lines

src/gz arm http://www.artila.com/download/ipkgs/9G45/utility/
src/gz kernel http://www.artila.com/download/ipkgs/9G45/modules/

comment out other package source

save and quit
execute ipkg update

$ ipkg update

examples of package installation

$ ipkg install pythoncore
$ ipkg install pythonpyserial

How to setup ipkg via USB disk

You can also copy the Utility and module folder from Artila FTP to a USB disk, then use USB disk to install the software by changing the ipkg.conf

src/gz usb_arm ftp://root:root@127.0.0.1/media/sda1/Utility
src/gz usb_kernel ftp://root:root@127.0.0.1/media/sda1/modules

Make sure the USB disk is correctly mounted, now use command:

ipkg update

To update the package list and use

ipkg install webmin

To install webmin. Webmin is a web-based interface to system administration.

To start webmin, go to /etc/webmin and type

start webmin

Then you can use browser to visit M-9G45A port 10000.

http://192.168.2.127:10000
The webmin for M-9G45A provides following modules:

- Webmin: webmin configuration
- System: system boot, process and log management
- Server: Apache and SSH server configuration
- Network: network configuration
- Hardware: RTC setting
- Others: File manager, upload and download

Remember to use command:

```
depmod -a /lib/modules/2.6.38.7/modules.dep
```

To update the dependency list if new kernel module were added.
10. M-9G45A Evaluation Board Layout