M-606 Quick Installation Guide

Overview

M-606 is a WinCE ready Single Board Computer featuring four serial ports, LCD TTL/LVDS Interface, 10/100 Mbps Ethernet, USB port and SD socket for flash disk expansion. The pre-install WinCE 6.0 makes M-606 ready for your application development using Microsoft Visual Studio.

Features

1. ARM926EJ-S ARM Thumb Processor 400MHz w/MMU
2. 32-KByte Data Cache and 32-KByte Instruction Cache
3. 128MB SDRAM, 128MB NAND Flash on board
4. One 10/100 Mbps Ethernet
5. LCD TTL/LVDS Interface
6. Four USB 2.0 High speed (480 Mbps) Host Ports
7. One software configurable RS-422/485 port and three RS-232 ports
8. One three-wire RS-232 port (CONSOLE)
9. 4 programmable GPIO
10. 9 to 30 VDC power input
11. Pre-installed WinCE 6.0 and file system
12. SDK available in Artila CD
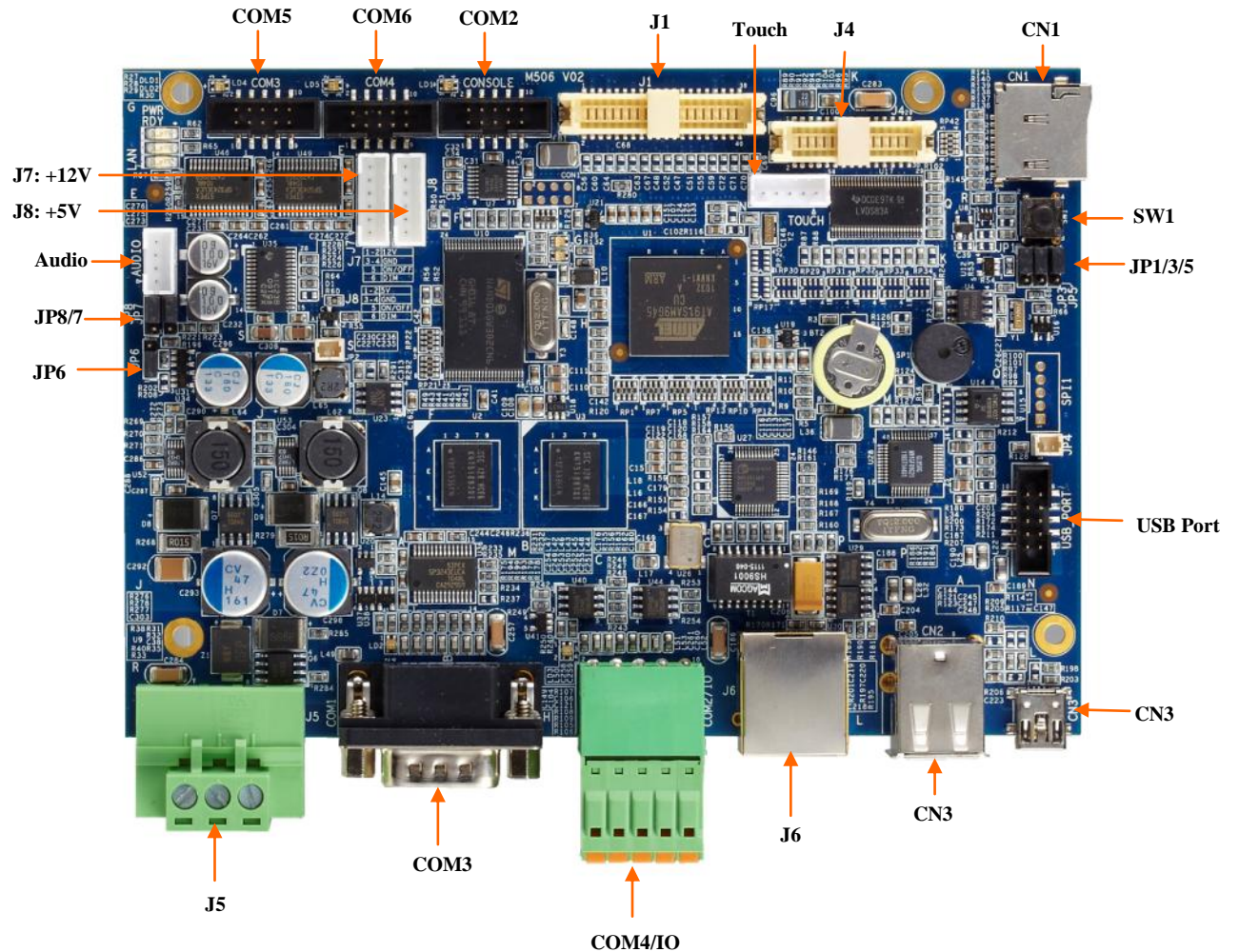13. 3.5" Single Board Computer form factor

Packing List

M-606 is shipped with following items
1. M-606
2. CB-F10M9-20 10-pin header to DB9 male cable x3
3. Artila CD includes SDK, Installation guide and example programs

CB-F10M9-20

M-606 Layout

Please refer to Appendix Pin Assignment

J1 Connector: CSI-4585-400R
J4 Connector: CSI-4585-300R
J2 Connector: CSF-2481-401R (On the back)

Factory Default Settings

LAN IP Address: DHCP
LCD Resolution: 800 x 480 16-bit color
User disk: NandFlash
Web page path: NandFlash\www
 Autoexec path: NandFlash

Power on and System boot up

Once Matrix-604 is correctly power on, it will take about 30 seconds to hear a BEEP which means WinCE is successfully boot up.   The system starts from the initial table and a batch file,*autoexec.bat* which is located at \NandFlash.   Therefore user can edit the *autoexec.bat* file or init table for your auto run program.   To skip the autoexec.bat, please repeatedly key $ (shift+4) right after system boot up.

WinCE 6.0

 Once WinCE boot up. You can use USB keyboard and mouse to access the system
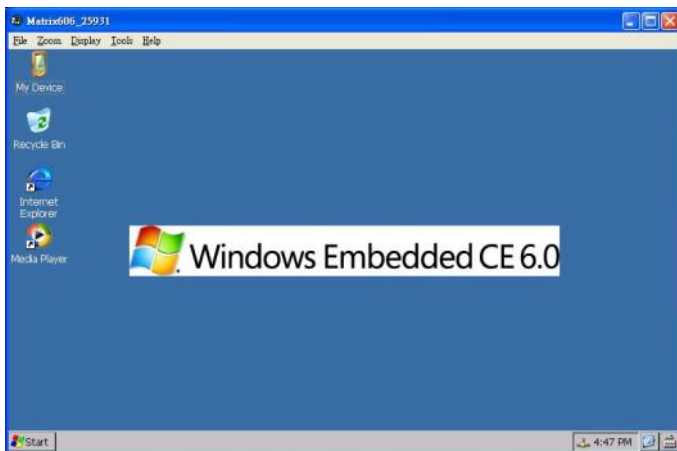
Configure LCD Resolution

To configure the LCD resolution, you can use the utility software at Program/Resolution as shown followed
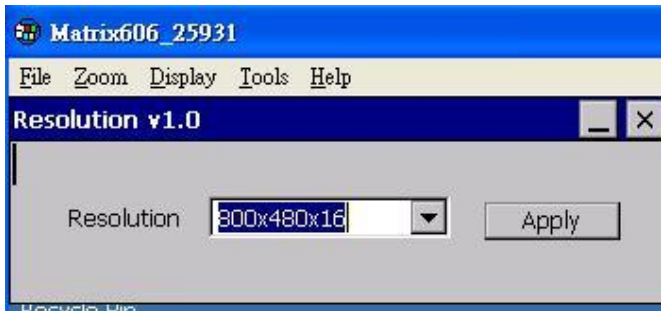Currently we support

480x272 16-bit
640x480 16-bit
800x480 16-bit
800x600 16-bit
1024x768 16-bit

LCD brightness control

To configure the LCD brightness, you can use the utility software at Program/Backlight Control as shown followed

Network Settings

To configure the network setting by serial console, you can use command *ifconfig* as followed.   To check current network configuration, you can use command *ipconfig*

```
Windows IP configuration

Ethernet adapter [NET1]:
        IP Address ........ : 169.254.107.225
        Subnet Mask ....... : 255.255.0.0

        DNS Servers........ : 192.168.1.1

\> ifconfig -h
Ver. 1.00
Usage: ifconfig [-n|-i|-m| -g| -d| -h]
        -n <adapter name>       : Ethernet adapter name
        -i <IP address or DHCP> : Static IP or DHCP
        -m <Netmask address>    : Subnet Mask
        -g <Gateway address>    : Default gateway
        -d <DNS address>        : Domain Name Server
         h                      : Display this usage
\>
```

User Account Manager

To create user group and account, you can use command *usrmgr.* After user's account and password are created, user can add authentication in telnet and ftp function by using *telnetdcfg* and *ftpdcfg*.

```
Usage: usrmgr [-a|-d|-l] [<user name> [<password>]]
        -a <user name> <password> : Add or update a user
         d <user name>            : Remove a user
        -l                        : List all users
        -gn                       : Create a new group
        -gd                       : Delete a group
        -gl                       : List all groups
        -gm                       : List members in a group
        -gat                      : Add a user to a group
        -grf                      : Remove a user from a group
\>
```

Telnet Configuration

Telnet is enabled without authentication as factory default. To disable or add authentication, please use command *telnetdcfg* as follow:

```
telnetdcfg [IsEnabled] [UseAuthentication]
1:enabled, 0:disabled
```

FTP Configuration

FTP is enabled without authentication as factory default. To disable or add authentication, please use command *ftpdcfg* as

```
ftpdcfg [IsEnabled] [UseAuthentication] [AllowAnonymous]
1:enabled, 0:disabled
\> _
```

File System

User programs and files should be saved at NandFlash. The other folders are saved as RAMDisk therefore do not save your data to them. Under NandFlash, you will find *www* folder and *autoexec.bat* file. Www is for web page and *autoexec.bat* is for auto run program. If you have a USB disk plugged in Matrix-604, you will find a new folder *Hard Disk* available.

```
\> dir
    Directory of \

01/01/98   05:00a   <DIR>           NandFlash
07/13/10   05:35p   <DIR>           Application Data
07/13/10   09:35a         23 Control Panel.lnk
07/13/10   09:35a   <DIR>           My Documents
07/13/10   09:35a   <DIR>           Program Files
07/13/10   09:35a   <DIR>           Temp
07/13/10   09:35a   <DIR>           Windows

      Found 7 file(s). Total size 23 bytes.
      1 Dir(s) 24530944 bytes free
```

```
\NandFlash> dir
    Directory of \NandFlash

07/13/10   07:47p   <DIR>           Documents and Settings
07/08/10   11:36p         303 autoexec.bat
07/14/10   12:53p   <DIR>           www

      Found 3 file(s). Total size 303 bytes.
      1 Dir(s) 100098048 bytes free
```

Serial Ports Configuration

The serial port of M-606 is mapped as followed
Serial 1=> USB Console (ActiveSync)
Serial 2=> Console (RS-232)
Serial 3=> M-605 Port 1 (RS-232)
Serial 4=> M-605 Port 2 (RS-422/485)
Serial 5=> M-605 Port 3 (RS-232)
Serial 6=> M-605 Port 4 (RS-232)
To configure serial port settings, please use command *setuart* as follow:

```
\> setuart -h
Ver. 1.00
Usage: setuart [-p|-t|-b|-h]
        -p <0,1,2...      >    : Specify port number
        -t <232,485,422>      : Set port type
        -b <9600...>          : Set port baud rate
        -h                    : Display this usage
\> _
```

GPIO Control

M-606 comes with five GPIO which share the serial console port connector. Use *gpioctl* command to control the GPIO port. The I/O number starts from #1 to #5 and can be configured as input or output independently.

```
\> gpioctl  h

Ver. 1.00
Usage: gpioctl [ i| s| m|  a|  h]
         i <1,2...      >      : Specify IO number
        -s <0, 1>             : Set IO state, 0:low, 1:high
        -m <0, 1>             : Set IO mode, 0:input, 1:output
        -a                    : List all IO state/mode
        -h                    : Display this usage
\>
```

Beep

Beep command will beep the buzzer as follow.

```
\> beep -h
Ver. 1.00
Usage: beep [-f|-d|-h]
     -f < Hz >              : Set frequency
     -d < msec >            : Set duration
     -h                     : Display this usage
\>
```

update

update command is used to update the kernel and loader of WinCE 6.0. Current version of WinCE is available in Artila

```
\> update -h
Ver. 1.00
Usage: update [-k|-l|-v |-h]
     -k "filename"          : kernel image
     -l "filename"          : loader image
     -h                     : display this usage
\>
```

Web Page Directory

The web pages are placed at */NandFlash/www* and the home page name should be *index.htm*

Reboot

Reboot command is used to reboot the system.

Remote Display Control

M-606 comes with WinCE remote display control software. You can find this software in Artila CD at \tool\cerhost.exe. Choose *connect* to find and connect M-606 and ok to connect it. You can also enter the IP address of M-606 to connect it.
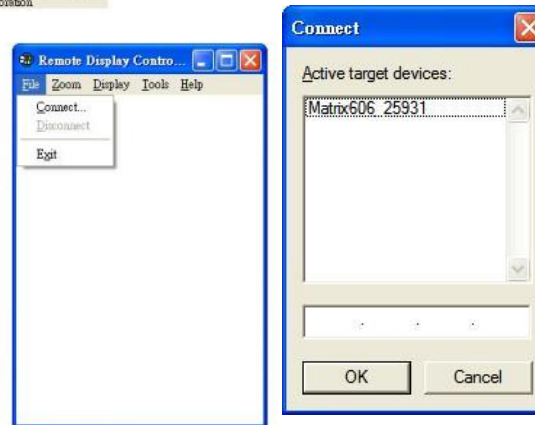
ActiveSync

M-606 supports Microsoft ActiveSync via USB client. You can download ActiveSync from Microsoft web server. ActiveSync provides an easy way to transfer files between PC and M-606.
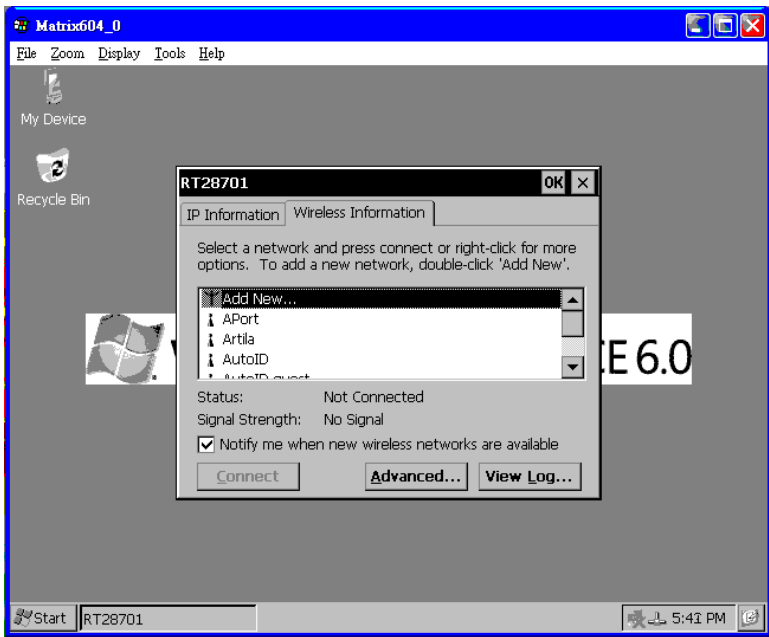
Install M-606 SDK

M-606 WinCE 6.0 SDK is located at Artila CD\SDK folder. You need to install Microsoft Studio 2005 before installing M-606 SDK.
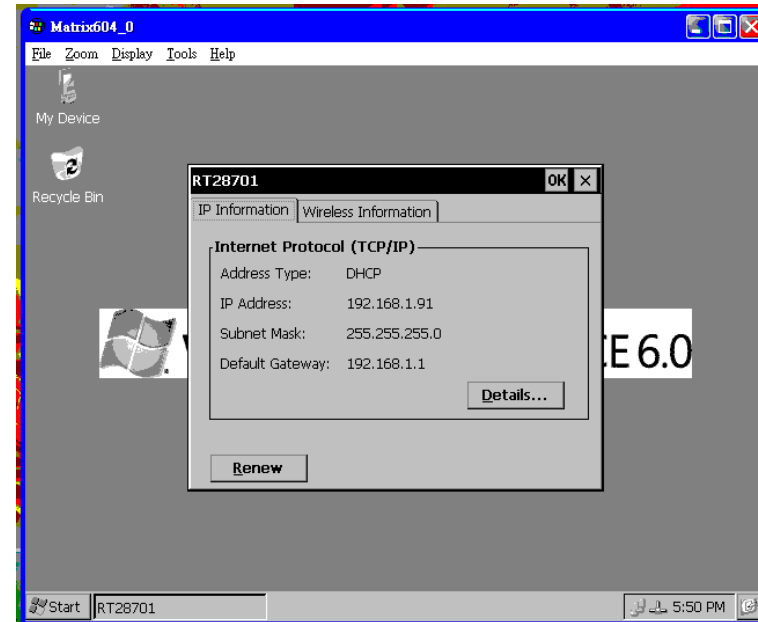Choose M-606_CE_SDK for the smart device application and click the device option.
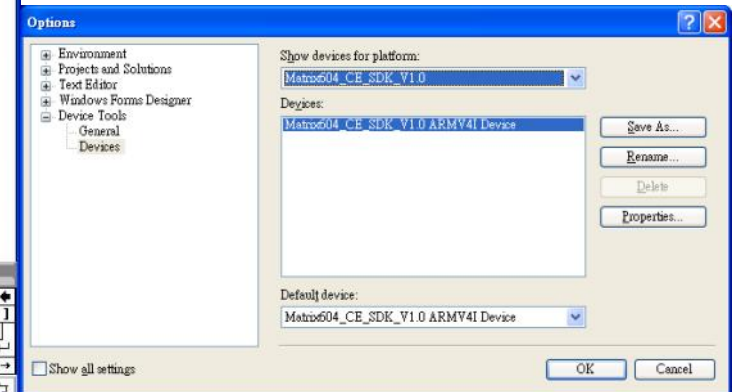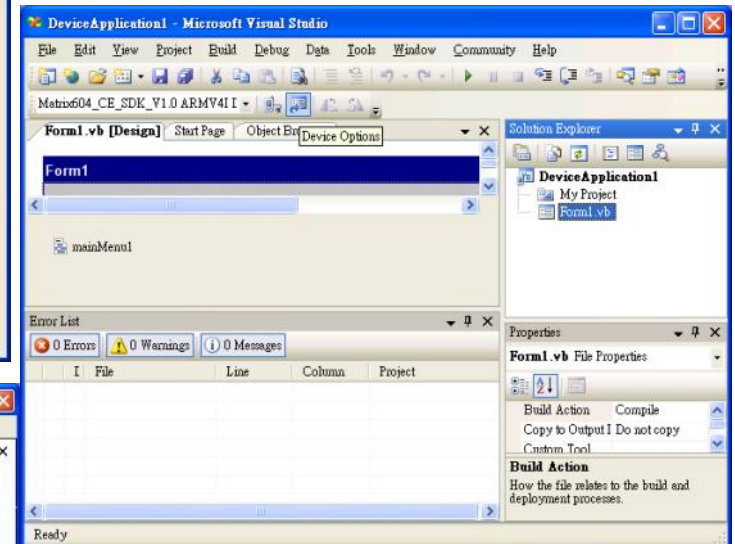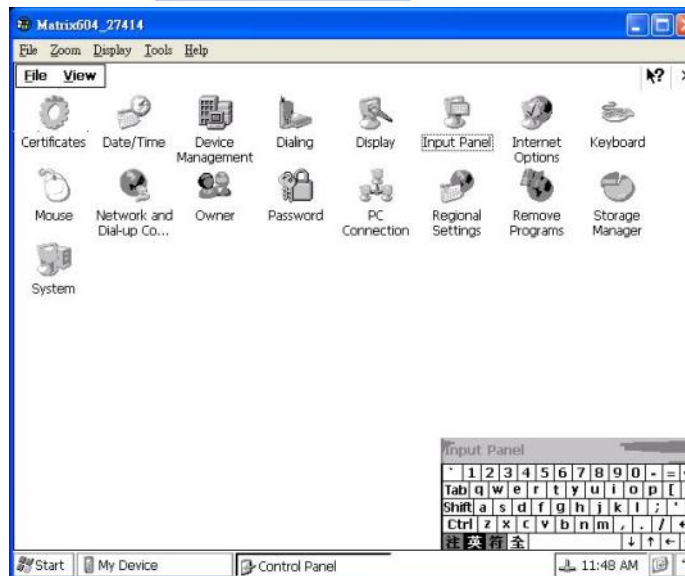
Install USB WLAN dongle

M-606 supports USB WLAN dongle which uses Ralink RT2870 Wireless LAN controller. While plug in USB WLAN dongle, you will see the new USB device detected. Follow the screen 1,2,3 to configure the Wireless LAN.

Screen 1

Screen 3

Screen 2