

# **i.MX27 IP Camera Reference Design**

## **Quick Start Guide**



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# 1 Getting Started

This document is provided as a quick start guide that will help the user set up the Freescale i.MX27 IP camera and start a web based session.

## 1.1 Camera Kit Contents

The IP camera reference design kit is shipped with the items listed in [Table 1](#).

**Table 1. IP Camera Reference Design Kit Contents**

Type	Items
Board	<ul style="list-style-type: none"> <li>• CPU board</li> <li>• Image Sensor board</li> </ul> <p>CPU board and image sensor board with lens assembled, are housed in a plastic enclosure.</p>
Cables	<ul style="list-style-type: none"> <li>• RJ45 Ethernet cable</li> <li>• Modified serial connector with one 9-pin female connection and one 3-pin terminal block connector.</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>• 12VDC @ 1A power supply with a center positive 2.5mm barrel jack connector.</li> </ul>
Other Hardware	<ul style="list-style-type: none"> <li>• Camera Mini Tripod</li> </ul>
Paperwork	<ul style="list-style-type: none"> <li>• CD-ROM: Content CD</li> <li>• End-User License Agreement</li> <li>• Quick Start Guide (this document)</li> <li>• Warranty card</li> <li>• Freescale support card</li> </ul>

Verify that all items are contained in the package.

## 1.2 CD-ROM Contents

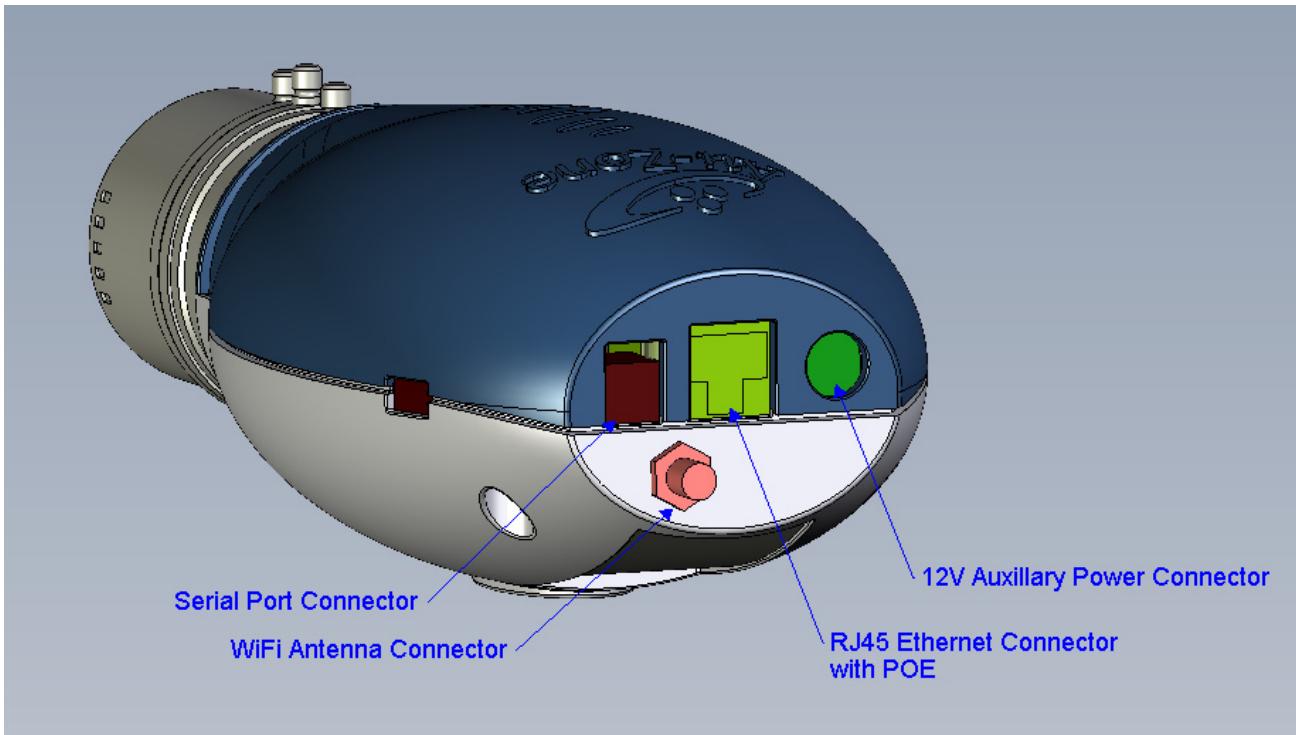
The IP camera reference design kit is shipped with the items listed in [Table 2](#).

**Table 2. CD-Rom contents**

Type	Items
Product Documentation	<ul style="list-style-type: none"> <li>• i.MX27 IP Camera Fact Sheet</li> <li>• Bill of Materials, Schematics and Gerber files for CPU board and Image Sensor board.</li> <li>• i.MX27 IP Camera Software Guide</li> <li>• i.MX27 IP Camera Reference Manual</li> <li>• DAP: Au-Zone Fact Sheet</li> <li>• Data sheets for the IP camera's non-Freescale components</li> </ul>

## 2 Setting up Camera Hardware

The following section describes the procedure for setting up the camera hardware. [Figure 1](#), below, depicts various connectors on the back of the unit.



**Figure 1. IP Camera Hardware**

1. Connect the RJ45 connector to both a local network port and the RJ45 connector located on the back on the unit. The camera supports Auto-MDI and therefore does not require a crossover cable.
2. Connect the terminal end of the serial connector on the back of the unit. This is only required if a terminal session is required.
3. Connect the female DB9 connector to the serial port on the host PC. Please exercise caution when connecting and removing the female DB9 connector to ensure that it does not break.
4. The Mini Tripod simply screws into the mount on the bottom of the unit.
5. Apply power by connecting the power adapter to the barrel connector on the back of the board. This is not required if a POE Ethernet connection is used.
6. Blue LEDs inside the top side of the enclosure indicate that the unit is running when activated.

## 3 Setting up Camera Software

This section describes the procedure for starting a streaming video session.

Note that the serial connection is not required to run the system. If it is desired that a Linux shell be present, connect the serial cable to the host PC as described above, and start up a terminal program for an 8-N-1, 115,200 connection. Disable all forms of Flow Control (Flow Control should be set to NONE).

## 4 Preparing Windows® to View Video Stream

This section describes the required procedure for preparing Windows to view the video stream.

In order to stream video in Windows XP™, some basic configuration needs to be completed first. The following applies to Windows XP with Internet Explorer 6.0 or 7.

- Default IP Addresses for the Camera Server – The camera is shipped with the following default IP addresses.
  - Wired Network: 192.168.1.254
  - The subnet mask is the 255.255.255.0. This means that “192.168.1” is the significant portion of the IP address and must be the same on the PC in order to communicate with the camera.
- To initially connect to the camera and configure it for the broader network, it is recommended to directly connect the camera to the PC. Then temporarily change the PC’s network settings to match the camera. Connect to the camera and change its settings to the broader network configuration then change the PC back and reboot the camera. Confirm that the settings are right and connect both the PC and the camera to the general network.
- All of the above settings can be configured through the web interface. Note that changes made via the web interface will be persistent; the camera will retain the new address on reset.
- Wireless connectivity is not supported at this time.

### 4.1 Internet Explorer 6.0 or 7

The following steps explain the required sequence for preparing Internet Explorer 6.0 or 7. [Figure 2](#) and [Figure 3](#) illustrate them.

1. Open Internet Explorer
2. Ensure proxies are disabled
3. Select Tools menu, then “Internet Options...”, open Security tab.
  1. Select “Trusted sites”
  2. Press the “Sites...” button.
  3. Ensure ‘Require server verification (https: ) ....’ box is not checked
  4. Add <http://192.168.1.254> or the configured IP for your network.
4. Change the Security Level for this zone to “Low”.

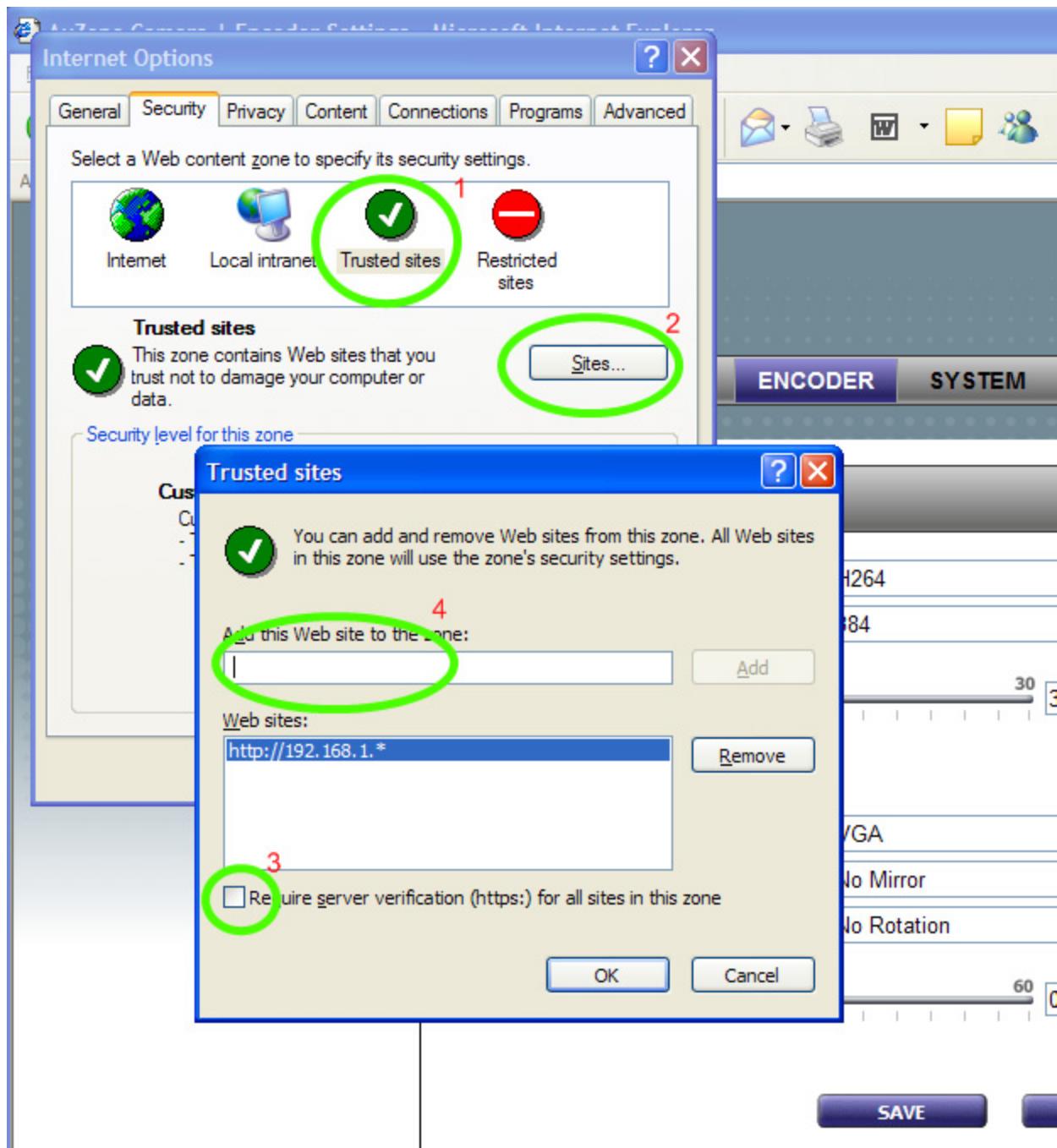


Figure 2. Required Sequence to Prepare Internet Explorer 6.0 or 7 (steps 1-4)

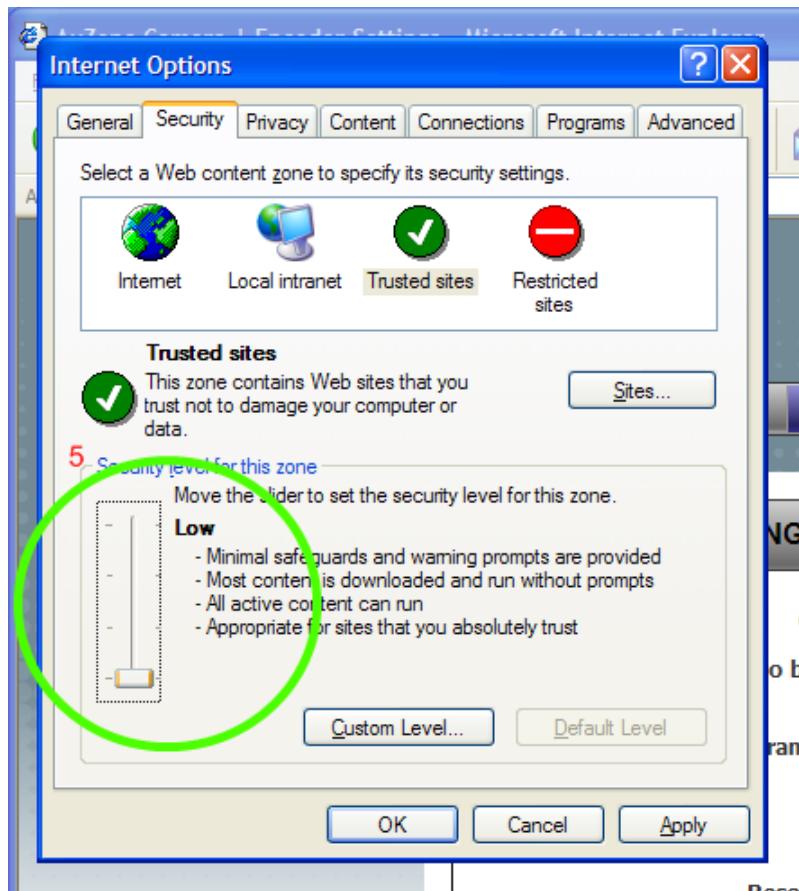


Figure 3. Required Sequence to Prepare Internet Explorer 6.0 or 7 (step 5)

When playing video, IE may popup with “Open File—Security Warning”. Unselect “Always ask before opening this file” and click Run.

Mozilla/Firefox or any other web browser will not be able to show the streaming video.

## 4.2 FFPLAY Video Client

This section explains how to set up the FFPlay video client.

### 4.2.1 Installing from the camera web server page

1. Open Internet Explorer and connect to the camera web server at <http://192.168.1.254> or the configured IP address for the camera on your network.
2. From the main page click on the link to download ffplay (“GET FFPLAY”).
3. When installing the program save it to the “C:\Program Files\ffmpeg” directory (if it does not exist, create the ffmpeg directory).
4. Open Windows Explorer and navigate to “C:\Program Files\ffmpeg”.
5. Right-click on ffmpeg.zip
6. Select “Extract All” and ok the defaults. This will unzip the necessary files

## 4.2.2 Installing using WinZip

1. Open ffmpeg.zip with WinZip
2. Click “Extract”
3. Change the destination directory to “C:\Program Files\ffmpeg”
4. Click “Ok”

The “ffplay.exe” program **must** exist in “C:\Program Files\ffmpeg\bin\” otherwise the video streaming will not work.

## 4.3 Starting Video Stream

After web and video server have started on the camera platform, you should be able to connect to the device using Internet Explorer. Only one connection to the video server at a time is currently allowed.

The default IP address for the wired interface will be 192.168.1.254. You will need to change your Windows network settings to be able to access it if your subnet is different.

Once you have accessed and changed the network settings on the device to match your network, you will be able to access the web pages at `http://<DEVICE IP ADDRESS>`. Once that is loaded, click the “Play Video” link. If you have set up Windows and Internet Explorer as described above, the video will start playing shortly in a separate window.

## 4.4 Changing the Camera IP address using Terminal

If the Cameras Subnet mask is not appropriate, it can be changed using a terminal window and the RS-232 cable.

1. Open Hyper-terminal or similar terminal program and connect using 8-N-1, 115200 connection with no Flow Control.
2. Reset the camera, and the boot messages should appear in the terminal window.
3. Once the unit has completed booting and the `mx27#` prompt appears, use the following command to change the IP address of the camera:  
`ifconfig eth0 <IP address>`
4. The IP address will be changed until the next reset. The IP address changes can be made permanent using the System Settings page of the camera.

## 5 Revision History

Table 3 provides a revision history for this template.

**Table 3. Document Revision History**

Rev. Number	Date	Substantive Change(s)
0	04/2008	Initial release
1	8/2008	Added Section 1.2, "CD-ROM Contents." Removed WIFI support from Section 3, "Setting up Camera Software" and Section 4, "Preparing Windows® to View Video Stream." Updated Section 4.1, "Internet Explorer 6.0 or 7."

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