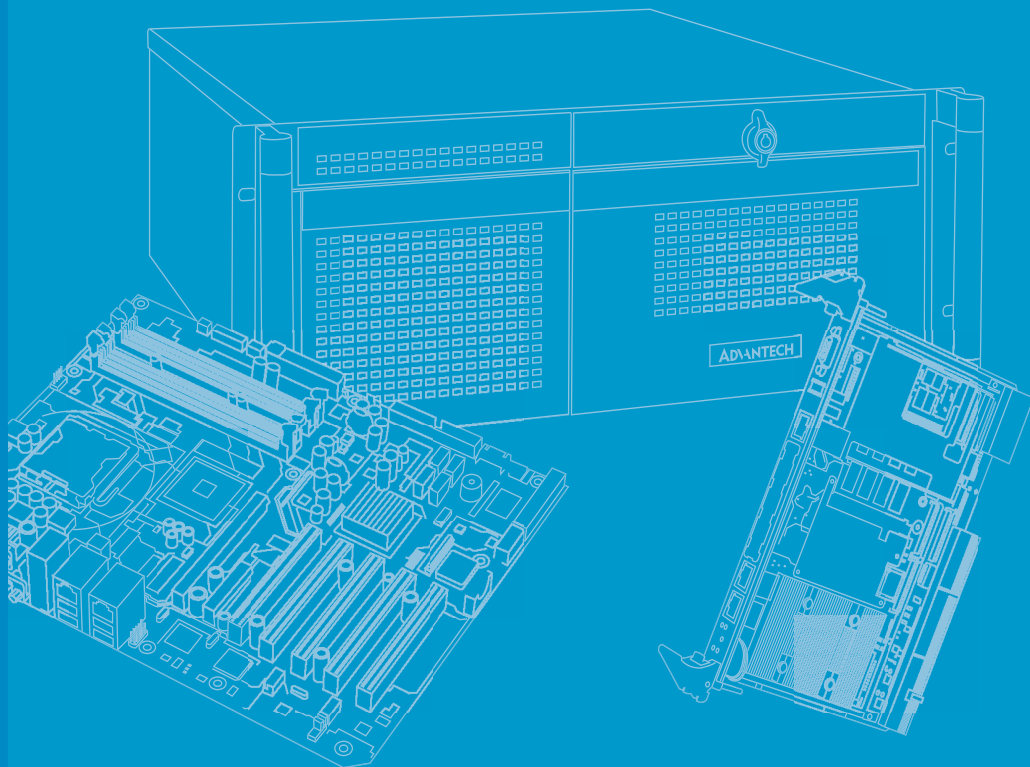


User Manual



# DSP-8664

## Demo Quick Start Guide

**ADVANTECH**

*Enabling an Intelligent Planet*

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## Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

# Declaration of Conformity

## CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

## CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

## FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## FM

This equipment has passed the FM certification. According to the National Fire Protection Association, work sites are classified into different classes, divisions and groups, based on hazard considerations. This equipment is compliant with the specifications of Class I, Division 2, Groups A, B, C and D indoor hazards.

# Technical Support and Assistance

1. Visit the Advantech web site at [www.advantech.com/support](http://www.advantech.com/support) where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
  - Product name and serial number
  - Description of your peripheral attachments
  - Description of your software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wording of any error messages

# Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
15. The power cord or plug is damaged.
16. Liquid has penetrated into the equipment.
17. The equipment has been exposed to moisture.
18. The equipment does not work well, or you cannot get it to work according to the user's manual.
19. The equipment has been dropped and damaged.
20. The equipment has obvious signs of breakage.
21. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**
22. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**
23. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

## Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.





# Contents

<b>Chapter 1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Introduction .....	2
<b>Chapter 2</b>	<b>Running PC Demo .....</b>	<b>3</b>
2.1	DSP-8664 Hardware Settings .....	4
2.2	Boot From Customized Ubuntu disc .....	5
2.3	PCIe card status check .....	5
2.4	Run Demonstration .....	6
2.5	RTSP Demonstration .....	8





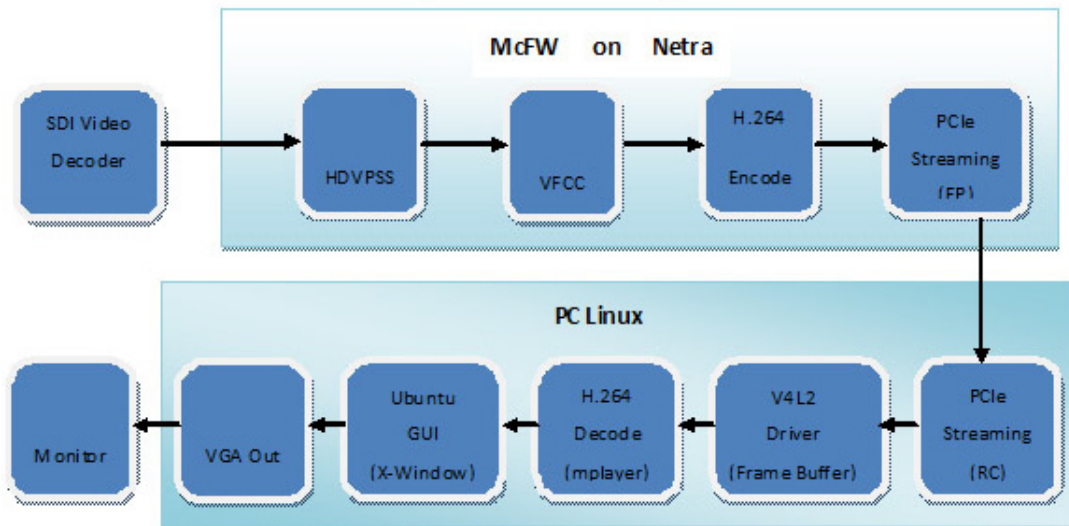
# Chapter 1

Introduction

## 1.1 Introduction

This document describes how to set up the software demonstration for DSP-8664 board. It will show you how to use the hardware and run the demo software. The release package includes Ubuntu 14.04.1 LTS Customized ISO image with DSP-8664 Linux driver. The guide details the steps to setup the hardware and run the demo. Please follow the steps in sequence to get the demonstration working on your PC platform.

### Data path for Software Demo Code (Video Data)



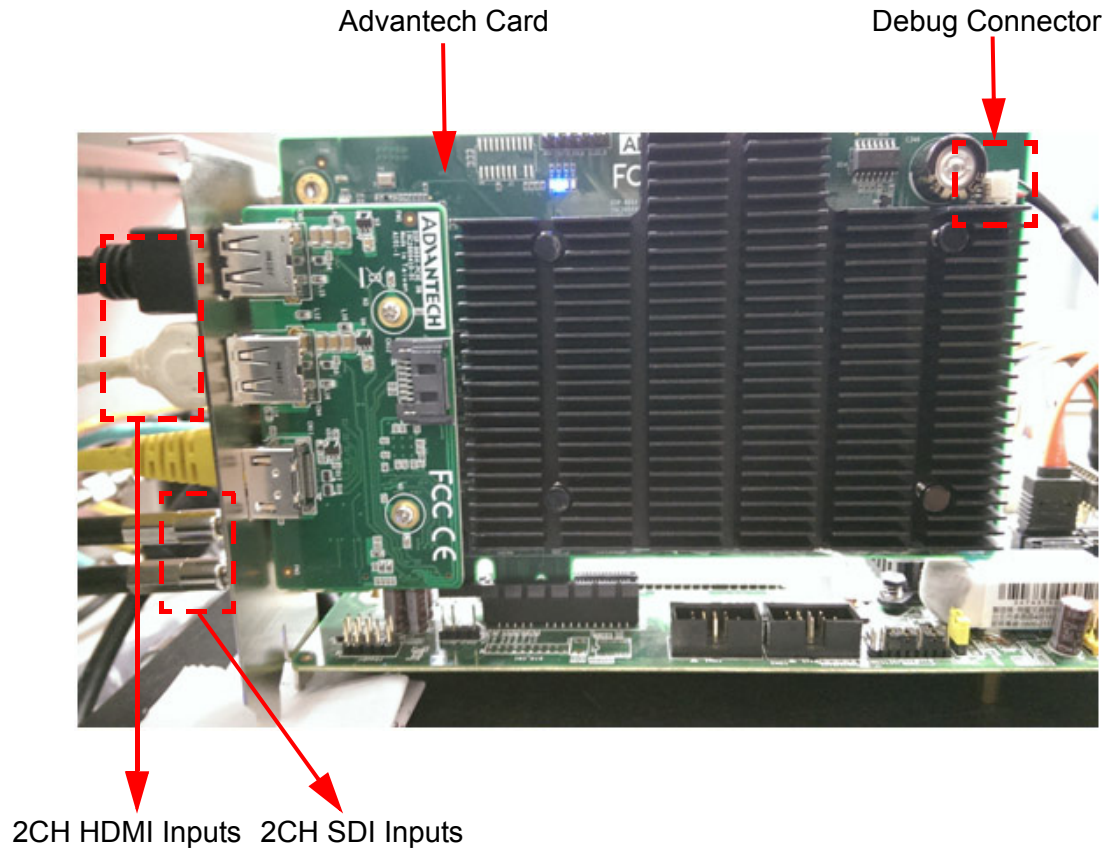
# Chapter 2

Running PC Demo

## 2.1 DSP-8664 Hardware Settings

The required peripherals on PCIE card for software demonstration include:

1. Connect to input source you want.
2. Debug board for UART message and JTAG function. (optional)
3. COM port cable (or USB-to-COM cable, optional)
4. Insert Advantech card into your PC PCIE slot and ready for boot, as shown in below.



## 2.2 Boot From Customized Ubuntu disc

We supply a DVD disc contained a customized Ubuntu OS environment. Set the PC to boot from DVD disc we supplied and chose “Try Ubuntu without installing” in the boot menu. Demo will run on this OS and the pre-built Advantech card Linux driver will be loaded after booting into Ubuntu.

## 2.3 PCIe card status check

Before running the demonstration, you could use the following command in Terminal to check the installation. The PCI utility will show the information for this card and the driver in use.

```
$ sudo lspci -v -d :b800
```

```
01:00.0 Multimedia video controller: Texas Instruments Device b800 (rev 01)
```

```
Subsystem: Advantech Co. Ltd Device 8662
```

```
Flags: bus master, fast devsel, latency 0, IRQ 16
```

```
Memory at c1400000 (32-bit, non-prefetchable) [size=4K]
```

```
Memory at c0000000 (32-bit, prefetchable) [size=8M]
```

```
Memory at c0800000 (32-bit, prefetchable) [size=8M]
```

```
Memory at c1002000 (32-bit, prefetchable) [size=4K]
```

```
Memory at c1000000 (32-bit, prefetchable) [size=8K]
```

```
Capabilities: [40] Power Management version 3
```

```
Capabilities: [50] MSI: Enable- Count=1/1 Maskable- 64bit+
```

```
Capabilities: [70] Express Endpoint, MSI 00
```

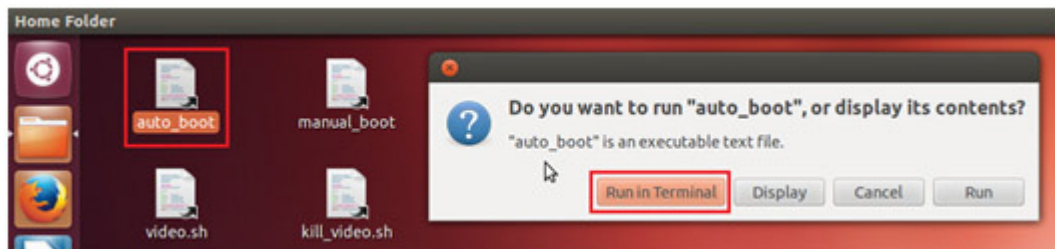
```
Capabilities: [100] Advanced Error Reporting
```

```
Kernel driver in use: ti81xx
```

```
Kernel modules: ti816x_pcie
```

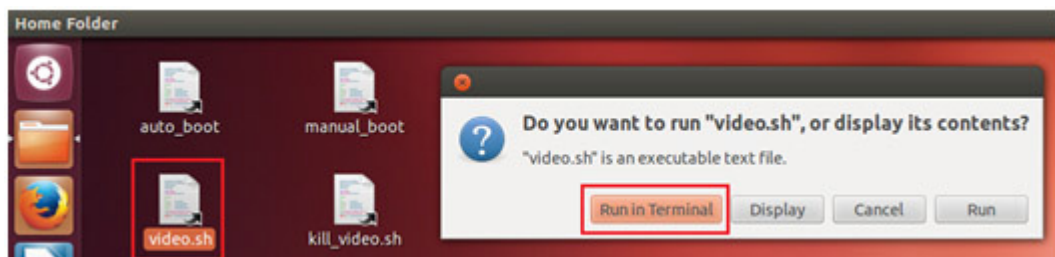
## 2.4 Run Demonstration

After booting into Ubuntu, double-click **auto\_boot** in desktop and chose “Run in Terminal”. Enter “3” to select board model for the DSP-8664. It might take 20 seconds to wait on-board firmware running.



```
Terminal
=====
1) DSPC8661
2) DSPC8662
3) DSPC8664
Select Board Model: 3
Board Model: DSPC8664
device = /dev/ti81xx/ti816x-0
u-boot = u-boot.bin
script = boot_ramfs.scr
kernel = uImage_DM816X
filesystem = randisk.gz
Device "/dev/ti81xx/ti816x-0" opened
boot_ramfs.scr file opened
Size of boot_ramfs.scr file = 484, offset 0
padding extra 28 bytes
484 bytes read from file boot_ramfs.scr
===== booting /dev/ti81xx/ti816x-0 =====
u-boot.bin file opened
Size of u-boot.bin file = 216140, offset 0
padding extra 436 bytes
216140 bytes read from file u-boot.bin
```

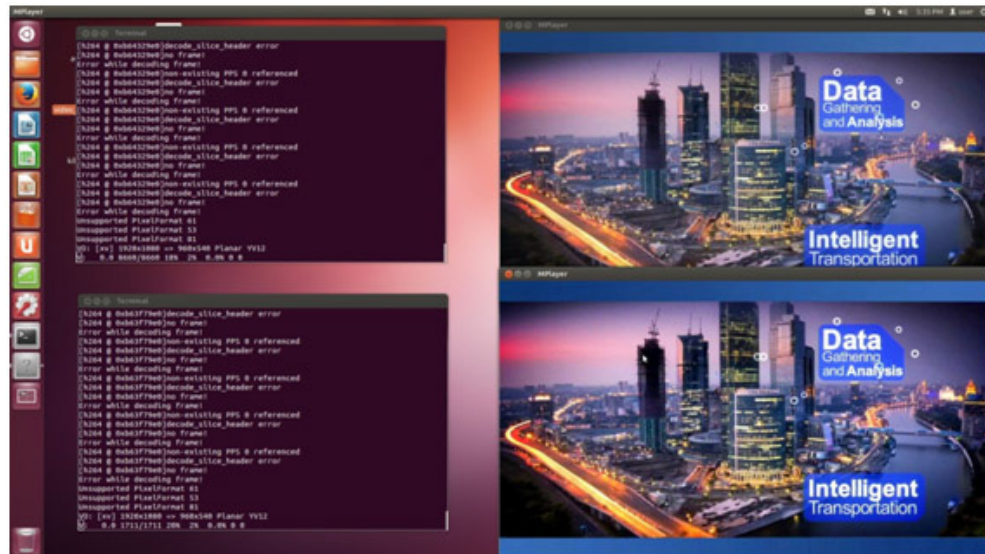
Then double-click **video.sh** in desktop and chose “Run in Terminal” to start demo.





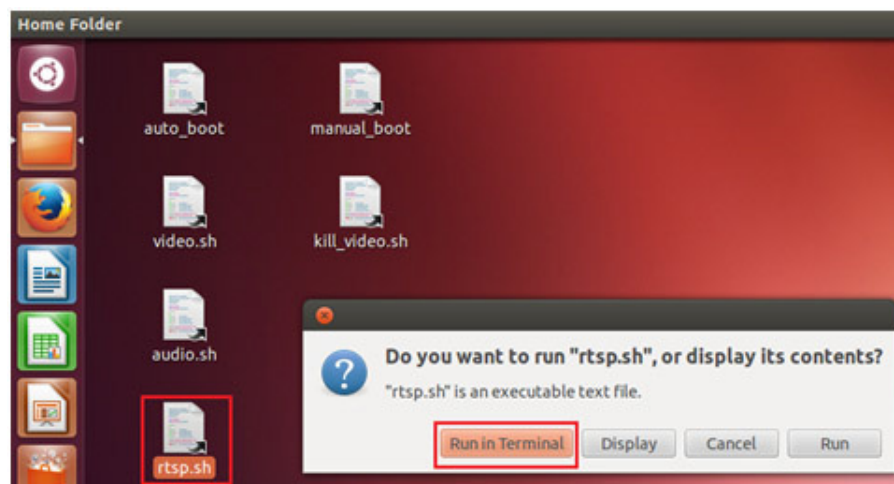


Multiple mplayer windows will pop-out.



## 2.5 RTSP Demonstration

Double-click rtsp.sh in desktop and chose “Run in Terminal” to start rtsp demo.



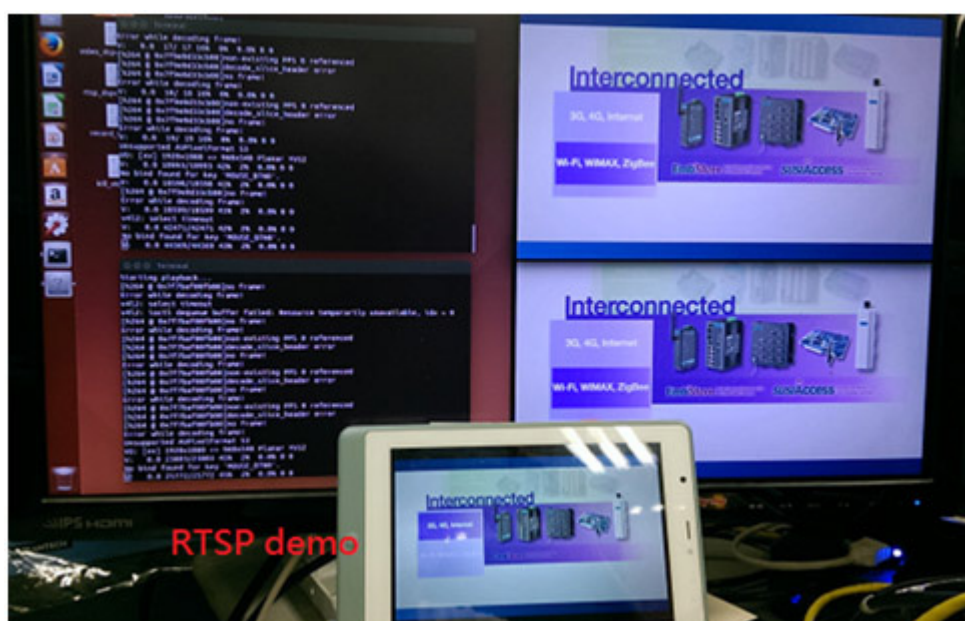


User should select DHCP or STATIC mode to set network IP. After setting the device network IP, users can connect the rtsp address to display video.

```

=====
1) DHCP
2) STATIC
Select Network Mode: 1
Network Mode: DHCP
Please input total chip number:
[(1 for DSPC-8664)/(4 for DSPC-8662)]
1
Device "/dev/ti81xx/ti816x-0" opened
Enter board shell mode:
udhpcp, (6)
udhpcp (v1.19.4) started
Sending discover...
Sending select for 172.17.14.119...
Lease of 172.17.14.119 obtained, lease time 691200
deleting routers
adding dns 172.17.1.247
adding dns 172.20.1.100
adding dns 172.20.1.99
Device "/dev/ti81xx/ti816x-0" opened
You could connect rtsp by using those address:
=====
Device "/dev/ti81xx/ti816x-0" opened
rtsp://172.17.14.119:8554/video0
rtsp://172.17.14.119:8554/video1
=====
press any key to exit

```





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