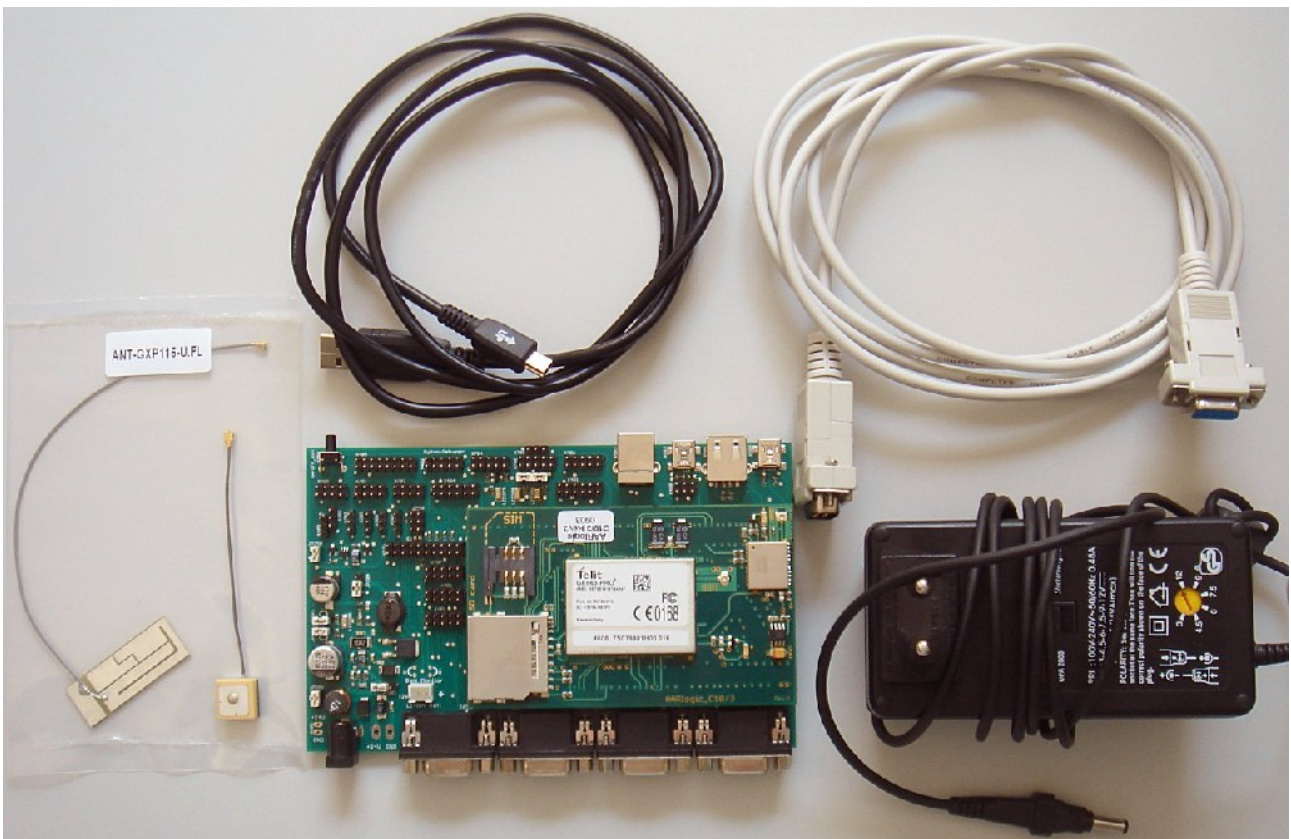


# AarLogic C10/3 & GE863-PRO<sup>3</sup> Linux Step by Step Guide

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## 1 Why work through this guide:

1. Test the basic functionality of your AarLogic C10/3 and the Linux
2. You will be able to
  - Upgrade to Round Solutions Linux (comes with several demo applications & Web interface)
  - Set up an USB/IP link to your computer
  - Download files to the Linux system
  - Recover the Telit Linux

## 2 You will need for this Guide:

- AarLogic C10/3
- S4 Basis board
- USB cable (Type A to Mini B)
- Power supply (6..32V)
- RS232 cable (or the RS232/USB adapter from the Starter Kit)
- PC with RS232 interface, MS-Windows, Web browser
- **Completely disabled firewall on your testing PC for USB/IP link**  
(try "Net stop sharedaccess" at you Windows command prompt)
- Round Solutions Linux image files  
(Please send an email to RS team for FTP login data)
- STK S4 manual
- SD-Card or MMC-Card & Card reader for your PC

## 3 First Steps

1. Set Jumpers on the RS-EB-S4 as described in the STK S4 manual
2. Plug the AarLogic C10/3 onto the S4 like shown on the photo (compare position of SIM holder)
3. Connect the Power Supply
4. Connect the X300 with the RS232 of your PC
  1. Start terminal software (for example RS-Term)
  2. Open connection
  3. Type AT (you should receive a „OK“)

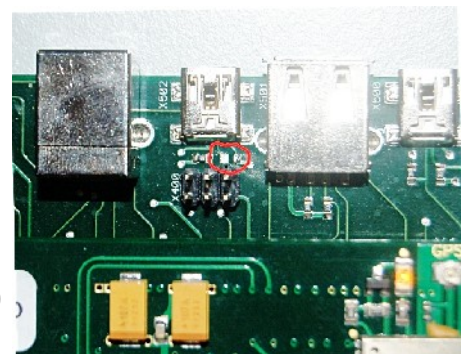
5. Plug the RS232 cable and connect it with X650 (the Linux debug port)
  1. Type „uname -r“ (you will receive the used Linux kernel version, for example: „2.6.24-rc5-rt1“)
  2. type „reboot“ (you will see a complete reboot of Linux)
  3. type „poweroff“ → Linux will shutdown now.  
Before powering off Linux should be always shut down this way

## 4 Preparing Windows PC for USB/IP Link

1. **Important:** Disable completely the firewall of your PC. If your PC is part of a corporate network please contact your network administrator or use an network independent computer.  
„Net stop sharedaccess“ might help for your current Windows session
2. Setup the USB/IP Link on the Linux side first
3. Startup AarLogic C10/3 and connect the USB ports (PC and C10/3)
4. The driver for the new hardware is „linux.inf“ (For more detailed description please look into the Development Environment User Guide, page 28ff)
5. Configure the new network interface with a IP address within the same subnet like AarLogic C10/3.

## 5 Using USB IP Link

1. Check revision of S4 Board (lower left corner on the bottom side: for example „Rev.3“)
  - If revision  $\geq 3$  → everything is fine, nothing to do
  - If revision  $< 3$ : Please remove resistor R408 (see Image on the right)
2. Start up the AarLogic C10/3 (see First Steps) and connect X650 to your PC and wait until Linux has completely booted
3. Type „modprobe g\_ether“ (Loading the module for USB-IP-Link)
4. Type „ifconfig usb0 192.168.1.3 netmask 255.255.255.0“ (Setting up IP-Address and netmask for the USB/IP link. The IP-address can be altered to your needs)



## 6 Using Ethernet Debugging Adapter

1. Plug the Ethernet adapter onto connectors X705 and X706.
2. Plug in the Ethernet cable
3. The standard IP address is 192.168.1.1, it can be changed with the command `"ifconfig eth0 <your favourite IP>"`
4. Type the IP address into your browser and you will see the web interface

## 7 Downloading files to the AarLogic C10/3

- Using USB/IP Link or Ethernet IP Link
- Using Mass storage devices (USB stick, flash card etc.)
- Using serial interface

## 8 Installing Round Solutions Linux

The Linux version customised by Round Solutions offers several sample applications as well as a easy to use web interface for configuration.

1. Connect X650 with you PC and open a terminal connection (using Putty, Hyperterminal, RS-Term, etc.)
2. Power on the S4/C10 combo (C10/3 plugged onto the S4 board)
3. During a the boot process the message: „Hit any key to stop autoboot“ will appear. Then press any key to stop the auto boot process
4. **Caution!** Be very careful not to mistype any of the commands. *Please double check any input before pressing return.* Wrong commands can destroy the Linux interface of the AarLogic C10/3.
5. Loading the new Linux kernel file:
  1. Type: `„loady 0x20200000“`
  2. Send the „uImage.dat“ file using YModem protocol (for example with HyperTerminal: Menu Transfer → Send file → Ymodem protocol)
  3. After complete download you'll get his message (the number can be other then here depending on the version of the RS-Linux):  
`## Total Size = 0x0013dedc = 1302236 Bytes`
  4. Make sure that the red number in the following command is the *same like in the message above.*  
Type `„cp.b 0x20200000 0xd0021000 0x0013dedc“`, then press return
6. Loading file system:
  1. Type `„loady 0x20200000“`, then press return

2. Send the „mtdblock3.dat“ file using YModem protocol (for example with HyperTerminal: Menu Transfer → Send file → Ymodem protocol)
  3. After complete download you'll get his message (the number can be other then here depending on the version of the RS-Linux):  
## Total Size = **0x0027f1e0** = 2617824 Bytes
  4. Make sure that the red number in the following command is the *same like in the message above*.  
Then type `"cp.b 0x20200000 0xd01a0e20 0x0027f1e0"`, press return
7. Loading the new uBoot environment:
1. Type `"loady 0x20200000"`, then press return
  2. Send the „mtdblock1.dat“ file using YModem protocol (for example with HyperTerminal: Menu Transfer → Send file → Ymodem protocol)
  3. After complete download you'll get his message (the number can be other then here depending on the version of the RS-Linux):  
## Total Size = **0x00004200** = 16896 Bytes
  4. Type: `"protect off D001CE00 D0020FFF"`, then press return
  5. Make sure that the red number in the following command is the same like in the message at point 3.  
Then type `"cp.b 0x20200000 0xd001ce00 0x00004200"`, press return
  6. Type `"protect on D001CE00 D0020FFF"`, then press return
8. Type `"reset"` to start the new RS Linux

## 9 Using USB/IP-Link with RS-Linux

1. Load the kernel modules `"at91_udc.ko"` and `"g_ether.ko"`:
  1. `modprobe g_ether`
  2. `ifconfig usb0 <IP address>`  
You can reach the web interface trough this IP address

## 10 Webinterface for configuration

Using the RS Linux provides you a web interface for configuration. The standard IP address of the AarLogic C10/3 is 192.168.1.1. It can be changed using the command `"ifconfig"`. The webserver will the be found at the changed IP adress.

## 11 Getting USB camera working

1. Connect X650 with you PC and open a terminal connection (using Putty, Hyperterminal, RS-Term, etc.)
2. Power on the S4/C10 combo (C10/3 plugged onto the S4 board)
3. For security reasons the root file system is mounted read only

4. To get the camera working there must be a SD-card used. The card has to be plugged in before booting Linux. If no SD card is available the file system must be made write capable

Type: `"mount -o remount,rw /"`

**It's strongly recommended using a SD card:**

5. Setup the IP link using USB/IP link or the optional Ethernet debugging adapter
6. Please note: After attaching a new camera the first image taken is always black, the second photo shows the real snapshot
7. We made good experience with cameras by Logitech (we used Quickcam for Notebook). Please have a look at page 6 (Supported USB webcams)

## 12 How to get back the Telit Linux

This only a very short guide. For more detailed information please have a look into the Telit "GE863-PRO3 U-BOOT Software User Guide" (page 62)

1. Connect your PC via RS232 cable to port X650
2. Start Telit XFP tool (From this point the Telit Guide fully applies)
3. Select Linux image file
4. Press program
5. Power on the Starter Kit
6. Programming of the Telit Linux starts

## 13 Exhibits

### A) Supported USB webcams

```
Vendor ID Device ID Support Summary
{USB_DEVICE(0x0733, 0x0430)}, /* Intel PC Camera Pro */
{USB_DEVICE(0x0733, 0x0401)}, /* Intel Create and Share */
{USB_DEVICE(0x99FA, 0x8988)}, /* Grandtec V.cap */
{USB_DEVICE(0x0733, 0x0402)}, /* ViewQuest M318B */
{USB_DEVICE(0x0733, 0x0110)}, /* ViewQuest VQ110 */
{USB_DEVICE(0x040A, 0x0002)}, /* Kodak DVC325*/
{USB_DEVICE(0x055f, 0xc420)}, /* Mustek gSmart Mini 2 */
{USB_DEVICE(0x055f, 0xc520)}, /* Mustek gSmart Mini 3 */
{USB_DEVICE(0x041E, 0x400A)}, /* Creative PCCAM300 */
{USB_DEVICE(0x084D, 0x0003)}, /* DLinkDSC350*/
```

```
{USB_DEVICE(0x041E, 0x400B)}, /* Creative PCCAM600 */
{USB_DEVICE(0x8086, 0x0630)}, /* Intel Pocket PC Camera */
{USB_DEVICE(0x8086, 0x0110)}, /* Intel Easy PC Camera */
{USB_DEVICE(0x0506, 0x00df)}, /* 3Com HomeConnect Lite */
{USB_DEVICE(0x040a, 0x0300)}, /* Kodak EZ200 */
{USB_DEVICE(0x04fc, 0x504b)}, /* Maxell MaxPocket LE 1.3 */
{USB_DEVICE(0x08ca, 0x2008)}, /* Aiptek Mini PenCam 2 M */
{USB_DEVICE(0x08ca, 0x0104)}, /* Aiptek PocketDVII 1.3 */
{USB_DEVICE(0x08ca, 0x2018)}, /* Aiptek Pencam SD 2M */
{USB_DEVICE(0x04fc, 0x504a)}, /* Aiptek Mini PenCam 1.3 */
{USB_DEVICE(0x055f, 0xc530)}, /* Mustek Gsmart LCD 3 */
{USB_DEVICE(0x055f, 0xc650)}, /* Mustek MDC5500Z */
{USB_DEVICE(0x052b, 0x1513)}, /* Megapix V4 */
{USB_DEVICE(0x08ca, 0x0103)}, /* Aiptek PocketDV */
{USB_DEVICE(0x0af9, 0x0010)}, /* Hama USB Sightcam 100 */
{USB_DEVICE(0x1776, 0x501c)}, /* Arowana 300K CMOS Camera */
{USB_DEVICE(0x08ca, 0x0106)}, /* Aiptek Pocket DV3100+ */
{USB_DEVICE(0x08ca, 0x2010)}, /* Aiptek PocketCam 3M */
{USB_DEVICE(0x0458, 0x7004)}, /* Genius VideoCAM Express V2 */
{USB_DEVICE(0x04fc, 0x0561)}, /* Flexcam 100 */
{USB_DEVICE(0x055f, 0xc430)}, /* Mustek Gsmart LCD 2 */
{USB_DEVICE(0x04fc, 0xffff)}, /* Pure DigitalDakota */
{USB_DEVICE(0xabcd, 0xcdee)}, /* Petcam */
{USB_DEVICE(0x04a5, 0x3008)}, /* Benq DC 1500 */
{USB_DEVICE(0x046d, 0x0960)}, /* Logitech Inc. ClickSmart 420 */
{USB_DEVICE(0x046d, 0x0901)}, /* Logitech Inc. ClickSmart 510 */
{USB_DEVICE(0x04a5, 0x3003)}, /* Benq DC 1300 */
{USB_DEVICE(0x0af9, 0x0011)}, /* Hama USB Sightcam 100 */
{USB_DEVICE(0x055f, 0xc440)}, /* Mustek DV 3000 */
{USB_DEVICE(0x041e, 0x4013)}, /* Creative Pccam750 */
{USB_DEVICE(0x060b, 0xa001)}, /* Maxell Compact Pc PM3 */
{USB_DEVICE(0x04a5, 0x300a)}, /* Benq DC3410 */
{USB_DEVICE(0x04a5, 0x300c)}, /* Benq DC1016 */
{USB_DEVICE(0x0461, 0x0815)}, /* Micro Innovation IC200 */
{USB_DEVICE(0x046d, 0x0890)}, /* Logitech QuickCam traveler */
{USB_DEVICE(0x10fd, 0x7e50)}, /* FlyCam Usb 100 */
{USB_DEVICE(0x06e1, 0xa190)}, /* ADS Instant VCD */
{USB_DEVICE(0x055f, 0xc220)}, /* Gsmart Mini */
{USB_DEVICE(0x0733, 0x2211)}, /* Jenoptik jdc 21 LCD */
{USB_DEVICE(0x046d, 0x0900)}, /* Logitech Inc. ClickSmart 310 */
{USB_DEVICE(0x055f, 0xc360)}, /* Mustek DV4000 Mpeg4 */
{USB_DEVICE(0x08ca, 0x2024)}, /* Aiptek DV3500 Mpeg4 */
{USB_DEVICE(0x046d, 0x0905)}, /* Logitech ClickSmart820 */
{USB_DEVICE(0x05da, 0x1018)}, /* Digital Dream Enigma 1.3 */
{USB_DEVICE(0x0c45, 0x6025)}, /* Xcam Shanga */
{USB_DEVICE(0x0733, 0x1311)}, /* Digital Dream Epsilon 1.3 */
{USB_DEVICE(0x041e, 0x401d)}, /* Creative Webcam NX ULTRA */
{USB_DEVICE(0x08ca, 0x2016)}, /* Aiptek PocketCam 2 Mega */
{USB_DEVICE(0x0734, 0x043b)}, /* 3DeMon USB Capture aka */
{USB_DEVICE(0x041E, 0x4018)}, /* Creative Webcam Vista (PD1100) */
{USB_DEVICE(0x0546, 0x3273)}, /* Polaroid PDC2030 */
{USB_DEVICE(0x041e, 0x401f)}, /* Creative Webcam Notebook PD1171 */
{USB_DEVICE(0x041e, 0x4017)}, /* Creative Webcam Mobile PD1090 */
{USB_DEVICE(0x046d, 0x08a2)}, /* Labtec Webcam Pro */
{USB_DEVICE(0x055f, 0xd003)}, /* Mustek WCam300A */
{USB_DEVICE(0x0458, 0x7007)}, /* Genius VideoCam V2 */
{USB_DEVICE(0x0458, 0x700c)}, /* Genius VideoCam V3 */
{USB_DEVICE(0x0458, 0x700f)}, /* Genius VideoCam Web V2 */
{USB_DEVICE(0x041e, 0x401e)}, /* Creative Nx Pro */
{USB_DEVICE(0x0c45, 0x6029)}, /* spcaCam@150 */
{USB_DEVICE(0x0c45, 0x6009)}, /* spcaCam@120 */
{USB_DEVICE(0x0c45, 0x600d)}, /* spcaCam@120 */
{USB_DEVICE(0x04fc, 0x5330)}, /* Digitrex 2110 */
{USB_DEVICE(0x055f, 0xc540)}, /* Gsmart D30 */
{USB_DEVICE(0x0ac8, 0x301b)}, /* Asam Vimicro */
{USB_DEVICE(0x041e, 0x403a)}, /* Creative Nx Pro 2 */
{USB_DEVICE(0x055f, 0xc211)}, /* Kowa Bs888e Microcamera */
{USB_DEVICE(0x0ac8, 0x0302)}, /* Zstar Vimicro zc0302 */
{USB_DEVICE(0x0572, 0x0041)}, /* Creative Notebook cx11646 */
{USB_DEVICE(0x08ca, 0x2022)}, /* Aiptek Slim 3200 */
{USB_DEVICE(0x046d, 0x0921)}, /* Labtec Webcam */
{USB_DEVICE(0x046d, 0x0920)}, /* QC Express */
{USB_DEVICE(0x0923, 0x010f)}, /* ICM532 cams */
```

```

{USB_DEVICE(0x055f, 0xc200)}, /* Mustek Gsmart 300 */
{USB_DEVICE(0x0733, 0x2221)}, /* Mercury Digital Pro 3.1p */
{USB_DEVICE(0x041e, 0x4036)}, /* Creative Live ! */
{USB_DEVICE(0x055f, 0xc005)}, /* Mustek Wcam300A */
{USB_DEVICE(0x041E, 0x403b)}, /* Creative Webcam Vista (VF0010) */
{USB_DEVICE(0x0545, 0x8333)}, /* Veo Stingray */
{USB_DEVICE(0x0545, 0x808b)}, /* Veo Stingray */
{USB_DEVICE(0x10fd, 0x8050)}, /* Typhoon Webshot II USB 300k */
{USB_DEVICE(0x0546, 0x3155)}, /* Polaroid PDC3070 */
{USB_DEVICE(0x046d, 0x0928)}, /* Logitech QC Express Etch2 */
{USB_DEVICE(0x046d, 0x092a)}, /* Logitech QC for Notebook */
{USB_DEVICE(0x046d, 0x08a0)}, /* Logitech QC IM */
{USB_DEVICE(0x0461, 0x0a00)}, /* MicroInnovation WebCam320 */
{USB_DEVICE(0x08ca, 0x2028)}, /* Aiptek PocketCam4M */
{USB_DEVICE(0x08ca, 0x2042)}, /* Aiptek PocketDV5100 */
{USB_DEVICE(0x08ca, 0x2060)}, /* Aiptek PocketDV5300 */
{USB_DEVICE(0x04fc, 0x5360)}, /* Sunplus Generic */
{USB_DEVICE(0x046d, 0x08a1)}, /* Logitech QC IM 0x08A1 +sound */
{USB_DEVICE(0x046d, 0x08a3)}, /* Logitech QC Chat */
{USB_DEVICE(0x046d, 0x08b9)}, /* Logitech QC IM ??? */
{USB_DEVICE(0x046d, 0x0929)}, /* Labtec Webcam Elch2 */
{USB_DEVICE(0x10fd, 0x0128)}, /* Typhoon Webshot II USB 300k 0x0128 */
{USB_DEVICE(0x102c, 0x6151)}, /* Qcam Sangha CIF */
{USB_DEVICE(0x102c, 0x6251)}, /* Qcam xxxxxx VGA */
{USB_DEVICE(0x04fc, 0x7333)}, /* PalmPixDC85 */
{USB_DEVICE(0x06be, 0x0800)}, /* Optimedia */
{USB_DEVICE(0x0289, 0x012c)}, /* Toptro Industrial */
{USB_DEVICE(0x06bd, 0x0404)}, /* Agfa CL20 */
{USB_DEVICE(0x046d, 0x092c)}, /* Logitech QC chat Elch2 */
{USB_DEVICE(0x0c45, 0x607c)}, /* Sonix sn9cl02p Hv7131R */
{USB_DEVICE(0x0733, 0x3261)}, /* Concord 3045 spca536a */
{USB_DEVICE(0x0733, 0x1314)}, /* Mercury 2.1MEG Deluxe Classic Cam */
{USB_DEVICE(0x041e, 0x401c)}, /* Creative NX */
{USB_DEVICE(0x041e, 0x4034)}, /* Creative Instant P0620 */
{USB_DEVICE(0x041e, 0x4035)}, /* Creative Instant P0620D */
{USB_DEVICE(0x046d, 0x08ae)}, /* Logitech QuickCam for Notebooks */
{USB_DEVICE(0x055f, 0xd004)}, /* Mustek WCam300 AN */
{USB_DEVICE(0x046d, 0x092b)}, /* Labtec Webcam Plus */
{USB_DEVICE(0x0c45, 0x602e)}, /* Genius VideoCam Messenger */
{USB_DEVICE(0x0c45, 0x602c)}, /* Generic Sonix OV7630 */
{USB_DEVICE(0x093a, 0x050f)}, /* MarsSemiPcCamera*/
{USB_DEVICE(0x0458, 0x7006)}, /* Genius Dsc 1.3 Smart */
{USB_DEVICE(0x055f, 0xc630)}, /* Mustek MDC4000 */
{USB_DEVICE(0x046d, 0x08ad)}, /* Logitech QCCommunicate STX */
{USB_DEVICE(0x0c45, 0x602d)}, /* LIC200LG */
{USB_DEVICE(0x0c45, 0x6005)}, /* Sweex Tas5110 */
{USB_DEVICE(0x0c45, 0x613c)}, /* Sonix Pccam168 */
{USB_DEVICE(0x0c45, 0x6130)}, /* Sonix Pccam */
{USB_DEVICE(0x0c45, 0x60c0)}, /* Sangha Sn535 */
{USB_DEVICE(0x0c45, 0x60fc)}, /* LGLIC300*/
{USB_DEVICE(0x0546, 0x3191)}, /* Polaroid Ion 80 */
{USB_DEVICE(0x0ac8, 0x305b)}, /* Zstar Vimicro zc0305b */
{USB_DEVICE(0x0c45, 0x6028)}, /* Sonix Btc Pc380 */
{USB_DEVICE(0x046d, 0x08a9)}, /* Logitech Notebook Deluxe */
{USB_DEVICE(0x046d, 0x08aa)}, /* Labtec Webcam Notebook */
{USB_DEVICE(0x04f1, 0x1001)}, /* JVC GC A50 */
{USB_DEVICE(0x0497, 0xc001)}, /* Smile International */
{USB_DEVICE(0x041e, 0x4012)}, /* PCCam350*/
{USB_DEVICE(0x0ac8, 0x303b)}, /* Vimicro 0x303b */
{USB_DEVICE(0x093a, 0x2468)}, /* PAC207 */
{USB_DEVICE(0x093a, 0x2471)}, /* PAC207 Genius VideoCam ge111 */
{USB_DEVICE(0x093a, 0x2460)}, /* PAC207 Qtec Webcam 100 */
{USB_DEVICE(0x0733, 0x3281)}, /* Cyberpix S550V */
{USB_DEVICE(0x093a, 0x2470)}, /* Genius GF112 */
{USB_DEVICE(0x046d, 0x08a6)}, /* Logitech QCim */
{USB_DEVICE(0x08ca, 0x2020)}, /* Aiptek Slim 3000F */
{USB_DEVICE(0x0698, 0x2003)}, /* CTX M730V built in */
{USB_DEVICE(0x0c45, 0x6001)}, /* Genius VideoCAM NB */
{USB_DEVICE(0x041E, 0x4028)}, /* Creative Webcam Vista Plus */
{USB_DEVICE(0x0471, 0x0325)}, /* Philips SPC 200 NC */
{USB_DEVICE(0x0471, 0x0328)}, /* Philips SPC 700 NC */
{USB_DEVICE(0x0c45, 0x6040)}, /* Speed NVC 350K */
{USB_DEVICE(0x055f, 0xc230)}, /* Mustek Digicam 330K */

```

```
{USB_DEVICE(0x0c45, 0x6007)}, /* Sonix sn9c101 + Tas5110D */
{USB_DEVICE(0x0471, 0x0327)}, /* Philips SPC 600 NC */
{USB_DEVICE(0x0471, 0x0326)}, /* Philips SPC 300 NC */
{USB_DEVICE(0x0c45, 0x6019)}, /* Generic Sonix OV7630 */
{USB_DEVICE(0x0c45, 0x6024)}, /* Generic Sonix Tas5130c */
{USB_DEVICE(0x046d, 0x08a7)}, /* Logitech QuickCam Image */
{USB_DEVICE(0x04fc, 0x500c)}, /* Sunplus CA500C */
{USB_DEVICE(0x055f, 0xc232)}, /* Mustek MDC3500 */
{USB_DEVICE(0x046d, 0x08ac)}, /* Logitech QuickCam Cool*/
{USB_DEVICE(0x046d, 0x08d9)}, /* Logitech QuickCam IM/Connect */
{USB_DEVICE(0x046d, 0x08da)}, /* Logitech QuickCam Messenger */
{USB_DEVICE(0x0000, 0x0000)}, /* MystFromOri Unknow Camera */
```

This list represents those cameras that are specifically supported by the driver, and should work to some degree 'out of the box'.