

Table of Contents

XBMC Media Center with Jetway JNC98-525 and Atirc IR-receiver	3
Hardware and Software in detail	3
Hardware	3
Software	3
Install standard Hardware and XBMC	4
xbmc10	4
xbmc11	4
Installation of the IR-receiver	5
Pin assignment	5
Configuration of the IR-receiver	6
Get signals (Xubuntu xbmc11):	6
Configure lirc to load the right module	6
Configuring XBMC	10
Links	12

Last update:

23.03.2013 18:52 linux:xbmc_jetway_jnc98-525-lf_atric_ir https://www.eanderalx.org/linux/xbmc_jetway_jnc98-525-lf_atric_ir?rev=1364061149

XBMC Media Center with Jetway JNC98-525 and Atirc IR-receiver

I want to describe how I put together my home media PC. I will describe the software configuration in connection with the IR-receiver.

As software basis I've used XBMC. For remote control I've chosen the IR-recieve from atric. As hardware base I selected an board build by jetway (JNC98-525). It has HDMI and an NVIDIA ION2 Chipset.

Hardware and Software in detail

Hardware

Board

I bought [this](#) Board: **NC98-510-LF**

For the IR-Receiver we need a serial port on the board. This one has an serial port typ-9 (later this will be important).

CPU	Atom D525 1.80GHz
RAM	2x DDR2 up to 4GB
Video	NVIDIA ION2 GPU
Video Ports	HDMI, VGA, DVI
Serial	1 * COM header internal

IR-Receiver

The IR-receiver Rev. 5 by the german manufacturer [Atric](#).

This IR-receiver is available for various types of serial ports. You have to know which type your is. You have to buy 10 1-pin cables (reason later described according to problems with the IR-receiver).

IR-Control

I bought One-All-URC-7960 [here](#)

Software

[XBMC](#) with minimal Ubuntu. Installed from live System on an CF-Card.

Download: [here](#)

Install standard Hardware and XBMC

This shouldn't be a problem

But some annotation:

xbmc10

- My Monitor seems to hate mono mp3 so I convert these. Otherwise XBMC say that the audio device doesn't work.
 - Create “.asoundrc” in your home this should fix the problem if you had it.

[.asoundrc](#)

```
pcm.dmixer {
type dmix
ipc_key 1024
ipc_key_add_uid false
ipc_perm 0660
slave {
pcm "hw:1,3"
rate 48000
channels 2
period_time 0
period_size 1024
buffer_time 0
buffer_size 4096
}
}

pcm.!default {
type plug
slave.pcm "dmixer"
}
```

- The best to use HDMI audio output for me was to set:
 - Standard audio output to → standard
 - Digital output for pass-through → HDA NVidia hdmi

xbmc11

- Now I doen't get sound via HDMI. One friend find the solution.

[/etc/asound.conf](#)

```
pcm.!default {  
    type hw  
    card 1  
    device 3  
}
```

.asoundrc

```
pcm.!default {  
    type plug  
    slave {  
        pcm "hw:1,3"  
    }  
}
```

- Sound Settings in xbmc seems to be irrelevant.

Installation of the IR-receiver

Atric provide a very comprehensive manual ([German/English](#))

This Informations should help to connect the IR-Receiver to your board.

I have hit a board which make trouble. Power for the IR-board and train the power-on-signal was no problem (described in the manual).

But after I installed the IR-Receiver as described the media PC wasn't able to boot. Both LEDs turned on but nothing happen. This only when serial connected.

After some testing an some help from a colleague who has more experience with serial ports as I have we find the problem. responsible for the trouble was the first pin. This pin (DCD) is responsible for (Data) Carrier Detect ([Wikipedia](#)) and normally not essential for serial communication.

You can use the one-pin-cables which you can bought at the website of the IR-receiver. So the DCD-pin can be disconnected.

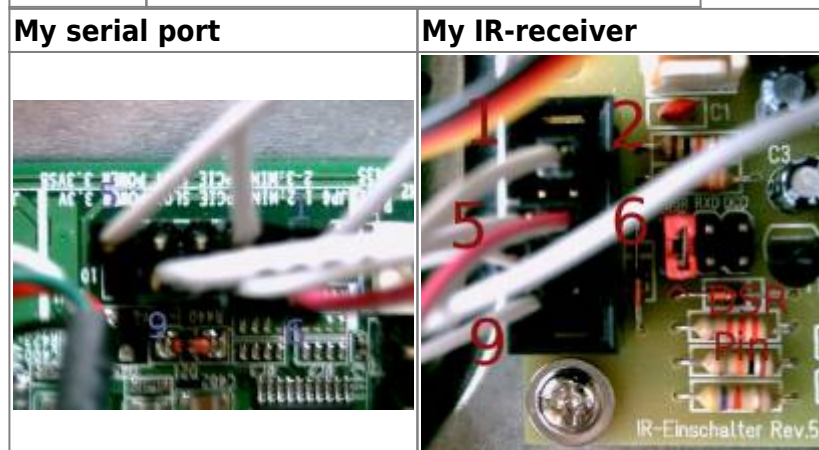
The IR-receiver will use this pin for transport the IR-signal. You have to change this by put the jumper to DSR as transport pin (lirc can be configured to use DSR pin to receive IR-signal).

Pin assignment

- The Pin assignment can be found in the manual of the IR-receiver and you mainboard ([here](#)).
- In the manual of the IR-receiver on page 13 and 15 you can find the pin assignment of the serial connector.
- In the manual of my mainboard the pin assignment of the serial port is located on page 15.
- Pleas be careful **the order of counting the pins is different !!!! Wrong connected pins can be destructive !!!**
- I don't take responsibility if you damage your Board please first read the manual's.

I connect:

IR-Board	Mainboard (counting type of Jetway)
Pin 1	not connected
Pin 2	Pin 2
Pin 5	Pin 5
Pin 6	Pin 6
Pin 7	Pin 7
Pin 9	Pin 9



Configuration of the IR-receiver

Get signals (Xubuntu xbmc11):

Lirc is installed when you use the live installation of XBMC. Now I had to configure it but the kernel-module used by lirc expect the IR-signal on the DCD-pin which was disconnected. So I had to change this. After some reaearch I find a solution. Inside the c-code of the kernel-module there is the data-pin set to DSR when a special hardware model is selected. You can give the type to modprobe when you load the module.

Previously you have to free the serial port.

Now test:

```
/etc/init.d/lirc stop  
modprobe -r lirc_mceusb  
setserial /dev/ttyS0 uart none  
modprobe -v lirc_serial type=1  
mode2 -d /dev/lirc1
```

Signals of your IR-Control should be appear as codes.

Configure lirc to load the right module

In `/etc/lirc/hardware.conf` you can configure which modules should be loaded when lircd starts here my version

[/etc/lirc/hardware.conf](#)

```
# /etc/lirc/hardware.conf
#
#Chosen Remote Control
REMOTE="Atrac rev.5 IR Receiver"
REMOTE_MODULES="lirc_serial"
REMOTE_DRIVER=""
REMOTE_DEVICE="/dev/lirc1"
REMOTE_LIRCD_CONF="urc/urc-7960.conf"
REMOTE_LIRCD_ARGS=""

Chosen IR Transmitter
TRANSMITTER="None"
TRANSMITTER_MODULES=""
TRANSMITTER_DRIVER=""
TRANSMITTER_DEVICE=""
TRANSMITTER_LIRCD_CONF=""
TRANSMITTER_LIRCD_ARGS=""

#Enable lircd
START_LIRCD="true"

#Don't start lircmd even if there seems to be a good config file
#START_LIRCMD="false"

#Try to load appropriate kernel modules
LOAD_MODULES="true"

# Default configuration files for your hardware if any
LIRCMD_CONF=""

#Forcing noninteractive reconfiguration
#If lirc is to be reconfigured by an external application
#that doesn't have a debconf frontend available, the noninteractive
#frontend can be invoked and set to parse REMOTE and TRANSMITTER
#It will then populate all other variables without any user input
#If you would like to configure lirc via standard methods, be sure
#to leave this set to "false"
FORCE_NONINTERACTIVE_RECONFIGURATION="false"
START_LIRCMD=""
REMOTE_SOCKET=""
TRANSMITTER_SOCKET=""
```

Create `/etc/modprobe.d/lirc.conf` with the following content

[lirc.conf](#)

```
install lirc_serial /bin/setserial /dev/ttyS0 uart none; /sbin/modprobe
--ignore-install lirc_serial type=1
```

Reboot, and if I doesn't forget to mention anything it should work and the right modules should be loaded. Repeat the test with "mode2".

Now lirc had to learn to interpret the signals of your ir-control The tool irrecord will help you. You only have to read and do what the program say. Or, if you had the same ir-control, you could use my config if you want.

```
/etc/init.d/lirc stop
irrecord --device=/dev/lirc0 urc-7960
```

After that you have a config file. Thats my (original by M. Hippert → used as template) :

[urc-7960.conf](#)

```
# Please make this file available to others
# by sending it to <lirc@bartelmus.de>
#
# this config file was automatically generated
# using lirc-0.8.6(default) on Sun Feb 13 11:48:28 2011
#
# contributed by AN original by M. Hippert
#
http://forum.team-mediaportal.com/fernbedienung-tastatur-ir-465/configfiles-fuer-girder-lirc-mit-oneforall-urc-7960-a-85801/
#
# Lirc Receiver: Atric
# model no. of remote control: ONE for ALL URC 7960 SmartControl
# devices being controlled by this remote: Code for stb: Technisat:
1195
#
# press and hold the magic-Key for 3 sec -> blue ring will light up 2x
# select "stb"
# enter code "1195" -> blue ring will light up 2x
#
# The keys PREVIEW, NEXT and "pop up X" failed
# The keys with same code
# Red & Rewind; Green & Stop; Yellow & Pause & Play; Blue & FastForward
& 16:9; -/-- & list; back & Key-between-ChannelUp-and-ChannelDown
#
# Chance Code this keys:
# * Press and hold the magic key for 3 sec. --> The Blue ring will
light up 2x
# * Press 9 9 4. --> The Blue ring will light up 2x
# * Press and release the magic key.
# * Enter the 5-digit magic-code
# * dann die zu lernende Taste drücken
# * Repeat all for the next key
#
#
# *** Magic-Code ***
```



```
# Die Tasten richtig fest druecken, ansonsten kann es vorkommen, dass
Tasten
# nicht angelernt werden obwohl der blaue Ring als Quittung blinkt
#
# Next      00240
# Preview   00627
# pop up X   00723
# Rewind 00560
# Stop      00243
# Pause     00720
# Play      00339
# FastForward 00563
# 16:9      00274
# list      00264
# back & Key-between-ChannelUp-and-ChannelDown -----> not changed
#
# brand:                                urc-7960
# model no. of remote control:
# devices being controlled by this remote:
#
```

```
begin remote
```

```
name    MyRemote
bits    13
flags   RC5|CONST_LENGTH
eps     30
aeps    100

one      927    838
zero     927    838
plead    934
gap      113492
toggle_bit_mask 0x800
```

```
begin codes
```

```
BTN_BACK      0x1232
KEY_STOP      0x1236
KEY_NEXT      0x122E
KEY_REWIND    0x122C
KEY_PLAY      0x1235
KEY_FASTFORWARD 0x1234
KEY_LIST      0x022F
KEY_PAUSE     0x1229
KEY_RECORD    0x1237
KEY_VOLUMEUP  0x1210
KEY_VOLUMEDOWN 0x1211
KEY_MUTE      0x120D
KEY_CHANNELUP 0x1220
KEY_CHANNELDOWN 0x1221
KEY_BACK      0x1222
```

```
KEY_OK 0x0217
BTN_RIGHT 0x0216
KEY_UP 0x0210
KEY_DOWN 0x0211
BTN_LEFT 0x0215
KEY_YELLOW 0x022D
KEY_RED 0x022B
KEY_GREEN 0x022C
KEY_BLUE 0x022E
KEY_INFO 0x020F
KEY_MENU 0x0212
KEY_TV2 0x122F
BTN_1 0x1201
BTN_2 0x1202
BTN_3 0x1203
BTN_4 0x1204
BTN_5 0x1205
BTN_6 0x1206
BTN_7 0x1207
BTN_8 0x1208
BTN_9 0x1209
BTN_0 0x1200
end codes
```

```
end remote
```

After including this into the `/etc/lirc/lircd.conf` and starting lirc you could see the translated commands with `irw`

[/etc/lirc/lircd.conf](#)

```
##urc-7960
include "/etc/lirc/urc-7960.conf"
```

```
/etc/init.d/lirc start
```

```
irw
```

Configuring XBMC

Create an "Lircmap.xml" in your xbmc-data home.

```
touch ~/.xbmc/userdata/Lircmap.xml
```

The Documentation can be found [here](#). After reboot XBMC should use the new file.

Here is my:

[Lircmap.xml](#)

```
<lircmap>
  <remote device="urc-7960">
    <start>KEY_SCREEN</start>
    <skipminus>KEY_BACK</skipminus>
    <stop>KEY_STOP</stop>
    <skipplus>KEY_NEXT</skipplus>
    <reverse>KEY_REWIND</reverse>
    <play>KEY_PLAY</play>
    <forward>KEY_FASTFORWARD</forward>
    <start>KEY_LIST</start>
    <pause>KEY_PAUSE</pause>
    <record>KEY_RECORD</record>
    <volumeplus>KEY_VOLUMEUP</volumeplus>
    <mute>KEY_MUTE</mute>
    <volumeminus>KEY_VOLUMEDOWN</volumeminus>
    <left>BTN_LEFT</left>
    <right>BTN_RIGHT</right>
    <up>KEY_UP</up>
    <down>KEY_DOWN</down>
    <select>KEY_OK</select>
    <pageplus>KEY_CHANNELUP</pageplus>
    <back>BTN_BACK</back>
    <pageminus>KEY_CHANNELDOWN</pageminus>
    <red>KEY_RED</red> <!-- HOME -->
    <myvideo>KEY_GREEN</myvideo>
    <mymusic>KEY_YELLOW</mymusic>
    <mypictures>KEY_BLUE</mypictures>
    <info>KEY_INFO</info>
    <title>KEY_MENU</title> <!-- CONTEX MENU -->
    <display>KEY_TV2</display> <!-- FULL SCREEN -->
    <mytv>KEY_MODE</mytv>
    <menu>KEY_ESC</menu>
    <back>BTN_BACK</back>
    <one>KEY_1</one>
    <two>KEY_2</two>
    <three>KEY_3</three>
    <four>KEY_4</four>
    <five>KEY_5</five>
    <six>KEY_6</six>
    <seven>KEY_7</seven>
    <eight>KEY_8</eight>
    <nine>KEY_9</nine>
    <power>BTN_EXTRA</power>
    <zero>KEY_0</zero>
  </remote>
</lircmap>
```

Perhaps you have to adapt the keymap for remote so that it fit to you wishes. The original is located in `"/usr/share/xbmc/system/keymaps/"`. You can copy it to `~/.xbmc/userdata/keymaps/` and edit it.

Have fun with the new remote-control.

Links

- <http://wiki.xbmc.org/index.php?title=Keymap.xml>
- <http://xbmc.org/>
- http://www.atric.de/IR-Einschalter/inc/mainboard_db.php

And special thanks to seichiro for his help.

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Last update: **23.03.2013 18:52**

