BlackGold Technology BGT3650: Linux driver validation

Check whether device is listed:

```
# lspci -tv
-[0000:00]-+-00.0  Advanced Micro Devices [AMD] RS880 Host Bridge
           +-01.0-[01]--+-05.0  Advanced Micro Devices [AMD] nee ATI RS880 [Radeon HD 4200]
           |            \-05.1  Advanced Micro Devices [AMD] nee ATI RS880 HDMI Audio [Radeon HD 4200 Series]
           +-04.0-[02-06]----00.0-[03-06]--+-01.0-[04]--
           |                               +-04.0-[05]----00.0  Philips Semiconductors SAA7231
           |                               \-05.0-[06]----00.0  Philips Semiconductors SAA7231
```

Check device details:

```
#lspci -vn
05:00.0 0480: 1131:7231 (rev aa)
    Subsystem: 14c7:3651
    Flags: bus master, fast devsel, latency 0, IRQ 5
    Memory at fc800000 (64-bit, non-prefetchable) [size=4M]
    Memory at fc400000 (64-bit, non-prefetchable) [size=4M]
    Capabilities: [40] MSI: Enable- Count=1/16 Maskable- 64bit+
    Capabilities: [50] Express Endpoint, MSI 00
    Capabilities: [74] Power Management version 3
    Capabilities: [7c] Vendor Specific Information: Len=84 <?>
    Capabilities: [100] Vendor Specific Information: ID=0000 Rev=0 Len=094 <?>

06:00.0 0480: 1131:7231 (rev aa)
    Subsystem: 14c7:3650
    Flags: bus master, fast devsel, latency 0, IRQ 11
    Memory at fc000000 (64-bit, non-prefetchable) [size=4M]
    Memory at fbc00000 (64-bit, non-prefetchable) [size=4M]
    Capabilities: [40] MSI: Enable- Count=1/16 Maskable- 64bit+
    Capabilities: [50] Express Endpoint, MSI 00
    Capabilities: [74] Power Management version 3
    Capabilities: [7c] Vendor Specific Information: Len=84 <?>
    Capabilities: [100] Vendor Specific Information: ID=0000 Rev=0 Len=094 <?>
```

Modules loaded, it looks thus with lsmod:

```
#lsmod
Module            Size  Used by
saa7231_drv       18624  0
saa7231_core      56962  1 saa7231_drv
s5h1411           18124  0
tda18271          40860  0
tda10048          18074  0
tda18272          17516  4
cxd2861           13153  0
cxd2817           21933  0
a8290             13025  0
cxd2850           22850  0
cxd2820r          22770  4
lnbp21            12790  0
stv6110x          13347  0
stv090x           52879  0
dvb_core          90328  4 cxd2817,cxd2850,saa7231_core,cxd2820r
```

Once modules are loaded, confirm device with lsdvb:

```
#lsdvb
        lsdvb: Simple utility to list PCI/PCIe DVB devices
        Version: 0.0.4
        Copyright (C) Manu Abraham

SAA7231 (1131:7231 14:3651) on PCI Domain:0 Bus:5 Device:0 Function:0
    DEVICE:0 ADAPTER:0 FRONTEND:0 (Sony CXD2820R)
        FE_OFDM Fmin=42MHz Fmax=870MHz
    DEVICE:0 ADAPTER:3 FRONTEND:0 (Sony CXD2820R)
        FE_OFDM Fmin=42MHz Fmax=870MHz
    DEVICE:0 ADAPTER:2 FRONTEND:0 (Sony CXD2820R)
        FE_OFDM Fmin=42MHz Fmax=870MHz
    DEVICE:0 ADAPTER:1 FRONTEND:0 (Sony CXD2820R)
        FE_OFDM Fmin=42MHz Fmax=870MHz
```

Try tuning with the device, tuning with tzap for DVB-T adapter0:

```
# tzap -a0 -f0 -c ~/test-apps/in-Kochi-T Tears6 -p -r
using '/dev/dvb/adapter0/frontend0' and '/dev/dvb/adapter0/demux0'
reading channels from file '/root/test-apps/in-Kochi-T'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal cdac | snr 008c | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal ceec | snr 011f | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter0:

```
# mplayer /dev/dvb/adapter0/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter0/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T2 adapter0:

```
#tzap -a0 -f0 -c ~/test-apps/in-Kochi-T2 Tears -p -r
using '/dev/dvb/adapter0/frontend0' and '/dev/dvb/adapter0/demux0'
reading channels from file '/root/test-apps/in-Kochi-T2'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal ffff | snr 00f2 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal ffff | snr 00f2 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter0:

```
# mplayer /dev/dvb/adapter0/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter0/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with czap for DVB-C adapter0:

```
# czap -a0 -f0 -c ~/test-apps/in-Kochi-C Tears -p -r
using '/dev/dvb/adapter0/frontend0' and '/dev/dvb/adapter0/demux0'
reading channels from file '/root/test-apps/in-Kochi-C'
 3 Tears:474000000:INVERSION_AUTO:6875000:FEC_NONE:QAM_256:68:69:1
 3 Tears: f 474000000, s 6875000, i 2, fec 0, qam 5, v 0x44, a 0x45, s 0x1
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
status 1f | signal ffff | snr 0189 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal e952 | snr 0181 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter0:

```
# mplayer /dev/dvb/adapter0/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter0/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T adapter1:

```
# tzap -a1 -f0 -c ~/test-apps/in-Kochi-T Tears6 -p -r
using '/dev/dvb/adapter1/frontend0' and '/dev/dvb/adapter1/demux0'
reading channels from file '/root/test-apps/in-Kochi-T'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal cbab | snr 009f | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal ffff | snr 0110 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter1:

```
# mplayer /dev/dvb/adapter1/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter1/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T2 adapter1:

```
# tzap -a1 -f0 -c ~/test-apps/in-Kochi-T2 Tears -p -r
using '/dev/dvb/adapter1/frontend0' and '/dev/dvb/adapter1/demux0'
reading channels from file '/root/test-apps/in-Kochi-T2'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal d09c | snr 00ee | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal d08c | snr 00ee | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter1:

```
# mplayer /dev/dvb/adapter1/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter1/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
```

Try tuning with the device, tuning with czap for DVB-C adapter1:

```
# czap -a1 -f0 -c ~/test-apps/in-Kochi-C Tears -p -r
using '/dev/dvb/adapter1/frontend0' and '/dev/dvb/adapter1/demux0'
reading channels from file '/root/test-apps/in-Kochi-C'
  3 Tears:474000000:INVERSION_AUTO:6875000:FEC_NONE:QAM_256:68:69:1
  3 Tears: f 474000000, s 6875000, i 2, fec 0, qam 5, v 0x44, a 0x45, s 0x1
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
status 1f | signal eb84 | snr 0154 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal eb84 | snr 0159 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter1:

```
# mplayer /dev/dvb/adapter1/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter1/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T adapter2:

```
# tzap -a2 -f0 -c ~/test-apps/in-Kochi-T Tears6 -p -r
using '/dev/dvb/adapter2/frontend0' and '/dev/dvb/adapter2/demux0'
reading channels from file '/root/test-apps/in-Kochi-T'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal ccdc | snr 0096 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal feae | snr 011b | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter2:

```
# mplayer /dev/dvb/adapter2/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter2/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T2 adapter2:

```
# tzap -a2 -f0 -c ~/test-apps/in-Kochi-T2 Tears -p -r
using '/dev/dvb/adapter2/frontend0' and '/dev/dvb/adapter2/demux0'
reading channels from file '/root/test-apps/in-Kochi-T2'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal ffff | snr 00f0 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal ffff | snr 00f1 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter2:

```
# mplayer /dev/dvb/adapter2/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter2/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with czap for DVB-C adapter2:

```
czap -a2 -f0 -c ~/test-apps/in-Kochi-C Tears -p -r
using '/dev/dvb/adapter2/frontend0' and '/dev/dvb/adapter2/demux0'
reading channels from file '/root/test-apps/in-Kochi-C'
  3 Tears:474000000:INVERSION_AUTO:6875000:FEC_NONE:QAM_256:68:69:1
  3 Tears: f 474000000, s 6875000, i 2, fec 0, qam 5, v 0x44, a 0x45, s 0x1
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
status 1f | signal e378 | snr 0167 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal e952 | snr 0167 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter2:

```
# mplayer /dev/dvb/adapter2/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter2/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T adapter3:

```
# tzap -a3 -f0 -c ~/test-apps/in-Kochi-T Tears6 -p -r
using '/dev/dvb/adapter3/frontend0' and '/dev/dvb/adapter3/demux0'
reading channels from file '/root/test-apps/in-Kochi-T'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal d37c | snr 00fa | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal ffff | snr 0111 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter3:

```
# mplayer /dev/dvb/adapter3/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter3/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with tzap for DVB-T2 adapter3:

```
# tzap -a3 -f0 -c ~/test-apps/in-Kochi-T2 Tears -p -r
using '/dev/dvb/adapter3/frontend0' and '/dev/dvb/adapter3/demux0'
reading channels from file '/root/test-apps/in-Kochi-T2'
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
tuning to 474000000 Hz
video pid 0x0044, audio pid 0x0045
status 1f | signal d22c | snr 00ee | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal d21c | snr 00ee | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter3:

```
# mplayer /dev/dvb/adapter3/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter3/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```

Try tuning with the device, tuning with czap for DVB-C adapter3:

```
czap -a3 -f0 -c ~/test-apps/in-Kochi-C Tears -p -r
using '/dev/dvb/adapter3/frontend0' and '/dev/dvb/adapter3/demux0'
reading channels from file '/root/test-apps/in-Kochi-C'
  3 Tears:474000000:INVERSION_AUTO:6875000:FEC_NONE:QAM_256:68:69:1
  3 Tears: f 474000000, s 6875000, i 2, fec 0, qam 5, v 0x44, a 0x45, s 0x1
Version: 5.10   FE_CAN { DVB-T + DVB-T2 + DVB-C (A) }
status 1f | signal f2d4 | snr 0159 | ber 00000000 | unc 00000000 | FE_HAS_LOCK
status 1f | signal f219 | snr 015e | ber 00000000 | unc 00000000 | FE_HAS_LOCK
```

Streaming the broadcast, using the dvr device for adapter3:

```
# mplayer /dev/dvb/adapter3/dvr0 -cache 8192
MPlayer svn r34540 (Ubuntu), built with gcc-4.7 (C) 2000-2012 MPlayer Team
mplayer: could not connect to socket
mplayer: No such file or directory
Failed to open LIRC support. You will not be able to use your remote control.

Playing /dev/dvb/adapter3/dvr0.
Cache fill: 19.53% (1638400 bytes)

libavformat version 53.21.1 (external)
Mismatching header version 53.19.0
TS file format detected.
```