

ハードウェアなしではじめる
GoogleTV hacking

- update 1 -



Japan Android Group

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אנדرويد



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kinnekoって誰？

- 今日の役割：

日本Androidの会: 運営委員/金沢支部長/組み込みWG
で部/つ部/横浜PF部

- 税務署的な職業：

サラリーマン/組み込みLinux製品企画開発

keyword:

Linux, iohack, Zope, bittorrent, KNOPPIX,™
LANTANK, GLANTANK, MAKAI, web.py,
CryptoNAS, FreeTANK, Chumby, Android

転職先募集中!

最近の活動

- 『初めてのAndroid 第3版』 監修チーム
- 日経Linux 2011年3月号 (2/8)
- ASCII technologies 2011年3月号 (2/24)
- 皆さん忙しいようなので、わたしのようなのにも執筆依頼が回ってきます。ライター不足は深刻。あなたもデビューのチャンス！
- でも、苦勞の割にむくわれないよ(^_^;

最近の活動

- 『初めてのAndroid 第3版』監修チーム



祝 増刷!

最近の活動

- 『日経Linux 2011年3月号』 2/8発売
 - 【特集1】
最新 Android 2.3 大解剖
 - Part4:
PC向け最新版
「Android 2.2」を
ネットブックで動かす



最近の活動

- 『ASCII technologies 2011年3月号』 2/24
 - 徹底解剖 Android 2.3&3.0
 - Part 2
ここが変わった！
Androidアプリケーション
開発環境構築法
 - Part 3
Gingerbreadで大きく変わった
Androidのフルシステム
ビルド環境を作る



最近の活動



最近の活動



最近の活動

- Pandaboardを入手したのですが、
まだ火が入れられていません... orz
- 日経Linuxの続きをやるので、
EeePC T91MT買いました。
進んでません... orz
- 速いビルドマシンがほしかったのですが、
まだ購入できていません...
- CloudFSとかに浮気してます... orz

A stylized television icon with a black outline and two antennae. The screen area contains a 2x3 grid of colored squares: yellow, green, blue in the top row, and green, blue, red in the bottom row.

GoogleTV知ってるよね？

Google TV™

A green Android robot head, partially visible, with its characteristic antennae and white eyes.



今年はGoogleTV来るでしょ！

Google TV™





今年はGoogleTV来るでしょ！

Google TV™



GoogleTV hackの状況

- Revueのhackが成功しているが、初期出荷版のみしか適用できない
- Revueそのものの出荷も停止状態
- フルビルド可能なソースコードもまだ公開されていない

Google TV™

The background of the slide features a large, faint watermark of the Google TV logo, which includes the word "Google" in its signature font, "TV" in a bold sans-serif font, and the Android robot icon to the right. The robot is green and white. The entire background is a dark grey gradient.

ハードウェアなしでhack?

- Revue FWをばらしてみる
- 動機?: PF部第六回勉強会で、@kishimaさんに先をこされたのでムラムラしたから(^^;
- VirtualBoxでGoogleTVってある程度動くんじゃないかと思ってテスト
- CE4100に最適化されているところがあるので、すんなり動くとは思っていない

ハードウェアなしでhack?

- どちらかということ、
動かない度あいの検証になりそう
- Atomじゃないから、
kernelまわりからしてダメかも
- フレームバッファあたりでコケる可能性？
- 商用ファームをバラして
適当にいくつか変更して
部分的にでも動けばバンザイな感じ

ハードウェアなしでhack?


- FWをバラして、それで起動できる環境にして、起動してみる。
- ダメなところをつぶしながら、kernel設定などを見直して場合によってはオリジナルのkernelをビルドしたりまではできればいいかな
- 今日はバラすところまで...

ハードウェアなしでhack?

- ネタはこのへんに書いたものの再利用
- <http://d.hatena.ne.jp/kinneko/20110219>

Google TV™

The text "Google TV™" is displayed in a large, light-colored font. To the right of the text is a stylized green Android robot head, which is part of the Google TV branding.

A stylized television set with a black frame and two black antennae. The screen area contains a 3x3 grid of colored squares: top row (olive, dark green, blue), middle row (dark green, blue, maroon), bottom row (maroon, olive, dark green).

ここからしばらくは、
前回@kishimaさんがやったところ

なのでざっと流します...

Google TV™

The Android robot logo, a green robot with two antennae, positioned at the bottom right of the slide.

OTAイメージの取得と展開

- アーカイブ先はこのへんに
 - http://www.gtvhacker.com/index.php/Logitech_Revue_Technical
- 一番新しそうな以下をもらって展開する
 - b42732 2.1-Update1 01-12-11
175MB

OTAイメージの取得と展開

```
# mkdir gtv  
# cd gtv  
# wget http://android.clients.google.com/  
packages/ota/logitech_ka/  
9504d579bade.mp-signed-ota_update-  
b42732.zip  
# unzip 9504d579bade.mp-signed-  
ota_update-b42732.zip
```

中身はこんな感じ...

```
root@debian:~/gtv# du ./ -h
252K ./META-INF/com/google/android
256K ./META-INF/com/google
260K ./META-INF/com
468K ./META-INF
20K ./system/etc/dhcpd/dhcpd-hooks
44K ./system/etc/dhcpd
68K ./system/etc/security
80K ./system/etc/permissions
12K ./system/etc/ppp
8.0K ./system/etc/wifi
24K ./system/etc/client_auth
976K ./system/etc
16K ./system/chrome/bin/extensions/gtv
20K ./system/chrome/bin/extensions
9.9M ./system/chrome/bin/locales
```

OTA用だけ？

設定の上書き？

chromeキモイ

96K ./system/chrome/bin/cacerts
92K ./system/chrome/bin/resources/net_internals
44K ./system/chrome/bin/resources/bookmark_manager/images
32K ./system/chrome/bin/resources/bookmark_manager/css
96K ./system/chrome/bin/resources/bookmark_manager/js/cr/ui
124K ./system/chrome/bin/resources/bookmark_manager/js/cr
32K ./system/chrome/bin/resources/bookmark_manager/js/bmm
188K ./system/chrome/bin/resources/bookmark_manager/js
320K ./system/chrome/bin/resources/bookmark_manager
984K ./system/chrome/bin/resources/inspector/Images
2.7M ./system/chrome/bin/resources/inspector
3.1M ./system/chrome/bin/resources
11M ./system/chrome/bin/plugins
64M ./system/chrome/bin
8.0K ./system/chrome/share/defoma/scripts
12K ./system/chrome/share/defoma
16K ./system/chrome/share
28K ./system/chrome/fonts
52K ./system/chrome/lib/libgtk2.0-0
1012K ./system/chrome/lib/nss

GTK2キモイ

208K ./system/chrome/lib/pango/1.6.0/modules
8.0K ./system/chrome/lib/pango/1.6.0/module-files.d
220K ./system/chrome/lib/pango/1.6.0
224K ./system/chrome/lib/pango
152K ./system/chrome/lib/gtk-2.0/2.10.0/immodules
216K ./system/chrome/lib/gtk-2.0/2.10.0/loaders
68K ./system/chrome/lib/gtk-2.0/2.10.0/engines
16K ./system/chrome/lib/gtk-2.0/2.10.0/loader-files.d
8.0K ./system/chrome/lib/gtk-2.0/2.10.0/immodule-files.d
100K ./system/chrome/lib/gtk-2.0/2.10.0/printbackends
564K ./system/chrome/lib/gtk-2.0/2.10.0
372K ./system/chrome/lib/gtk-2.0/modules
940K ./system/chrome/lib/gtk-2.0
15M ./system/chrome/lib
78M ./system/chrome
116K ./system/media/audio/ui
40K ./system/media/audio/notifications
160K ./system/media/audio
19M ./system/media
3.2M ./system/bin

pango: textのレイアウトと
レンダリングのフレームワーク



52K ./system/netflix/dist/etc/certs
92K ./system/netflix/dist/etc
52K ./system/netflix/dist/bin
14M ./system/netflix/dist/lib
14M ./system/netflix/dist
104K ./system/netflix/usr/local/qt/import/QtWebKit
56K ./system/netflix/usr/local/qt/import/Qt/labs/gestures
52K ./system/netflix/usr/local/qt/import/Qt/labs/folderlistmodel
112K ./system/netflix/usr/local/qt/import/Qt/labs/particles
224K ./system/netflix/usr/local/qt/import/Qt/labs
228K ./system/netflix/usr/local/qt/import/Qt
336K ./system/netflix/usr/local/qt/import
272K ./system/netflix/usr/local/qt/lib/fonts
52M ./system/netflix/usr/local/qt/lib
288K ./system/netflix/usr/local/qt/plugins/accessible
124K ./system/netflix/usr/local/qt/plugins/imageformats
40K ./system/netflix/usr/local/qt/plugins/kbdrivers
452K ./system/netflix/usr/local/qt/plugins/sqldrivers
48K ./system/netflix/usr/local/qt/plugins/iconengines
212K ./system/netflix/usr/local/qt/plugins/gfxdrivers

netflixはQtアプリ

Qtキモイ

68K ./system/netflix/usr/local/qtz/plugins/bearer
1.3M ./system/netflix/usr/local/qtz/plugins
54M ./system/netflix/usr/local/qtz
54M ./system/netflix/usr/local
54M ./system/netflix/usr
67M ./system/netflix
4.1M ./system/fonts
6.1M ./system/tts/lang_pico
6.1M ./system/tts
7.8M ./system/boot
24K ./system/lib/hw
664K ./system/lib/modules
136K ./system/lib/egl
118M ./system/lib
43M ./system/app
23M ./system/framework
212K ./system/usr/share/zoneinfo
40K ./system/usr/share/bmd
256K ./system/usr/share
20K ./system/usr/keychars



```
20K  ./system/usr/keylayout  
300K ./system/usr  
368M ./system  
384M ./
```



Google TV™



OTAイメージの取得と展開

- これはOTAなので、
全部入りというわけじゃないのかもしれない
- systemしか入っていないし
- 果たして、この状態から
動くものが再構成できるのかね？

Google TV™



OTAイメージの取得と展開

- このへんが、OTAの実体なんだろうな
 - META-INF/com/google/android/update-*
 - **update-binary, update-script, updater-script**
- update-binaryは実行ファイル
あとの2つはテキスト、なぜ2つ？
- スクリプトファイル読むと、OTAの勉強になりそうだけど、このへんはまた機会があったら

OTAイメージの取得と展開

- ~/gtv# cat ota.prop
- ro.ota.version=5
- ほう、何かバージョンのチェックに使っているのかな？
- だまからかしに使いそう

Google TV™



OTAイメージの取得と展開

```
~/gtv# cat system/build.prop
# begin build properties
# autogenerated by buildinfo.sh
ro.build.id=KA1X-20101215.164651
ro.build.display.id=KA1X-20101215.164651.user-b42732
ro.build.version.incremental=user-b42732
ro.build.version.sdk=7
ro.build.version.codename=REL
ro.build.version.release=2.1-update1
ro.build.date=Wed Dec 15 16:47:55 MST 2010
ro.build.date.utc=1292456875
ro.build.type=user
ro.build.user=parabuild
ro.build.host=vdc01b01ubuntu05
ro.build.tags=test-keys
```

```
ro.product.model=Revue
ro.product.brand=logitech
ro.product.name=ka
ro.product.device=ka
ro.product.board=
ro.product.cpu.abi=i386
ro.product.manufacturer=logitech
ro.product.locale.language=en
ro.product.locale.region=US
ro.wifi.channels=
ro.board.platform=
# ro.build.product is obsolete; use ro.product.device
ro.build.product=ka
# Do not try to parse ro.build.description or .fingerprint
ro.build.description=ka-user 2.1-update1 KA1X-20101215.164651 user-
b42732 release-keys
ro.build.fingerprint=logitech/ka/ka/:2.1-update1 /
KA1X-20101215.164651/user-b42732:user/release-keys
# end build properties
# begin system.prop for fishtank
```




```
ro.config.sync = yes
app.setupwizard.disable=1
keyguard.no_require_sim=1
net.ethernetdev=eth0
wifi.interface=ath0
ro.checkin.onboot=1
net.wifi.driver_unloadable=0
```

```
# The lease length for addresses supplied by the DHCP server if the
private
# network is enabled.
net.privatenet.leaselength=86400
```

```
# GTV has a large screen and plenty of RAM, so enlarge the Dalvik heap
# 48m for 1080 output.
dalvik.vm.heapsize=48m
```

```
# end system.prop for fishtank
```

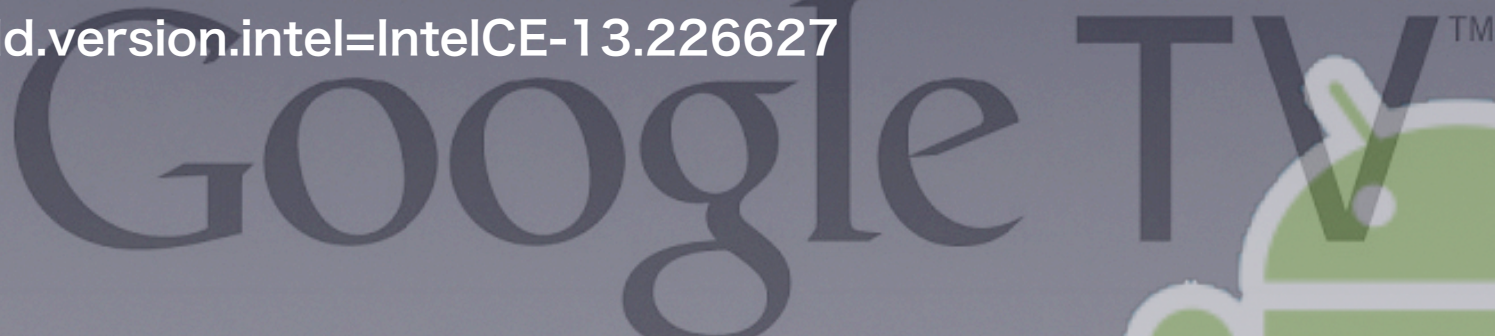
```
#
```


Google TV™

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```
# ADDITIONAL_BUILD_PROPERTIES
#
ro.com.android.wifi-watchlist=GoogleGuest
ro.config.notification_sound=Default.ogg
ro.error.receiver.system.apps=com.google.android.feedback
ro.setupwizard.enterprise_mode=1
ro.com.android.dateformat=MM-dd-yyyy
ro.url.legal=http://www.google.com/intl/%s/mobile/android/basic/phone-legal.html
ro.url.legal.android_privacy=http://www.google.com/intl/%s/mobile/android/basic/privacy.html
ro.googletv=yes
net.bt.name=Android
ro.config.sync=yes
dalvik.vm.stack-trace-file=/data/anr/traces.txt
ro.build.version.intel=IntelCE-13.226627
```

Google TV™

The image shows the Google TV logo, which consists of the word "Google" in its signature font, followed by "TV" in a bold, sans-serif font. A small "TM" trademark symbol is positioned to the right of "TV". Below the text, a stylized green Android robot head is visible, partially obscured by the "TV" text.



ここまでくらはいは、
前回@kishimaさんがやったところ

Google TV™



OTAイメージの取得と展開

- このへんが起動関連か
- ~/gtv# ls -lh **system/boot/***
- **kernel 2.0M**
- **recovery.img 4.8M**
- **splash.bmp 1013K**
- recovery.img小さいなあ
全部は行ってなさそうな感じ～

kernelの処理

- ~/gtv# file system/boot/*
 - system/boot/kernel: data
 - system/boot/recovery.img: data
 - system/boot/splash.bmp: PC bitmap, Windows 3.x format, 720 x 480 x 24
- kernelもrecover.imgも生ではなさそう
- 何かbootloader用ヘッダが付いている？

kernelの処理

- とりあえずvmlinuz状態という前提で、gzipヘッダを頼りに頭を切る

```
~/gtv# dd if=system/boot/kernel of=./vmlinuz bs=$((0x37f5)) skip=1  
138+1 records in  
138+1 records out  
1983883 bytes (2.0 MB) copied, 0.0520949 s, 38.1 MB/s
```

```
~/gtv# file vmlinuz
```

```
vmlinuz: gzip compressed data, from Unix, last modified: Sat Nov 20  
04:13:34 2010, max compression
```

- gzipファイルは取り出せたが、kernelっぽくないな

kernelの処理

- 普通は、こういう感じなんだけど

```
~/gtv# file /boot/vmlinuz-2.6.32-5-amd64  
/boot/vmlinuz-2.6.32-5-amd64: Linux kernel x86 boot executable  
bzImage, version 2.6.32-5-amd64 (unknown@Debian), RO-rootFS,  
swap_dev 0x2, Normal VGA
```

Google TV™



kernelの処理

- とりあえず展開してみる

```
~/gtv# cp vmlinux vmlinux.gz
```

```
~/gtv# gzip -d vmlinux.gz
```

```
gzip: vmlinux.gz: decompression OK, trailing garbage ignored
```

お尻にもゴミがあったが無視したか

```
~/gtv# ls -lh ./vmlinu*
```

```
-rw-r--r-- 1 root root 3.8M Feb 17 16:54 ./vmlinux
```

```
-rw-r--r-- 1 root root 1.9M Feb 17 16:53 ./vmlinux
```

サイズはこんなもんだと思うけど

kernelの処理

- ダメかな？

```
~/gtv# file vmlinux  
vmlinux: data
```

- ELFヘッダとシンボル情報を持たないだけかも

- 組み込みではよくあること

- とりあえずkernelはsourceあるし放置

<http://code.google.com/p/googletv-mirrored-source/>

boot.imgの展開

- boot.imgを見る

```
~/gtv# ls -lh boot.img  
-rw-r--r-- 1 root root 17M Jul 24 2010 boot.img
```

けっこうなサイズでいろいろ入ってそうね

```
~/gtv# file boot.img  
boot.img: Squashfs filesystem, little endian, version 3.1, 17104180  
bytes, 1191 inodes, blocksize: 131072 bytes, created: Thu Dec 16  
10:25:41 2010
```

- こいつは素直だな。yaffs2じゃないのね。

boot.imgの展開

- バラす

```
~/gtv# apt-get install squashfs-tools
```

```
~/gtv# mkdir -p temp/boot
```

```
~/gtv# cp boot.img temp/boot/
```

```
~/gtv# cd temp/boot/
```

```
~/gtv/temp/boot# unsquashfs boot.img
```

```
Parallel unsquashfs: Using 1 processor
```

```
1114 inodes (1363 blocks) to write
```

```
[=====] 1363/1363 100%
```

```
created 784 files
```

```
created 77 directories
```

```
created 133 symlinks
```

```
created 197 devices
```

```
created 0 fifos
```

boot.imgの展開

- 長い... ざっと進めます

```
~/gtv/temp/boot/squashfs-root# find ./ | sort
./
./tmp
./etc
./etc/ld.so.preload
./etc/localtime
./etc/cspprofiles
./etc/cspprofiles/DEFAULT.rc
./etc/nsswitch.conf
./etc/directfbrc
./etc/XpsmConfig.xml
./etc/fonts
./etc/fonts/fonts.conf
./etc/fonts/local.conf
./etc/fonts/fonts.dtd
```

./	./dev/gdl	./dev/mtdblock1	./dev/ram0
./bin	./dev/initrd	./dev/mtdblock2	./dev/ram1
./bin/Sil9135	./dev/kmem	./dev/mtdblock3	./dev/ram2
./bin/audio_dac_config	./dev/loop0	./dev/mtdblock4	./dev/ram3
./bin/gdl_server	./dev/loop1	./dev/mtdblock5	./dev/ram4
./bin/gfx_install.sh	./dev/loop2	./dev/mtdblock6	./dev/ram5
./bin/gfx_uninstall.sh	./dev/loop3	./dev/mtdblock7	./dev/ram6
./bin/hdmi_off	./dev/loop4	./dev/mtdblock8	./dev/ram7
./bin/load_pd	./dev/loop5	./dev/mtdr0	./dev/ram8
./bin/load_sec_fw	./dev/loop6	./dev/mtdr1	./dev/ram9
./bin/platform_config_app	./dev/loop7	./dev/mtdr2	./dev/ramdisk
./bin/pvrsvrinit	./dev/mem	./dev/mtdr3	./dev/random
./bin/sh	./dev/mtd0	./dev/mtdr4	./dev/scd0
./bin/thermal	./dev/mtd1	./dev/mtdr5	./dev/sda
./bin/unload_pd	./dev/mtd2	./dev/mtdr6	./dev/sda1
./cache	./dev/mtd3	./dev/mtdr7	./dev/sda10
./d	./dev/mtd4	./dev/mtdr8	./dev/sda11
./data	./dev/mtd5	./dev/null	./dev/sda12
./default.prop	./dev/mtd6	./dev/nvram	./dev/sda13
./dev	./dev/mtd7	./dev/port	./dev/sda14
./dev/console	./dev/mtd8	./dev/ptmx	./dev/sda15
./dev/full	./dev/mtdblock0	./dev/pts	./dev/sda16

```
./dev/sda2 ./dev/sdb7 ./dev/sdd10 ./dev/sde15 ./dev/sdf5 ./dev/urandom
./dev/sda3 ./dev/sdb8 ./dev/sdd11 ./dev/sde16 ./dev/sdf6 ./dev/vcs0
./dev/sda4 ./dev/sdb9 ./dev/sdd12 ./dev/sde2 ./dev/sdf7 ./dev/vcs1
./dev/sda5 ./dev/sdc ./dev/sdd13 ./dev/sde3 ./dev/sdf8 ./dev/vcs2
./dev/sda6 ./dev/sdc1 ./dev/sdd14 ./dev/sde4 ./dev/sdf9 ./dev/vcs3
./dev/sda7 ./dev/sdc10 ./dev/sdd15 ./dev/sde5 ./dev/snd ./dev/vcs4
./dev/sda8 ./dev/sdc11 ./dev/sdd16 ./dev/sde6 ./dev/sr0 ./dev/vcs5
./dev/sda9 ./dev/sdc12 ./dev/sdd2 ./dev/sde7 ./dev/systty ./dev/vcs6
./dev/sdb ./dev/sdc13 ./dev/sdd3 ./dev/sde8 ./dev/tty ./dev/vcs7
./dev/sdb1 ./dev/sdc14 ./dev/sdd4 ./dev/sde9 ./dev/tty0 ./dev/vcs8
./dev/sdb10 ./dev/sdc15 ./dev/sdd5 ./dev/sdf ./dev/tty1 ./dev/vcs9
./dev/sdb11 ./dev/sdc16 ./dev/sdd6 ./dev/sdf1 ./dev/tty2 ./dev/vcsa0
./dev/sdb12 ./dev/sdc2 ./dev/sdd7 ./dev/sdf10 ./dev/tty3 ./dev/vcsa1
./dev/sdb13 ./dev/sdc3 ./dev/sdd8 ./dev/sdf11 ./dev/tty4 ./dev/vcsa2
./dev/sdb14 ./dev/sdc4 ./dev/sdd9 ./dev/sdf12 ./dev/tty5 ./dev/vcsa3
./dev/sdb15 ./dev/sdc5 ./dev/sde ./dev/sdf13 ./dev/tty6 ./dev/vcsa4
./dev/sdb16 ./dev/sdc6 ./dev/sde1 ./dev/sdf14 ./dev/tty7 ./dev/vcsa5
./dev/sdb2 ./dev/sdc7 ./dev/sde10 ./dev/sdf15 ./dev/tty8 ./dev/vcsa6
./dev/sdb3 ./dev/sdc8 ./dev/sde11 ./dev/sdf16 ./dev/tty9 ./dev/vcsa7
./dev/sdb4 ./dev/sdc9 ./dev/sde12 ./dev/sdf2 ./dev/ttyS0 ./dev/vcsa8
./dev/sdb5 ./dev/sdd ./dev/sde13 ./dev/sdf3 ./dev/ttyS1 ./dev/vcsa9
./dev/sdb6 ./dev/sdd1 ./dev/sde14 ./dev/sdf4 ./dev/ttyUSB0./dev/zero
```

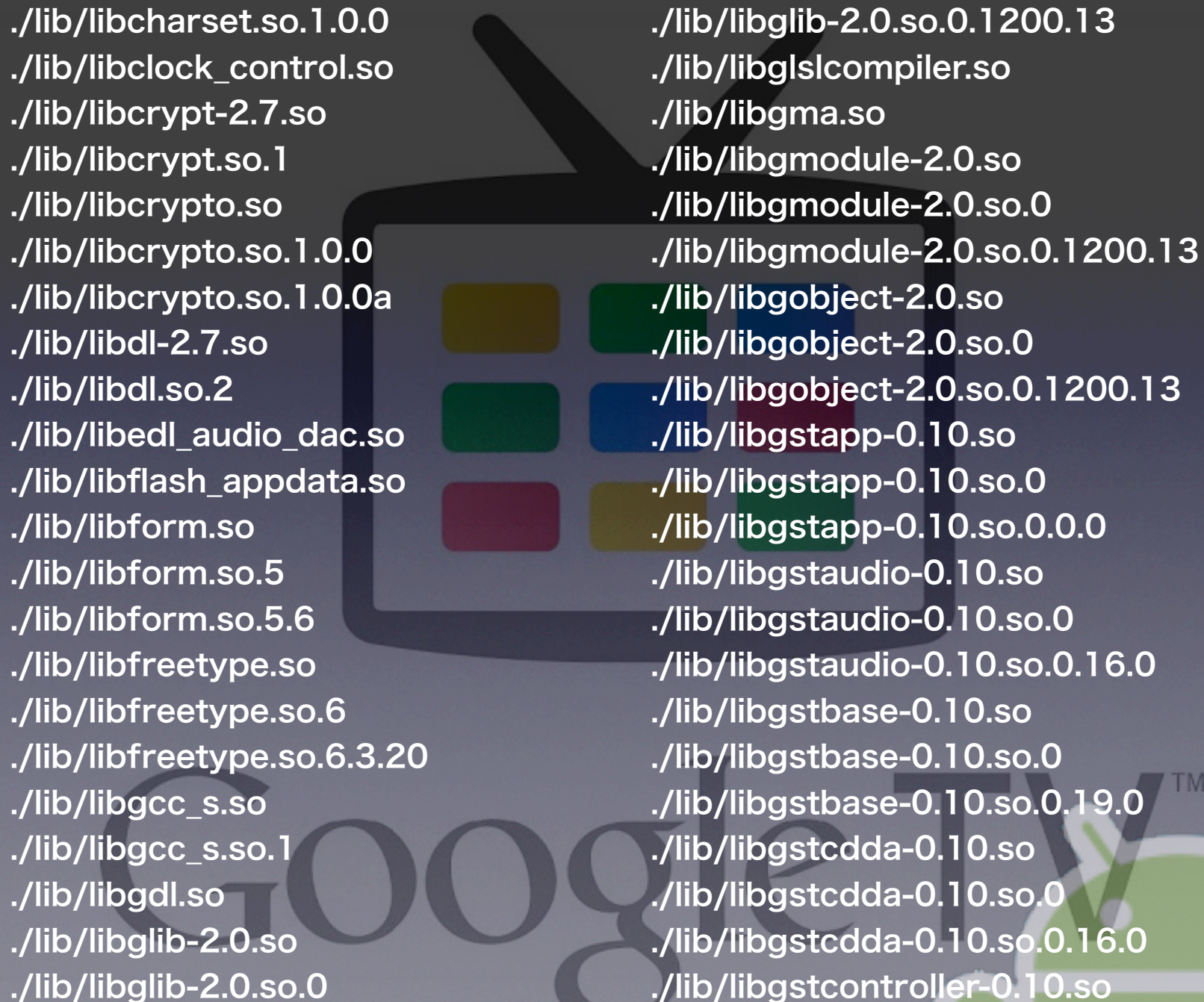


```
./etc                ./etc/nscd.conf
./etc/X11            ./etc/nsswitch.conf
./etc/X11/fonts      ./etc/platform_config
./etc/X11/fonts/misc ./etc/platform_config/ce4100
./etc/X11/fonts/misc/xfonts-base.alias
./etc/XpsmConfig.xml ./etc/platform_config/ce4100/local_tweaks.hcfg
./etc/asound.conf    ./etc/platform_config/ce4100/memory_layout_512M.hcfg
./etc/build.manifest ./etc/platform_config/ce4100/
./etc/cspprofiles    memory_layout_google_tv_recovery.hcfg
./etc/cspprofiles/DEFAULT.rc
./etc/directfbrc     ./etc/platform_config/ce4100/platform_config.hcfg
./etc/fonts          ./etc/powervr.ini
./etc/fonts/fonts.conf ./etc/resolv.conf
./etc/fonts/fonts.dtd ./init
./etc/fonts/local.conf ./init.goldfish.rc
./etc/gtk-2.0        ./init.logitech_ka3.rc
./etc/gtk-2.0/im-multipress.conf
./etc/hosts          ./init.logitech_ka4.rc
./etc/ld.so.preload ./init.logitech_ka5.rc
./etc/localtime      ./init.rc
./etc/mke2fs.conf    ./init.tatung3.rc
./etc/mtab           ./init.tatung4.rc
```



./initlogo.rle
./keystore
./keystore/README
./lib
./lib/avcap_icpt_custom.so
./lib/avcap_icpt_internal.so
./lib/firmware
./lib/firmware/sec
./lib/firmware/sec/sec_fw_6000_31.ce4100
./lib/gstreamer-0.10
./lib/gstreamer-0.10/libgstapetag.so
./lib/gstreamer-0.10/libgstapp.so
./lib/gstreamer-0.10/libgstaudioconvert.so
./lib/gstreamer-0.10/libgstavi.so
./lib/gstreamer-0.10/libgstcoreelements.so
./lib/gstreamer-0.10/libgstcoreindexers.so
./lib/gstreamer-0.10/libgstdebug.so
./lib/gstreamer-0.10/libgstdecodebin.so
./lib/gstreamer-0.10/libgstdecodebin2.so
./lib/gstreamer-0.10/libgstffmpegcolorspace.so
./lib/gstreamer-0.10/libgstflv.so
./lib/gstreamer-0.10/libgstid3demux.so

./lib/gstreamer-0.10/libgstmatroska.so
./lib/gstreamer-0.10/libgstplaybin.so
./lib/gstreamer-0.10/libgstqtdemux.so
./lib/gstreamer-0.10/libgstqueue2.so
./lib/gstreamer-0.10/libgstselector.so
./lib/gstreamer-0.10/libgsttypefindfunctions.so
./lib/gstreamer-0.10/libgstudp.so
./lib/gstreamer-0.10/libgstwavparse.so
./lib/gstreamer-0.10/libismd_plugin.so
./lib/gstreamer-0.10/libismd_utils.so
./lib/ld-2.7.so
./lib/ld-linux.so.2
./lib/libBrokenLocale-2.7.so
./lib/libBrokenLocale.so.1
./lib/libEGL.so
./lib/libGLES_CM.so
./lib/libGLESv2.so
./lib/libIMGegl.so
./lib/libOpenVG.so
./lib/libOpenVGU.so
./lib/libSegFault.so
./lib/libYFI_Logger.so
./lib/libYFI_NullDrmAdapter.so
./lib/libYFI_StdDrm.so
./lib/libYFI_Xpsm.so
./lib/libYFI_XpsmTypefind.so
./lib/libYFI_dlna_common.so
./lib/libYFI_ixml.so
./lib/libYFI_mscp.so
./lib/libYFI_protocolinfo_parser.so
./lib/libYFI_threadutil.so
./lib/libYFI_upnp.so
./lib/libanl-2.7.so
./lib/libanl.so.1
./lib/libaudio_hal.so
./lib/libavcap.so
./lib/libbz2.so.1.0
./lib/libbz2.so.1.0.4
./lib/libc-2.7.so
./lib/libc.so.6
./lib/libc_sse.so
./lib/libc_stubs.so
./lib/libcharset.so
./lib/libcharset.so.1



./lib/libcharset.so.1.0.0
./lib/libclock_control.so
./lib/libcrypt-2.7.so
./lib/libcrypt.so.1
./lib/libcrypto.so
./lib/libcrypto.so.1.0.0
./lib/libcrypto.so.1.0.0a
./lib/libdl-2.7.so
./lib/libdl.so.2
./lib/libedl_audio_dac.so
./lib/libflash_appdata.so
./lib/libform.so
./lib/libform.so.5
./lib/libform.so.5.6
./lib/libfreetype.so
./lib/libfreetype.so.6
./lib/libfreetype.so.6.3.20
./lib/libgcc_s.so
./lib/libgcc_s.so.1
./lib/libgdl.so
./lib/libglib-2.0.so
./lib/libglib-2.0.so.0
./lib/libglib-2.0.so.0.1200.13
./lib/libglscompiler.so
./lib/libgma.so
./lib/libgmodule-2.0.so
./lib/libgmodule-2.0.so.0
./lib/libgmodule-2.0.so.0.1200.13
./lib/libgobject-2.0.so
./lib/libgobject-2.0.so.0
./lib/libgobject-2.0.so.0.1200.13
./lib/libgstapp-0.10.so
./lib/libgstapp-0.10.so.0
./lib/libgstapp-0.10.so.0.0.0
./lib/libgstaudio-0.10.so
./lib/libgstaudio-0.10.so.0
./lib/libgstaudio-0.10.so.0.16.0
./lib/libgstbase-0.10.so
./lib/libgstbase-0.10.so.0
./lib/libgstbase-0.10.so.0.19.0
./lib/libgstcdda-0.10.so
./lib/libgstcdda-0.10.so.0
./lib/libgstcdda-0.10.so.0.16.0
./lib/libgstcontroller-0.10.so

./lib/libgstcontroller-0.10.so.0
./lib/libgstcontroller-0.10.so.0.19.0
./lib/libgstdataproto-0.10.so
./lib/libgstdataproto-0.10.so.0
./lib/libgstdataproto-0.10.so.0.19.0
./lib/libgstfft-0.10.so
./lib/libgstfft-0.10.so.0
./lib/libgstfft-0.10.so.0.16.0
./lib/libgstinterfaces-0.10.so
./lib/libgstinterfaces-0.10.so.0
./lib/libgstinterfaces-0.10.so.0.16.0
./lib/libgstnet-0.10.so
./lib/libgstnet-0.10.so.0
./lib/libgstnet-0.10.so.0.19.0
./lib/libgstnetbuffer-0.10.so
./lib/libgstnetbuffer-0.10.so.0
./lib/libgstnetbuffer-0.10.so.0.16.0
./lib/libgstpbutils-0.10.so
./lib/libgstpbutils-0.10.so.0
./lib/libgstpbutils-0.10.so.0.16.0
./lib/libgststreamer-0.10.so
./lib/libgststreamer-0.10.so.0
./lib/libgststreamer-0.10.so.0.19.0
./lib/libgststriff-0.10.so
./lib/libgststriff-0.10.so.0
./lib/libgststriff-0.10.so.0.16.0
./lib/libgststrtp-0.10.so
./lib/libgststrtp-0.10.so.0
./lib/libgststrtp-0.10.so.0.16.0
./lib/libgststrtsp-0.10.so
./lib/libgststrtsp-0.10.so.0
./lib/libgststrtsp-0.10.so.0.16.0
./lib/libgstdsp-0.10.so
./lib/libgstdsp-0.10.so.0
./lib/libgstdsp-0.10.so.0.16.0
./lib/libgsttag-0.10.so
./lib/libgsttag-0.10.so.0
./lib/libgsttag-0.10.so.0.16.0
./lib/libgstvideo-0.10.so
./lib/libgstvideo-0.10.so.0
./lib/libgstvideo-0.10.so.0.16.0
./lib/libgthread-2.0.so
./lib/libgthread-2.0.so.0
./lib/libgthread-2.0.so.0.1200.13

./lib/libhdmi-hdcp.so	./lib/libjpeg.so.62	./lib/libnl.so.1
./lib/libhtuple.so	./lib/libjpeg.so.62.0.0	./lib/libnl.so.1.1
./lib/libicepm_user.so	./lib/libm-2.7.so	./lib/libnsl-2.7.so
./lib/libiconv.so	./lib/libm.so.6	./lib/libnsl.so.1
./lib/libiconv.so.2	./lib/libmemusage.so	./lib/libnss_compat-2.7.s
./lib/libiconv.so.2.4.0	./lib/libmenu.so	./lib/libnss_compat.so.2
./lib/libismd_audio.so	./lib/libmenu.so.5	./lib/libnss_dns-2.7.so
./lib/libismd_avcap_shim.so	./lib/libmenu.so.5.6	./lib/libnss_dns.so.2
./lib/libismd_bufmon.so	./lib/libmtp.so	./lib/libnss_files-2.7.so
./lib/libismd_clock.so	./lib/libmtp.so.7	./lib/libnss_files.so.2
./lib/libismd_clock_recovery.so	./lib/libmtp.so.7.1.0	./lib/libnss_hesiod-2.7.so
./lib/libismd_core.so	./lib/libmudflap.so	./lib/libnss_hesiod.so.2
./lib/libismd_demux.so	./lib/libmudflap.so.0	./lib/libnss_nis-2.7.so
./lib/libismd_demux_v2.so	./lib/libmudflap.so.0.0.0	./lib/libnss_nis.so.2
./lib/libismd_demux_v3.so	./lib/libmudflapth.so	./lib/libnss_nisplus-2.7.sc
./lib/libismd_tsout.so	./lib/libmudflapth.so.0	./lib/libnss_nisplus.so.2
./lib/libismd_viddec.so	./lib/libmudflapth.so.0.0.0	./lib/liboil-0.3.so
./lib/libismd_viddec_v2.so	./lib/libnand_config.so	./lib/liboil-0.3.so.0
./lib/libismd_vidpproc.so	./lib/libncurses.so	./lib/liboil-0.3.so.0.2.0
./lib/libismd_vidrend.so	./lib/libncurses.so.5	./lib/libomarwave.so
./lib/libismdmmessage.so	./lib/libncurses.so.5.6	./lib/libosal.so
./lib/libjpeg.so	./lib/libnl.so	./lib/libpal.so

./lib/libpanel.so	./lib/libsec_aacs.so	./lib/libtinfo.so
./lib/libpanel.so.5	./lib/libsec_c2.so	./lib/libtinfo.so.5
./lib/libpanel.so.5.6	./lib/libsec_css.so	./lib/libtinfo.so.5.6
./lib/libpcprofile.so	./lib/libsec_ext.so	./lib/libts.so
./lib/libpicuart.so	./lib/libsec_hal_user.so	./lib/libtsi_hal.so
./lib/libplatform_config.so	./lib/libsec_hdcp.so	./lib/libtsout_hal.so
./lib/libplatform_config_core.so	./lib/libsrb.so	./lib/libusb-0.1.so.4
./lib/libpng.so	./lib/libsrv_um.so	./lib/libusb-0.1.so.4.4.4
./lib/libpng.so.3	./lib/libssl.so	./lib/libusb.so
./lib/libpng.so.3.44.0	./lib/libssl.so.1.0.0	./lib/libusbpp-0.1.so.4
./lib/libpng12.so	./lib/libssl.so.1.0.0a	./lib/libusbpp-0.1.so.4.4.4
./lib/libpng12.so.0	./lib/libssp.so	./lib/libusbpp.so
./lib/libpng12.so.0.44.0	./lib/libssp.so.0	./lib/libutil-2.7.so
./lib/libpthread-2.7.so	./lib/libssp.so.0.0.0	./lib/libutil.so.1
./lib/libpthread.so.0	./lib/libstdc++.so	./lib/libviddec_hal.so
./lib/libpvr2d.so	./lib/libstdc++.so.6	./lib/libviddec_hal_v2.so
./lib/libpvrGDLWSEGL.so	./lib/libstdc++.so.6.0.8	./lib/libxml2.so
./lib/libresolv-2.7.so	./lib/libsven.so	./lib/libxml2.so.2
./lib/libresolv.so.2	./lib/libsven_modules.so	./lib/libxml2.so.2.6.23
./lib/librt-2.7.so	./lib/libsystem_utils.so	./lib/libz.so
./lib/librt.so.1	./lib/libthread_db-1.0.so	./lib/libz.so.1
./lib/libsec.so	./lib/libthread_db.so.1	./lib/libz.so.1.2.3

./lib/modules ./lib/modules/ismddemux_v3.ko
./lib/modules/alsa_shim.ko ./lib/modules/ismdtsout.ko
./lib/modules/avcap_core.ko ./lib/modules/ismdviddec.ko
./lib/modules/avcap_synthetic.ko/lib/modules/ismdviddec_v2.ko
./lib/modules/clock_control.ko ./lib/modules/ismdvidpproc.ko
./lib/modules/edl_audio_dac_drv_linux.ko
./lib/modules/edl_thermal.ko ./lib/modules/ismdvidrend.ko
./lib/modules/gdl_mm.ko ./lib/modules/nand_config.ko
./lib/modules/idl_gpio.ko ./lib/modules/osal_linux.ko
./lib/modules/idl_i2c.ko ./lib/modules/pal_linux.ko
./lib/modules/idl_smartcard.ko ./lib/modules/platform_config.ko
./lib/modules/idl_spi.ko ./lib/modules/pvrsrvkm.ko
./lib/modules/intel_ce_flash.ko ./lib/modules/sec_kernel.ko
./lib/modules/intel_ce_pm.ko ./lib/modules/sound
./lib/modules/ioctl_module.ko ./lib/modules/sound/acore
./lib/modules/ismdaudio.ko ./lib/modules/sound/acore/seq
./lib/modules/ismdavcap_shim.ko/lib/modules/sound/acore/seq/snd-seq-device.
./lib/modules/ismdbufmon.ko ./lib/modules/sound/acore/snd-hwdep.ko
./lib/modules/ismdclock.ko ./lib/modules/sound/acore/snd-page-alloc.ko
./lib/modules/ismdclock_recovery.ko
./lib/modules/ismdcore.ko ./lib/modules/sound/acore/snd-pcm.ko
./lib/modules/ismddemux_v2.ko ./lib/modules/sound/acore/snd-rawmidi.ko



```
./lib/modules/sound/acore/snd-timer.ko
./lib/modules/sound/acore/snd.ko
./lib/modules/sound/usb
./lib/modules/sound/usb/snd-usb-audio.ko
./lib/modules/sound/usb/snd-usb-lib.ko
./lib/modules/sven_linux.ko          ./sbin/mke2fs
./lib/modules/system_utils_linux.ko ./sbin/mkfs.ext2
./lib/modules/vdctest_mod.ko        ./sbin/mkfs.ext3
./lib/modules/vidcap_ce4X00.ko      ./sbin/reboot
./lib/pd_hdmi.so                     ./sbin/sfdisk
./lib/pd_inttvenc_comp.so            ./scripts
./lib/pd_inttvenc_cvbs.so           ./scripts/example_monitor_video_script.csven
./lib/preloadable_libiconv.so       ./scripts/sven_AV_health_capture.sh
./mnt                                  ./sdcard
./proc                                ./sqlite_stmt_journals
./sbin                                 ./sys
./sbin/android                       ./system
./sbin/check_e2fs                    ./tmp
./sbin/cleanup_temp_data             ./usr
./sbin/e2fsck                        ./usr/lib
./sbin/fts                           ./usr/lib/libYFI_httpsmp.so
./sbin/init                          ./usr/lib/libasound.so
```

./usr/lib/libasound.so.2
./usr/lib/libasound.so.2.0.0
./usr/lib/libcurl.so
./usr/lib/libcurl.so.4
./usr/lib/libcurl.so.4.1.0
./usr/lib/libfluasf.so
./usr/lib/libfludmftypefind.so
./usr/lib/libfludmftypefind.so.0
./usr/lib/libgstYFI_httpsmpsrc.so
./usr/lib/libgstaacparse.so
./usr/lib/libgstaudioresample.so
./usr/lib/libgstavi.so
./usr/lib/libgstdmfdrm-0.10.so
./usr/lib/libgstfluasfdemux.so
./usr/lib/libgstfludivx3dec.so
./usr/lib/libgstflugdlsink.so
./usr/lib/libgstflumpeg4videodec.so
./usr/lib/libgstflumpegdemux.so
./usr/lib/libgstflusorendec.so
./usr/lib/libgstfluvp6dec.so
./usr/lib/libgstfluwmadec.so
./usr/lib/libgstfluwmvdec.so
./usr/lib/libgstflv.so
./usr/lib/libgsth264parse.so
./usr/lib/libgstmpegvideoparse.so
./usr/lib/libgstqtdemux.so
./usr/lib/libgstselector.so
./usr/lib/libgststm-0.10.so
./usr/lib/libnspr4.so
./usr/libexec
./usr/libexec/pt_chown
./usr/local
./usr/local/bin
./usr/local/bin/ntfs-3g
./usr/local/bin/ntfs-3g.probe
./usr/local/lib
./usr/local/lib/directfb-1.2-9-pure
./usr/local/lib/directfb-1.2-9-pure/gfxdrivers
./usr/local/lib/directfb-1.2-9-pure/gfxdrivers/
libdirectfb_intelce_gfx.so
./usr/local/lib/directfb-1.2-9-pure/inputdrivers
./usr/local/lib/directfb-1.2-9-pure/inputdrivers/
libdirectfb_linux_input.so
./usr/local/lib/directfb-1.2-9-pure/interfaces

./usr/local/lib/directfb-1.2-9-pure/interfaces/DirectFBIntelCE
./usr/local/lib/directfb-1.2-9-pure/interfaces/DirectFBIntelCE/
libdirectfbintelce.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBFont
./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBFont/
libdirectfbfont_default.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBFont/
libdirectfbfont_dgiff.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBFont/
libdirectfbfont_ft2.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBGL
./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBGL/libdirectfbgl.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBImageProvider
./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBImageProvider/
libdirectfbimageprovider_dfiff.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBImageProvider/
libdirectfbimageprovider_gif.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBImageProvider/
libdirectfbimageprovider_jpeg.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBImageProvider/
libdirectfbimageprovider_png.so

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBVideoProvider

./usr/local/lib/directfb-1.2-9-pure/interfaces/IDirectFBVideoProvider/
libdirectfbvideoprovider_gif.so
./usr/local/lib/directfb-1.2-9-pure/systems
./usr/local/lib/directfb-1.2-9-pure/systems/libdirectfb_intelce.so
./usr/local/lib/directfb-1.2-9-pure/wm
./usr/local/lib/directfb-1.2-9-pure/wm/libdirectfbwm_default.so
./usr/local/lib/libdirect-1.2.so.9
./usr/local/lib/libdirect-1.2.so.9.0.1
./usr/local/lib/libdirect.so
./usr/local/lib/libdirectfb-1.2.so.9
./usr/local/lib/libdirectfb-1.2.so.9.0.1
./usr/local/lib/libdirectfb.so
./usr/local/lib/libfusion-1.2.so.9
./usr/local/lib/libfusion-1.2.so.9.0.1
./usr/local/lib/libfusion.so
./usr/local/lib/libntfs-3g.a
./usr/local/lib/libntfs-3g.la
./usr/local/lib/libntfs-3g.so
./usr/local/lib/libntfs-3g.so.38
./usr/local/lib/libntfs-3g.so.38.0.0
./usr/local/lib/pkgconfig
./usr/local/lib/pkgconfig/direct.pc

./usr/local/lib/pkgconfig/directfb-internal.pc

./usr/local/lib/pkgconfig/directfb.pc

./usr/local/lib/pkgconfig/fusion.pc

./usr/local/share

./usr/local/share/directfb-1.2.10

./usr/local/share/directfb-1.2.10/cursor.dat

./usr/sbin

./usr/sbin/iDTSRmtSrv

./usr/sbin/nscd

./usr/share

./usr/share/alsa

./usr/share/alsa/alsa.conf

./usr/share/zoneinfo

(略)

./var

Google TV™

The logo for Google TV, featuring the word "Google" in its signature font, followed by "TV" in a bold, sans-serif font. To the right of the text is a stylized green Android robot head. The entire logo is set against a dark grey background.

recovery.imgの展開

- 頭に何かついているので、まずそれを切る
- boot.imgがSquashfsなので、recovery.imgも同じである可能性が高い
- 頭を探す

```
~/gtv# hexdump -C system/boot/recovery.img | grep hsqs  
001e7d80 68 73 71 73 af 00 00 00 00 00 00 00 00 00 00 |hsqs.....|
```

- あった！

recovery.imgの展開

- 取り出す

```
~/gtv# dd if=system/boot/recovery.img of=./recovery_squashfs.img bs=8  
skip=249776  
378880+0 records in  
378880+0 records out  
3031040 bytes (3.0 MB) copied, 0.61964 s, 4.9 MB/s
```

```
root@debian:~/gtv# file recovery_squashfs.img  
recovery_squashfs.img: Squashfs filesystem, little endian, version 3.1,  
3028425 bytes, 175 inodes, blocksize: 131072 bytes, created: Thu Dec 16  
10:24:48 2010
```

出た!

recovery.imgの展開

- バラす

```
~/gtv# mkdir -p temp/reco  
:~/gtv# cp recovery_squashfs.img temp/reco/  
:~/gtv# cd temp/reco/  
:~/gtv/temp/reco# unsquashfs recovery_squashfs.img  
Parallel unsquashfs: Using 1 processor  
158 inodes (197 blocks) to write
```

```
[=====] 197/197 100%
```

created **87 files**

created 17 directories

created 70 symlinks

created 1 devices

created 0 fifos

Google TV™



recovery.imgの展開

- 中身は...

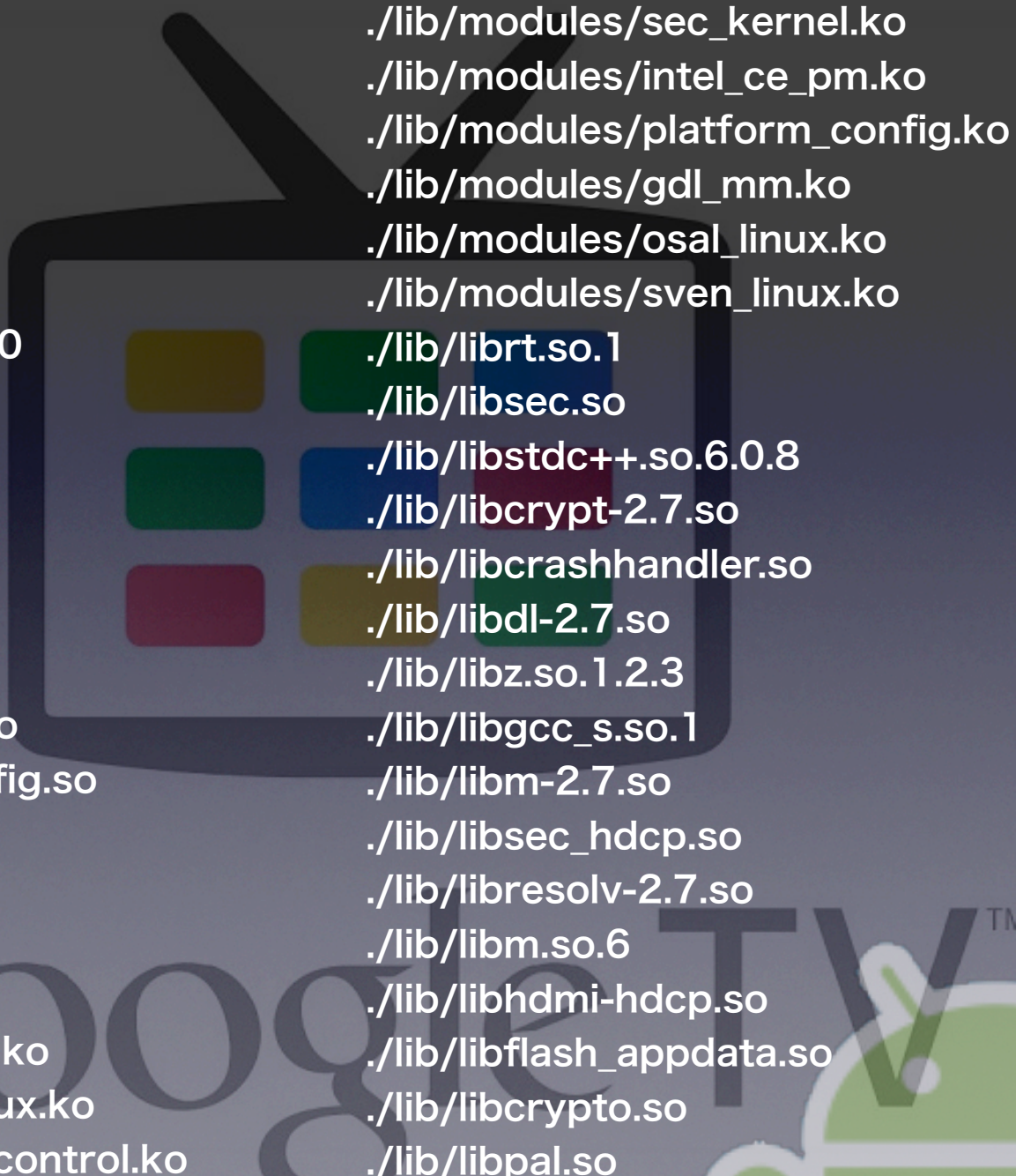
```
~/gtv/temp/reco/squashfs-root# find ./  
./  
./tmp  
./res  
./res/keys  
./res/images  
./res/images/icon_installing.png  
./res/images/progress_bar_empty_right_round.png  
./res/images/indeterminate3.png  
./res/images/indeterminate2.png  
./res/images/indeterminate5.png  
./res/images/icon_crash_recovery.png  
./res/images/progress_bar_left_round.png  
./res/images/button_wipe_selected.png  
./res/images/progress_bar_fill.png
```



./res/images/progress_bar_right_round.png
./res/images/indeterminate6.png
./res/images/button_reboot.png
./res/images/indeterminate4.png
./res/images/indeterminate1.png
./res/images/icon_firmware_install.png
./res/images/button_wipe.png
./res/images/icon_firmware_error.png
./res/images/progress_bar_empty.png
./res/images/progress_bar_empty_left_round.png
./res/images/button_reboot_selected.png
./res/images/icon_error.png
./etc
./etc/sda.sfdisk.cfg
./etc/mtab
./etc/platform_config
./etc/platform_config/ce4100
./etc/platform_config/ce4100/local_tweaks.hcfg
./etc/platform_config/ce4100/memory_layout_googletv_recovery.hcfg
./etc/platform_config/ce4100/platform_config.hcfg
./init.logitech_ka3.rc



./sys	./bin/ls	./bin/netstat
./init.logitech_ka5.rc	./bin/date	./bin/mv
./dev	./bin/dmesg	./bin/setconsole
./dev/console	./bin/schedtop	./bin/getevent
./bin	./bin/top	./bin/rm
./bin/sendevent	./bin/flash_image	./bin/hd
./bin/toolbox	./bin/newfs_msdos	./bin/chown
./bin/iftop	./bin/rmmod	./bin/mount
./bin/lsmmod	./bin/umount	./bin/pidof
./bin/route	./bin/cat	./bin/notify
./bin/display_setup	./bin/sleep	./bin/ioctl
./bin/platform_config_app	./bin/hdmi_off	./bin/dd
./bin/load_pd	./bin/wipe	./bin/rmdir
./bin/printenv	./bin/chmod	./bin/setprop
./bin/insmod	./bin/sh	./bin/df
./bin/gdl_server	./bin/cmp	./bin/ln
./bin/recovery	./bin/id	./bin/kill
./bin/renice	./bin/ps	./bin/watchprops
./bin/sync	./bin/smd	./bin/start
./bin/stop	./bin/ifconfig	./bin/flash_tool
./bin/vmstat	./bin/log	./init
./bin/mkdir	./bin/getprop	./default.prop



./proc
./mnt
./system
./system/build.prop
./lib
./lib/libz.so.1
./lib/libcrypto.so.1.0.0
./lib/libz.so
./lib/libpthread.so.0
./lib/libstdc++.so
./lib/librt-2.7.so
./lib/libosal.so
./lib/libgcc_s.so
./lib/libpthread-2.7.so
./lib/libplatform_config.so
./lib/libcutils.so
./lib/libcrypt.so.1
./lib/libstdc++.so.6
./lib/modules
./lib/modules/idl_i2c.ko
./lib/modules/pal_linux.ko
./lib/modules/clock_control.ko
./lib/modules/sec_kernel.ko
./lib/modules/intel_ce_pm.ko
./lib/modules/platform_config.ko
./lib/modules/gdl_mm.ko
./lib/modules/osal_linux.ko
./lib/modules/sven_linux.ko
./lib/librt.so.1
./lib/libsec.so
./lib/libstdc++.so.6.0.8
./lib/libcrypt-2.7.so
./lib/libcrashhandler.so
./lib/libdl-2.7.so
./lib/libz.so.1.2.3
./lib/libgcc_s.so.1
./lib/libm-2.7.so
./lib/libsec_hdcp.so
./lib/libresolv-2.7.so
./lib/libm.so.6
./lib/libhdmi-hdcp.so
./lib/libflash_appdata.so
./lib/libcrypto.so
./lib/libpal.so

./lib/libsystem_utils.so
./lib/libgdl.so
./lib/libc.so.6
./lib/ld-2.7.so
./lib/ld-linux.so.2
./lib/libnand_config.so
./lib/libsven.so
./lib/liblog.so
./lib/libclock_control.so
./lib/pd_hdmi.so
./lib/libglibc_bridge.so
./lib/libcrypto.so.1.0.0a
./lib/libdl.so.2
./lib/libresolv.so.2
./lib/libc-2.7.so
./init.tatung4.rc
./init.logitech_ka4.rc
./sdcard
./sbin
./sbin/auto-recovery
./sbin/reboot
./sbin/fts

./sbin/init
./sbin/mkfs.ext3
./sbin/check_e2fs
./sbin/mke2fs
./sbin/e2fsck
./sbin/mkfs.ext2
./sbin/sfdisk
./init.rc

Google TV™


あとは日記から...

- <http://d.hatena.ne.jp/kinneko/20110219>

Google TV™

今後は？

- なんか必要なものは、
そろっているような感じも...
- kernel config.gz が埋まっているので発掘
- Android-x86ベースで取り込んでみる
- Atom CE4100に近いAtomマシンで...
- マシンを買うお小遣いがないよ...

ご清聴ありがとうございました。