

# **Why you need a test strategy for your kernel development**

Kernel Recipes 2016  
Paris

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```
@@ -41,6 +41,20 @@ if (NOT ${U_CMAKE_BUILD_TYPE} MATCHES DEBUG)
    if (HAS_LTO_FLAG)
        find_program(LTO_AR NAMES "${CMAKE_C_COMPILER}-ar" gcc-ar)
        find_program(LTO_RANLIB NAMES "${CMAKE_C_COMPILER}-ranlib" gcc-ranlib)
+       if (LTO_AR)
+           EXECUTE_PROCESS(COMMAND "${LTO_AR}" --version
+                           RESULT_VARIABLE ret OUTPUT_QUIET ERROR_QUIET)
+           if (ret)
+               unset(LTO_AR CACHE)
+           endif()
+       endif()
+       if (LTO_RANLIB)
+           EXECUTE_PROCESS(COMMAND "${LTO_RANLIB}" --version
+                           RESULT_VARIABLE ret OUTPUT_QUIET ERROR_QUIET)
+           if (ret)
+               unset(LTO_RANLIB CACHE)
+           endif()
+       endif()
        if (LTO_AR AND LTO_RANLIB)
            set(CMAKE_CXX_FLAGS "${CMAKE_CXX_FLAGS} -flto")
            set(CMAKE_AR "${LTO_AR}")
```



# [PATCH v1]

```
> +         if (LTO_RANLIB)
> +             EXECUTE_PROCESS(COMMAND "${LTO_RANLIB}" --version
> +                 RESULT_VARIABLE ret OUTPUT_QUIET ERROR_QUIET)
```

*You could use LTO\_RANLIB\_WORKS as result variable here...*

```
> +             if (ret)
> +                 unset(LTO_RANLIB CACHE)
> +             endif()
> +         endif()
>         if (LTO_AR AND LTO_RANLIB)
```

*... and here test for LTO\_RANLIB\_WORKS instead of LTO\_RANLIB.*

```
>             set(CMAKE_CXX_FLAGS "${CMAKE_CXX_FLAGS} -flto")
>             set(CMAKE_AR "${LTO_AR}")
```



## [PATCH v1] – Review

From 271ead7cd1c78bde11980355996bf31c4763f4f6 Mon Sep 17 00:00:00 2001  
From: Laurent Pinchart <laurent.pinchart@ideasonboard.com>  
Date: Fri, 2 Sep 2016 19:15:06 +0300  
Subject: [PATCH v2] Fix LTO detection

Catch gcc-ar and gcc-ranlib versions compiled without plugin support and  
disable LTO in that case.

Signed-off-by: Laurent Pinchart <laurent.pinchart@ideasonboard.com>

---

CMakeLists.txt | 8 ++++++-  
1 file changed, 7 insertions(+), 1 deletion(-)

Changes since v1:

- Use LTO\_AR\_WORKS and LTO\_RANLIB\_WORKS as result variables



**[PATCH v2]**

```
@@ -41,7 +41,17 @@ if (NOT ${U_CMAKE_BUILD_TYPE} MATCHES DEBUG)
    if (HAS_LTO_FLAG)
        find_program(LTO_AR NAMES "${CMAKE_C_COMPILER}-ar" gcc-ar)
        find_program(LTO_RANLIB NAMES "${CMAKE_C_COMPILER}-ranlib" gcc-ranlib)
-
+         if (LTO_AR AND LTO_RANLIB)
+         if (LTO_AR)
+             EXECUTE_PROCESS(COMMAND "${LTO_AR}" --version
+                             RESULT_VARIABLE LTO_AR_WORKS
+                             OUTPUT_QUIET ERROR_QUIET)
+
+         endif()
+         if (LTO_RANLIB)
+             EXECUTE_PROCESS(COMMAND "${LTO_RANLIB}" --version
+                             RESULT_VARIABLE LTO_RANLIB_WORKS
+                             OUTPUT_QUIET ERROR_QUIET)
+
+         endif()
+     if (LTO_AR_WORKS AND LTO_RANLIB_WORKS)
+         set(CMAKE_CXX_FLAGS "${CMAKE_CXX_FLAGS} -flto")
+         set(CMAKE_AR "${LTO_AR}")
+         set(CMAKE_RANLIB "${LTO_RANLIB}")
```



# [PATCH v2]

**No need to test  
such a small  
change.**



**Famous Last Words**

```
> @@ -41,7 +41,17 @@ if (NOT ${U_CMAKE_BUILD_TYPE} MATCHES DEBUG)
>     if (HAS_LTO_FLAG)
>         find_program(LTO_AR NAMES "${CMAKE_C_COMPILER}-ar" gcc-ar)
>         find_program(LTO_RANLIB NAMES "${CMAKE_C_COMPILER}-ranlib" gcc-ranlib)
> -         if (LTO_AR AND LTO_RANLIB)
> +         if (LTO_AR)
> +             EXECUTE_PROCESS(COMMAND "${LTO_AR}" --version
> +                 RESULT_VARIABLE LTO_AR_WORKS
> +                 OUTPUT_QUIET ERROR_QUIET)
> +
> +         endif()
> +         if (LTO_RANLIB)
> +             EXECUTE_PROCESS(COMMAND "${LTO_RANLIB}" --version
> +                 RESULT_VARIABLE LTO_RANLIB_WORKS
> +                 OUTPUT_QUIET ERROR_QUIET)
> +
> +         endif()
> +         if (LTO_AR_WORKS AND LTO_RANLIB_WORKS)
```

*With this, I get "gcc-ar or gcc-ranlib not found, disabling LTO" on my PC, where I'm quite sure LTO works.*



## [PATCH v2] – Review



**Oops**



```

drivers/media/platform/vsp1/vsp1.h | 108 +++
drivers/media/platform/vsp1/vsp1_bru.c | 418 ++++++++
drivers/media/platform/vsp1/vsp1_bru.h | 46 +
drivers/media/platform/vsp1/vsp1_clu.c | 292 ++++++++
drivers/media/platform/vsp1/vsp1_clu.h | 48 +
drivers/media/platform/vsp1/vsp1_dl.c | 640 ++++++++
drivers/media/platform/vsp1/vsp1_dl.h | 45 +
drivers/media/platform/vsp1/vsp1_drm.c | 607 ++++++++
drivers/media/platform/vsp1/vsp1_drm.h | 44 +
drivers/media/platform/vsp1/vsp1_drv.c | 758 ++++++++
drivers/media/platform/vsp1/vsp1_entity.c | 414 ++++++++
drivers/media/platform/vsp1/vsp1_entity.h | 148 +++++
drivers/media/platform/vsp1/vsp1_hsit.c | 174 +++++
drivers/media/platform/vsp1/vsp1_hsit.h | 38 +
drivers/media/platform/vsp1/vsp1_lif.c | 181 +++++
drivers/media/platform/vsp1/vsp1_lif.h | 37 +
drivers/media/platform/vsp1/vsp1_lut.c | 249 ++++++
drivers/media/platform/vsp1/vsp1_lut.h | 45 +
drivers/media/platform/vsp1/vsp1_pipe.c | 385 ++++++++
drivers/media/platform/vsp1/vsp1_pipe.h | 127 +++
drivers/media/platform/vsp1/vsp1_regs.h | 741 ++++++++
drivers/media/platform/vsp1/vsp1_rpf.c | 264 ++++++
drivers/media/platform/vsp1/vsp1_rwpf.c | 253 ++++++
drivers/media/platform/vsp1/vsp1_rwpf.h | 102 ++
drivers/media/platform/vsp1/vsp1_sru.c | 335 ++++++++
drivers/media/platform/vsp1/vsp1_sru.h | 42 +
drivers/media/platform/vsp1/vsp1_uds.c | 328 ++++++++
drivers/media/platform/vsp1/vsp1_uds.h | 41 +
drivers/media/platform/vsp1/vsp1_video.c | 1021 ++++++++
drivers/media/platform/vsp1/vsp1_video.h | 62 +
drivers/media/platform/vsp1/vsp1_wpf.c | 384 ++++++++
31 files changed, 8377 insertions(+)

```



# Small Driver



```
crw-rw---- 1 root root 81, 9 Jan 1 1970 /dev/video9
crw-rw---- 1 root root 81, 10 Jan 1 1970 /dev/video10
crw-rw---- 1 root root 81, 11 Jan 1 1970 /dev/video11
crw-rw---- 1 root root 81, 12 Jan 1 1970 /dev/video12
crw-rw---- 1 root root 81, 13 Jan 1 1970 /dev/video13
crw-rw---- 1 root root 81, 14 Jan 1 1970 /dev/video14
crw-rw---- 1 root root 81, 15 Jan 1 1970 /dev/video15
crw-rw---- 1 root root 81, 16 Jan 1 1970 /dev/video16
crw-rw---- 1 root root 81, 17 Jan 1 1970 /dev/video17
crw-rw---- 1 root root 81, 142 Jan 1 1970 /dev/v4l-subdev14
crw-rw---- 1 root root 81, 143 Jan 1 1970 /dev/v4l-subdev15
crw-rw---- 1 root root 81, 144 Jan 1 1970 /dev/v4l-subdev16
crw-rw---- 1 root root 81, 145 Jan 1 1970 /dev/v4l-subdev17
crw-rw---- 1 root root 81, 146 Jan 1 1970 /dev/v4l-subdev18
crw-rw---- 1 root root 81, 147 Jan 1 1970 /dev/v4l-subdev19
crw-rw---- 1 root root 81, 148 Jan 1 1970 /dev/v4l-subdev20
crw-rw---- 1 root root 81, 149 Jan 1 1970 /dev/v4l-subdev21
crw-rw---- 1 root root 81, 150 Jan 1 1970 /dev/v4l-subdev22
crw-rw---- 1 root root 81, 151 Jan 1 1970 /dev/v4l-subdev23
crw-rw---- 1 root root 81, 152 Jan 1 1970 /dev/v4l-subdev24
crw-rw---- 1 root root 81, 153 Jan 1 1970 /dev/v4l-subdev25
crw-rw---- 1 root root 81, 154 Jan 1 1970 /dev/v4l-subdev26
crw-rw---- 1 root root 81, 155 Jan 1 1970 /dev/v4l-subdev27
crw-rw---- 1 root root 81, 156 Jan 1 1970 /dev/v4l-subdev28
crw-rw---- 1 root root 81, 157 Jan 1 1970 /dev/v4l-subdev29
crw-rw---- 1 root root 81, 158 Jan 1 1970 /dev/v4l-subdev30
```



# Straightforward UAPI

- media-ctl
- v4l2-ctl
- yavta
- raw2rgbnm



## Tool Box

```
$ ./media-ctl -d /dev/media0 -r
$ ./media-ctl -d /dev/media0 -l \
  "'fe928000.vsp1 rpf.0':1 -> 'fe928000.vsp1 wpf.0':0 [1]"
$ ./media-ctl -d /dev/media0 -l \
  "'fe928000.vsp1 wpf.0':1 -> 'fe928000.vsp1 wpf.0 output':0 [1]"
$ ./media-ctl -d /dev/media0 -V "'fe928000.vsp1 rpf.0':0 [fmt:AYUV32/1024x768]"
$ ./media-ctl -d /dev/media0 -V "'fe928000.vsp1 wpf.0':0 [fmt:AYUV32/1024x768]"
$ ./media-ctl -d /dev/media0 -V "'fe928000.vsp1 wpf.0':1 [fmt:AYUV32/1024x768]"
```



# Manual Testing

(telnet)

```
$ ./yavta -c10 -n 4 -f YUYV -s 1024x768 \  
  --file=frame-ref-yuyv-1024x768.bin \  
  /dev/video9  
Device /dev/video9 opened.  
Device `fe928000.vsp1 rpf.0 input' on  
`fe928000.vsp1' is a video output (with  
mplanes) device.  
[...]  
0 (0) [-] none 0 614400 B 28721.749626  
28724.017693 155.352 fps ts mono/SoE  
[...]  
9 (1) [-] none 9 614400 B 28724.285689  
28724.317700 27.719 fps ts mono/SoE  
Captured 10 frames in 2.574510 seconds  
(3.884233 fps, 2386472.678610 B/s).  
4 buffers released.
```

(telnet 2)

```
$ ./yavta -c10 -n 4 -f ARGB32 -s 1024x768 \  
  /dev/video14  
Device /dev/video14 opened.  
Device `fe928000.vsp1 wpf.0 output' on  
`fe928000.vsp1' is a video output (with  
mplanes) device.  
[...]  
0 (0) [-] none 0 614400 B 28721.749626  
28724.017693 155.352 fps ts mono/SoE  
[...]  
9 (1) [-] none 9 614400 B 28724.285689  
28724.317700 27.719 fps ts mono/SoE  
Captured 10 frames in 2.574510 seconds  
(3.884233 fps, 2386472.678610 B/s).  
4 buffers released.  
$ for f in frame-0*.bin ; do  
>   raw2rgbpmn -f ARGB32 -s 1024x768 \  
>             $f ${f/bin/pnm} ;  
> done
```



# Manual Testing

```
syntax() {  
    echo "Syntax: vsp1.sh [options] dev cmd [...]"  
    echo ""  
    echo "Supported options:"  
    echo "    -v      Enable verbose operation"  
    echo ""  
    echo "Supported commands:"  
    echo "    <pipeline> infmt outfmt"  
    echo "    hgo [options]"  
    echo "    input index infmt [options]"  
    echo "    output index outfmt [options]"  
    echo ""  
    echo "Supported pipelines:"  
    echo "    m2d, m2d-bru, m2d-crop, m2d-scale,"  
    echo "    m2m, m2m-bru, m2m-bru-lut, m2m-clu, m2m-crop, m2m-hgo,"  
    echo "    m2m-hgo-crop, m2m-lut, m2m-scale, m2m-upscale"  
}
```



## Test Script (still manual)

(console)

```
$ ./vsp1.sh media0 m2m YUYV ARGB32
```

(telnet 1)

```
$ ./vsp1.sh media0 input 0 YUYV
Device /dev/video9 opened.
Device `fe928000.vsp1 rpf.0 input' on
`fe928000.vsp1' is a video output (with
mplanes) device.
[...]
0 (0) [-] none 0 614400 B 28721.749626
28724.017693 155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B 28724.285689
28724.317700 27.719 fps ts mono/SoE
Captured 10 frames in 2.574510 seconds
(3.884233 fps, 2386472.678610 B/s).
```

(telnet 2)

```
$ ./vsp1.sh media0 input 0 ARGB32
Device /dev/video14 opened.
Device `fe928000.vsp1 wpf.0 output' on
`fe928000.vsp1' is a video output (with
mplanes) device.
[...]
0 (0) [-] none 0 614400 B 28721.749626
28724.017693 155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B 28724.285689
28724.317700 27.719 fps ts mono/SoE
Captured 10 frames in 2.574510 seconds
(3.884233 fps, 2386472.678610 B/s).

$ for f in frame-0*.bin ; do
>   raw2rgbnm -f ARGB32 -s 1024x768 \
>     $f ${f/bin/pnm}
> done
```



# Test Script (still manual)



(console)

```
$ ./vsp1.sh media0 m2m-bru YUYV ARGB32
```

(telnet 1)

```
$ ./vsp1.sh media0 input 0 YUYV
Device /dev/video9 opened.
Device `fe928000.vsp1 rpf.0 input'
on `fe928000.vsp1' is a video
output (with mplanes) device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693 155.352
fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700 27.719
fps ts mono/SoE
Captured 10 frames in 2.574510
seconds (3.884233 fps,
2386472.678610 B/s).
```

(telnet 2)

```
$ ./vsp1.sh media0 input 1 YUYV
Device /dev/video10 opened.
Device `fe928000.vsp1 rpf.1 input'
on `fe928000.vsp1' is a video
output (with mplanes) device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693 155.352
fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700 27.719
fps ts mono/SoE
Captured 10 frames in 2.574510
seconds (3.884233 fps,
2386472.678610 B/s).
```

(telnet 3)

```
$ ./vsp1.sh media0 output 0 ARGB32
Device /dev/video14 opened.
Device `fe928000.vsp1 wpf.0
output' on `fe928000.vsp1' is a
video output (with mplanes)
device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693 155.352
fps ts mono/SoE      [...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700 27.719
fps ts mono/SoE      Captured 10
frames in 2.574510 seconds
(3.884233 fps, 2386472.678610
B/s).

$ for f in frame-0*.bin ; do
>   raw2rgbnm -f ARGB32 \
>   -s 1024x768 $f ${f/bin/pnm}
> done
```



# Test Script (still manual)

\$ ./vsp1.sh m2m-bru4 YUYV ARGB32

(telnet 1)

```

$ ./vsp1.sh media0 input 0
YUYV
Device /dev/video9 opened.
Device `fe928000.vsp1 rpf.0
input' on `fe928000.vsp1' is
a video output (with mplanes)
device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693
155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700
27.719 fps ts mono/SoE
Captured 10 frames in
2.574510 seconds (3.884233
fps, 2386472.678610 B/s).

```

(telnet 2)

```

$ ./vsp1.sh media0 input 1
YUYV
Device /dev/video10 opened.
Device `fe928000.vsp1 rpf.1
input' on `fe928000.vsp1' is
a video output (with mplanes)
device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693
155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700
27.719 fps ts mono/SoE
Captured 10 frames in
2.574510 seconds (3.884233
fps, 2386472.678610 B/s).

```

(telnet 3)

```

$ ./vsp1.sh media0 input 2
YUYV
Device /dev/video11 opened.
Device `fe928000.vsp1 rpf.2
input' on `fe928000.vsp1' is
a video output (with mplanes)
device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693
155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700
27.719 fps ts mono/SoE
Captured 10 frames in
2.574510 seconds (3.884233
fps, 2386472.678610 B/s).

```

(telnet 4)

```

$ ./vsp1.sh media0 input 3
YUYV
Device /dev/video12 opened.
Device `fe928000.vsp1 rpf.3
input' on `fe928000.vsp1' is
a video output (with mplanes)
device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693
155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700
27.719 fps ts mono/SoE
Captured 10 frames in
2.574510 seconds (3.884233
fps, 2386472.678610 B/s).

```

(telnet 5)

```

$ ./vsp1.sh media0 output 0
ARGB32
Device /dev/video14 opened.
Device `fe928000.vsp1 wpf.0
output' on `fe928000.vsp1' is
a video output (with mplanes)
device.
[...]
0 (0) [-] none 0 614400 B
28721.749626 28724.017693
155.352 fps ts mono/SoE
[...]
9 (1) [-] none 9 614400 B
28724.285689 28724.317700
27.719 fps ts mono/SoE
Captured 10 frames in
2.574510 seconds (3.884233
fps, 2386472.678610 B/s).

$ for f in frame-0*.bin ; do
>   raw2rgbnm -f ARGB32 \
>   -s 1024x768 \
>   $f ${f/bin/pnm}
> done

```



# Test Script (still manual)

<http://git.ideasonboard.com/renesas/vsp-tests.git>

```
$ cat README  
[...]
```

```
-----  
Runtime Dependencies  
-----
```

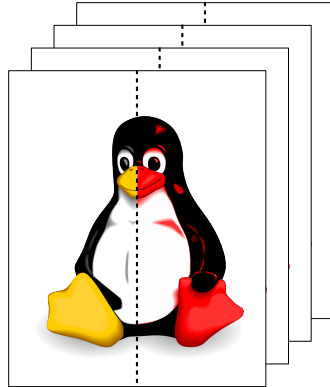
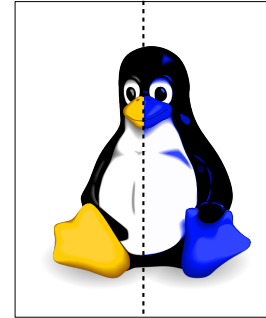
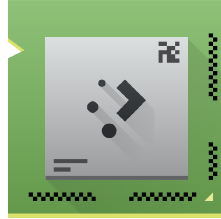
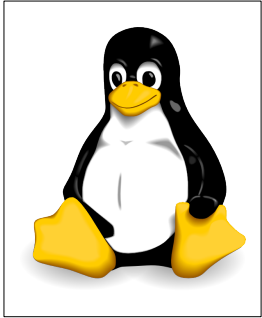
The tests scripts require the following tools to be installed on the target system in a directory included in \$PATH.

- \* compare (part of ImageMagick)
  - \* media-ctl (part of v4l-utils, available at [git://linuxtv.org/v4l-utils.git](http://git://linuxtv.org/v4l-utils.git))
  - \* raw2rgbnm (available at [git://git.retiisi.org.uk/~sailus/raw2rgbnm.git](http://git://git.retiisi.org.uk/~sailus/raw2rgbnm.git))
  - \* yavta (available at [git://git.ideasonboard.org/yavta.git](http://git://git.ideasonboard.org/yavta.git))
- ```
[...]
```

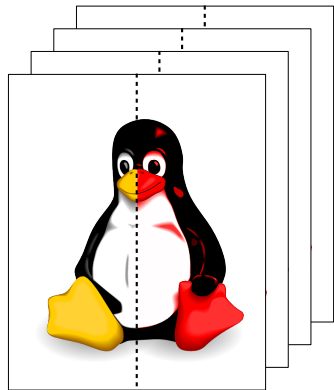


---

# vsp-tests



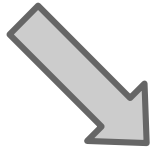
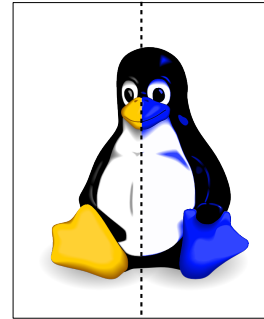
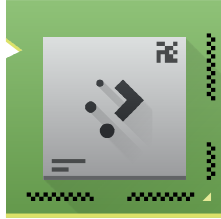
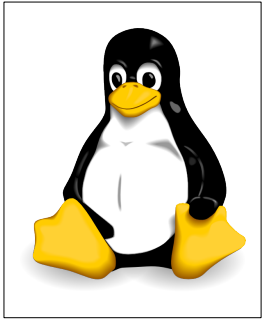
**vsp-tests**



**x2 resolutions**  
**x2 scaling**  
**x4 composition**  
**x20 formats**  
**x300kB-3MB**  
**= too much**



**vsp-tests**



**vsp-tests**

```
$ ./gen-image -h
```

```
Usage: ./src/gen-image [options] <infile.pnm>
```

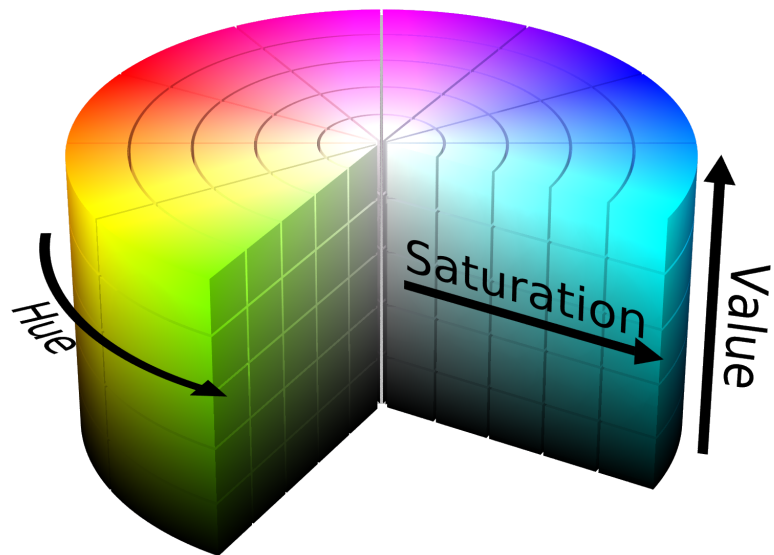
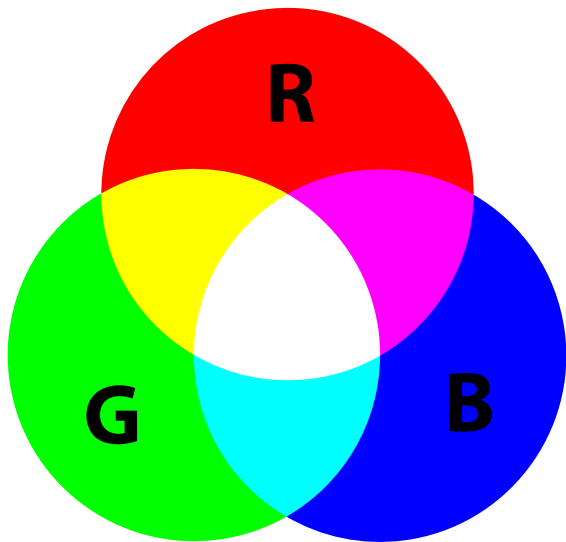
Convert the input image stored in <infile> in PNM format to the target format and resolution and store the resulting image in raw binary form.

Supported options:

|                         |                                                                                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| -a, --alpha value       | Set the alpha value. Valid syntaxes are floating point values ([0.0 - 1.0]), fixed point values ([0-255]) or percentages ([0% - 100%]). Defaults to 1.0 |
| -c, --compose n         | Compose n copies of the image offset by (50,50) over a black background                                                                                 |
| -C, --no-chroma-average | Disable chroma averaging for odd pixels on output                                                                                                       |
| -e, --encoding enc      | Set the YCbCr encoding method. Valid values are BT.601, REC.709, BT.2020 and SMPTE240M                                                                  |
| -f, --format format     | Set the output image format<br>Defaults to RGB24 if not specified<br>Use -f help to list the supported formats                                          |
| -h, --help              | Show this help screen                                                                                                                                   |
| --hflip                 | Flip the image horizontally                                                                                                                             |
| -H, --histogram file    | Compute histogram on the output image and store it to file                                                                                              |
| [...]                   |                                                                                                                                                         |



# vsp-tests



**vsp-tests**



$$M = \max(R, G, B)$$

$$m = \min(R, G, B)$$

$$C = M - m$$

$$H' = \begin{cases} \text{undefined} & \text{if } C = 0 \\ \frac{G - B}{C} \% 6 & \text{if } M = R \\ \frac{B - R}{C} + 2 & \text{if } M = G \\ \frac{R - G}{C} + 4 & \text{if } M = B \end{cases}$$

$$H = H' \times 60$$

$$S = \begin{cases} 0 & \text{if } C = 0 \\ \frac{C}{M} & \text{otherwise} \end{cases}$$

$$V = M$$



**vsp-tests**

```
static uint8_t hst_calc_s(uint8_t r8, uint8_t g8, uint8_t b8)
{
    uint8_t max, min, delta;
    unsigned int s;

    max = max(r8, max(g8, b8));
    min = min(r8, min(g8, b8));
    delta = max - min;
    if (!delta)
        return 0;

    s = delta * 255;

    /*
     * Special rounding. If the minimum RGB component is less
     * than 128 the calculated S value should be rounded half
     * down else half should be rounded up.
     */
    if (min < 128)
        return (s * 2 + max - 1) / max / 2;
    else
        return (s * 2 + max) / max / 2;
}
```



# vsp-tests

From: [...]

To: Laurent Pinchart <laurent.pinchart@ideasonboard.com>

Date: Wed Sep 6 11:42:35 2016 +0300

[...]

> Emulation of the VSP HST (RGB->HSV) HW module in the test vsp-tests tool doesn't  
> match the hardware exactly. The V and S components match perfectly but the H  
> component is off by 1 for in ~8% of all possible input values. This HW emulation is  
> needed if the vsp-test tool should be able to test HGT with all HUE buckets enabled.  
>  
> There are a few possible workarounds:

[...]

> Workaround 1 will be used to start with, while [...] is trying to get the necessary  
> information from Cthulhu^Wthe hardware team.

I got answer from HW guys.

Unfortunately, HW guys said "it is secret information, we can't teach it".

Sorry about that.



# vsp-tests

**commit 34c3c7ce0f7bde52fcfbcff2a613552b693503fc**  
**Author: Laurent Pinchart <laurent.pinchart@ideasonboard.com>**  
**Date: Wed Sep 7 01:54:45 2016 +0300**

**gen-image: Add conversion from RGB to HSV support**

**Signed-off-by: Laurent Pinchart <laurent.pinchart@ideasonboard.com>**



**vsp-tests**

```
#!/bin/sh
```

```
#
```

```
# Test WPF packing in RGB mode. Use a RPF -> WPF pipeline with a fixed ARGB32
```

```
# format on the input and capture output frames in all RGB formats supported  
# by the WPF.
```

```
#
```

```
source vsp-lib.sh
```

```
features="rpf.0 wpf.0"
```

```
test_init $0 "$features"
```



---

# vsp-tests

```
test_wpf_packing() {
    test_start "WPF packing in $format"

    pipe_configure rpf-wpf 0 0
    format_configure rpf-wpf 0 0 ARGB32 1024x768 $format

    vsp_runner rpf.0 &
    vsp_runner wpf.0

    local result=$(compare_frames)
    test_complete $result
}

formats="RGB332 ARGB555 XRGB555 RGB565 BGR24 RGB24 ABGR32 ARGB32 XBGR32 XRGB32"

test_main() {
    local format
    for format in $formats ; do
        test_wpf_packing $format
    done
}

test_run
```



# vsp-tests

```
test_wpf_packing() {
    test_start "WPF packing in $format"

    pipe_configure rpf-wpf 0 0 | ./logger.sh config >> $logfile
    format_configure rpf-wpf 0 0 \
        ARGB32 1024x768 $format | ./logger.sh config >> $logfile
    $vsp_runner $mdev input 0 ARGB32 | ./logger.sh config >> $logfile &
    $vsp_runner $mdev output 0 $format | ./logger.sh config >> $logfile

    local result=$(compare_frames exact reference $format 0)
    test_complete $result
}

formats="RGB332 ARGB555 XRGB555 RGB565 BGR24 RGB24 ABGR32 ARGB32 XBGR32 XRGB32"

test_main() {
    local format
    for format in $formats ; do
        test_wpf_packing $format
    done
}

test_run
```



# vsp-tests

**1 feature**

**=**

**1 test**



**vsp-tests**



**1 bug**

**=**

**1 test**



**vsp-tests**

**1 non-feature**

**=**

**1 test**



**vsp-tests**

## ***Internal***

- Kconfig\* selftests
- tools/testing/selftests/
- (virtual drivers)

## ***External***

- intel-gpu-tools
- Linaro lava tests
- v4l2-compliance
- vsp-tests
- ...



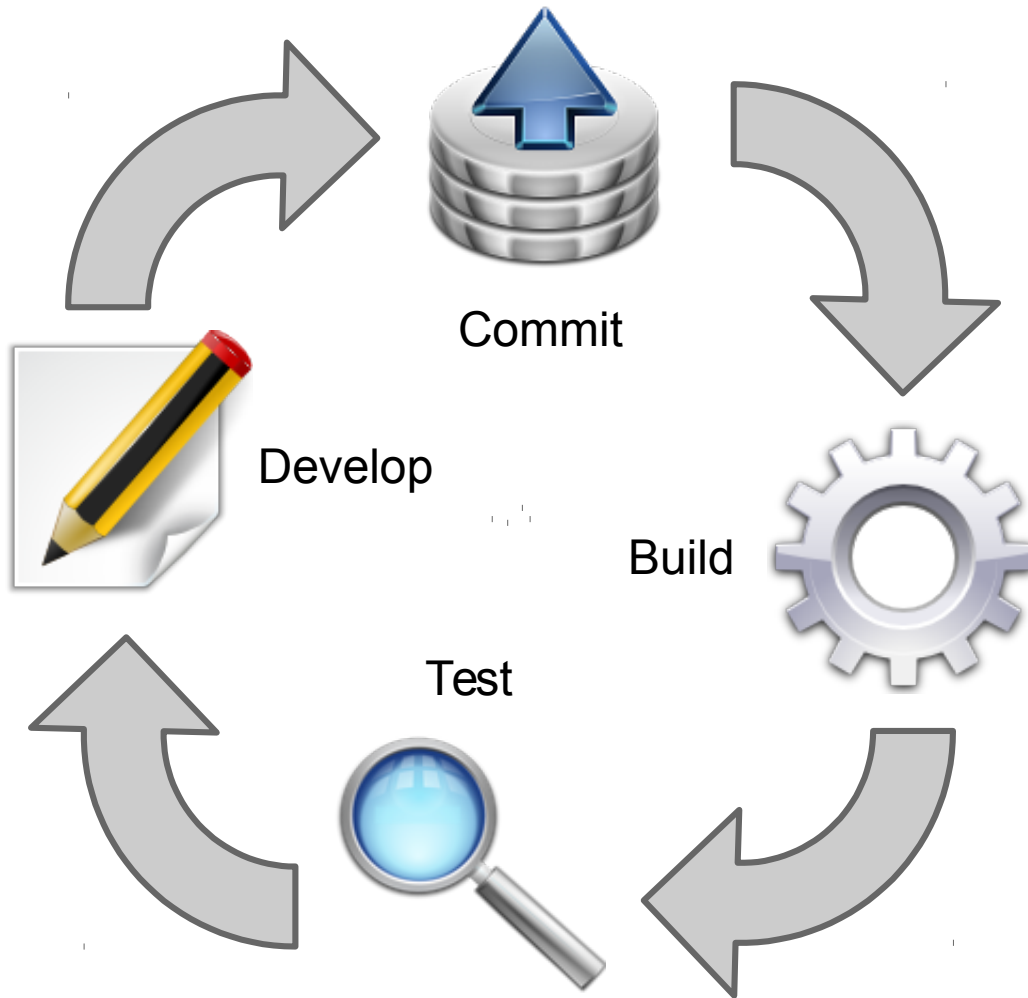
---

# **Kernel Test Suites**

**CI**



**Holy Grail of Testing**



# Continuous Integration

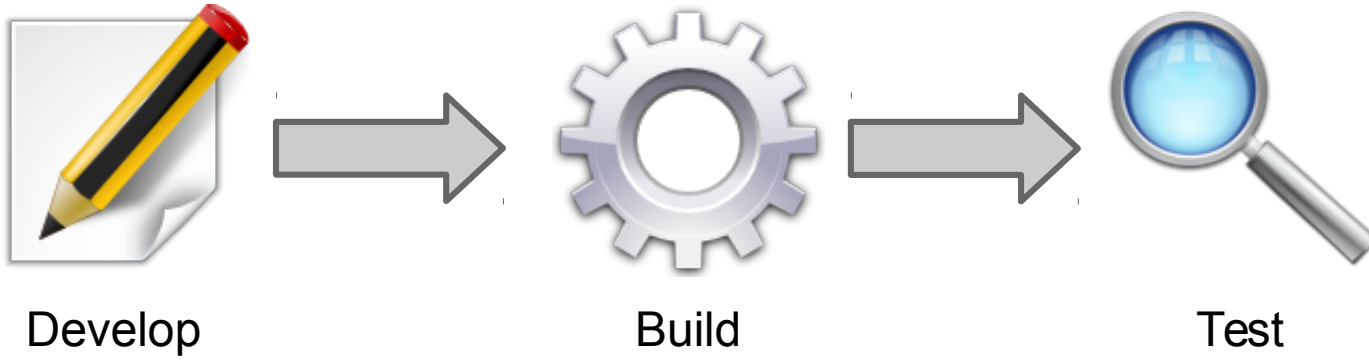


# I ntegration

---

**Less Holy Grail of Testing (but still important)**





# Integration





Develop



Commit



Build

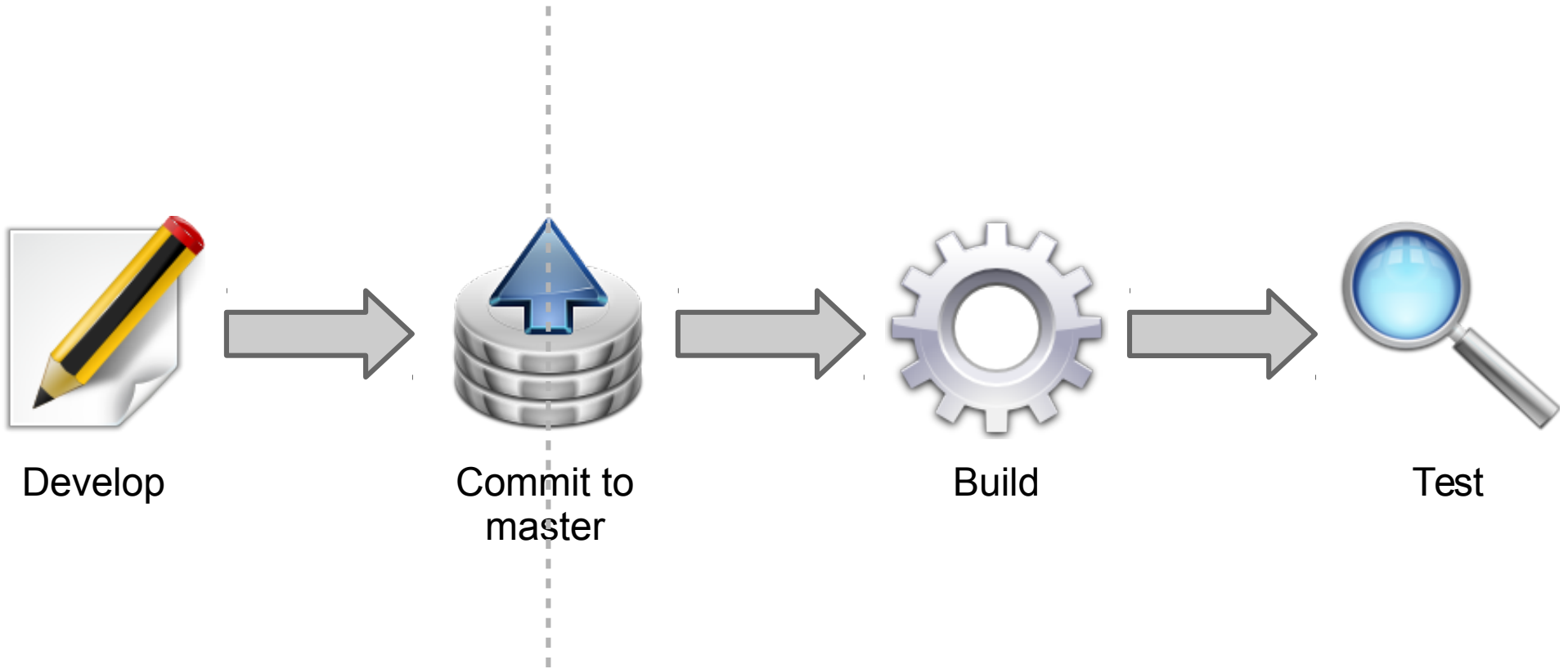


Test



# Integration





# Disintegration



Develop



Commit to  
devel branch



Build



Test

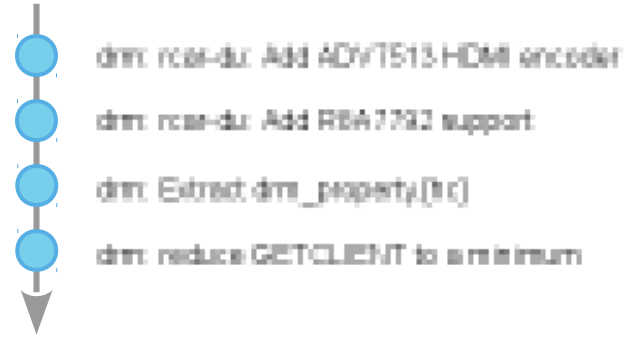
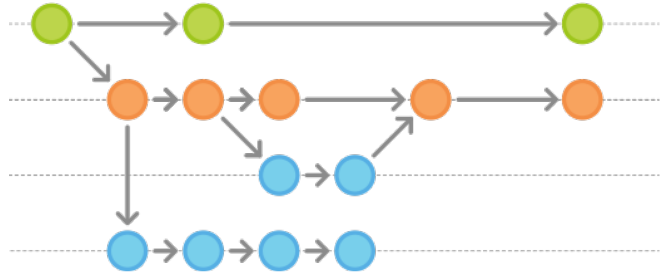


# Integration

**CI**



**Holy Grail of Testing**



0-Day

Subject: [renesas:next 6/9] Error: arch/arm64/boot/dts/renesas/r8a7795-salvator-x.dts:148.1-10 Label or path scif\_clk not found

**tree:** <https://git.kernel.org/pub/scm/linux/kernel/git/horms/renesas.git> next  
head: 23598a7eb9c68eb53d7c33a73cb0ec06ce84bf8b

**commit:** cb9209138688fd3fdffc9fd403ca51dbb8372353 [6/9] arm64: dts: salvator-x: Enable SCIF\_CLK frequency and pins

**config:** arm64-defconfig (attached as .config)

**reproduce:**

```
wget https://git.kernel.org/cgit/linux/kernel/git/wfg/lkp-  
tests.git/plain/sbin/make.cross -O ~/bin/make.cross  
chmod +x ~/bin/make.cross  
git checkout cb9209138688fd3fdffc9fd403ca51dbb8372353  
# save the attached .config to linux build tree  
make.cross ARCH=arm64
```

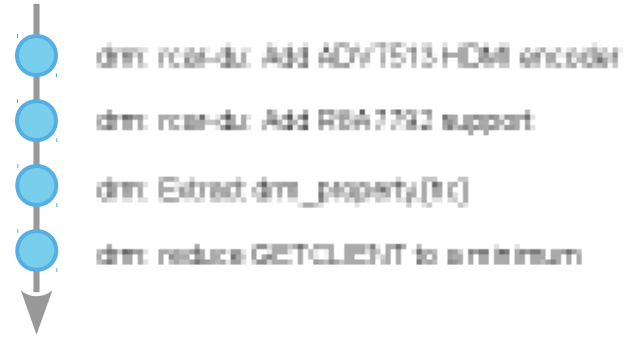
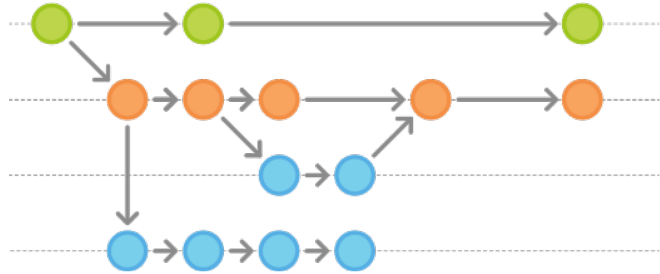
Note: the renesas/next HEAD 23598a7eb9c68eb53d7c33a73cb0ec06ce84bf8b builds fine.  
It only hurts bisectibility.

**All errors (new ones prefixed by >>):**

```
>> Error: arch/arm64/boot/dts/renesas/r8a7795-salvator-x.dts:148.1-10 Label or path  
scif_clk not found  
FATAL ERROR: Syntax error parsing input tree
```



# 0-Day



# 0-Day



Subject: [pinchart1-fbdev:dma/next 3/6] drivers/dma/sh/rcar-dmac.c:1490:3-8: No need to set .owner here. The core will do it.  
From: kbuild test robot <fengguang.wu@intel.com>

tree: git://linuxtv.org/pinchart1/fbdev.git dma/next  
head: 58e5ef8b074e5c20a0333aee30af8e6857a65ce0  
commit: 8d0c0169ccfb52abb869830a3326cfc3ea2aee6e [3/6] dmaengine: rcar-dmac: Add Renesas R-Car Gen2 DMA Controller (DMAC) driver

**coccinelle warnings: (new ones prefixed by >>)**

**>> drivers/dma/sh/rcar-dmac.c:1490:3-8: No need to set .owner here. The core will do it.**

Please review and possibly fold the followup patch.

---

0-DAY kernel test infrastructure  
<http://lists.01.org/mailman/listinfo/kbuild>

Open Source Technology Center  
Intel Corporation



# 0-Day

Subject: [pinchart1-fbdev:dma/next 3/6] drivers/dma/sh/rcar-dmac.c:1490:3-8: No need to set .owner here. The core will do it.  
From: kbuild test robot <fengguang.wu@intel.com>

tree: git://linuxtv.org/pinchart1/fbdev.git dma/next  
head: 58e5ef8b074e5c20a0333aee30af8e6857a65ce0  
commit: 8d0c0169ccfb52abb869830a3326cfc3ea2aee6e [3/6] dmaengine: rcar-dmac: Add Renesas R-Car Gen2 DMA Controller (DMAC) driver

coccinelle warnings: (new ones prefixed by >>)

>> drivers/dma/sh/rcar-dmac.c:1490:3-8: No need to set .owner here. The core will do it.

**Please review and possibly fold the followup patch.**

---

0-DAY kernel test infrastructure  
<http://lists.01.org/mailman/listinfo/kbuild>

Open Source Technology Center  
Intel Corporation



# 0-Day



Subject: [PATCH] dmaengine: rcar-dmac: fix platform\_no\_drv\_owner.cocci warnings  
From: kbuild test robot <fengguang.wu@intel.com>

drivers/dma/sh/rcar-dmac.c:1490:3-8: No need to set .owner here. The core will do it.  
Remove .owner field if calls are used which set it automatically

Generated by: scripts/coccinelle/api/platform\_no\_drv\_owner.cocci

Signed-off-by: Fengguang Wu <fengguang.wu@intel.com>

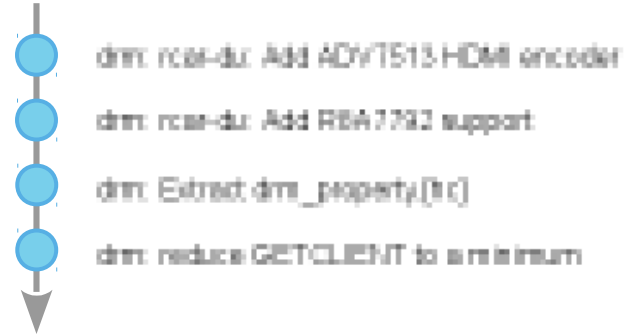
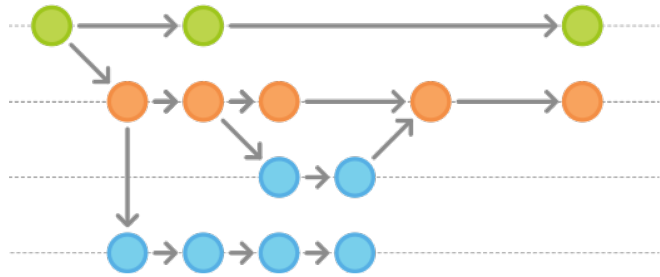
```
---
rcar-dmac.c |    1 -
1 file changed, 1 deletion(-)

--- a/drivers/dma/sh/rcar-dmac.c
+++ b/drivers/dma/sh/rcar-dmac.c
@@ -1487,7 +1487,6 @@ MODULE_DEVICE_TABLE(of, rcar_dmac_of_ids

static struct platform_driver rcar_dmac_driver = {
    .driver          = {
-        .owner      = THIS_MODULE,
        .pm         = &rcar_dmac_pm,
        .name       = "rcar-dmac",
        .of_match_table = rcar_dmac_of_ids,
```

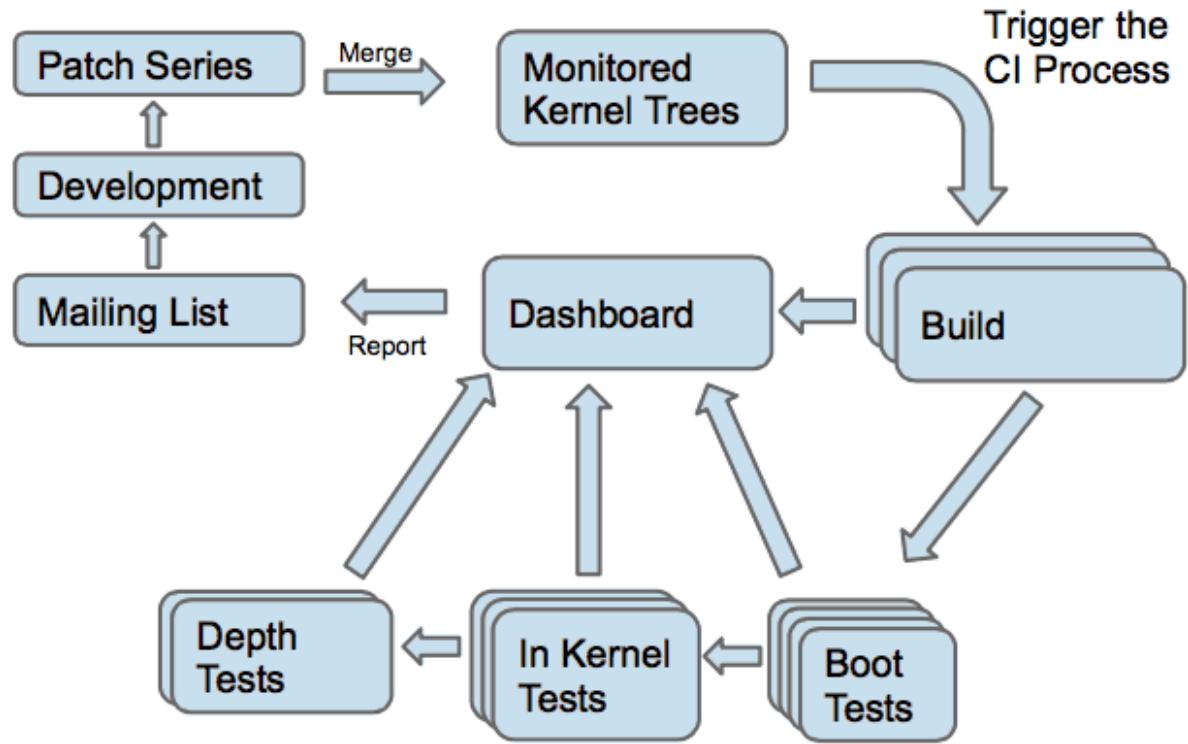


# 0-Day



IDEAS  
ON BOARD

0-Day



## Available Jobs

The results shown here cover the last **14 days** of available data starting from **Tue, 27 Sep 2016** (time is UTC based).

25

jobs per page



Filter the results

| Tree              | Branch                         | Latest Build Status | Latest Boot Status | Date       | Status            |
|-------------------|--------------------------------|---------------------|--------------------|------------|-------------------|
| net-next          | local/master                   | 74 73 1 0           | 9 9 0 0            | 2016-09-27 | <a href="#">Q</a> |
| next              | local/master                   | 207 189 18 0        | 146 123 9 14       | 2016-09-27 | <a href="#">Q</a> |
| ulfh              | local/next                     | 206 204 2 0         | 485 438 5 42       | 2016-09-27 | <a href="#">Q</a> |
| broonie-regulator | local/for-next                 | 206 204 2 0         | 462 430 7 25       | 2016-09-26 | <a href="#">Q</a> |
| broonie-sound     | local/for-next                 | 206 204 2 0         | 490 444 5 41       | 2016-09-26 | <a href="#">Q</a> |
| broonie-spi       | local/for-next                 | 206 204 2 0         | 468 442 5 21       | 2016-09-26 | <a href="#">Q</a> |
| renesas           | local/devel                    | 206 204 2 0         | 502 447 5 50       | 2016-09-26 | <a href="#">Q</a> |
| pmwg              | local/integ                    | 206 204 2 0         | 476 470 4 2        | 2016-09-26 | <a href="#">Q</a> |
| stable-rc         | local/linux-4.4.y              | 201 198 3 0         | 483 475 0 8        | 2016-09-26 | <a href="#">Q</a> |
| mainline          | local/master                   | 206 204 2 0         | 472 465 5 2        | 2016-09-26 | <a href="#">Q</a> |
| lsk               | local/linux-linaro-lsk-v4.4-rt | 198 194 4 0         | 145 141 0 4        | 2016-09-24 | <a href="#">Q</a> |
| stable            | local/linux-4.4.y              | 198 195 3 0         | 480 479 0 1        | 2016-09-24 | <a href="#">Q</a> |
| arm-soc           | local/for-next                 | 206 202 4 0         | 493 465 13 15      | 2016-09-23 | <a href="#">Q</a> |
| broonie-regmap    | local/for-next                 | 206 202 4 0         | 514 493 3 18       | 2016-09-22 | <a href="#">Q</a> |
| rmk               | local/for-next                 | 206 202 4 0         | 524 509 6 9        | 2016-09-21 | <a href="#">Q</a> |
| amlogic           | local/for-next                 | 206 202 4 0         | 479 430 3 46       | 2016-09-21 | <a href="#">Q</a> |



Subject: mainline boot: 145 boots: 1 failed, 138 passed with 6 offline (v4.8-rc7-213-g38e088546522)

From: kernelci.org bot <bot@kernelci.org>

To: kernel-build-reports@lists.linaro.org

mainline boot: 145 boots: 1 failed, 138 passed with 6 offline (v4.8-rc7-213-g38e088546522)

Full Boot Summary: <https://kernelci.org/boot/all/job/mainline/kernel/v4.8-rc7-213-g38e088546522/>

Full Build Summary: <https://kernelci.org/build/mainline/kernel/v4.8-rc7-213-g38e088546522/>

Tree: mainline

Branch: local/master

Git Describe: v4.8-rc7-213-g38e088546522

Git Commit: 38e088546522e1e86d2b8f401a1354ad3a9b3303

Git URL: <https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git>

Tested: 41 unique boards, 15 SoC families, 26 builds out of 206

Boot Failure Detected: <https://kernelci.org/boot/?v4.8-rc7-213-g38e088546522&fail>



**kernelci.org**

```
arm64:
  defconfig:
    apm-mustang-kvm-guest: 1 failed lab
```

## Offline Platforms:

```
arm:
  multi_v7_defconfig+CONFIG_EFI=y:
    hip04-d01: 1 offline lab
    sama5d34ek: 1 offline lab
  mvebu_v7_defconfig:
    armada-xp-linksys-mamba: 1 offline lab
  mvebu_v5_defconfig:
    kirkwood-openblocks_a7_rootfs:nfs: 1 offline lab
  multi_v7_defconfig+CONFIG_EFI=y+CONFIG_ARM_LPAE=y:
    hip04-d01: 1 offline lab
  multi_v7_defconfig+CONFIG_PROVE_LOCKING=y:
    at91-sama5d4_xplained: 1 offline lab
```

---

For more info write to <[info@kernelci.org](mailto:info@kernelci.org)>



**kernelci.org**

- kernelci.org bot
- Mark Brown's build bot
- Olof Johansson's autobuilder/autobooter



---

**[kernel-build-report@lists.linaro.org](mailto:kernel-build-report@lists.linaro.org)**

# September 2016 Archives by thread

- Messages sorted by: [\[ subject \]](#) [\[ author \]](#) [\[ date \]](#)
- [More info on this list...](#)

Starting: *Thu Sep 1 00:12:18 UTC 2016*

Ending: *Tue Sep 27 16:00:36 UTC 2016*

Messages: 480

- [mainline boot: 380 boots: 6 failed, 115 passed with 5 offline, 254 untried/unknown \(v4.8-rc4-162-g071e31e254e0\)](#) *kernelci.org bot*
- [v3.18.40-rt42 build: 0 failures 100 warnings \(v3.18.40-rt42\)](#) *Build bot for Mark Brown*
- [v3.2.82-rt118 build: 2 failures 43 warnings \(v3.2.82-rt118\)](#) *Build bot for Mark Brown*
- [v4.1.31-rt35 build: 1 failures 35 warnings \(v4.1.31-rt35\)](#) *Build bot for Mark Brown*
- [v4.4.19-rt27 build: 0 failures 2 warnings \(v4.4.19-rt27\)](#) *Build bot for Mark Brown*
- [v3.10.103-rt114 build: 0 failures 79 warnings \(v3.10.103-rt114\)](#) *Build bot for Mark Brown*
- [mainline boot: 20 passed 4 failed \(mainline/v4.8-rc4-172-g7d1ce60\)](#) *Olof's autobooter*
- [mainline build: 1 warnings 7 failures \(mainline/v4.8-rc4-172-g7d1ce60\)](#) *Olof's autobuilder*
- [mainline boot: 20 passed 4 failed \(mainline/v4.8-rc4-175-g511a8cd\)](#) *Olof's autobooter*
- [master build: 3 failures 1 warnings \(v4.8-rc4-172-g7d1ce60\)](#) *Build bot for Mark Brown*
- [mainline build: 1 warnings 7 failures \(mainline/v4.8-rc4-175-g511a8cd\)](#) *Olof's autobuilder*
- [mainline boot: 20 passed 4 failed \(mainline/v4.8-rc4-199-gcc4163d\)](#) *Olof's autobooter*
- [master build: 3 failures 1 warnings \(v4.8-rc4-175-g511a8cd\)](#) *Build bot for Mark Brown*
- [mainline build: 1 warnings 7 failures \(mainline/v4.8-rc4-199-gcc4163d\)](#) *Olof's autobuilder*
- [mainline build: 143 builds: 14 failed, 129 passed, 14 errors, 20 warnings \(v4.8-rc4-175-g511a8cdb6505\)](#) *kernelci.org bot*
- [master build: 3 failures 1 warnings \(v4.8-rc4-199-gcc4163d\)](#) *Build bot for Mark Brown*
- [mainline boot: 378 boots: 6 failed, 117 passed with 1 offline, 254 untried/unknown \(v4.8-rc4-175-g511a8cdb6505\)](#) *kernelci.org bot*
- [mainline build: 143 builds: 14 failed, 129 passed, 14 errors, 1 warning \(v4.8-rc4-199-gcc4163daaaa1\)](#) *kernelci.org bot*
- [arm-soc boot: 59 passed 12 failed \(arm-soc/v4.8-rc3-46-gd375f05\)](#) *Olof's autobooter*
- [arm-soc build: 3 warnings 0 failures \(arm-soc/v4.8-rc3-46-gd375f05\)](#) *Olof's autobuilder*
- [arm-soc boot: 60 passed 13 failed \(arm-soc/v4.8-rc3-50-gd5d3498\)](#) *Olof's autobooter*
- [mainline boot: 383 boots: 6 failed, 120 passed with 2 offline, 254 untried/unknown, 1 conflict \(v4.8-rc4-199-gcc4163daaaa1\)](#) *kernelci.org bot*
- [arm-soc build: 1 warnings 0 failures \(arm-soc/v4.8-rc3-50-gd5d3498\)](#) *Olof's autobuilder*
- [arm-soc boot: 61 passed 13 failed \(arm-soc/v4.8-rc3-51-g3481bda\)](#) *Olof's autobooter*
- [arm-soc build: 1 warnings 0 failures \(arm-soc/v4.8-rc3-51-g3481bda\)](#) *Olof's autobuilder*
- [mainline boot: 21 passed 3 failed \(mainline/v4.8-rc4-241-g15301a5\)](#) *Olof's autobooter*
- [mainline build: 1 warnings 7 failures \(mainline/v4.8-rc4-241-g15301a5\)](#) *Olof's autobuilder*
- [arm-soc build: 143 builds: 1 failed, 142 passed, 1 error, 20 warnings \(v4.8-rc3-50-gd5d34981eac4\)](#) *kernelci.org bot*
- [master build: 3 failures 1 warnings \(v4.8-rc4-241-g15301a5\)](#) *Build bot for Mark Brown*



**kernel-build-report@lists.linaro.org**



- <https://01.org/lkp>
- <https://kernelci.org/>
- <https://01.org/linuxgraphics/gfx-docs/igt/>



---

## Resources



[laurent.pinchart@ideasonboard.com](mailto:laurent.pinchart@ideasonboard.com)



**Contact**

?

!

merci.

