RZ/V2L

RZ/V2L ISP Support Package note of caution

Introduction

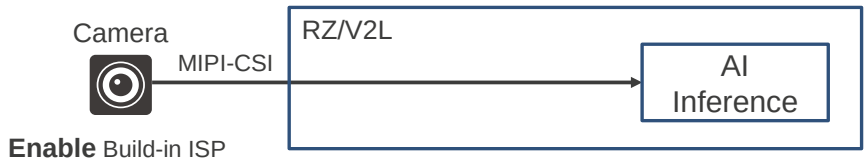
This document describes note of caution when use RZ/V2L ISP Support Package.

Contents

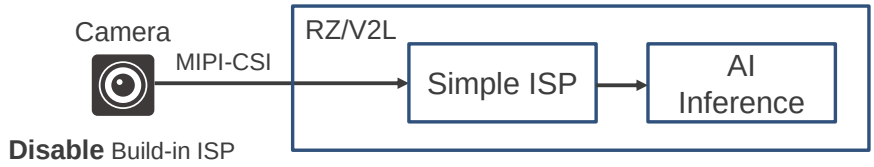
1. Note of caution

When apply RZ/V2L ISP Support Package after applying RZ/V2L DRP-AI Support Package to RZ/V2L Linux Package, some of sample applications in RZ/V2L DRP-AI Support Package become unusable (see Table 1). Because the Simple ISP features are always enabled after applied RZ/V2L ISP Support Package, but these sample applications need to use build-in ISP in the camera included in RZ/V2L Evaluation Board Kit (EVK). Please apply RZ/V2L Support Package only if you need to use Simple ISP features.

Camera signal pipeline after applied RZ/V2L DRP-AI Support Package



Camera signal pipeline after applied RZ/V2L ISP Support Package



Please refer section 1.2 to confirm how to disable Simple ISP features after applied RZ/V2L ISP Support Package.

1.1 Correspondence table of sample applications after applied RZ/V2L ISP Support Package

Table 1 Correspondence table of sample applications after applied RZ/V2L ISP Support Package

sample application software	Description	Camera / input image format	Usable / Unusable
app_resnet50_img	AI(ResNet50) Image file input / image file output	-	Usable
app_resnet50_cam	AI(ResNet50) Camera input / HDMI output	USB Camera / YUY2	**Unusable**
app_yolo_img	AI(YOLO) Image file input / image file output	-	Usable
app_tinyyolov2_cam	AI(TinyYOLOv2) Camera input / HDMI output	EVK contained camera / YUY2	**Unusable**
app_hrnet_cam	AI(HRNet) Camera input / HDMI output	EVK contained camera / YUY2	**Unusable**
app_hrnet_pre-tinyyolov2_cam	AI(HRNet+TinyYOLOv2) Camera input / HDMI output	EVK contained camera / YUY2	**Unusable**
app_tinyyolov2_isp	Simple ISP+AI(TinyYOLOv2) Camera input / HDMI output	EVK contained camera / YUY2	Usable
app_usbcam_http	AI(YOLOv3/TinyYOLOv2) Camera input / Web browser display	USB Camera / YUY2	**Unusable**

1.2 How to disable RZ/V2L ISP Support Package

This section describes how to disable RZ/V2L ISP Support Package and restore to state that applied RZ/V2L DRP-AI Support Package to RZ/V2L Linux Package.

```
<environment variable setting to build>
$ cd ~/user_work
$ TEMPLATECONF=${PWD}/meta-renesas/meta-rzv2l/docs/template/conf/ \
source poky/oe-init-build-env build

<remove Simple ISP layer and bitbake>
$ bitbake-layers remove-layer ../meta-rz-features/meta-rz-simple-isp
$ MACHINE=smarc-rzv2l bitbake core-image-weston
```

1.3 Appendix (How to disable RZ/V2L ISP Support Package with old version of Linux Package)

This section describes how to disable RZ/V2L ISP Support Package and restore to state that applied RZ/V2L DRP-AI Support Package to RZ/V2L Linux Package.

1.3.1 RZ/V2L ISP Support Package V1.30 or later

```
<restore files in meta-rz-features to DRP-AI PKG settings>
$ cd ~/user_work
$ tar zxvf rzv2l_drpai-driver/meta-rz-features.tar.gz

<environment variable setting to build>
$ cd ~/user_work
$ TEMPLATECONF=$PWD/meta-renesas/meta-rzv2l/docs/template/conf/ \
 source poky/oe-init-build-env build

<clear build state and bitbake>
$ cd ~/user_work/build
$ MACHINE=smarc-rzv2l bitbake linux-renesas -c cleansstate
$ MACHINE=smarc-rzv2l bitbake core-image-weston
```

1.3.2 RZ/V2L ISP Support Package V1.20, V1.21

```
<restore files in meta-rz-features to DRP-AI PKG settings>
$ cd ~/user_work
$ tar zxvf rzv2l_drpai-driver/meta-rz-features.tar.gz

<environment variable setting to build>
$ cd ~/user_work
$ source poky/oe-init-build-env

<clear build state and bitbake>
$ cd ~/user_work/build
$ bitbake linux-renesas -c cleansstate
$ bitbake core-image-weston
```

1.3.3 RZ/V2L ISP Support Package V1.00, V1.10

```
<environment variable setting to build>
$ cd ~/user_work
$ source poky/oe-init-build-env

<restore .conf to the state of Linux package>
$ cd ~/user_work/build
$ cp ../meta-rzv/docs/template/conf/smarc-rzv2l/*.conf ./conf/

<change .conf to the setting for building DRP-AI Support Package>
$ cd $WORK/build
$ patch -p2 < ../rzv2l-drpai-conf.patch

<clear build state and bitbake>
$ bitbake linux-renesas -c cleansstate
$ bitbake core-image-weston
```

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	22, June, 2022	-	Issued
1.01	5, Aug, 2022	3 4	Revised for RZ/V Verified Linux Package Added explanation for old version of Linux Package
1.02	14, Jul, 2023	2 3 4	Table1 Updated Updated the way to disable Simple ISP Package Updated the way to disable Simple ISP Package (older version)
1.03	31, Jul, 2024	3 4	Updated the way to disable Simple ISP Package Updated RZ/V2L ISP Support Package V1.30 or later

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on

   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state

   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins

   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals

   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin

   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products

   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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