

# **RZ/G Verified Linux Package for 64bit kernel** Version 1.0.4

# Release Note for HTML5

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# Introduction

This release note describes the contents, building procedures for HTML5 and important points of the RZ/G Verified Linux Package for 64bit kernel (hereinafter referred to as "VLP64").

If you need information to build Linux BSPs without a GUI Framework of HTML5 (Gecko), please refer to "RZ/G Verified Linux Package for 64bit kernel Version 1.0.4 Release Note".

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## 1. Release Items

### • Name and version

RZ/G Verified Linux Package for 64bit kernel Version 1.0.4

### • Distribution method

Provided via the RZ/G Marketplace. Please visit the sites below and create an account to download the packages.

### **RZ/G Marketplace:**

English: <u>https://www.renesas.com/us/en/products/rzg-linux-platform/rzg-marcketplace.html</u> Japanese: <u>https://www.renesas.com/jp/ja/products/rzg-linux-platform/rzg-marcketplace.html</u>

### • Target board

Hoperun Technology HiHope RZ/G2H platform (hihope-rzg2h) Hoperun Technology HiHope RZ/G2M platform (hihope-rzg2m) Hoperun Technology HiHope RZ/G2N platform (hihope-rzg2n) Silicon Linux RZ/G2E evaluation kit (ek874)

### • Verified functions

Linux BSP

- Linux Kernel
- Linux Drivers
- Graphics Libraries

### **GUI** Framework

- Qt (LGPL version)
- Gecko

### • Evaluation vs Product Version

Because the package that contains the VLP64 Yocto recipes also contains the multimedia packages, there are two release versions: Evaluation (eva) and Product (pro). Please note that both of these packages have the same exact functionality. The only difference is that when you execute an application that uses the evaluation version of the multimedia libraries, operation will automatically be stopped after a few hours. The product version does not have this time limitation. To acquire the product version, please contact Renesas to start the formal process of acquiring those releases.

### • File contents

VLP64 is delivered by the files listed in **Table 1**.



### Table 1. RZ/G Verified Linux Package for 64bit kernel

### Common files

File		Explanation
rzg2_bsp_eva_v104.tar.gz (Evalu	Yocto recipe packages (including	
rzg2_bsp_pro_v104.tar.gz (Produ	ct version)	multimedia package)
oss_pkg_v104.7z.001 (500MB)	oss_pkg_v104.7z.009 (500MB)	Open source packages
oss_pkg_v104.7z.002 (500MB)	oss_pkg_v104.7z.010 (500MB)	
oss_pkg_v104.7z.003 (500MB)	oss_pkg_v104.7z.011 (500MB)	See the Note below before
oss_pkg_v104.7z.004 (500MB)	oss_pkg_v104.7z.012 (500MB)	download
oss_pkg_v104.7z.005 (500MB)	oss_pkg_v104.7z.013 (500MB)	
oss_pkg_v104.7z.006 (500MB)	oss_pkg_v104.7z.014 (500MB)	
oss_pkg_v104.7z.007 (500MB)	oss_pkg_v104.7z.015 (61MB)	
oss_pkg_v104.7z.008 (500MB)		
r01tu0277ej0104-rz-g.pdf		Build instruction without HTML5
r01tu0278ej0104-rz-g.pdf		Component list
r01tu0279ej0104-rz-g.pdf		Documents describing booting
		method and the required settings
		of bootloader

### **Optional files for HTML5 (Gecko) environment**

File	Explanation
rzg2_bsp_gecko_v104.tar.gz	Yocto recipe packages for HTML5
oss_pkg_gecko_v104.7z.001 (500MB)	Open source packages for
oss_pkg_gecko_v104.7z.002 (500MB)	HTML5 (Gecko 68)
oss_pkg_gecko_v104.7z.003 (500MB)	
oss_pkg_gecko_v104.7z.004 (316MB)	
r01tu0311ej0100-rz-g.pdf	This document

Note) Open source packages contain all source codes of OSSs except for Linux kernel. These are the same versions of OSSs used when VLP was verified.

If you are just evaluating VLP and RZ/G series, open source packages are not mandatory to use. Usually, all the software can be built without using these files if your build machine is connected to the Internet.

Open source packages are required for an "offline" environment. The word "offline" means an isolated environment which does not connect to any network. VLP can always build images in this "offline" environment by using these packages without affected from changes of original repositories of OSSs. Also, this "offline" environment always reproduces the same images as the images which were verified by Renesas. Note that if you build without using open source packages, there are possibilities to use different source codes than Renesas used due to the implicit changes of the repositories of OSSs.

Most bootable images that VLP supports can be built on an "offline" environment. Please refer to **2. Build** environment.



# 2. Build environment

**Figure 1** shows an overall constitution of the recommended environment of VLP64. This environment uses the equipment and the software listed in **Table 2**. Please refer to "RZ/G Verified Linux Package Start-Up Guide" for details about setting up the environment.

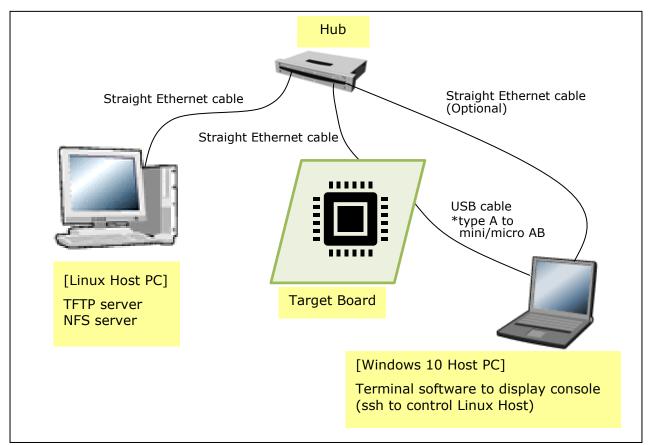


Figure 1. Recommended Environment

Please connect the Linux Host PC to the internet when downloading Linux kernel source code, or building without using the open source packages files that Renesas provides.

Below images can be built "offline".

- core-image-weston
- core-image-weston-sdk

Below are not available in the "offline" environment. Please connect your Linux Host PC to the internet.

• Preparing a Linux Host PC



Equipment		Description		
Linux Host PC		Used as build/debug environment		
		100GB free space on HDD is necessary		
	OS	Ubuntu 16.04 LTS		
		64 bit OS must be used.		
	TFTP server	Used for downloading the Linux kernel to the board		
	NFS server	Used for mounting rootfs via NFS		
Win	dows Host PC	Used as debug environment, controlling with terminal software		
	OS	Windows 10		
	Terminal software	Used for controling serial console of the target board		
		Tera Term (latest version) is recommended		
		Available at https://ttssh2.osdn.jp/index.html.en		
	VCP Driver	Virtual COM Port driver which enables to communicate Windows		
		Host PC and the target board via USB which is virtually used as		
serial port. Available at <u>http://www.ftdichip.com</u>		serial port.		
		Available at <a href="http://www.ftdichip.com/Drivers/VCP.htm">http://www.ftdichip.com/Drivers/VCP.htm</a>		

### Table 2. Equipment and Software Necessary for Developing Environments of RZ/G Linux Platform

Note) Build may fail if Ubuntu 14, 18 or 20 is used.



### 3. Building Instructions

### 3.1 Setup the Linux Host PC to build images

Before starting the build, run the steps below on the Linux Host PC to install packages used for building BSP.

### (1) Install packages

\$ sudo apt-get update
$\$ sudo apt-get install gawk wget git-core diffstat unzip texinfo gcc-multilib $\$
build-essential chrpath socat cpio python python3 python3-pip python3-pexpect $\setminus$
xz-utils debianutils iputils-ping libsdl1.2-dev xterm p7zip-full autoconf2.13
<pre>\$ sudo apt install clang llvm clang-3.9 llvm-3.9</pre>
$\$ sudo apt-get install build-essential libasound2-dev libcurl4-openssl-dev $\$
libdbus-1-dev libdbus-glib-1-dev libgconf2-dev libgtk-3-dev libgtk2.0-dev \
libpulse-dev libx11-xcb-dev libxt-dev nasm nodejs openjdk-8-jdk-headless \
python-dbus python-dev python-pip python-setuptools software-properties-common $\setminus$
unzip uuid wget xvfb yasm zip

Please refer to the URL below for detailed information:

• https://www.yoctoproject.org/docs/2.4.3/yocto-project-qs/yocto-project-qs.html

If the Git has not configured yet, set user name and email address before starting build procedure. Without this setting, an error occurs when building procedure runs git command to apply patches.

\$ git config --global user.email "you@example.com"
\$ git config --global user.name "Your Name"

(2) Install GCC 7 and switch the default GCC

<pre>\$ sudo apt-get install software-properties-common</pre>	
<pre>\$ sudo add-apt-repository ppa:ubuntu-toolchain-r/test</pre>	
<pre>\$ sudo apt-get update</pre>	
<pre>\$ sudo apt-get install gcc-7 g++-7</pre>	
<pre>\$ sudo update-alternativesinstall /usr/bin/gcc gcc /usr/bin/gcc-5 10 \</pre>	
slave /usr/bin/g++ g++ /usr/bin/g++-5	
<pre>\$ sudo update-alternativesinstall /usr/bin/gcc gcc /usr/bin/gcc-7 20 \</pre>	
slave /usr/bin/g++ g++ /usr/bin/g++-7	

After the above step, GCC 7 is set as the default GCC compiler. In case to build VLP without Gecko, or necessary to use GCC5 for another reason, run this command to switch the default GCC compiler to GCC 5.

\$ sudo update-alternatives --config gcc

After running the above command, the following text is displayed. Please input a number corresponding to GCC5. In the following example, "1" corresponds to GCC5. In case to switch the default GCC compiler again, run the above command again.



There are 2	choices for the al	ternative	gcc (providing /usr/bin/gcc).
Selection	Path	Priority	Status
* 0	/usr/bin/gcc-7	20	auto mode
1	/usr/bin/gcc-5	10	manual mode
2	/usr/bin/gcc-7	20	manual mode
Press <enter< td=""><td>&gt; to keep the curr</td><td>ent choice</td><td>[*], or type selection number:</td></enter<>	> to keep the curr	ent choice	[*], or type selection number:

### (3) Create a working directory (user\_work), and install packages with bootstrap to build Gecko

<pre>\$ mkdir ~/user_work</pre>
\$ cd ~/user_work
<pre>\$ git clonebranch esr68depth 1 https://github.com/mozilla/gecko-dev.git</pre>
\$ export SHELL
<pre>\$ cd gecko-dev &amp;&amp; /bin/echo -e "2\n3\nY\nn\nn"   ./mach bootstrap</pre>

The name and the place of the working directory can be changed, as necessary. Once this step is finished, gecko-dev directory can be deleted.



# **3.2** Building images to run on the board

Copy the all files obtained from Renesas into your home directory prior to the steps below.

### (1) Decompress Yocto recipe packages

\$ cd ~/user_work	
<pre>\$ tar xvf ~/rzg2_bsp_eva_v104.tar.;</pre>	gz

\$ tar xvf ./rzg2\_bsp\_gecko\_v104.tar.gz

Please replace "eva" with "pro" for the product version.

- Note) Please note that your build environment must have 100GB of free hard drive space in order to complete the build. The Yocto BSP build environment is very large. Especially in case you are using a Virtual Machine, please check how much disk space you have allocated for your virtual environment.
- Note) VLP64 is set video output to LVDS as default setting. In case using HDMI, please refer to Section 6 Notes (2) Video output.

### (2) Execute the copy script for proprietary software

\$ cd ~/user\_work/meta-rzg2
\$ sh docs/sample/copyscript/copy\_proprietary\_softwares.sh ~/user\_work/proprietary

Note) Both product and evaluation version use the same script.

### (3) Setup a build environment

\$ cd ~/user\_work

\$ source poky/oe-init-build-env

Environment to build are set by the source command.

### (4) **Prepare the default configuration files for the target board**

- \$ cd ~/user\_work/build
- \$ cp ../meta-rzg2/docs/sample/conf/board/linaro-gcc/\*.conf ./conf/
- \$ cp ./conf/local\_gecko.conf ./conf/local.conf
- \$ cp ./conf/bblayers\_gecko.conf ./conf/bblayers.conf

Please replace "*board*" by the name below:

HiHope RZ/G2H board:hihope-rzg2hHiHope RZ/G2M board:hihope-rzg2mHiHope RZ/G2N board:hihope-rzg2nEK874 RZ/G2E board:ek874



### (5) Decompress OSS files to "build" directory

This step is not mandatory and able to go to the step (7) in case the "offline" environment is not used.

\$ cd	~/user_work/build
\$7z	x ~/oss_pkg_v104.7z.001 (*1)
\$ 7z	x ~/oss_pkg_gecko_v104.7z.001 (*2)

All OSS packages will be decompressed at the step marked "\*1" and "\*2". 7ziped files are not able to decompress individually. All oss\_pkg\_v104.7z and oss\_pkg\_gecko\_v104.7z files must be placed at the same directory before running 7z command.

Note) If this step is omitted and BB\_NO\_NETWORK is set to "0" in next step, all source codes will be downloaded from the repositories of each OSS via the internet when running bitbake command. <u>Please note that if you do not use an "offline" environment, a build may fail due to the implicit changes of the repositories of OSS.</u>

#### (6) Download Linux kernel source code

\$ cd ~/user\_work/build
\$ bitbake linux-renesas -c fetch

The procedure so far is finished, the "offline" environment is ready. If you want to prevent network access, please change the line in the "~/user work/build/conf/local.conf" as below:

BB\_NO\_NETWORK = "1"

To change BB\_NO\_NETWORK from "0" to "1".

#### (7) Start a build

\$ bitbake core-image-weston

Building an image can take up to a few hours depending on the user's host system performance.

After the build is successfully completed, a similar output will be seen:

```
NOTE: Tasks Summary: Attempted 7427 tasks of which 16 didn't need to be rerun and al l succeeded.
```

and the command prompt will return.

All necessary files listed in Table 3 will be generated by the bitbake command at build/tmp/deploy/images directory.



	Linux kernel	Device tree file	root filesystem	Boot loader
RZ/G2H	Image-hihope-	Image-r8a774e1-hihope-	<image name=""/> -	u-boot-elf-hihope-rzg2h.srec
	rzg2h.bin	rzg2h-ex.dtb	hihope-	bootparam_sa0.srec
		(for main+sub board)	rzg2h.tar.bz2	bl2-hihope-rzg2h.srec
				bl31-hihope-rzg2h.srec
		Image-r8a774e1-hihope-		tee-hihope-rzg2h.srec
		rzg2h.dtb		cert_header_sa6.srec
		(for main board only)		
RZ/G2M	Image-hihope-	Image-r8a774a1-hihope-	<image name=""/> -	u-boot-elf-hihope-rzg2m.srec
	rzg2m.bin	rzg2m-ex.dtb	hihope-	bootparam_sa0.srec
		(for main+sub board)	rzg2m.tar.bz2	bl2-hihope-rzg2m.srec
				bl31-hihope-rzg2m.srec
		Image-r8a774a1-hihope-		tee-hihope-rzg2m.srec
		rzg2m.dtb		cert_header_sa6.srec
		(for main board only)		
RZ/G2N	Image-hihope-	Image-r8a774b1-hihope-	<image name=""/> -	u-boot-elf-hihope-rzg2n.srec
	rzg2n.bin	rzg2n-ex.dtb	hihope-	bootparam_sa0.srec
		(for main+sub board)	rzg2n.tar.bz2	bl2-hihope-rzg2n.srec
				bl31-hihope-rzg2n.srec
		Image-r8a774b1-hihope-		tee-hihope-rzg2n.srec
		rzg2n.dtb		cert_header_sa6.srec
		(for main board only)		
RZ/G2E	Image-	Image-r8a774c0-ek874.dtb	<image name=""/> -	u-boot-elf-ek874.srec
	ek874.bin	(for main+sub board)	ek874.tar.bz2	bootparam_sa0.srec
				bl2-ek874.srec
		Image-r8a774c0-cat874.dtb		bl31-ek874.srec
		(for main board only)		tee-ek874.srec
				cert_header_sa6.srec

### Table 3. Image files

*<image name>* will be the name used in the step (7).

Please note that typical HiHope boards users who use the combination of main and sub boards need to use "Imager8a774xx-hihope-rzg2x-ex.dtb" as a device tree file. If the dtb files of "for main board only" are used, interfaces on the sub board such as Ethernet are not able to be used.

For the booting method and the required settings, please refer to the "RZ/G2 Reference Boards Linux Start-up Guide".

Also note that the dtb files listed in the **Table 3 cannot be used for the early version of boards**. See the section **6 Notes**.



# 3.3 Building SDK

To build Software Development Kit (SDK), run the commands below after the steps (1) - (7) of section 3.2 are finished. Before starting to build SDK, please switch the default GCC compiler to GCC 5. Please refer to the step (2) of section 3.1.

The SDK allows you to build custom applications outside of the Yocto environment, even on a completely different PC. The results of the commands below are 'installer' that you will use to install the SDK on the same PC, or a completely different PC.

For building general applications:

\$ cd ~/user\_work/build
\$ cp ../meta-rzg2/docs/sample/conf/board/linaro-gcc/\*.conf ./conf/
\$ bitbake core-image-weston-sdk -c populate\_sdk

Please replace "*board*" by the name below:

HiHope RZ/G2H board:hihope-rzg2hHiHope RZ/G2M board:hihope-rzg2mHiHope RZ/G2N board:hihope-rzg2nEK874 RZ/G2E board:ek874

The resulting SDK installer will be located in build/tmp/deploy/sdk/

The SDK installer will have the extension .sh

To run the installer, you would execute the following command:

\$ sudo poky-glibc-x86\_64-core-image-weston-sdk-aarch64-toolchain-2.4.3.sh

Please refer to "RZ/G2 Group Application Note" and "Verified Linux Package Start-up Guide" for the usage of SDK.



# 4. Components

Compared to VLP for 32bit kernel and previous version of VLP64, this version uses different version of Linux kernel and supports newer HTML5 rendering engine. Please also refer to the "Component list" for details.

Components	VLP for 32bit kernel v2.1.5	VLP for 64bit kernel v1.0.2	VLP for 64bit kernel v1.0.4
Linux kernel	4.4.199-cip39	4.19.56-cip5	4.19.106-cip21
GCC	7.2.1 (Linaro GCC 7.2-2017.11)	7.3.1 (Linaro GCC 7.3-2018.05)	7.3.1 (Linaro GCC 7.3-2018.05)
glibc	2.19 (CIP)	2.19 (CIP)	2.19 (CIP)
binutils	2.25 (CIP)	2.25 (CIP)	2.25 (CIP)
busybox	1.22.0 (CIP)	1.22.0 (CIP)	1.22.0 (CIP)
openssl	1.0.1t (CIP)	1.0.1t (CIP)	1.0.1t (CIP)
gstreamer1.0	1.12.2	1.12.2	1.12.2
wayland	1.13.0	1.13.0	1.13.0
weston	2.0.0	2.0.0	2.0.0
python2	2.7.17	2.7.13	2.7.13
python3	3.5.3	3.5.3	3.5.3
Qt (LGPL version)	5.6.3	5.6.3	5.6.3
Gecko	60	60	68
Docker	-	17.06	17.06

Table 4. Versions of commonly used components

Note) Some components can be replaced with newer versions that are provided by CIP. Please refer to **6 Notes** for details.



# 5. Restrictions

# 5.1 All MPUs

### (1) **Drivers**

Below drivers can be used but are not fully tested in this release.

- Bluetooth
- Wifi
- IPMMU



### 6. Notes

### (1) Bootloader/Linux kernel

The dtb files listed in the **Table 3** cannot be used for the early revision of Hoperun boards. If you are using revision 2 boards, please use below files. These are automatically generated at the same place as the other image files when building a BSP.

### HiHope RZ/G2M board:

- Image-r8a774a1-hihope-rzg2m-ex-rev2.dtb (for main+sub board)
- Image-r8a774a1-hihope-rzg2m-rev2.dtb (for main board only)

### HiHope RZ/G2N board:

- Image-r8a774b1-hihope-rzg2n-ex-rev2.dtb (for main+sub board)
- Image-r8a774b1-hihope-rzg2n-rev2.dtb (for main board only)

### Silicon Linux RZ/G2E board (EK874):

• Please refer to (8) GPU in this section.

Note) Board revision is printed below the Hoperun logo on boards.

#### (2) Video output

VLP64 is set video output to LVDS as default setting. In case to use HDMI as a video output, please apply the patch with this command.

```
$ cd ~/user_work/meta-rzg2
```

```
$ patch -p1 < ../extra/0001-BSP-1.0.4-add-support-HDMI.patch</pre>
```

### After applying above patch, please note to below points.

#### Audio

In case 48kHz audio, please set SW2404 to P1 side.

### Wifi

Firmware of Bluetooth is integrated into the kernel. Therefore, this step is not necessary.

hciattach /dev/ttySC1 texas 3000000

Instead, this step is required.

### rfkill unblock bluetooth

### SATA

SATA interface on HiHope RZ/G2N or RZ/G2H board is enabled by setting switches as below.

- SW1001-7 on main board: OFF
- SW43 on sub board: ON



### (3) Weston

Due to the specification of opensource software (Weston 2.0.0), it is not recommended to resize application windows. Please consider designing the application to use fixed sized windows.

### (4) Video playback

Due to the specification of opensource software (GStreamer and others) and drivers, multiple GStreamer pipelines with hardware scale cannot run.

Also, below formats of video are not supported.

- NV61
- YUV420
- YUV422
- YUV444
- H.264, 80Mbps

### (5) ECC

The ECC function for DRAM has two modes: 8bit data/5bit ECC mode and 64bit data/8bit ECC mode. 8bit data/5bit ECC mode can be evaluated by the following method. When applying the ECC function to products or need other details including the method to enable 64bit data/8bit ECC mode, please contact Renesas.

Enable the function by changing the lines below in the local.conf.

Disable:

```
# MACHINE_FEATURES_append = " ecc"
# ECC_MODE = "Partial"
Enable:
MACHINE_FEATURES_append = " ecc"
ECC_MODE = "Full"
```

This sets 8bit data/5bit ECC mode for all DRAM region. After building, please replace all images including boot loaders.

#### (6) **SDHI**

Early revision of EK874 boards cannot detect insertion of SD card. Please plugged in a card before turning on the power.

#### (7) **VIN**

One camera input is enabled in default settings. Two camera inputs can be enabled in RZ/G2N and H. Please refer to the Video Capture Driver User's Manual that is included in the RZ/G2 Group BSP Manual Set for more details.

VIN on early revision of HiHope RZ/G2M and N boards fails to work. Please use newer boards in case VIN is necessary.

### (8) **GPU**

The dtb files listed in the Table 3 cannot be used for the early version (ES1.0) of RZ/G2E.

If the board prints the messages below when turn on the power, ES1.0 of RZ/G2E is implemented on the board.



```
    [ 0.000096] NOTICE: BL2: RZ G2E Initial Program Loader(CA53)
    [ 0.004373] NOTICE: BL2: Initial Program Loader(Rev.1.0.23)
    [ 0.009991] NOTICE: BL2: PRR is RZG G2E Ver.1.0
```

```
CPU: Renesas Electronics R8A774C0 rev 1.0
```

In this case, please use below dtb files instead. These are built simultaneously when building normal dtb files.

- Image-r8a774c0-es10-ek874.dtb (for main+sub board)
- Image-r8a774c0-es10-cat874.dtb (for main board only)

In case both old and new RZ/G2E LSIs are used in your laboratory at the same time, dtb files can automatically be selected using the environment variable cut\_ver which is set by u-boot program according to the LSI's information. Please store multiple dtb files in an SD card and set bootcmd of u-boot like this.

setenv bootcmd 'fatload mmc 0:1 0x48080000 Image; if test "\${cut\_ver}" = "10"; then
fatload mmc 0:1 0x48000000 Image-r8a774c0-es10-ek874.dtb; else fatload mmc 0:1 0x480
00000 Image-r8a774c0-ek874.dtb ; fi ; booti 0x48080000 - 0x48000000'

#### (9) Docker

Docker is disabled in the default settings of VLP. To enable Docker, please uncomment the below line inside the file "~/user\_work/build/conf/local.conf" before building images.

#MACHINE\_FEATURES\_append = " docker"

#### (10) Wifi

Wifi is disabled in default settings but modules necessary for Wifi functions are installed into rootfs. In case Wifi is necessary, please enable it from a console as below.

#### \$ rfkill list

If this command shows "Soft blocked: yes", run "unblock" command like this.

\$ rfkill unblock wlan

Then, continue below.

You may need to retry the "connect" command few times.

Note that some settings relating about radio waves should be adjusted according to the laws of each region. Please refer to general information in books and websites about Linux networking.

#### (11) USB Video Class

USB Video Class (UVC) driver is not installed with the default settings of VLP due to its big size.

In case UVC devices such as USB cameras are necessary, please install the driver by adding the line below to local.conf.

IMAGE\_INSTALL\_append = " kernel-module-uvcvideo '

### (12) Gecko

In this release, HTML5 (Gecko) is verified on Silicon Linux RZ/G2E evaluation kit (ek874).

### (13) CIP Core Packages

VLP includes Debian 8 (jessie) based CIP Core Packages indicated as "(CIP)" in the **Table 4** and enabled in the default settings. In this release, these packages can be replaced with Debian 10 (buster) based CIP Core Packages. Please follow below procedures to enable buster based packages. For more technical information, please contact Renesas.

Apply the patch to your build environment

<pre>\$ cd ~/user_work/poky</pre>	
<pre>\$ patch -p 1 </pre>	atch

Uncomment the line below in the local.conf

```
MACHINE_FEATURES_append = " Buster-limited"
```

Comment out the line below in the local.conf

```
# INCOMPATIBLE_LICENSE "GPLv3 GPLv3+"
```

By building BSP, the packages will be replaced as below table.

Package	Buster version	Jessie version	
glibc	2.28	2.19	
binutils	2.31.1	2.25	
busybox	1.30.1	1.22.0	
openssl	1.1.1d	1.0.1t	

More buster packages will be available in VLP in future.

Note) In this release, this method to enable buster based packages is preliminary and provided AS IS with no warranty.



# Website and Support

Renesas Electronics Website <u>http://www.renesas.com/</u>

### Inquiries

http://www.renesas.com/contact/

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