

RZ MPU HTML5 (Chromium132) Package v4.0.0.1 for Verified Linux Package v4.0.1

R01US0744EJ0103

Rev. 1.00

Dec. 25, 2025

HTML5(Chromium) Start-up Guide

Introduction

This release note describes the contents, building procedures for HTML5 (Chromium132) and important points of the RZ MPU HTML5 (Chromium132) Package v4.0.0.1 for RZ MPU Verified Linux Package (hereinafter referred to as “VLP”).

If you need information to build Linux BSPs without a GUI Framework of HTML5, please refer to “RZ MPU Verified Linux Package Version 4.0.1 Release Note” (r01us0797ej0102-rz(Release Note).pdf).

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1. Release Items

- **Name and version**

RZ MPU HTML5 (Chromium132) Package v4.0.0.1 for RZ MPU Verified Linux Package Version 4.0.1
(hereinafter referred to as “HTML5 (Chromium132) Package v4.0.0.1” and “VLP v4.0.1”)

- **Distribution method**

Please visit the site below and create an account to download the packages. This site is for the entire RZ Family which includes the RZ series. Basic packages of VLP can be downloaded.

RZ Family:

<https://www.renesas.com/products/microcontrollers-microprocessors/rz-arm-based-high-end-32-64-bit-mpus>

You can also download the basic packages of VLP v4.0.1 from the site below.

[RZ MPU Verified Linux Package \[6.1-CIP\] | Renesas](#)

- **Target board for HTML5 (Chromium132)**

The target boards of this BSP are as below table.

- **Table 1. Target board list**

Device	Evaluation Board
RZ/G2L	RZ/G2L Evaluation Board Kit (P/N: RTK9744L23S01000BE)
RZ/G2LC	RZ/G2LC Evaluation Board Kit (P/N: RTK9744C22S01000BE)

- **Build Environment**

Linux Host PC:

- OS: Ubuntu 22.04 LTS (64-bit).
- 250 GB of free disk space.

- **Functions**

Linux VLP

- Linux Kernel
- Linux Drivers
- Graphics Libraries
- Codec Libraries

- **File contents**

VLP is delivered by the files listed in Table 2.

RZ MPU HTML5 (Chromium132) Package v4.0.0.1 for Verified Linux Package v4.0.1 Chromium Start-up Guide

Table2. RZ MPU Verified Linux Package

Basic files of VLP v4.0.1

File	Description
RTK0EF0045Z0021AZJ-v4.0.1.zip (*)	Board Support Package. This file includes the Yocto recipe packages and the necessary documents.
rz_vlp_v4.0.1.tar.gz	Yocto recipe packages
r01us0797ej0102-rz(Release Note).pdf	Release Note of VLP without a GUI Framework of HTML5.
r01us0798ej0101-rz(Linux Start-up Guide RZG2L,LC,UL).pdf	Document Release Note of VLP without a GUI Framework of HTML5 describing booting method and the required settings of bootloader for RZ MPU .
oss_pkg_rz_v4.0.1.7z (*)	Open-source software packages See the Note below before you download.

Basic files of HTML5 (Chromium132) Package v4.0.0.1

File	Description
RTK0EF0193Z00003ZJ_v4.0.0.1.zip (*)	Board Support Package for HTML5 (Chromium132). This file includes the Yocto recipe packages for HTML5 (Chromium132) and the necessary documents.
rzg_bsp_chromium132_v4.0.0.1.tar.gz	Yocto recipe packages
r01us0744ej0103-rz-g (Chromium Start-up Guide).pdf	This document
oss_pkg_chromium132_v4.0.0.1.7z (*)	Open source software packages for HTML5 (Chromium132). See the Note below before you download.

- (*) These packages are provided “AS IS” with no warranty and the license which is described in the source code. Please check the contents of the license, then consider the applicability to the product carefully.

Note) The open source software (OSS) packages contain all the relevant source code files. These are the same versions of OSS that was used when VLP was verified. Downloading a using this large OSS package file (oss_pkg_chromiumXXX_xxx.7z) is not mandatory if your build PC is connected to the Internet and can directly download the individual source code packages listed in the Yocto recipes. However, if your build PC is not connected to the Internet, this OSS package file contains all the source packages required by the Yocto build.

Open source software 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 software 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 BSP supports can be built on an “offline” environment. Please refer to the documents of “Linux_Start-up_Guide”.

Table3. Optional packages

	File ("XX" is replaced by "EN" or "JP".)	Description
RZ MPU Graphics Library	RTK0EF0045Z14001ZJ-v4.1.2.6_rzg_XX.zip	For RZ/G2L and RZ/G2LC . This provides graphics function compliant with the OpenGL ES standard.
RZ MPU Video Codec Library	RTK0EF0045Z16001ZJ-4.1.3.1_XX.zip	RZ MPU Video Codec Library for RZ/G2L .

2. Build Instructions

2.1 Build VLP without HTML5

Please follow the below documents and build the V first. You can read the release note and check the release items.
You can build BSP by following the chapter 1 and 2 of the Linux Start-up guide.

Table4. Documents for the first step

r01us0797ej0102-rz(Release Note).pdf	Release Note of VLP without a GUI Framework of HTML5. You can check the release items.
r01us0798ej0101-rz(Linux Start-up Guide RZG2L,LC,UL).pdf	Documents describing booting methods and the required settings of bootloader for RZ/G2L and RZ/G2LC . Please refer to the chapter 1 and 2 for building BSP.

Please note that it is necessary to run the below command in the step 2.1(6) of the Linux Start-up guide:

\$ MACHINE=<board> bitbake core-image-weston
--

HTML5 (Chromium132) supports only core-image-weston for the build image.

Table 5. List of platforms and the boards

Renesas MPU	<board>
RZ/G2L	smarc-rzg2l
RZ/G2LC	smarc-rzg2lc

And VLP has some additional packages and options, so users can select the combination themselves and build.
Please note that HTML5 (Chromium132) packages are tested with the below combination.

Table 6. Combinations of HTML5

		Packages and Option				
		Graphics	Codec	Security	MultiOS	Docker
Devices	RZ/G2L	O		-	-	-
	RZ/G2LC	O	-	-	-	-

(*) “-” means that the packages and the option are not tested with HTML5.

Example) Chromium132 for RZ/G2L is tested using both the graphics library and the codec library, but it is not tested using Security, MultiOS, and Docker.

After you complete the build, please move to the section 2.2 in this document and enable HTML5 (Chromium132).

2.2 Building images enabling HTML5

This section describes the instructions to enable HTML5 (Chromium132) to the build images.

Copy all files obtained from Renesas into your Linux Host PC prior to the steps below. The directory which you put the files in is described as <package download directory> in the build instructions.

(1) Move to a working directory at your home directory, and decompress Yocto recipe package

Run the commands below. The name and the place of the working directory can be changed as necessary.

```
$ cd ~/rzg_vlp_v4.0.1
$ cp ../<package download directory>/*.zip .
$ unzip ./RTK0EF0193Z00003ZJ_v4.0.0.1.zip
$ tar zxvf ./RTK0EF0193Z00003ZJ_v4.0.0.1/rzg_bsp_chromium132_v4.0.0.1.tar.gz
```

(2) Build Initialize

Please initialize a build using the 'oe-init-build-env' script in Poky and point TEMPLATECONF to platform conf path.

```
$ TEMPLATECONF=$PWD/meta-renesas/meta-rz-distro/conf/templates/rz-conf/ source \
poky/oe-init-build-env build
```

(3) Add layers

Please follow the below steps to add the bitbake-layers add-layer ../meta-browser-hwdecode e layers you need. The steps add the settings to bblayers.conf.

```
$ bitbake-layers add-layer ../meta-clang
$ bitbake-layers add-layer ../meta-lts-mixins
$ bitbake-layers add-layer ../meta-browser/meta-chromium
$ bitbake-layers add-layer ../meta-openembedded/meta-networking
$ bitbake-layers add-layer ../meta-browser-hwdecode
```

(4) Enable HTML5 (Chromium132)

Please follow the following instructions to edit the configuration file and enable HTML5 (Chromium132).

- Add the below lines to "~/rzg_vlp_v4.0.1/build/conf/local.conf".

```
IMAGE_INSTALL:append = " chromium-ozone-wayland "
IMAGE_INSTALL:append = " ntp "
IMAGE_INSTALL:append = " ttf-sazanami-gothic ttf-sazanami-mincho "
IMAGE_INSTALL:append = " adwaita-icon-theme-cursors "
```

(5) Decompress OSS files to “build” directory (Optional)

Run the commands below. This step is optional, and you can proceed to step (7) if an "offline" environment isn't necessary. This '7z' command will decompress all the OSS packages. **For example, this step uses the path "~/rz_vlp_v\${PACKAGE_VERSION}/build/" to decompress the open source software packages. You can choose any path for decompression.**

```
$ cp ../../<package download directory>/oss_pkg_chromium132_v4.0.0.1.7z .
$ 7z x oss_pkg_chromium132_v4.0.0.1.7z
```

Note) If you skip this step, the bitbake command will download all source codes from the repositories of each OSS over the internet. Please be aware that if you are not in an "offline" environment, the building might fail due to unexpected changes in the OSS repositories.

Open source software packages include all the source codes of the OSS components. These are the exact versions of the OSS used during the verification of VLP. If you are simply evaluating VLP and the RZ/G2L group, using these open source software packages are not necessary. Generally, all the software can be built without these files if your building machine has an internet connection.

Open source software packages are necessary for an "offline" environment. An "offline" environment is defined as an isolated environment without any network connection. VLP can consistently build images in this "offline" environment using these packages, unaffected by any modifications in the original OSS repositories. Furthermore, this "offline" environment always produces the same images that Renesas verified. Keep in mind that building without these open-source software packages could lead to the use of different source codes than those used by Renesas, due to potential unexpected changes in the OSS repositories.

When you run the 7z command, you may see the bellow message. Please select “A” at that time.

```
Would you like to replace the existing file:
Path: ./downloads/git2_github.com.gorilla.context.git.tar.gz.done
Size: 0 bytes
Modified: 2023-09-28 17:37:20
with the file from archive:
Path: downloads/git2_github.com.gorilla.context.git.tar.gz.done
Size: 0 bytes
Modified: 2023-10-28 00:36:19
? (Y)es / (N)o / (A)lways / (S)kip all / A(u)to rename all / (Q)uit? A
```

After completing the above steps, the “offline” environment is ready. To use the OSS packages and prevent network access, add these lines to “~/rz_vlp_v\${PACKAGE_VERSION}/build/conf/local.conf”:

```
BB_GENERATE_MIRROR_TARBALLS = "1"
BB_GENERATE_SHALLOW_TARBALLS = "1"
BB_GIT_SHALLOW = "1"
BB_GIT_SHALLOW_DEPTH = "1"

BB_NO_NETWORK = "1"

INHERIT += "own-mirrors"
SOURCE_MIRROR_URL = "file://<build directory>/own-mirror"
```

Other build environments can then reference the same “<build directory>/own-mirror” instead of decompressing the OSS packages individually.

(6) Start a build

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

Build the target file system image using bitbake

```
$ MACHINE=<board> bitbake core-image-weston
```

After the build is successfully completed, a similar output will be seen, and the command prompt will return.

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

All necessary will be generated by the bitbake command and will be located in the **build/tmp/ deploy/ images** directory.

2.3 Browser application

This section describes how to launch and configure the browser application after building BSP.

2.3.1 Launch the browser application on the evaluation board

(1) Prepare the SD card and boot the evaluation board

Please follow the below documents again to boot the evaluation board. You can prepare the SD card and boot the evaluation board by following the chapter 3 and 4 of the Linux Start-up guide.

After booting the target board, please move to the next section 2.3.1(2) in this document.

Table 7. Documents for the first step

r01us0798ej0101-rz(Linux Start-up Guide RZG2L,LC,UL).pdf	Documents describing booting method and the required settings of bootloader for RZ/G2L and RZ/G2LC . Please refer to the chapter 3 and 4.
--	--

(2) Launch the browser application on the evaluation board

Please connect a USB hub, a mouse, and a keyboard to your evaluation board. Then please run the below command on Tera Term.

“https://~~~” means a website URL, so please enter the URL of the site you want to open. “/home/root/xxx.html” means a html content in the root file system, so please enter the path of the file you want to open.

```
$ chromium --no-sandbox https://~~~
$ chromium --no-sandbox /home/root/xxx.html
```

Note: The above procedure is based on Chapter 3 and Chapter 4 of the Start-up Guide and assumes login as the root user on Tera Term.

When starting from Wayland Terminal, please follow the steps below.

```
$ chromium https://~~~
$ chromium /home/root/xxx.html
```

3. Note

(1) Test Status of the HTML5 (Chromium132) package

The HTML5 (Chromium132) package is tested. Two types of tests are conducted.

- web-platform-tests:
This is to test functions which the browser application have in detail.
- Performance tests:
Based on <https://github.com/webdino/gecko-embedded/wiki/QA>, the performance of the browser application is tested.

4. Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Dec. 25, 2025	-	RZ MPU HTML5 (Chromium132) Package v4.0.0.1 for RZ MPU Verified Linux Package v4.0.1

Website and Support

Renesas Electronics Website

<http://www.renesas.com/>

Inquiries

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