RZ/T2H, RZ/N2H Board Support Package
Version 1.0.2-update1
Release Note

R01US0681EJ0103
Rev. 1.03
Jul. 31, 2025

Introduction

This release note describes the contents and important points of the RZ/T2H, RZ/N2H Board Support Package (hereinafter referred to as “BSP”).

Please also refer to the following documents that describe the instructions to build BSP and boot the evaluation boards.

- r01us0682ej0102-rz-t2h-n2h(Linux_Start-up_Guide_RZT2H_N2H).pdf

Contents

1. Release Items

- **Name and version**
  RZ/T2H, RZ/N2H Board Support Package
  Version 1.0.2-update1 (hereinafter referred to as “BSP v1.0.2-update1”)

- **Target board**
  RZ/T2H Evaluation Board
  RZ/N2H Evaluation Board

- **Functions**
  Linux BSP
    - Linux Kernel
    - Linux Drivers

  GUI Framework
    - LVGL
    - Qt

- **File contents**
  BSP is delivered by the files listed in Table 1.

Table 1. RZ/T2H, RZ/N2H Board Support Package

Basic files of BSP v1.0.2

File	Description
RTK0EF0177Z00002ZJ-v1.0.2-update1.zip (*)	Board Support Package. This file includes the **Yocto recipe packages**, the necessary documents, and Flash Programmer.
rzt2h_n2h_bsp_v1.0.2.tar.gz	**Yocto recipe packages**.
- HDR NM - Flash_Programmer_SCIF_CR52_RZT2H_EVK.mot	Flash Programmer for both RZ/T2H and RZ/N2H. These are used for writing the bootloaders on the evaluation board.
r01us0681ej0103-rz-t2h-n2h(Release_Note_RZT2H_N2H).pdf	This document.
r01us0682ej0102-rz-t2h-n2h(Linux_Start-up_Guide_RZ/T2H_N2H).pdf	A document that describes the process from building the BSP to booting the evaluation board.
rzt2h_n2h_bsp_v1.0.2-update1_patches.zip	Patch files to update v1.0.2 to v1.0.2-update1. See the “5. Notes” section. This file is optional.

(*) 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.

2. Components

The components which are commonly used in this release are listed in Table 2. Please also refer to the manifest file for details. The manifest file is created to the following path after building the images:

Example:

`$WORK/build/tmp/deploy/images/rzt2h-dev/core-image-minimal-rzt2h-dev.manifest`

`$WORK/build/tmp/deploy/images/rzn2h-dev/core-image-minimal-rzn2h-dev.manifest`

Table 2. Versions of commonly used components

Components	BSP v1.0.1	BSP v1.0.2	BSP v1.0.2-update1
Linux kernel	5.10.145-cip17	5.10.145-cip17	5.10.145-cip17
GCC	8.3.0 (Arm GCC 8.3-2019.03)	8.3.0 (Arm GCC 8.3-2019.03)	8.3.0 (Arm GCC 8.3-2019.03)
busybox	1.30.1	1.30.1	1.30.1
openssl	1.1.1n	1.1.1n	1.1.1n
Docker	19.03.8-ce	19.03.8-ce	19.03.8-ce

3. Changes

The following table lists the changes from the previous version.

Table 3. Changes from BSPv1.0.1 to BSPv1.0.2

Features	Description
Kernel	- Support PCIe Endpoint. Please note that there are some limitations and some patches. - TSU driver is disabled to access OTP. TSU gets OTP with the secure monitor call function. - Ping failed when setting over 1340 bytes, so this is fixed. - DSU frequency is changed. - Support PTPOUT signal. - Support the driver of EtherCAT Slave Controller. - Fix long boot time issue on preempt-RT version of kernel. - Updated CPG driver according to the latest hardware manual. - Change RS485 DE definition pin from gpio to pinctrl. - SCI: support baud rate higher than 115200.

Changes from BSPv1.0.2 to BSPv1.0.2-update1

Features	Description
glibc	Fix CVE-2025-4802 (glibc allows attack with untrusted LD_LIBRARY_PATH)
glib	Updated to glib2.0_2.58.3-2+deb10u8.

4. Restriction

(1) PCIe Devices compatibility

Our evaluation has shown that the following PCIe cards are incompatible with our evaluation board. It is likely that other PCIe cards may also exhibit the same issue.

- BUFFALO USB 3.0 2-Port PCI-Express Interface Board (IFC-PCIE2U3)
- Lenovo PCI-E PCI Express x1 2-Ports USB 3.0 Adapter Card 03T7030

(2) PCIe Endpoint (EP)

The PCIe Endpoint feature of RZ/T2H and RZ/N2H have the following limitations:

- Only MSI interrupt is supported.

5. Note

Check the following patches, select, and apply to your build environment if needed. After that, build in the "online" environment. This step is required before executing the bitbake command. Refer to the section below in the "Linux Start-up Guide" for more information.

```
$ cd ~/rzt2h_n2h_bsp_${PACKAGE_VERSION}       #(e.g., PACKAGE_VERSION=v1.0.2)
$ unzip RTK0EF0177Z00002ZJ-v1.0.2-update1.zip \
"RTK0EF0177Z00002ZJ-v1.0.2-update1/rzt2h_n2h_bsp_v1.0.2-update1_patches.zip"
$ unzip RTK0EF0177Z00002ZJ-v1.0.2-update1/rzt2h_n2h_bsp_v1.0.2-update1_patches.zip\
 -d extra
```

The following files and directories will be extracted into the *~/rzt2h_n2h_bsp_${PACKAGE_VERSION}/extra* folder:

```
├─── 0001-Update_source_for_buster_and_bullseye.patch
├─── 0002-Ignore_LD_LIBRARY_PATH_and_debug_env_var_for_setuid_for_static.patch
├─── 0003-meta-rz-common-Change-OSS-mirro-to-Freexian.patch
├─── 0004-meta-rz-common-Extend-Freexian-support-to-more-recipes.patch
├─── enable_pcie_endpoint.patch
├─── 0001-rzt2-linux-renesas-Add-support-changing-ports-to.patch
└─── 0002-rzn2-linux-renesas-Add-support-changing-ports-to.patch
```

(1) PCIe Endpoint

If you require the PCIe Endpoint, please apply the following patch before starting a build. And please skip step 2.2(2) in r01us0682ej0102-rz-t2h-n2h(Linux_Start-up_Guide_RZT2H_N2H).pdf to avoid a conflict.

```
$ cd ~/rzt2h_n2h_bsp_${PACKAGE_VERSION}
$ patch -p1 < ./extra/enable_pcie_endpoint.patch
```

(2) For fixing CVE-2025-4802

The vulnerability CVE-2025-4802 allows an attacker to exploit LD_LIBRARY_PATH to inject malicious libraries into setuid-root programs, potentially leading to privilege escalation. This issue affects glibc in environments where LD_LIBRARY_PATH is not properly sanitized for privileged binaries.

To address this issue, please apply the following patches before satring a build.

```
$ cd ~/rzt2h_n2h_bsp_${PACKAGE_VERSION}/meta-renesas/
$ patch -p1 < ../extra/0001-Update_source_for_buster_and_bullseye.patch
$ patch -p1 < ../extra/0002-Ignore_LD_LIBRARY_PATH_and_debug_env_var_for_setuid_\
for_static.patch
$ cd ..
```

(3) For fixing build "Fetcher failure"

Some OSS files (Example: "glib2.0_2.58.3-2+deb10u5.dsc" or "openssl_1.1.1n.orig.tar.gz.asc") has been removed, which causes a fetcher failure during the building.

To address this issue, please apply the following patches before satring a build.

```
$ cd ~/rzt2h_n2h_bsp_${PACKAGE_VERSION}/meta-renesas/
$ patch -p1 < ../extra/0003-meta-rz-common-Change-OSS-mirro-to-Freexian.patch
$ patch -p1 < ../extra/0004-meta-rz-common-Extend-Freexian-support-to-more-\
recipes.patch
$ cd ..
```

Note: Please apply for this patch after fixing the CVE-2025-4802 patches.

(4) Disabling eMMC Usage in U-Boot

By default, U-Boot saves environment variables to eMMC.

If your system does not require the use of eMMC, you can modify the device tree as described below to disable eMMC. This will prevent U-Boot from outputting control signals for eMMC on pins P12_0 and P12_1 during boot.

To disable eMMC in the device tree, change the status = "okay" property of the SDHI0 node to status = "disabled" at line 70 in the following file:

~/rzt2h_n2h_bsp_${PACKAGE_VERSION}/build/tmp/work/rzt2h_dev-poky-linux/u-boot/1_v2021.10+gitAUTOINC+0adf5cb2db-r0/git/arch/arm/dts/rzt2h-dev.dts
or
~/rzt2h_n2h_bsp_${PACKAGE_VERSION}/build/tmp/work/rzn2h_dev-poky-linux/u-boot/1_v2021.10+gitAUTOINC+0adf5cb2db-r0/git/arch/arm/dts/rzn2h-dev.dts

```
 &sdhi0 {
   bus-width = <8>;
-  status = "okay";
+  status = "disable";
```

Then, you can use the following command to re-build the U-Boot.

```
$ MACHINE=<board> bitbake u-boot -C compile
```

6. Revision History

		Description	
Rev.	**Date**	**Page**	**Summary**
1.00	Nov. 26, 2024	-	First edition issued.
1.01	Dec. 23, 2024	-	Update the information to BSP v1.0.1. Newly support RZ/N2H.
1.02	Apr. 15, 2025	-	Update the information to BSP v1.0.2.
1.03	Jul. 31, 2025	-	Update the information to BSP v1.0.2-update1.

Website and Support

Renesas Electronics Website
http://www.renesas.com/

Inquiries
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