RENESAS

CONFIDENTIAL

Linux Interface Specification Yocto recipe

Release Note: Software

R-Car H3/M3/M3N/E3/D3 Series

Renesas Electronics
www.renesas.com

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How to Use This Manual

- **[Readers]**

  This manual is intended for engineers who develop products which use the R-Car H3/M3/M3N/E3 processor.

- **[Purpose]**

  This manual is intended to give users an understanding of the functions of the R-Car H3/M3/M3N/E3/D3 processor device driver and to serve as a reference for developing hardware and software for systems that use this driver.

- **[How to Read This Manual]**

  It is assumed that the readers of this manual have general knowledge in the fields of electrical
  — engineering, logic circuits, microcontrollers, and Linux.
  → Read this manual in the order of the CONTENTS.
  — To understand the functions of a multimedia processor for R-Car H3/M3/M3N/E3/D3
  → See the R-Car H3/M3/M3N/E3/D3 User's Manual.
  — To know the electrical specifications of the multimedia processor for R-Car H3/M3/M3N/E3/D3
  → See the R-Car H3/M3/M3N/E3/D3 Data Sheet.

- **[Conventions]**

  The following symbols are used in this manual.
  Data significance: Higher digits on the left and lower digits on the right
  Note: Footnote for item marked with Note in the text
  Caution: Information requiring particular attention
  Remark: Supplementary information
  Numeric representation: Binary ... ××××, 0b××××, or ××××B
  Decimal ... ××××
  Hexadecimal ... 0x×××× or ××××H
  Data type: Double word ... 64 bits
  Word … 32 bits
  Half word ... 16 bits
  Byte ... 8 bits

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Table of Contents

1.   Introduction

This manual explains the package construction of R-Car H3/M3/M3N/E3/D3 Linux Yocto package.

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Linux Interface Specification Yocto recipe Release note   2.   List of R-Car H3/M3/M3N/E3/D3 Series Linux Yocto package contents

2.   List of R-Car H3/M3/M3N/E3/D3 Series Linux Yocto package contents

The followings are included in this product.

2.1   Software

IPL, U-Boot, Kernel, root file system and Multi Media packages are provided by using the Yocto Project.

2.2   English documentation

NO.	Contents	File name	version
1	Start-Up guide	RENESAS_RCH3M3M3NE3_YoctoStartupGuide_UME_v5.9.0.pdf	5.9.0

2.3   Japanese documentation

None.

3. Notice

- In BSP only, local-wayland.conf is provided. However, it is not supported.
- System settings (CPU clock, DDR clock, etc): Please refer to IPL Release note.

4.   Change History

4.1   v2.0.0

- Initial Revision of the R-Car H3 Ver.1.0 Linux BSP package by Yocto Recipe Package based on Yocto Project 1.8.
- Yocto recipe package v2.0.0 for R-Car H3 Ver.1.0
    - R-Car H3 Linux BSP package based on Linux Kernel 4.2-rc7.
    - 3D Graphics package
        - GSX: Pre-Alpha (64bit only).
- Not support lib32-core-image-weston.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	1.8
Toolchain gcc-linaro	4.9-r2015.03
Wayland/Weston	-
GStreamer	-
Kernel Ver	4.2-rc7
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	-
OpenGL ES	3.1

4.2   v2.1.0

- Yocto recipe package v2.1.0 for R-Car H3 Ver.1.0
    - R-Car H3 Linux BSP package v3.0.0 based on Linux Kernel 4.2
        - Please refer BSP's release note in detail.
    - U-Boot: The file name was changed into u-boot-elf.srec from u-boot.srec.
- Not support 3D graphics and Multi Media Packages.
- Recipe of IPL cannot create the following file. Please contact a Renesas Electronics sales office
    - bootparam_sa0.srec.
    - cert_header_sa6.srec.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	1.8
Toolchain gcc-linaro	4.9-r2015.03
Wayland/Weston	-
GStreamer	-
Kernel Ver	4.2
Userland 64/32bit	32/64
U-Boot	2015.04

| OP_TEE | - |
| OpenGL ES | 3.1 |

4.3   v2.2.0

- Yocto recipe package v2.2.0 for R-Car H3 Ver.1.0
    - o   R-Car H3 Linux BSP package v3.0.2 based on Linux Kernel 4.2
        - ▪   Please refer BSP's release note in detail.
- Recipe of IPL can create all srec file
    - o   Add recipe for bootparam_sa0.srec.
    - o   Add recipe for cert_header_sa6.srec.
- Support 3D graphics and Multi Media Packages
    - o   Please refer to Section5 table1 for package name and version.
    - o   Please add mem=2048M to bootargs.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes and Audio function doesn't work that are caused by un-optimized QoS settings.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	1.8
Toolchain gcc-linaro	4.9-r2015.03
Wayland/Weston	1.6
GStreamer	1.4.5
Kernel Ver	4.2
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	0.2.0
OpenGL ES	3.1

4.4   v2.3.0

- Yocto recipe package v2.3.0 for R-Car H3 Ver.1.0
    - o   R-Car H3 Linux BSP package v3.0.3 based on Linux Kernel 4.2
        - ▪   Please refer BSP's release note in detail.
    - o   Updated QoS settings. Audio function works
        - ▪   Please refer IPL's release note in detail.
    - o   Fix symbol error in gdb. This is defect of yoctoproject (poky) gdb recipes.
- 3D graphics and Multi Media Packages
    - o   Same as v2.2.0.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.

- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	1.8
Toolchain gcc-linaro	4.9-r2015.03
Wayland/Weston	1.6
GStreamer	1.4.5
Kernel Ver	4.2
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.5 v2.4.0

- Yocto recipe package v2.4.0 for R-Car H3 Ver.1.0
    - R-Car H3 Linux BSP package
        - Same as v2.3.0.
    - Updated IPL
        - arm-trusted-firmware adds the supports of PSCI function.
        - Please refer to IPL's release note.
    - Userland: Add media-ctl (v4l-utils) package.
- 3D graphics and Multi Media Packages
    - Same as v2.2.0.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	1.8
Toolchain gcc-linaro	4.9-r2015.03
Wayland/Weston	1.6
GStreamer	1.4.5
Kernel Ver	4.2
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.6 v2.5.2

- Yocto recipe package v2.5.2 for R-Car H3 Ver.1.0
    - Yocto Recipes package base upgrade to Yocto Project 2.0 from 1.8

- linaro gcc version upgrade to 5.1 from 4.9.
        - Changed XDG_RUNTIME_DIR to /run/usr/root from /run/user/0.
    o   R-Car H3 Linux BSP package
        - Same as v2.4.0.
    o   Updated IPL for linaro gcc 5.1.
- 3D graphics Packages and Multi Media Packages
    o   Upgrade linaro gcc version to 5.1 from 4.9 (except omx video).
    o   mem=2048M in bootargs became unnecessary.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- In MMP, please always enable H.264 decoder. Default is enable.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.1-r2015.08
Wayland/Weston	1.8
GStreamer	1.4.5
Kernel Ver	4.4rc2
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.7   v2.6.0

- Yocto recipe package v2.6.0 for R-Car H3 Ver.1.0
    o   Wayland/Weston upgrade to 1.8 from 1.6.
    o   Add Security softwares to userland in BSP only (core-image-minimal).
    o   R-Car H3 Linux BSP package v3.1.1 based on Linux Kernel 4.4
        - Upgrade linux kernel version to v4.4 rc2 from v4.2.
        - Deleted console setting from bootargs.
        - Please refer BSP's release note in detail.
    o   Updated IPL for Linux Kernel 4.4
        - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    o   OMX Video: upgrade linaro gcc version to 5.1 from 4.9.
    o   GFX: support Wayland/Weston 1.8.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- In MMP, please always enable H.264 decoder. Default is enable.

- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.1-r2015.08
Wayland/Weston	1.8
GStreamer	1.4.5
Kernel Ver	4.4rc2
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.8　　v2.7.0

- Yocto recipe package v2.7.0 for R-Car H3 Ver.1.1
    - o Wayland/Weston upgrade to 1.9 from 1.8.
    - o Add support R-Car H3 Ver.1.1.
    - o R-Car H3 Linux BSP package v3.2.0 based on Linux Kernel 4.4
        - Upgrade linux kernel version to v4.4 from v4.4 rc2.
        - Please refer BSP's release note in detail.
    - o Updated IPL for Linux Kernel 4.4
        - Add support secure boot in optee-os.
        - Add support 32bit TEE Client Library.
        - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - o GFX: Support Wayland/Weston 1.9.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- In MMP, please always enable H.264 decoder. Default is enable.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.1-r2015.08
Wayland/Weston	1.9
GStreamer	1.4.5
Kernel Ver	4.4
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.9   *v2.8.0*

- Yocto recipe package v2.8.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
    - o   Add support R-Car M3 Ver.1.1.
    - o   R-Car H3/M3 Linux BSP package v3.2.1 based on Linux Kernel 4.4
        - ▪   Please refer BSP's release note in detail.
    - o   Updated IPL for Linux Kernel 4.4
        - ▪   Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - o   GFX: support R-Car M3 Ver.1.1.
    - o   MMP: alpha2 release (Only R-Car H3 Ver.1.1).
    - o   Add support Lossy compression (Frame Compression Near Lossless, FCNL) feature. For this feature, includes IPL support and Linux Kernel support.
- R-Car M3 Ver.1.1 is not support Multi Media Package.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.1-r2015.08
Wayland/Weston	1.9
GStreamer	1.4.5
Kernel Ver	4.4
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.10   *v2.9.0*

- Yocto recipe package v2.9.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
    - o   R-Car H3/M3 Linux BSP package v3.2.2 based on Linux Kernel 4.4
        - ▪   Please refer BSP's release note in detail.
    - o   Updated IPL for Linux Kernel 4.4
        - ▪   Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - o   R-Car M3 Ver.1.1 supported Multi Media Packages.
    - o   MMP: Alpha2 release.
    - o   Ether AVB: Integrated in yocto recipe package.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.

- R-Car M3 Ver.1.1 does not support Lossy compression.
- In R-Car M3 Ver.1.1, if vspm, v4l2 or vspfilter are used, please use up-down scaling except for x1 in them.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.1-r2015.08
Wayland/Weston	1.9
GStreamer	1.4.5
Kernel Ver	4.4
Userland 64/32bit	32/64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.11   v2.10.0

- Yocto recipe package v2.10.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
    - o linaro gcc version upgrade to 5.2 from 5.1.
    - o R-Car H3/M3 Linux BSP package v3.3.0 rc3 based on Linux Kernel 4.6
        - ▪ Upgrade linux kernel version to v4.6 from v4.4.
        - ▪ Please refer BSP's release note in detail.
    - o Updated IPL for Linux Kernel 4.6
        - ▪ Lossy compression is enabled only MMP configuration.
        - ▪ Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - o Audio, Video, GFX: upgrade linaro gcc version to 5.2 from 5.1.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- 32-bit Environment included in SDK cannot be used. Please build 32bit SDK (lib32-core-image-weston-sdk).
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.9
GStreamer	1.4.5
Kernel Ver	4.6
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.12 v2.11.0

- Yocto recipe package v2.11.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
  - ○ Changed ARM gcc option to -mtune=cortex-a57.cortexa53.
  - ○ Userland supports only 64bit. 32bit environment was deleted.
  - ○ R-Car H3/M3 Linux BSP package v3.3.1 rc4 based on Linux Kernel 4.6
    - ▪ Please refer BSP's release note in detail.
- 3D graphics Packages and Multi Media Packages
  - ○ Audio: Added ALAC, FLAC, Dolby(R) Digital decoder and AAC-LC encoder.
  - ○ Video: Added DivX and RealVideo decoder.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Display may have a distorted screen in sometimes caused by un-optimized QoS settings.
- In MMP configuration, fixed the following issue.
  Data corruption occurs when kernel reads any data that is stored in "CMA for Lossy comp" (default: 0x00_5400_0000 - 0x00_5700_0000) because of "reusable" memory property in DeviceTree.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.9
GStreamer	1.4.5
Kernel Ver	4.6
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.13 v2.12.0

- Yocto recipe package v2.12.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
  - ○ R-Car H3/M3 Linux BSP package v3.3.2 based on Linux Kernel 4.6
    - ▪ Please refer BSP's release note in detail.
- 3D graphics Packages and Multi Media Packages
  - ○ MMP: Beta release.
  - ○ CMS: CMM3 and VSP2 Basic Color Management is integrated by one package.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v2.12.0 SDK toolchains.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.0
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.9

GStreamer	1.4.5
Kernel Ver	4.6
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	1.0.0
OpenGL ES	3.1

4.14   v2.15.0

- Yocto recipe package v2.15.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
    - o Yocto Recipes package base upgraded to Yocto Project 2.1.2 from 2.0.
    - o R-Car H3/M3 Linux BSP package v3.4.0 based on Linux Kernel 4.9
        - ▪ Upgrade Linux kernel version to v4.9 from v4.6.
        - ▪ Fix frame work of System Suspend to RAM.
        - ▪ Please refer BSP's release note in detail.
    - o U-Boot: Changed load address to 0x50000000 from 0x49000000.
    - o Updated IPL for Linux Kernel 4.9
        - ▪ IPL: Clean-up to the DDR setting code.
        - ▪ IPL: Add support R-Car Series, 3rd Generation M3 Ver.1.0.
        - ▪ Please refer to IPL's release note.
    - o Wayland/Weston upgraded to 1.11 from 1.9.
    - o Gstreamer upgraded to v1.6.3 from v1.4.5
        - ▪ Gstreamer-1.0-plugins-bad: Support Wayland/Weston 1.11.0.
- 3D graphics Packages and Multi Media Packages
    - o GFX: Support Wayland/Weston 1.11.0.
    - o ADSP, Video: Fix duplicate header files.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- The dtb filename was changed in R-Car H3. Only "Image-r8a7795-es1-salvator-x.dtb" is supported in this version. Please use "Image-r8a7795-es1-salvator-x.dtb". It supports R-Car H3 Ver.1.0 and Ver.1.1.
- You have to re-compile out-of-recipe software like user application by v2.15.0 SDK toolchains.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.0.0
OpenGL ES	3.1

4.15   v2.16.0

- Yocto recipe package v2.16.0 for R-Car H3 Ver.1.1/M3 Ver.1.1
    - R-Car H3/M3 Linux BSP package v3.5.1 based on Linux Kernel 4.9 Stable
        - Upgrade Linux kernel version to v4.9 Stable from v4.9 RC1.
        - Please refer BSP's release note in detail.
    - Updated IPL for Linux Kernel 4.9 Stable
        - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - GFX: Update to support Linux Kernel 4.9 Stable.
    - Wayland: Update libgbm to v10. 3.0.
    - XDG_RUNTIME_DIR has been changed from "/run/user/root" to "/run/user/0".
    - Video: Update video packages to v3.0.7
        - Support new codecs: H263 Decode.
    - Change location of include directory, which stores common user header files, to $(INCSHARED).
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- The dtb filename was changed in R-Car H3. Only "Image-r8a7795-es1-salvator-x.dtb" is supported in this version. Please use "Image-r8a7795-es1-salvator-x.dtb". It supports R-Car H3 Ver.1.0 and Ver.1.1.
- Please update your local.conf and bblayers.conf corresponding to Yocto v2.16.0 package. You can refer to meta-rcar-gen3/docs/sample/conf/ for updated contents.
- You have to re-compile out-of-recipe software like user application by v2.16.0 SDK toolchains.
- In some boards, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- v2.15.0 or later : U-Boot start address is 0x50000000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.16   v2.17.0

- Yocto recipe package v2.17.0 for R-Car H3 Ver.2.0/M3 Ver.1.1
    - R-Car H3/M3 Linux BSP package v3.5.2 based on Linux Kernel 4.9 Stable
        - Please refer BSP's release note in detail.
    - Updated IPL version according to BSP v3.5.2
        - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages

- o GFX: Update firmware to support both Ver.1.x and Ver.2.0.
- o Wayland: Support ivi-shell config for weston.ini.
  - To add config for ivi-shell, please enable DISTRO_FEATURES_append = " ivi-shell" in local.conf.
- o Video: Update video packages to v3.0.8.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- The dtb filename was changed in R-Car H3.
  - o Please use "Image-r8a7795-es1-salvator-x.dtb". It supports R-Car H3 Ver.1.0 and Ver.1.1.
  - o Please use "Image-r8a7795-salvator-x.dtb". It supports R-Car H3 Ver.2.0.
  - o Please use "Image-r8a7795-salvator-xs.dtb". It supports R-Car H3 Ver.2.0 (RTP0RC7795SIPB0012S).
- Please update your local.conf and bblayers.conf corresponding to Yocto v2.17.0 package. You can refer to meta-rcar-gen3/docs/sample/conf/ for updated contents.
- You have to re-compile out-of-recipe software like user application by v2.17.0 SDK toolchains.
- In some boards, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- v2.17.0 or later:
  - o U-Boot start address is 0x50000000.
  - o BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.17   v2.19.0

- Yocto recipe package v2.19.0 for R-Car H3 Ver.2.0/M3 Ver.1.1
  - o R-Car H3/M3 Linux BSP package v3.5.3 based on Linux Kernel 4.9 Stable
    - Add support R-Car M3 Ver.1.1 (RTP0RC7795SIPB0012S).
    - Please refer BSP's release note in detail.
  - o Updated IPL version according to BSP v3.5.3
    - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
  - o GFX: Change name of graphics initscript.
  - o Video: Update video packages to v3.0.9.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.

- The dtb filename was changed in R-Car H3
  - Please use "Image-r8a7795-es1-salvator-x.dtb". It supports R-Car H3 Ver.1.0 and Ver.1.1.
  - Please use "Image-r8a7795-salvator-x.dtb". It supports R-Car H3 Ver.2.0.
  - Please use "Image-r8a7795-salvator-xs.dtb". It supports R-Car H3 Ver.2.0 (RTP0RC7795SIPB0012S).
- The dtb filename was changed in R-Car M3
  - Please use "Image-r8a7796-salvator-x.dtb". It supports R-Car M3 Ver.1.0 and Ver.1.1.
  - Please use "Image-r8a7796-salvator-xs.dtb". It supports R-Car M3 Ver.1.0 and Ver.1.1 (RTP0RC7795SIPB0012S).
- You have to re-compile out-of-recipe software like user application by v2.19.0 SDK toolchains.
- In some boards, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- v2.17.0 or later:
  - U-Boot start address is 0x50000000.
  - BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.18   v2.21.0

- Yocto recipe package v2.21.0 for R-Car H3 Ver.2.0/M3 Ver.1.1
  - R-Car H3/M3 Linux BSP package v3.5.5 based on Linux Kernel 4.9 Stable
    - Please refer BSP's release note in detail.
  - Updated IPL version according to BSP v3.5.5
    - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
  - GFX: Update to support Linux Kernel 4.9 Stable.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v2.21.0 SDK toolchains.
- In some boards, the resuming from System Suspend to RAM may cause unstable operation.
- v2.17.0 or later:
  - U-Boot start address is 0x50000000.
  - BL2 start address is 0xE6304000.

- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.19   v2.23.0

- Yocto recipe package v2.23.0 for R-Car H3 Ver.2.0/M3 Ver.1.1
    - R-Car H3/M3 Linux BSP package v3.5.8 based on Linux Kernel 4.9 Stable
        - Please refer BSP's release note in detail.
    - Updated IPL version according to BSP v3.5.8
        - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - GFX: Update to support Linux Kernel 4.9 Stable.
    - GFX: Create GFX packagegroup to maintain GFX pkgs easier.
    - Video: Update video packages to v3.0.10.
    - Use ${RENESAS_DATADIR} variable for /usr/local directory instead of hard coding.
    - Add libegl recipe which provides build dependency on virtual/egl.
        - Need to set value for PREFERRED_PROVIDER_virtual/egl in local.conf from gles-user-module to libegl into local.conf.
    - Add .gitignore for *tar.bz2 and *.tar.gz packages.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v2.23.0 SDK toolchains.
- v2.17.0 or later:
    - U-Boot start address is 0x50000000.
    - BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64

U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.20　v2.23.1

- Yocto Recipes package base upgrade to Yocto Project 2.1.3 from 2.1.2.
- Yocto recipe package v2.23.1 for R-Car H3 Ver.2.0/M3 Ver.1.1/M3N Ver.1.0
  - o Add support R-Car M3N Ver.1.0.
  - o R-Car H3/M3/M3N Linux BSP package v3.5.9 based on Linux Kernel 4.9 Stable
    - ▪ Please refer BSP's release note in detail.
  - o Updated IPL version according to BSP v3.5.9
    - ▪ Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
  - o GFX: Support R-Car M3N Ver.1.0.
  - o MMP: Support R-Car M3N Ver.1.0.
- In v2.23.1, R-Car M3N Ver.1.0 will not support DTV/ DVD.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v2.23.1 SDK toolchains.
- v2.17.0 or later:
  - o U-Boot start address is 0x50000000.
  - o BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.1
Toolchain gcc-linaro	5.2.1
Wayland/Weston	1.11.0
GStreamer	1.6.3
Kernel Ver	4.9
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.21　v3.2.0

- Yocto Recipes package base upgrade to Yocto Project 2.4 from 2.1.3.
- Yocto recipe package v3.2.0 for R-Car H3 Ver.2.0/M3 Ver.1.1/M3N Ver.1.1
  - o R-Car H3/M3/M3N Linux BSP package v3.6.0 PT1 based on Linux Kernel 4.14 RC5
    - ▪ Upgrade Linux kernel version to v4.14 RC5 from v4.9 Stable.
    - ▪ Please refer BSP's release note in detail.

- o   Updated IPL according to BSP v3.6.0 PT1
    - ▪   Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - o   GFX, MMP: Not support in this release.
- Since not all modules can run with Kernel 4.14 RC5, MMP configuration uses default local.conf to build (do not enable extra features).
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v3.2.0 SDK toolchains.
- v2.17.0 or later:
    - o   U-Boot start address is 0x50000000.
    - o   BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4
Toolchain gcc-poky	7.2
Wayland/Weston	-
GStreamer	-
Kernel Ver	4.14.0-rc5
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.2.0
OpenGL ES	3.1

4.22   v3.4.0

- Yocto recipe package v3.4.0 for R-Car H3 Ver.2.0/M3 Ver.1.1/M3N Ver.1.1
    - o   Yocto Recipes package base upgrade to Yocto Project 2.4.1 from 2.4
        - ▪   Change to use Poky GCC version 7.2.
        - ▪   Add to enable USB3.0 and Capacity Aware migration Strategy (CAS) features in local.conf.
    - o   R-Car H3/M3/M3N Linux BSP package v3.6.0 based on Linux Kernel 4.14
        - ▪   Upgrade Linux kernel version to v4.14 stable.
        - ▪   Please refer BSP's release note in detail.
    - o   Updated IPL according to BSP v3.6.0
        - ▪   Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
    - o   GFX, MMP: Update to support Linux Kernel 4.14 Stable and follow Yocto Project 2.4.1
        - ▪   Weston version is 2.0.0.
        - ▪   Gstreamer version upgrade to 1.12.2.
    - o   Video Codec: Added VP8 encoder/decoder and VP9 decoder.
- Please update your local.conf and bblayers.conf corresponding to Yocto v3.4.0 package. You can refer to meta-rcar-gen3/docs/sample/conf/<supported board name>/poky-gcc/ for updated contents.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.

- From v3.4.0, if weston service is stopped/started repeatedly, it may cause unstable operation.
- You have to re-compile out-of-recipe software like user application by v3.4.0 SDK toolchains.
- v2.17.0 or later:
  - o U-Boot start address is 0x50000000.
  - o BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.1
Toolchain gcc-poky	7.2
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	4.14
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.6.0
OpenGL ES	3.1

4.23 v3.6.0

- Yocto recipe package v3.6.0 for R-Car H3 Ver.2.0/M3 Ver.1.1/M3N Ver.1.1/E3 Ver.1.0
  - o Add support R-Car E3 Ver.1.0.
  - o R-Car H3/M3/M3N/E3 Linux BSP package v3.6.1 based on Linux Kernel 4.14
    - ▪ Please refer BSP's release note in detail.
  - o Updated IPL according to BSP v3.6.1
    - ▪ Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
  - o GFX, MMP: Support R-Car E3 Ver.1.0.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v3.6.0 SDK toolchains.
- Weston cannot resume after resuming from S2R during transferring data.
- On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- v2.17.0 or later:
  - o U-Boot start address is 0x50000000.
  - o BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.1
Toolchain gcc-poky	7.2
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	4.14

Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.6.0
OpenGL ES	3.2

4.24 v3.7.0

- Yocto recipe package v3.7.0 for R-Car H3 Ver.3.0/M3 Ver.1.1/M3N Ver.1.1/E3 Ver.1.0
  - Yocto Recipes package base upgrade to Yocto Project 2.4.2 from 2.4.1
    - Change to use Poky GCC version 7.3.
  - R-Car H3/M3/M3N/E3 Linux BSP package v3.6.2 based on Linux Kernel 4.14
    - Please refer BSP's release note in detail.
  - Updated IPL according to BSP v3.6.2
    - Please set value for H3_OPTION in local.conf to select U-boot/IPL option for H3
      - Please use "H3_OPTION = "0"". It supports R-Car H3 Ver.2.0/1.x SiP DDR 4GiB (1GiB x 4ch).
      - Please use "H3_OPTION = "1"". It supports R-Car H3 Ver.3.0 SiP DDR 8GiB (2GiB x 4ch) (enable as default).
    - Please refer to IPL's release note.
- 3D graphics Packages and Multi Media Packages
  - GFX, MMP: Update to support Linux Kernel 4.14 Stable.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. In after Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v3.7.0 SDK toolchains.
- Weston cannot resume after resuming from S2R during transferring data.
- On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- When reboot, the register dump data has sometimes shown up by graphics module.
- H3 Ver.3.0: When video play back in a long time, it may occur the system stop. There is a possibility that it occurs due to an individual difference of chip (investigating now).
- v2.17.0 or later:
  - U-Boot start address is 0x50000000.
  - BL2 start address is 0xE6304000.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.2
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	4.14
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	2.6.0
OpenGL ES	3.2

4.25   v3.9.0

- Yocto recipe package v3.9.0 for R-Car H3 Ver.3.0/M3 Ver.1.1, M3 Ver.1.2/M3N Ver.1.1/E3 Ver.1.0
    - XDG_RUNTIME_DIR variable will be set automatically for SSH sessions.
    - R-Car H3/M3/M3N/E3 Linux BSP package v3.7.0 based on Linux Kernel 4.14.35.
        - Please refer to BSP's release note for detail.
    - Update IPL according to BSP v3.7.0
        - Please refer to IPL's release note for detail.
- 3D graphics Packages and Multi Media Packages
    - GFX, MMP: Update to support Linux Kernel 4.14.35.
- In BSP Only, core-image-weston is not supported even though local-wayland.conf is provided.
- Please set SW7 Pin-1. From Yocto BSP v2.12.0, it is necessary to enable BKUP_TRG signal for Suspend to RAM.
- You have to re-compile out-of-recipe software like user application by v3.9.0 SDK toolchains.
- Weston cannot resume after resuming from S2R during transferring data.
- On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.2
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	4.14.35
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	3.1.0
OpenGL ES	3.2

4.26   v3.9.0.1

- Yocto recipe package v3.9.0.1 for M3 Ver.1.1, M3 Ver.1.2.
    - R-Car H3 Ver.3.0, M3N Ver.1.1, and E3 Ver.1.0 are not supported in this version.
    - Pythonwand-native and Imagemagick were dropped in OPTEE recipe.
    - R-Car H3/M3/M3N/E3 Linux BSP package v3.7.2 based on Linux Kernel 4.14.35.
        - Please refer to BSP's release note for detail.
    - Update IPL according to BSP v3.7.2
        - Please refer to IPL's release note for detail.
    - Added local-ltp.conf file for BSP only to run LTP test.
- 3D graphics Packages and Multi Media Packages
    - GFX, MMP: Update to support Linux Kernel 4.14.35.
- You have to re-compile out-of-recipe software like user application by v3.9.0.1 SDK toolchains.
- Weston cannot resume after resuming from S2R during transferring data.
- On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.

- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.2
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	4.14.35
Userland 64/32bit	64
U-Boot	2015.04
OP_TEE	3.1.0
OpenGL ES	3.2

4.27   v3.13.0

- Yocto recipe package v3.13.0 for R-Car H3 Ver.3.0/M3 Ver.1.1, M3 Ver.1.2/M3N Ver.1.1/E3 Ver.1.0
  - USB3H was enabled by default for R-Car E3 System Evaluation Board Ebisu, and Ebisu-4D in local.conf.
  - Yocto Recipes package base upgrade to Yocto Project 2.4.3 from 2.4.2.
  - R-Car H3/M3/M3N/E3 Linux BSP package v3.8.0 based on Linux Kernel 4.14.70 LTSI
    - Add support R-CarE3 System Evaluation Board Ebisu-4D Ver.1.0.
    - Please refer to BSP's release note for detail.
  - Update IPL according to BSP v3.8.0
    - H3_OPTION was removed. U-boot/IPL of H3 (1GiB x 4ch), H3 (2GiB x 4ch), E3 Ebisu (1GiB), E3 Ebisu-4D (2GiB) were built by default.
    - Please refer to IPL's release note for detail.
  - U-Boot: Update base version to v2018.09 from v2015.04.
- 3D graphics Packages and Multi Media Packages
  - GFX, MMP: Update to support Linux Kernel 4.14.70.
- The dtb filename was changed in R-Car E3 System Evaluation Board Ebisu
  - Please use "Image-r8a77990-ebisu.dtb" for R-Car E3 System Evaluation Board Ebisu Ver.1.0.
  - Please use "Image-r8a77990-ebisu-4d.dtb" for R-Car E3 System Evaluation Board Ebisu-4D Ver.1.0.
- You have to re-compile out-of-recipe software like user application by v3.13.0 SDK toolchains.
- Weston cannot resume after resuming from S2R during transferring data.
- On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.3
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	LTSI 4.14.70 RC1
Userland 64/32bit	64

U-Boot	2018.09
OP_TEE	3.1.0
OpenGL ES	3.2

4.28 v3.15.0

- Yocto recipe package v3.15.0 for R-Car H3 Ver.3.0/M3 Ver.1.1, M3 Ver.1.2/M3N Ver.1.1/E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D)
  - o Add support R-Car E3 Ver.1.1.
  - o R-Car H3/M3/M3N/E3 Linux BSP package v3.9.2 based on Linux Kernel 4.14.75 LTSI
    - ▪ Please refer to BSP's release note for detail.
  - o Update IPL according to BSP v3.9.2
    - ▪ Please refer to IPL's release note for detail.
  - o U-Boot: Binaries are built separately for Salvator-XS and Salvator-X.
- 3D graphics Packages and Multi Media Packages
  - o GFX, MMP: Update to support Linux Kernel 4.14.75.
- You have to re-compile out-of-recipe software like user application by v3.15.0 SDK toolchains.
- Weston cannot resume after resuming from S2R during transferring data.
- On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- If user enables ADSP module, sound volume setting was changed. Please refer ADSP driver of ALSA Application note.
- The dtb filename was changed in R-Car E3 System Evaluation Board Ebisu
  - o Please use "Image-r8a77990-es10-ebisu.dtb" for R-Car E3 Ver.1.0 on Ebisu board.
  - o Please use "Image-r8a77990-es10-ebisu-4d.dtb" for R-Car E3 Ver.1.0 on Ebisu-4D board.
  - o Please use "Image-r8a77990-ebisu.dtb" for R-Car E3 Ver.1.1 on Ebisu board.
  - o Please use "Image-r8a77990-ebisu-4d.dtb" for R-Car E3 Ver.1.1 on Ebisu-4D board.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.3
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	LTSI 4.14.75
Userland 64/32bit	64
U-Boot	2018.09
OP_TEE	3.1.0
OpenGL ES	3.2

4.29 v3.19.0

- Yocto recipe package v3.19.0 for R-Car H3 Ver.3.0/M3 Ver.1.1, M3 Ver.1.2, M3 Ver.1.3/M3N Ver.1.1/ E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D)
  - o Add support R-Car M3 Ver.1.3.
  - o R-Car M3 Ver.3.0: Implemented software only (Not verified)

- o   Salvator-X board: Implemented software only (Not verified)
  - o   R-Car H3/M3/M3N/E3 Linux BSP package v3.9.4 based on Linux Kernel 4.14.75 LTSI
    - ▪   Please refer to BSP's release note for detail.
  - ▪   Update IPL according to BSP v3.9.4
    - ▪   Please refer to IPL's release note for detail.
  - ▪   U-Boot: Binaries are built separately for Salvator-XS and Salvator-X.
- •   3D graphics Packages and Multi Media Packages
  - ▪   GFX: Update to support Linux Kernel 4.14.75.
- •   You have to re-compile out-of-recipe software like user application by v3.19.0 SDK toolchains.
- •   To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".
- •   On R-Car E3 board, the resuming from System Suspend to RAM may cause unstable operation or failed to resume.
- •   If user enables ADSP module, sound volume setting was changed. Please refer ADSP driver of ALSA Application note.
- •   The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.3
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	LTSI 4.14.75
Userland 64/32bit	64
U-Boot	2018.09
OP_TEE	3.1.0
OpenGL ES	3.2

4.30   v3.21.0

- •   Yocto recipe package v3.21.0 for R-Car H3 Ver.3.0, M3 Ver.1.x, M3 Ver.3.0, M3N Ver.1.1, E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D):
  - o   Add support R-Car M3 Ver.3.0.
    - ▪   Device tree file name "Image-r8a7796-salvator-xs-2x4g.dtb"
    - ▪   U-Boot file name "u-boot-elf-salvator-xs-2x4g.srec"
    - ▪   M3 Ver.3.0 supports VP9 Decoder Library.
  - o   Salvator-X board: Implemented software only (Not verified)
  - o   R-Car H3/M3/M3N/E3 Linux BSP v3.9.6 based on Linux Kernel 4.14.75 LTSI
    - ▪   Please refer to BSP's release note for detail.
  - ▪   Update IPL according to BSP v3.9.6.
    - ▪   Please refer to IPL's release note for detail.
  - ▪   U-Boot: Binaries are built separately for Salvator-XS and Salvator-X.
- •   3D graphics Packages and Multi Media Packages:
  - ▪   GFX: Update to support Linux Kernel 4.14.75.
- •   You have to re-compile out-of-recipe software like user application by v3.21.0 SDK toolchains.
- •   To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".

- If user enables ADSP module, sound volume setting was changed. Please refer ADSP driver of ALSA Application note.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	2.4.3
Toolchain gcc-poky	7.3
Wayland/Weston	1.13.0/2.0.0
GStreamer	1.12.2
Kernel Ver	LTSI 4.14.75
Userland 64/32bit	64
U-Boot	2018.09
OP_TEE	3.1.0
OpenGL ES	3.2

4.31   v4.1.0

- Yocto recipe package v4.1.0 for R-Car H3 Ver.3.0, M3 Ver.1.x, M3 Ver.3.0, M3N Ver.1.1, E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D):
  - o Only verified the implementation for R-Car H3 Ver.3.0, R-Car M3 Ver.3.0.
  - o R-Car H3/M3/M3N/E3 Linux BSP v4.0.0 based on Linux Kernel 5.4
    - ▪ Please refer to BSP's release note for detail.
  - ▪ Update IPL according to BSP v4.0.0.
    - ▪ Please refer to IPL's release note for detail.
  - ▪ U-Boot: Binaries are built separately for Salvator-XS and Salvator-X.
- 3D graphics Packages and Multi Media Packages:
  - ▪ GFX:
    - ▪ Update to support Linux Kernel 5.4.
    - ▪ Wayland related module deleted.
  - ▪ This version does not support Multimedia Packages.
- You have to re-compile out-of-recipe software like user application by v4.1.0 SDK toolchains.
- To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	3.0.2
Toolchain gcc-poky	9.2
Wayland/Weston	1.17.0/7.0.0
GStreamer	1.16.1
Kernel Ver	5.4
Userland 64/32bit	64
U-Boot	2020.01
OP_TEE	3.8.0
OpenGL ES	3.2

4.32   v4.7.0

- Yocto recipe package v4.7.0 for R-Car H3 Ver.3.0, M3 Ver.1.x, M3 Ver.3.0, M3N Ver.1.1, E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D):
    - R-Car H3/M3/M3N/E3 Linux BSP v4.1.0 based on Linux Kernel 5.4.72
        - Please refer to BSP's release note for detail.
    - Update IPL according to BSP v4.1.0.
        - Please refer to IPL's release note for detail.
    - U-Boot: Binaries are built separately for Salvator-XS and Salvator-X.
- 3D graphics Packages and Multi Media Packages:
    - GFX:
        - Update to support Linux Kernel 5.4.72
        - Wayland related modules deleted.
    - This version does not support Multimedia Packages.
- You have to re-compile out-of-recipe software like user application by v4.7.0 SDK toolchains.
- To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	3.1.3
aarch64-poky-linux-gcc (GCC)	9.3
Wayland/Weston	1.18.0/8.0.0
GStreamer	1.16.2
Kernel Ver	5.4.72
Userland 64/32bit	64
U-Boot	2020.01
OP_TEE	3.8.0
OpenGL ES	3.2

4.33   v5.1.0

- Yocto recipe package v5.1.0 for R-Car H3 Ver.3.0, M3 Ver.1.x, M3 Ver.3.0, M3N Ver.1.1, E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D), D3 Ver.1.x, and R-Car H3e 2GHz, M3e 2GHz, M3Ne 2GHz:
    - Add support R-Car D3 Ver.1.x:
        - Device tree file name "r8a77995-draak.dtb"
        - U-Boot file name "u-boot-elf-draak.srec"
    - Add support R-Car H3e 2GHz, M3e 2GHz, M3Ne 2GHz:
        - H3e 2GHz : r8a779m1-salvator-xs.dtb
        - M3e 2GHz : r8a779m3-salvator-xs.dtb
        - M3Ne 2GHz : r8a779m5-salvator-xs.dtb
        - The dtb of D3 (r8a77995) and E3 (r8a77990) remain as they are.
    - R-Car H3/M3/M3N/E3/D3/H3e/M3e/M3Ne Linux BSP v5.0.0 based on Linux Kernel 5.10.
        - Please refer to BSP's release note for detail.
    - Update IPL according to BSP v5.0.0.

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- Please refer to IPL's release note for detail.
- 3D graphics Packages and Multi Media Packages support H3/M3/M3N/E3/H3e/M3e/M3Ne:
  - GFX:
    - Update to support Linux Kernel 5.10
- You have to re-compile out-of-recipe software like user application by v5.1.0 SDK toolchains.
- To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".
- If user enables ADSP module, sound volume setting was changed. Please refer ADSP driver of ALSA Application note.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	3.1.4
aarch64-poky-linux-gcc (GCC)	9.3
Wayland/Weston	1.18.0/8.0.0
GStreamer	1.16.3
Kernel Ver	5.10
Userland 64/32bit	64
U-Boot	2020.10
OP_TEE	3.8.0
OpenGL ES	3.2

4.34   v5.5.0

- Yocto recipe package v5.5.0 for R-Car H3 Ver.3.0, M3 Ver.1.x, M3 Ver.3.0, M3N Ver.1.1, E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D), D3 Ver.1.x, and R-Car H3e 2GHz, M3e 2GHz, M3Ne 2GHz:
  - R-Car H3/M3/M3N/E3/D3/H3e/M3e/M3Ne Linux BSP v5.1.0 based on Linux Kernel 5.10.41.
    - Please refer to BSP's release note for detail.
  - Update IPL according to BSP v5.1.0.
    - Please refer to IPL's release note for detail.
- 3D graphics Packages and Multi Media Packages support H3/M3/M3N/E3/H3e/M3e/M3Ne:
  - GFX:
    - Update to support Linux Kernel 5.10.41.
- Add OSAL library for H3/M3/M3N/E3/D3/H3e/M3e/M3Ne.
- Add IMR driver for H3/H3e.
- You have to re-compile out-of-recipe software like user application by v5.5.0 SDK toolchains.
- To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".
- If user enables ADSP module, sound volume setting was changed. Please refer ADSP driver of ALSA Application note.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	3.1.8
aarch64-poky-linux-gcc (GCC)	9.3

Wayland/Weston	1.18.0/8.0.0
GStreamer	1.16.3
Kernel Ver	5.10.41
Userland 64/32bit	64
U-Boot	2020.10
OP_TEE	3.13.0
OpenGL ES	3.2

4.35 v5.9.0

- Yocto recipe package v5.9.0 for R-Car H3 Ver.3.0, M3 Ver.1.x, M3 Ver.3.0, M3N Ver.1.1, E3 Ver.1.0, E3 Ver.1.1 (Ebisu, Ebisu-4D), D3 Ver.1.x, and R-Car H3e 2GHz, M3e 2GHz, M3Ne 2GHz:
  - R-Car H3/M3/M3N/E3/D3/H3e/M3e/M3Ne Linux BSP v5.1.4 based on Linux Kernel 5.10.41.
    - Please refer to BSP's release note for detail.
  - Update IPL according to BSP v5.1.4.
    - Please refer to IPL's release note for detail.
- 3D graphics Packages and Multi Media Packages support H3/M3/M3N/E3/H3e/M3e/M3Ne:
  - GFX:
    - Update to support Linux Kernel 5.10.41.
- Add IMR driver for H3/M3/M3N/E3/D3/H3e/M3e/M3Ne.
- Perl script is not supported in Perf tool by poky.
- You have to re-compile out-of-recipe software like user application by v5.9.0 SDK toolchains.
- To ensure proper processing during Suspend to RAM, it's recommended using systemd command "systemctl suspend".
- If user enables ADSP module, sound volume setting was changed. Please refer ADSP driver of ALSA Application note.
- The following table represents a revision of the software in this version

Software	Revision
Yocto Project	3.1.11
aarch64-poky-linux-gcc (GCC)	9.3
Wayland/Weston	1.18.0/8.0.0
GStreamer	1.16.3
Kernel Ver	5.10.41
Userland 64/32bit	64
U-Boot	2020.10
OP_TEE	3.13.0
OpenGL ES	3.2

5. Revision Numbers of Referred S/W Packages

Table 1 : Revision Numbers of Referred S/W Packages

Package Name (abbreviation)	Package Name	Package Id	Package Revision
Kernel On Board Drivers On chip Peripheral Drivers etc.	R-Car H3/M3/M3N/E3/D3 Linux BSP	–	5.1.4
U-Boot	R-Car H3/M3/M3N/E3/D3 U-Boot	–	5.1.0
Initial Program Loader	R-Car H3/M3/M3N/E3/D3 Initial Program Loader	–	–
OpenGL Library	R8A7795 GX6650 OpenGL ES Library for Linux	RTM8RC7795ZG300Q10JPL3E	4.2.1
GSX driver	R8A7795 GX6650 Device Driver for Linux	RCH3G001L5101ZDO	4.2.1
GSX Offline Compiler	R8A7795 GX6650 GLSL Offline Compiler for Linux	RCH3G002L5101ZNI	4.2.1
OpenGL Library	R8A7796 GX6250 OpenGL ES Library for Linux	RTM8RC7796ZG300Q10JPL3E	4.2.1
GSX driver	R8A7796 GX6250 Device Driver for Linux	RCM3G001L5101ZDO	4.2.1
GSX Offline Compiler	R8A7796 GX6250 GLSL Offline Compiler for Linux	RCM3G002L5101ZNI	4.2.1
OpenGL Library	R8A77965 GE7800 OpenGL ES Library for Linux	RTM8RC7796ZG300Q50JPL3E	4.2.1
GSX driver	R8A77965 GE7800 Device Driver for Linux	RCN3G001L5101ZDO	4.2.1
GSX Offline Compiler	R8A77965 GE7800 GLSL Offline Compiler for Linux	RCN3G002L5101ZNI	4.2.1
OpenGL Library	R8A7799 GE8300 OpenGL ES Library for Linux	RTM8RC7799ZG300Q00JPL3E	4.2.1
GSX driver	R8A7799 GE8300 Device Driver for Linux	RCE3G001L5101ZDO	4.2.1
GSX Offline Compiler	R8A7799 GE8300 GLSL Offline Compiler for Linux	RCE3G002L5101ZNI	4.2.1
OMX	OMX Media Component Common Library for Linux	RTM8RC0000ZMX0LQ00JPL3E	3.0.31
OMX	OMX Media Component Video Decoder Common Library for Linux	RTM8RC0000ZMD0LQ00JPL3E	3.0.32
OMX	OMX Media Component Video Encoder Common Library for Linux	RTM8RC0000ZME0LQ00JPL3E	3.0.32
OMX	OMX Media Component H.263 Decoder Library for Linux	RTM8RC0000ZMD4LQ00JPL3E	3.0.32

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Package Name (abbreviation)	Package Name	Package Id	Package Revision
OMX	OMX Media Component H.264 Decoder Library for Linux	RTM8RC0000ZMD1LQ00JPL3E	3.0.32
OMX	OMX Media Component H.265 Decoder Library for Linux	RTM8RC0000ZMDALQ00JPL3E	3.0.32
OMX	OMX Media Component MPEG-2 Decoder Library for Linux	RTM8RC0000ZMD5LQ00JPL3E	3.0.32
OMX	OMX Media Component MPEG-4 Decoder Library for Linux	RTM8RC0000ZMD2LQ00JPL3E	3.0.32
OMX	OMX Media Component VC-1 Decoder Library for Linux	RTM8RC0000ZMD3LQ00JPL3E	3.0.32
OMX	OMX Media Component VP8 Decoder Library for Linux	RTM8RC0000ZMD8LQ00JPL3E	3.0.32
OMX	OMX Media Component VP8 Encoder Library for Linux	RTM8RC0000ZME8LQ00JPL3E	3.0.32
OMX	OMX Media Component VP9 Decoder Library for Linux	RTM8RC0000ZMD9LQ00JPL3E	3.0.32
OMX	OMX Media Component H.264 Encoder Library for Linux	RTM8RC0000ZME1LQ00JPL3E	3.0.32
OMX	OMX Media Component DivX Decoder Library for Linux	RTM8RC0000ZMD7LQ00JPL3E	3.0.32
OMX	OMX Media Component RealVideo Decoder Library for Linux	RTM8RC0000ZMD6LQ00JPL3E	3.0.32
UVCS Driver	UVCS Driver for Linux	RTM8RC0000ZMX0DQ00JFL3E	3.0.32
OMX	OMX Media Component Audio Common Library for Linux	RTM8RC0000ZNX0LQ00JPL3E	3.0.15
OMX	OMX Media Component for AAC-LC Decoder Library for Linux	RTM8RC0000ZND1LQ00JPL3E	3.0.15
OMX	OMX Media Component for aacPlus V2 Decoder Library for Linux	RTM8RC0000ZND2LQ00JPL3E	3.0.15
OMX	OMX Media Component for ALAC Decoder Library for Linux	RTM8RC0000ZND7LQ00JPL3E	3.0.12
OMX	OMX Media Component for Dolby(R) Digital Decoder Library for Linux	RTM0AC0000XADD5D30SL41C	T.B.D.
OMX	OMX Media Component for FLAC Decoder Library for Linux	RTM8RC0000ZND6LQ00JPL3E	3.0.12
OMX	OMX Media Component for MP3 Decoder Library for Linux	RTM8RC0000ZND3LQ00JPL3E	3.0.15
OMX	OMX Media Component for WMA Standard Decoder Library for Linux	RTM8RC0000ZND4LQ00JPL3E	3.0.15
OMX	OMX Media Component for AAC-LC Encoder Library for Linux	RTM8RC0000ZNE1LQ00JPL3E	3.0.12
AAC decoder	AAC-LC 2ch Decoder Middleware Library for Linux	RTM8RC0000ZAD1LQ00JPL3E	3.0.15

Package Name (abbreviation)	Package Name	Package Id	Package Revision
aacPlus V2 decoder	aacPlus V2 Decoder Middleware Library for Linux	RTM8RC0000ZAD2LQ00JPL3E	2.0.15
Dolby(R) Digital decoder	Dolby(R) Digital Decoder Middleware Library for Linux	RTM0AC0000ADDD5MZ1SL41C	T.B.D.
MP3 decoder	MP3 Decoder Middleware Library for Linux	RTM8RC0000ZAD3LQ00JPL3E	2.0.15
WMA standard decoder	WMA Standard Decoder Middleware Library for Linux	RTM8RC0000ZAD4LQ00JPL3E	2.0.15
AAC encoder	AAC-LC Encoder Middleware Library for Linux	RTM8RC0000ZAE1LQ00JPL3E	3.0.12
CMS	Basic Color Management Middleware for Linux	RTM8RC0000ZVC1LQ00JPL3E	3.0.0
CMS	CMM3 Backlight Control Middleware for Linux	RTM8RC0000ZVC3LQ00JPL3E	3.0.0
CMS	VSP2 Dynamic Gamma Correction Middleware for Linux	RTM8RC0000ZVC2LQ00JPL3E	3.0.0
ADSP	ADSP Interface for Linux	RTM8RC0000ZNA1SS00JFL3E	1.0.23
ADSP	ADSP Driver for Linux	RTM8RC0000ZNA2DS00JFL3E	1.0.23
ADSP	ADSP Framework	RTM8RC0000ZNA3SS00JFL3E	1.0.23
ADSP	ADSP Reference Plugin	RTM8RC0000ZNA4SS00JFL3E	1.0.23
OSAL	OSAL packages for Linux	RTM8RC0000ZSAL2S00JPL3E	1.0
IMR	IMR packages for Linux	RTM8RC0000ZRRDSS00JPL3E	1.0

6. Commit ID of Renesas Yocto Recipe

Table 2: Commit ID of Renesas Yocto Recipe

Release	Repository	Branch	Commit ID
2.0.0	git://github.com/renesas-rcar/meta-renesas.git	fido	5bea92a2b135cfe304605435a277b30a4e27788d
	git://git.yoctoproject.org/poky	fido	cd2c9acdbd75c83790e8144d2a834f5b5de35df0b
	git://git.linaro.org/openembedded/meta-linaro.git	fido	7f630688d426831d195509843f9c8f282f459dd7
2.1.0	git://github.com/renesas-rcar/meta-renesas.git	fido	0268245db91d3715b1816979e7063a94a2cae51b
	git://git.yoctoproject.org/poky	fido	b50596d8f6e858e2e733f2d9913a19c6f3cd5863
	git://git.linaro.org/openembedded/meta-linaro.git	fido	3f1933242062d1cf473d20b86fa4582963ff9441
2.2.0	git://github.com/renesas-rcar/meta-renesas.git	fido	d2a2b521ed1b807f82d861bd514c04468fd8bb42
	git://git.yoctoproject.org/poky	fido	b74ea963cefffad9fbd91d4eb9b240f6a8c86cd0
	git://git.linaro.org/openembedded/meta-linaro.git	fido	3f1933242062d1cf473d20b86fa4582963ff9441
2.3.0	git://github.com/renesas-rcar/meta-renesas.git	fido	63ccf5dcf40a15f039473f62e0fc0bdf36ad616f
	git://git.yoctoproject.org/poky	fido	fa55b8e5050c6d7a47ef8e9bc213d0cc9471b43a
	git://git.linaro.org/openembedded/meta-linaro.git	fido	08a46787862966f2236c5a9b3eb4d4ec68263593
2.7.0	git://github.com/renesas-rcar/meta-renesas.git	jethro	318c9b7daa44219a2f44e0966c17ae58266452c0
	git://git.yoctoproject.org/poky	jethro	c8e5c38b8a36cbb45831fcd8469bd96068ae300c
	git://git.linaro.org/openembedded/meta-linaro.git	jethro	acf4f1f701e07670ec88435897a74f88dbe8ba87
	git://git.openembedded.org/meta-openembedded	jethro	dc5634968b270dde250690609f0015f881db81f2
2.8.0	git://github.com/renesas-rcar/meta-renesas.git	jethro	1d6ca1f7d9080c4807f60ed477be5311b107b16d
	git://git.yoctoproject.org/poky	jethro	6dba9abd43f7584178de52b623c603a5d4fcec5c
	git://git.linaro.org/openembedded/meta-linaro.git	jethro	acf4f1f701e07670ec88435897a74f88dbe8ba87
	git://git.openembedded.org/meta-openembedded	jethro	c305ac5d2f5285d5eec8952a4ca7f3b4f89aed96

2.9.0	git://github.com/renesas-rcar/meta-renesas.git	jethro	20319d147591f9aaf2f32bf2d74abe188b538d61
	git://git.yoctoproject.org/poky	jethro	65306b0bfc1afd0de9b1d470fd78c8c69f55f791
	git://git.linaro.org/openembedded/meta-linaro.git	jethro	acf4f1f701e07670ec88435897a74f88dbe8ba87
	git://git.openembedded.org/meta-openembedded	jethro	cb7e68f2a39fa6f24add48fc7b8d38fb7291bb44
2.12.0	git://github.com/renesas-rcar/meta-renesas.git	jethro	522efd09043aa8af1eec01af2b9e025df424d9a5
	git://git.yoctoproject.org/poky	jethro	40376446904ae3529be41737fed9a0b650ed167d
	git://git.linaro.org/openembedded/meta-linaro.git	jethro	9b1fd178309544dff1f7453e796a9437125bc0d9
	git://git.openembedded.org/meta-openembedded	jethro	8ab04afbffb4bc5184cfe0655049de6f44269990
2.16.0	git://github.com/renesas-rcar/meta-renesas.git	krogoth	3613b2780a6b5d5d70ea6802be5060a8214cbdb5
	git://git.yoctoproject.org/poky	krogoth	yocto-2.1.2 (cca8dd15c8096626052f6d8d25ff1e9a606104a3)
	git://git.linaro.org/openembedded/meta-linaro.git	krogoth	2f51d38048599d9878f149d6d15539fb97603f8f
	git://git.openembedded.org/meta-openembedded	krogoth	55c8a76da5dc099a7bc3838495c672140cedb78e
2.17.0	git://github.com/renesas-rcar/meta-renesas.git	krogoth	4979e05406c77524cf90b308ce4bf2a72032ee65
	git://git.yoctoproject.org/poky	krogoth	yocto-2.1.2 (cca8dd15c8096626052f6d8d25ff1e9a606104a3)
	git://git.linaro.org/openembedded/meta-linaro.git	krogoth	2f51d38048599d9878f149d6d15539fb97603f8f
	git://git.openembedded.org/meta-openembedded	krogoth	55c8a76da5dc099a7bc3838495c672140cedb78e
2.19.0	git://github.com/renesas-rcar/meta-renesas.git	krogoth	95cb48ba09bc7e55fd549817e3e26723409e68d5
	git://git.yoctoproject.org/poky	krogoth	yocto-2.1.2 (cca8dd15c8096626052f6d8d25ff1e9a606104a3)
	git://git.linaro.org/openembedded/meta-linaro.git	krogoth	2f51d38048599d9878f149d6d15539fb97603f8f
	git://git.openembedded.org/meta-openembedded	krogoth	55c8a76da5dc099a7bc3838495c672140cedb78e
2.23.0	git://github.com/renesas-rcar/meta-renesas.git	krogoth	52a5df36b4cd2ca0f5ec8eab9446f4f128ef727c
	git://git.yoctoproject.org/poky	krogoth	yocto-2.1.2 (cca8dd15c8096626052f6d8d25ff1e9a606104a3)
	git://git.linaro.org/openembedded/meta-linaro.git	krogoth	2f51d38048599d9878f149d6d15539fb97603f8f

	git://git.openembedded.org/meta-openembedded	krogoth	55c8a76da5dc099a7bc3838495c672140cedb78e
2.23.1	git://github.com/renesas-rcar/meta-renesas.git	krogoth	7acbf5e2f99c59478adbc73c6a40d314589a3009
	git://git.yoctoproject.org/poky	krogoth	yocto-2.1.3 (3cf0e093481ea260d4f41bed24336ea7f0102bde)
	git://git.linaro.org/openembedded/meta-linaro.git	krogoth	2f51d38048599d9878f149d6d15539fb97603f8f
	git://git.openembedded.org/meta-openembedded	krogoth	55c8a76da5dc099a7bc3838495c672140cedb78e
3.4.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	0f4c656f1e8304ce13f43b07907fac5d9b281e4f
	git://git.yoctoproject.org/poky	rocko	16e22f3e37788afb83044f5089d24187d70094bd
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	30f0f5e158ba29c4b1ccfdd66f0368726e4179e0
	git://git.openembedded.org/meta-openembedded	rocko	6e3fc5b8d904d06e3aa77e9ec9968ab37a798188
3.6.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	2f1825ea51179e3a7dbffead879a309d3b04494b
	git://git.yoctoproject.org/poky	rocko	16e22f3e37788afb83044f5089d24187d70094bd
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	30f0f5e158ba29c4b1ccfdd66f0368726e4179e0
	git://git.openembedded.org/meta-openembedded	rocko	6e3fc5b8d904d06e3aa77e9ec9968ab37a798188
3.7.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	d50e055494cea5de0a348c15ee27cb67a3542e0b
	git://git.yoctoproject.org/poky	rocko	342fbd6a3e57021c8e28b124b3adb241936f3d9d
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	dacfa2b1920e285531bec55cd2f08743390aaf57
3.9.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	fd078b6ece537d986852cb827bd21e022a797b2f
	git://git.yoctoproject.org/poky	rocko	342fbd6a3e57021c8e28b124b3adb241936f3d9d
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	dacfa2b1920e285531bec55cd2f08743390aaf57
3.9.0.1	git://github.com/renesas-rcar/meta-renesas.git	rocko	4c216d7d2d29af6cbc231f772e90f23ab619f109
	git://git.yoctoproject.org/poky	rocko	342fbd6a3e57021c8e28b124b3adb241936f3d9d

	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	dacfa2b1920e285531bec55cd2f08743390aaf57
3.13.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	00f70f062aace04c051fa92d3cd7b887718fc313
	git://git.yoctoproject.org/poky	rocko	7e7ee662f5dea4d090293045f7498093322802cc
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	352531015014d1957d6444d114f4451e241c4d23
3.15.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	8af0b7d6e445b532088a068dc012757001be3a1f
	git://git.yoctoproject.org/poky	rocko	7e7ee662f5dea4d090293045f7498093322802cc
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	352531015014d1957d6444d114f4451e241c4d23
3.19.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	20fcc94a8d05eda80250f27e87aaa3cfc3275300
	git://git.yoctoproject.org/poky	rocko	7e7ee662f5dea4d090293045f7498093322802cc
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	352531015014d1957d6444d114f4451e241c4d23
3.21.0	git://github.com/renesas-rcar/meta-renesas.git	rocko	ad3a8cfee5b6a6fab17cf1c6e5af851eaec75bd7
	git://git.yoctoproject.org/poky	rocko	7e7ee662f5dea4d090293045f7498093322802cc
	git://git.linaro.org/openembedded/meta-linaro.git	rocko	75dfb67bbb14a70cd47afda9726e2e1c76731885
	git://git.openembedded.org/meta-openembedded	rocko	352531015014d1957d6444d114f4451e241c4d23
4.1.0	git://github.com/renesas-rcar/meta-renesas.git	zeus	f6ccae7cfb669937aac221ff5cb6a13b36eff951
	git://git.yoctoproject.org/poky	zeus	5e1f52edb7a9f790fb6cb5d96502f3690267c1b1
	git://git.openembedded.org/meta-openembedded	zeus	9e60d30669a2ad0598e9abf0cd15ee06b523986b
4.7.0	git://github.com/renesas-rcar/meta-renesas.git	dunfell	a8db60a4d442a7ad86bbb992c63f24bcdce18144
	git://git.yoctoproject.org/poky	dunfell	012ad10a89a889c21e67c27dc37d22520212548f

	git://git.openembedded.org/meta-openembedded	dunfell	2a5c534d2b9f01e9c0f39701fccd7fc874945b1c
5.1.0	git://github.com/renesas-rcar/meta-renesas.git	dunfell	50a26c636a0a6fdbb1b92db5985a855bea64fa38
	git://git.yoctoproject.org/poky	dunfell	424296bf9bb4bae27febf91bce0118df09ce5fa1
	git://git.openembedded.org/meta-openembedded	dunfell	f2d02cb71eaff8eb285a1997b30be52486c160ae
5.5.0	git://github.com/renesas-rcar/meta-renesas.git	dunfell	0fe77668f5d9a31a5d10449988c3d8fb8dc475c5
	git://git.yoctoproject.org/poky	dunfell	6ebb33bdaccaeadff0c85aab27acf35723df00d8
	git://git.openembedded.org/meta-openembedded	dunfell	c38d2a74f762a792046f3d3c377827b08aade513
5.9.0	git://github.com/renesas-rcar/meta-renesas.git	dunfell	13fd24957b9acc29a235ee0c7f398fd867f38b47
	git://git.yoctoproject.org/poky	dunfell	74b22db6879b388d700f61e08cb3f239cf940d18
	git://git.openembedded.org/meta-openembedded	dunfell	814eec96c2a29172da57a425a3609f8b6fcc6afe

REVISION HISTORY		Linux Interface Specification Yocto recipe Release Note User's Manual: Software	
Rev.	**Date**	**Description**	
		Page	**Summary**
2.5.2	Jan 25 2016	2	2.2 updated version number
		5	4.6 added history of v2.5.2
		6	5 Table1 updated version number
		7	6 Table2 added v2.5.2 commit id
2.6.0	Feb 25 2016	2	2.2 updated version number
		5	4.7 added history of v2.6.0
		6	5 Table1 updated version number
		7	6 Table2 added v2.6.0 commit id
2.7.0	Mar 25 2016	2	2.2 updated version number
		6	4.8 added history of v2.7.0
		7	5 Table1 updated version number
		8	6 Table2 added v2.7.0 commit id
2.8.0	Apr 25 2016	all	Added description for R-Car M3. For example, R-Car H3 -> R-Car H3/M3
		2	2.2 updated version number
		6	4.9 added history of v2.8.0
		7-8	5 Table1 updated version number and add new MMP
		9	6 Table2 added v2.8.0 commit id
2.9.0	May 25 2016	2	2.2 updated version number
		7	4.10 added history of v2.9.0
		8-9	5 Table1 updated version number and add new MMP
		10-11	6 Table2 added v2.9.0 commit id
2.10.0	Jun 27 2016	2	2.2 updated version number
		7	4.11 added history of v2.10.0
		8-9	5 Table1 updated version number and add new MMP
		10-11	6 Table2 added v2.10.0 commit id
2.11.0	Jul 25 2016	2	2.2 updated version number

		7	4.12 added history of v2.11.0
		9-11	5 Table1 updated version number and add new MMP
		12-13	6 Table2 added v2.11.0 commit id
2.12.0	Aug 25 2016	2	2.2 updated version number
		7	4.13 added history of v2.12.0
		9-11	5 Table1 updated version number and add new MMP
		12-13	6 Table2 added v2.12.0 commit id
2.15.0	Dec 07 2016	2	2.2 updated version number
		8	4.14 added history of v2.15.0
		9-11	5 Table1 updated version number
		13	6 Table2 added v2.15.0 commit id
2.16.0	Jan 27 2017	2	2.2 updated version number
		3	3 fixed typo
		8-9	4.15 added history of v2.16.0
		10-11	5 Table1 updated version number
		12-13	6 Table2 added v2.16.0 commit id
2.17.0	Mar 30 2017	2	2.2 updated version number
		8	4.14 Changed address format from H'xxxx to 0xxxxx
		9	4.15 Changed address format from H'xxxx to 0xxxxx 4.16 added history of v2.17.0
		10-11	5 Table1 updated version number
		13	6 Table2 added v2.17.0 commit id
2.19.0	Apr 26 2017	-	Unified the Chip version "Ver/ES/WS" to "Ver."
		-	Unified the Yocto recipe version from "Ver" to "v"
		-	Changed "U-boot" to "U-Boot"
		2	2.2 updated version number
		10	4.17 added history of v2.19.0
		12	5 Table1 updated version number
		14	6 Table2 added v2.19.0 commit id

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2.21.0	Jun 28 2017	2	2.2 updated version number
		10	4.14 added history of v2.21.0
		11-15	5 Table1 updated version number
		15	6 Table2 added v2.21.0 commit id
2.23.0	Aug 29 2017	-	Add "CONFIDENTIAL" mark
		8	Change "R-Car Gen3" to "R-Car Series, 3rd Generation"
		2	2.2 updated version number
		11	4.19 added history of v2.23.0
		12-14	5 Table1 updated version number
		17	6 Table2 added v2.23.0 commit id
2.23.1	Nov 28 2017	-	Added chip version
		2	2.2 updated version number
		11	4.20 added history of v2.23.1 - Yocto Recipes package base upgraded to Yocto Project 2.1.3 from 2.1.2
		14	5 Table 1 updated version number, added packages information of M3N
		18	6 Table 2 added v2.23.1 commit id
3.2.0	Nov 28 2017	2	2.2 updated version number
		4	4.21 added history of v3.2.0 - Yocto Recipes package base upgraded to Yocto Project 2.4 from 2.1.3
		5-7	5 Table 1 updated version number
		8	6 Table 2 added v3.2.0 commit id
3.4.0	Jan 29 2018	2	2.2 updated version number
		12	4.22 added history of v3.4.0 - Yocto Recipes package base upgraded to Yocto Project 2.4.1 from 2.4
		14-16	5 Table 1 updated version number and S/W package Id
		19	6 Table 2 added v3.4.0 commit id
3.6.0	Mar 28 2018	2	2.2 updated version number
		13	4.23 added history of v3.6.0 - Add support R-Car E3 (Ebisu)
		14-16	5 Table 1 updated version number and S/W package Id

		19	6 Table 2 added v3.6.0 commit id
3.7.0	Apr 25 2018	2	2.2 updated version number
		13	4.24 added history of v3.7.0 - Yocto Recipes package base upgraded to Yocto Project 2.4.2 from 2.4.1
		15-17	5 Table 1 updated version number and S/W package Id
		20	6 Table 2 added v3.7.0 commit id
3.9.0	Jun 27 2018	2	2.2 Updated version number
		14	4.25 Added history of v3.9.0
		15-17	5 Table 1 Updated version number of SW packages
		20	6 Table 2 Added v3.9.0 commit ID
3.9.0.1	Oct 22 2018	2	2.2 Updated version number
		14	4.26 Added history of v3.9.0.1
		16-18	5 Table 1 Updated version number of SW packages
		21	6 Table 2 Added v3.9.0.1 commit ID
3.13.0	Oct 29, 2018	2	2.2 Updated version number
		15	4.27 Added history of v3.13.0
		16-18	5 Table 1 Updated version number of SW packages
		22	6 Table 2 Added v3.13.0 commit ID
3.15.0	Dec 25, 2018	2	2.2 Updated version number
		4-23	4. Added table of software revision in version from v2.0.0 to v3.13.0
		23	4.28 Added history of v3.15.0
		24-26	5 Table 1 Updated version number of SW packages
		30	6 Table 2 Added v3.15.0 commit ID
3.19.0	Apr 17, 2019	2	2.2 Updated version number
		23	4.29 Added history of v3.19.0
		25	5 Table 1 Updated version number of SW packages
		31	6 Table 2 Added v3.19.0 commit ID
3.21.0	Jul 26, 2019	2	2.2 Updated version number
		23	4.30 Added history of v3.21.0

		26-28	5 Table 1 Updated version number of SW packages
		32	6 Table 2 Added v3.21.0 commit ID
4.1.0	June 30, 2020	2	2.2 Updated version number
		25	4.31 Added history of v4.1.0
		26-28	5 Table 1 Updated version number of SW packages
		32	6 Table 2 Added v4.1.0 commit ID
4.7.0	Dec 24, 2020	2	2.2 Updated version number
		26	4.32 Added history of v4.7.0
		27	5 Table 1 Updated version number of SW packages
		33-34	6 Table 2 Added v4.7.0 commit ID
5.1.0	Apr 23, 2020	2	2.2 Updated version number
		26, 27	4.33 Added history of v5.1.0
		28-30	5 Table 1 Updated package ID and version number of SW packages
		35	6 Table 2 Added v5.1.0 commit ID
5.5.0	Aug 26, 2021	2	2.2 Updated version number
		27, 28	4.34 Added history of v5.5.0
		29-31	5 Table 1 Updated package ID and version number of SW packages
		36	6 Table 2 Added v5.5.0 commit ID
5.9.0	Dec 22, 2021	2	2.2 Updated version number
		28	4.35 Added history of v5.9.0
		29-31	5 Table 1 Updated package ID and version number of SW packages
		36	6 Table 2 Added v5.9.0 commit ID

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Linux Interface Specification Yocto recipe
Release Note: Software

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