Building Genivi 11 Miranda for the Renesas R-Car SoCs

This page describes building Genivi 11 Miranda platforms using Renesas R-Car SoC BSPs.

Specifically the page was written for the R-Car Gen 2 SoCs: H2, M2 and E2 and the R-Car Gen 3 SoCs: H3, M3 and E3

Contents

General

This section provides information that applies to all platforms. Information for specific platforms is covered in the following section. Please read this section first.

Compatibility

The standard Renesas customer Yocto BSP meets the functional and version requirements of Genivi 11 compliance. The kernel simply needs to be configured for the requirements of the Genivi 11 platform.

At a minimum the following kernel config options are enabled:

- FHANDLE
- EXPERIMENTAL
- ECRYPT_FS
- QUOTA
- BT
- CGROUPS

As a service to the community Renesas maintains a git repository containing a Yocto BSP with the changes required for the standard Yocto BSP to work with the Genivi Yocto Baseline (GYB) and Genivi Development Platform (GDP) already integrated. It is supported on a best effort basis. Here are the details:

R-Car Generation	Repository Location	Branch
R-Car Gen 2 (H2/M2/E2 SoCs)	https://github.com/slawr/meta-renesas.git	genivi-11-bsp-1.10.0
R-Car Gen 3 (H3/M3 SoCs)	https://github.com/slawr/renesas-rcar-gen3.git	genivi-11

Specific Genivi Platforms

This section provides information for specific Genivi platforms such as the Genivi Baselines.

Genivi Development Platform

R-Car Generation 2

Genivi selected the Renesas R-Car M2 Koelsch Evaluation board as the h/w target for the first release of the Genivi Development Platform (GDP). Since then support for the M2 Porter and E2 Silk low cost boards has been added as official targets. You can therefore find full information on how to build GDP and use the associated SDK in the wiki page for that project here

Support for Renesas R-Car Gen 2 SoCs are developed in parallel within the same BSP. To switch from M2 Koelsch to H2 Lager or E2 Alt is typically therefore a simple case of switching the Yocto machine.

R-Car Generation 3

To build GDP-11 for the M3 Starter Kit please follow the following steps:

1) Clone and initialise the Genivi Development Platform source reps

```
git clone https://github.com/GENIVI/genivi-dev-platform.git -b master
cd genivi-dev-platform/
source init.sh r-car-m3-starter-kit
```

Now make any local.conf changes you would like to make, e.g. point to your shared download folder.
NOTE: Instead of modifying local.conf, your personal changes can be placed in a file named **developer.conf** which is not version-controlled by GENIVI so you can keep the changes between builds, upgrades etc. The file is included if it exists.

2) Obtain and install the Renesas R-Car Graphics and Multimedia packages

Download the Click-through licenses Linux Drivers and Gfx/MMP packages for YBSP v2.16 from here and unzip them into a folder.

```
cd ../renesas-rcar-gen3
```

If you have the click-through packages (no NDA):

```
sh meta-rcar-gen3/docs/sample/copyscript/copy_evaproprietary_softwares.sh <path to the folder containing the
packages>
```

If you have the Evaluation packages (with NDA):

```
sh meta-rcar-gen3/docs/sample/copyscript/copy_proprietary_softwares.sh <path to the folder containing the
packages>
```

3) Build Genivi Development platform

```
cd ..
source poky/oe-init-build-env gdp-src-build/
bitbake genivi-dev-platform
```

Support for Renesas R-Car Gen 3 SoCs are developed in parallel within the same BSP. To switch from M3 Starter Kit to M3 Salvator-X or H3 Salvator-X is typically therefore a simple case of switching the Yocto MACHINE and SOC_FAMILY variables in the local.conf.

For example to build GDP-11 for the M3 Salvator-X Evaluation board please follow the steps above for the M3 Starter Kit with the following changes:

1) At the end of step 1 modify the MACHINE variable in the local.conf to be "salvator-x"

Genivi Yocto Baseline

For those familiar with Yocto and the GYB you can find the Miranda Renesas Yocto BSP details for Gen 2 and Gen 3 in the table below. At the time of writing they have been successfully tested with meta-ivi 11.0.0 (M-1.0).

Steps:

1) Clone and checkout Genivi Yocto Baseline repositories

See the meta-ivi Readme.md for details.

2) Clone and checkout Renesas Genivi Yocto BSP

R-Car Generation	Repository Location	Branch
R-Car Gen 2 (H2/M2/E2 SoCs)	https://github.com/slawr/meta-renesas.git	genivi-11-bsp-1.10.0
R-Car Gen 3 (H3/M3 SoCs)	https://github.com/slawr/renesas-rcar-gen3.git	genivi-11

3) Obtain and install the Renesas R-Car Graphics and Multimedia packages

For R-Car Gen 2 this process is described in the Genivi GDP build instructions here.

For R-Car Gen 3 instructions for installing the click-through packages can be found on elinux.org.

Download the R-Car Gen 3 Linux Drivers and Gfx/MMP packages for YBSP v2.16 from here.

4) You can now follow the build instructions in the meta-ivi Readme.md.

    4a) Export TEMPLATECONF to pick up correct configuration for the build

```
export TEMPLATECONF=/full/path/to/meta-ivi/meta-ivi/conf
```

    4b) Run the following command:

```
> $ source poky/oe-init-build-env
```

    4c) Setup your Yocto local.conf and bblayers.conf

    For R-Car Gen 2 add the following to bblayers.conf:

```
BBLAYERS += " \

  ${TOPDIR}/../meta-renesas \

  ${TOPDIR}/../meta-renesas/meta-rcar-gen2 \

  ${TOPDIR}/../meta-openembedded/meta-multimedia \

  "
```

    For R-Car Gen 3 add the following to bblayers.conf:

```
BBLAYERS += " \

  ${TOPDIR}/../renesas-rcar-gen3/meta-rcar-gen3 \

  ${TOPDIR}/../meta-openembedded/meta-oe \

 ${TOPDIR}/../meta-openembedded/meta-filesystems \

 ${TOPDIR}/../meta-linaro/meta-linaro-toolchain \

 ${TOPDIR}/../meta-linaro/meta-optee \

"
```

Examples of the additions to add to your Yocto local.conf:

	Porter	**Silk**	**M3 Starter Kit**
Local.conf	link	link	link

4d) Build miranda-image including GENIVI 11 (Miranda) components

```
> $ bitbake miranda-image
```

Genivi Baserock Baseline

Baserock developers have demonstrated R-Car support in the past. Please contact the Baserock community for further details.