i.MX 6 Yocto Project Patch Release Notes

Contents

1   Release Purpose

The purpose of this patch release is to provide the changes for the 3.10.17_1.0.2 patch release. Compared with the 3.10.17_1.0.0 GA release, this release changes the following components:

- Kernel branch: imx_v2013.04_3.10.17_1.0.0_ga
- U-Boot branch: imx_3.10.17_1.0.0_ga
- Graphics: gpu-viv-bin-mx6q, 3.10.17_1.0.2
- Graphics: gpu-viv-g2d, 3.10.17_1.0.2
- Graphics: Xorg-driver, 3.10.17_1.0.2

This release supports the following i.MX 6 reference boards:

- i.MX 6 Quad/DualLite/Solo SABRE SD
- i.MX 6 Quad/DualLite/Solo SABRE Auto
- i.MX 6 SoloLite

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2 Patch Descriptions

The following table provides the patch descriptions for this release.

Table 1. Patch descriptions

Component	Description
U-Boot	ENGR00297869: Image authentication is slow in u-boot-2013.04
Kernel	ENGR00309838 ARM: imx6sl: gpc: add chip revision check for dispmix
Kernel – pfuse100	regulator: pfuze100: Multiple fixes including device tree to add support
Kernel	ENGR00318392 ARM: imx6x: Save/restore SCU and some CP15 registers across suspend/resume
Kernel	ENGR00320048 ARM: imx6sl: Ensure that bandgap is not disabled in LDO-enabled mode
Kernel	ENGR00320554: ARM: imx: drop unnecessary PL310 errata
Kernel – graphics	ENGR00306992-2 gpu: gpu2d may cause bus hang in some corner case
Kernel – graphics	ENGR00300876 [#ccc] Fix flick issue in GAL2D compositor
Kernel – IPU	ENGR00307848 MXC IPUv3 fb: Fix MXCFB_CSC_UPDATE ioctl()
Kernel – graphics	ENGR00306397 [#1118] use BUG_ON to check if GPU clock is off
Kernel – graphics	ENGR00308899 [#1087] enhanced GPU database protection
Kernel – graphics	ENGR00312477 [#1162] fixed gpu lower memory killer
Kernel – graphics	ENGR00314119 [#1183] fixed database mutex multi-lock issue
Kernel – graphics	ENGR00313862 [#1173] fix android cts testThroughput fail
Kernel – graphics	ENGR00315583 [#1209] fix random data corruption in GPU memory
Kernel – graphics	ENGR00316978 [#1162] force_sig crash in GPU lower memory killer
Kernel – graphics	ENGR00325794 [#1087] fix video memory mutex sharing issue
Kernel – graphics	ENGR00322632 [#1243] fix memory type to avoid overwriting issue
Kernel – graphics	ENGR00322672 [#1244] avoid system freeze when dump GPU state without valid clock & power
Kernel – graphics	ENGR00313001 separate GPU low memory killer and reserve memory account
Kernel – graphics	ENGR00332071 Revert "ENGR00322632 [#1243] fix invalid data access over memory mapping"
Kernel – crypto	crypto: testmgr - Fix DMA-API warning
Kernel – crypto	crypto: testmgr - avoid DMA mapping from text, rodata, stack

The graphics changes for this release are as follows:
- ENGR00313001 [#ccc]separate GPU low memory killer and reserve memory account
- ENGR00322828 [#1248] fixed gcoSURF_Lock crash on Android
- ENGR00322672 [#1244] avoid system freeze when dump GPU state without valid clock & power
- ENGR00325794 [#1087] fix video memory mutex sharing issue
- ENGR00325641 [#1070] disable OQ fence when HZ is available
- ENGR00321514 [#1264] 3D openvg fix for libGAL crash
- ENGR00310522 [#1242] force clean PLS resources in module destructor
- ENGR00317092 [#ccc] workaround to blit one pixel line
- ENGR00316981 [#1218] fix tls reference counter issue
- ENGR00316978 [#1162] force_sig crash in GPU lower memory killer
- ENGR00316464 [#ccc] QT5 demo load_model crashes on gpu 4.6.9p13
- ENGR00304893 [#1119] UI reboot when exit movie studio while play video

i.MX 6 Yocto Project Patch Release Notes, Rev L3.10.17_1.0.2, 10/2014

- ENGR00315382 [#1200] fix memory resource leak in Android cts
- ENGR00313164 [#1122] Error handling in egl API mismatches the egl specification
- ENGR00313167 [#1066] glTexDirectVIVMap oddities
- ENGR00313533 [#1075] Avoid fill 3D command to 2D core
- ENGR00315583 [#1209] fix random data corruption in GPU memory
- ENGR00314812 [#1203] fix EGL config memory not initialized issue.
- ENGR00314119 [#1183] fixed database mutex multi-lock issue
- ENGR00312477 [#1162] fixed gpu lower memory killer
- ENGR00302707-1 [#1080] remove unused variable msaa
- ENGR00309915 [#1087] enhanced video memory mutex
- ENGR00308899 [#1087] enhanced GPU database protection
- ENGR00301119 [#1113] basemarkgui application UI not draw correct
- ENGR00310166 [#1157] disable GPU recovery function
- ENGR00304893 [#1119] Add NV16/NV61 support for texture external in es20
- ENGR00308233-6 [#791] Refine wclip workaround algorithm
- ENGR00306397 [#1118] use BUG_ON to check if GPU clock is off
- ENGR00304443-2 [#ccc] Fix cpu physical address to gpu address conversion
- ENGR00304443-1 [#ccc] Add VG355 support to X11 desktop
- ENGR00304417 [#ccc] enhanced g2d API to support extensive alpha blend
- ENGR00302025 [#982] Fix high cpu loading for glBufferSubData
- ENGR00293686 [#1022] fix Chrome UI mess when enable/disable WebGL
- ENGR00299550 [#ccc] Add QT5 support for Wayland

3 Installation and Build Instructions

This section describes how to install the patch release.

For host setup and Yocto Project setup instructions, see the *Freescale Yocto Project User's Guide*.

3.1 Installing Yocto Project layers

To set up the manifest and download the Yocto Project layers, carry out the following commands:

```
mkdir yocto_3.10.17-1.0.2
cd yocto_3.10.17-1.0.2
repo init -u git://git.freescale.com/imx/fsl-arm-yocto-bsp.git -b imx-3.10.17-1.0.2_ga
repo sync
```

3.2 Choosing a machine

This release supports the following machines. Choose the machine configuration that matches your reference board. If you do not need to use a Freescale i.MX 6 Reference Platform, wait for the Yocto Project layers to be updated to this patch release.

- imx6qsabresd
- imx6qsabreauto
- imx6dlsabresd
- imx6dlsabreauto
- imx6solosabresd
- imx6solosabreauto
- imx6slevk

i.MX 6 Yocto Project Patch Release Notes, Rev L3.10.17_1.0.2, 10/2014

Set the machine configuration in `MACHINE=<name from list above>` in the following section.

3.3   Choosing a graphical backend

Before the setup, choose a graphical backend. The default is X11.

You can choose the following graphical backends:
- X11: using the xorg-driver interface supporting Qt4
- Wayland: using the Weston compositor
- DirectFB
- FrameBuffer

You need to use different machine configurations for each backend. The following are examples:
- For X11:

  ```
  MACHINE=imx6qsabresd source fsl-setup-release.sh –b build-x11 –e x11
  ```
- For Weston on Wayland:

  ```
  MACHINE=imx6dlsabreauto source fsl-setup-release.sh –b build-wayland –e wayland
  ```
- For DirectFB:

  ```
  MACHINE=imx6slevk source fsl-setup-release.sh –b build-dfb –e dfb
  ```
- For FrameBuffer:

  ```
  MACHINE=imx6solosabresd source fsl-setup-release.sh –b build-fb –e fb
  ```

The fsl-setup-release script installs the meta-fsl-bsp-releease layer and configures the DISTRO_FEATURES required for choosing the graphical backend. The –b parameter specifies a build directory target. In this build directory, a conf directory is created from setup that contains the local.conf file, where MACHINE and DISTRO_FEATURES are set. The meta-fsl-bsp-release layer is added into the bblayer.conf file in the conf directory under the build directory specified by the –e parameter.

3.4   Choosing an image target

Choose an image target to build. The following are image examples:

- core-image-minimal: builds minimal kernel and U-Boot
- fsl-image-x11: builds for x11, including Qt4
- fsl-image-weston: builds for the Wayland graphical backend and uses the Weston compositor
- fsl-image-dfb: builds for the DirectFB graphical backend
- fsl-image-fb: builds for Frame Buffer

This release does not support integration of features from later releases and is released on top of the DORA Yocto Project release. To use the newer Yocto Project daisy or dizzy, wait until 3.10.17_1.0.2 is upstreamed into the community Yocto Project meta-fsl-arm layers, which should be completed by the end of 2014.

3.5   Building an image target

```
bitbake <image>
```

Examples:

- For building x11:

  ```
  bitbake fsl-image-x11
  ```

i.MX 6 Yocto Project Patch Release Notes, Rev L3.10.17_1.0.2, 10/2014

- For building wayland:

```
bitbake fsl-image-weston
```
- For building Directfb:

```
bitbake fsl-image-dfb
```
- For building Framebuffer:

```
bitbake fsl-image-fb
```

To initialize the build environment when the session is exited, run the following command in the directory above the build directory:

```
setup-environment <build directory>
```

3.6 Limitations

This release was not tested with Qt5, but only Qt4 on X11. If Qt5 is required, use the Yocto Project community support on the daisy or upcoming dizzy release. This release had limited testing specific to graphics.

Appendix A References
- For details on setting up the Host and Yocto Project, see *Yocto Project User's Guide*.
- For details on boot switches, see "How to Boot the i.MX Boards" in the *i.MX Linux User's Guide*.
- For how to download images by using U-Boot, see " Downloading Images Using U-Boot " in the *i.MX Linux User's Guide* .
- For how to set up an SD/MMC card, see " Preparing an SD/MMC Card to Boot " in the *i.MX Linux User's Guide* .