i.MX 6DualQuad/6DualLite SABRE Auto CPU2 Yocto Project Patch Release Notes

Contents

1 Release Purpose

The purpose of this patch release is to provide the updates and fixes to the 3.10.53_1.1.0 release. Compared with the L3.10.53_1.1.0 GA release, this release changes the following components:

- Kernel branch: imx_v2013.04_3.10.53_1.1.0_ga
- U-Boot branch: imx_3.10.53_1.1.0_ga
- Graphics: imx-gpu-viv, 5.0.11.p4.3
- Graphics: Xorg-driver, 5.0.11.p4.3

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

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

2   Kernel and U-Boot Patch Descriptions

The following table provides the patch descriptions for this release for kernel and U-Boot.

Table 1.   Patch descriptions

Component	Description
U-Boot	MLK-10199 mx6q: sabreauto: add enet support for sabreauto cpu2 board.
Kernel – General	MGS-324 [#1472] dump GPU AQAXIStatus register for AXI BUS ERROR
Kernel – General	rMLK-10054 net: fec: only restore MII bus when MAC0 PHY is not available
Kernel – Graphics	MGS-386 [#1506] Power mutex track is buggy in gckKERNEL_Dispatch
Kernel – Graphics	MGS-304-2 [#1461] Do not leave garbage in outside pointer
Kernel – QSPI	MLK-10028 QSPI dynamically alloc memory for AHB read
Kernel – QSPI	Need gate the QSPI2 and GPMI_IO clock during clock init
Kernel – QSPI	MLK-10175 arm: imx6: Skip gating QSPI2 clk when M4 is enabled
Kernel – Security	crypto: caam - remove duplicated sg copy functions
Kernel – Security	MLK-9769-26 caam: fix RNG buffer cache alignment
Kernel – Security	crypto: caam - fix missing dma unmap on error path
Kernel – Security	MLK-10111 Add error checking to the SECVIO module
Kernel – Video	MLK-10084 media: mxc vout: Correct black color filling for interleaved formats
Kernel – General	MLK-10033 cpufreq: cpufreq-imx6: add cpufreq mutex for regulator enable/disable
Kernel – General	MLK-10080 serial: imx: Fix imx_flush_buffer()
Kernel – General	MLK-10044 arm: imx: Fix the pll2_bus clk tree mismatch for i.MX6SL
Kernel – General	MLK-10116 tty: serial: imx: fix flush buffer issue when module clock is at 4Mhz
Kernel – Graphics	MLK-10169 GPU: fix kernel booting issue on iMX6sx SOC without GPU
Kernel – Generals	MLK-10075: ARM: clk-imx6q: refine esai_ipg's parent
Kernel – Audio	MLK-9974: ASoC: fsl_sai: There is underrun detected in the beginning sometimes
Kernel – Video	MLK-10135: dts: Enable sii902x hdmi driver in imx6sx sdb
Kernel – Video	MLK-10193: dts: Remove obsolete dts item csi1_v4l2_cap
Kernel – USB	usb: gadget: introduce is_selfpowered for usb_gadget
Kernel – USB	usb: chipidea: udc: add set_selfpowered gadget ops
Kernel – USB	usb: udc-core: add is_selfpowered sys entry
Kernel – USB	MLK-10196-1 ARM: imx6: change anatop 3p0 property
Kernel – USB	MLK-10196-2 doc: anatop-regulator: add anatop-enable-bit property
Kernel – USB	MLK-10196-3 regulator: anatop: Add non core enable/disable
Kernel – USB	MLK-10196-4 usb: phy: mxs: Using regulator phy-3p0
Kernel – USB	>MLK-10218-1 charger: imx6_usb: change detection timeout to 500ms
Kernel – Video	MLK-10227 video: mxsfb: Correct interrupt handling
Kernel – DQ Auto CPU2	MLK-10228 dts: imx6qdl-sabreauto: remove SDb WP pin which is not connect by default
Kernel – DQ Auto CPU2	MLK-10199 ARM: clk-imx6q: set enet pll rate to 125Mhz

The graphics changes for this release are as follows:

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- MGS-511 [#1593] qt 3D app cannot run in sx board
- MGS-512 [#1493] fixed es30 conformance fails related with glReadPixels
- MGS-502 [#ccc]libCLC failure
- MGS-500 [#ccc] Disable apitrace for static build
- MA-6134 [#1553] UI reboot when do Projection Tests in CTS-Verifier.
- MGS-409 [#1523] Chrome crash when run webgl case "multisample-corruption" on sabreauto_6q.
- MGS-425 [#1531] Change driver build script to enable or disable OpenCL build for Yocto
- MA-6016 [#1499] Fix screen garbage when play some video with rotation
- MA-6115 [#1494] correct framebuffer bufferSize calculation
- MGS-279 [#1471] OCL queue worker thread polling
- MGS-279 [#1471] OCL queue worker thread polling
- MGS-255 [#1416] Add cl buffer dependency
- MGS-424 [#925] disable RTZ when propagate constants
- MGS-304-2 [#1461] Do not leave garbage in outside pointer
- MGS-422 [#1353] ES3 "empty" vertex doesn't work
- MGS-390 [#1509] Remove dependancy of XServer in libGL2
- MGS-414 [#1521] Enable test build to support parallel threaded building
- MGS-404-3 [#1518] Make sure pixmap rendering is complete before CPU operation
- MGS-404-2 [#1518] Do not dereference a NULL display
- MGS-404-1 [#1518] Correct egl error handling
- MGS-401 [#1513] Disable frame skipping in wayland backend
- MGS-386 [#1506] Power mutex track is buggy in gckKERNEL_Dispatch
- MGS-363 [#1493] Missing GL_RGB support from glReadPixels
- MGS-288 [#1445] GPU driver cannot pass build on Android 5.0(Lollipop)
- MGS-385 [#1504] fix libGAL crash without valid command queue
- MGS-332 [#ccc] Support N VSYNC feature in weston client.
- MGS-368 [#ccc] Correct two libg2d APIs name.
- MGS-365 [#ccc] Add two new APIs in libg2d to wrap two egl APIs
- MGS-362 [#1254] NOSApp regression crash
- MGS-359 [#1468] vCompiler: crashed on windows 64
- MGS-352 [#1453] Creating context on 5.x is slower than 4.x due to process name read
- ENGR00305476 [#1085] Remove cyclic dependency between gl_wayland_protocol and libGAL libraries
- MGS-293-1 [#ccc] Wayland EGL is not throttling to VSYNC by default
- MLK-9228 [#ccc] glmark2 met Segmentation fault
- MGS-324 [#1472] dump GPU AQAXIStatus register for AXI BUS ERROR
- MGS-213 [#1469] detect VG state in power management
- MGS-306 [#1457] Android 5.0 popup window display get messed.
- MGS-228 [#ccc] Set NUM_FRAMEBUFFER_SURFACE_BUFFERS to 3 by default
- MGS-281-2 [#ccc] refine g2d seperated2D code for Vivante build
- MGS-278 [#1440] eglWaitSyncKHR is used in Android native fence but not implemented.
- x-server-viv- MGS-377 [#1507]Fix xserver crashed in sequence test with HDMI device.

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* (IMXLXYOCTOUG).

3.1 Installing Yocto Project layers

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

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```
mkdir yocto_3.10.53-1.1.1
cd yocto_3.10.53-1.1.1
repo init -u git://git.freescale.com/imx/fsl-arm-yocto-bsp.git -b imx-3.10.53-1.1.1_patch
repo sync
```

3.2 Choosing a machine

This release supports the following machines, but it is only tested on the i.MX 6DualQuad SABRE-Auto board. Choose the machine configuration that matches your reference board.

- imx6qsabresd
- imx6qsabreauto
- imx6dlsabresd
- imx6dlsabreauto
- imx6solosabresd
- imx6solosabreauto
- imx6sxsabresd
- imx6sxsabreauto
- imx6slevk

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

3.3 Choosing a graphical back end

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

Choose one of the following graphical back ends:
- X11
- Wayland: using the Weston compositor
- DirectFB
- FrameBuffer

Specify a machine configuration for each graphical back end. Examples for each back end are:
- 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-release layer and configures the DISTRO_FEATURES required for choosing the graphical back end. 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-gui: builds a non-Qt5 image for x11, Frame Buffer, DirectFB, and Wayland graphical backends.
- fsl-image-qt5: builds a Qt5 image for x11, Frame Buffer, and Wayland graphical backends.

This release does not support integration of features from later releases and is released on top of the Daisy Yocto Project release.

3.5 Building an image target

```
bitbake <image>
```

Examples:

- For building non Qt 5 image:

  ```
  bitbake fsl-image-gui
  ```
- For building Qt 5 image for x11, Frame Buffer, and Wayland graphical backends:

  ```
  bitbake fsl-image-qt5
  ```

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 only tested on an i.MX 6DualQuad SABRE-Auto CPU2 board. Some patches apply to other machine configurations, but those machine configurations were not tested.

Appendix A References

- For details on setting up the Host and Yocto Project, see the *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* .