i.MX31 PDK 1.5 Linux® Standard

Release Notes

This document contains important information about the package contents, supported features, and known issues/limitations.

Contents

1 Release Contents

This release provides a documentation package and a software package.

1.1 Supported Hardware

This release supports the i.MX31 3-Stack platform.

1.2 Documentation

Table 1 identifies the documentation provided with this release.

Table 1. Documentation

Document	Description
pdk14_imx31_Hardware_UG.pdf	Hardware User's Guide
pdk14_imx31_Linux_RM.pdf	Linux Reference Manual
pdk14_imx31_Linux_Std_UG.pdf	Linux User's Guide
pdk14_imx31_Linux_Std_RN.pdf	Linux Release Notes

1.3 DVD Contents

Table 2 describes the files on the DVD.

Table 2. DVD Contents

File	Description
EULA	Freescale End User License Agreement
Install	install script for LTIB
readme.html	readme
redboot_200910.zip	RedBoot™ Release
ltib.tar.gz	ltib (Linux Target Image Builder)
pkgs	Source and patches for root file system
pkgs/imx-test-3.4.2.tar.gz	Source of unit tests
pkgs/imx-lib-3.4.2.tar.gz	Source of libraries
pkgs/linux-2.6.26-imx_3.4.2.bz2	Freescale 2.6.26-3.4.2 kernel patches
Freescale 2.6.26-3.4.2 kernel patches	A Windows TFTP server program
pkgs/tc-fsl-x86lnx-armeabi-nptl-4.1.2-3.i386.rpm	Open source tool chain for ARM9 and ARM11

Notes

Feature	Note
SDMA	Includes the SS15 SDMA scripts for the i.MX31.
Sound	The ASoc version 0.20 used in the BSP comes from the Wolfson git repository. The standard 2.6.26 kernel uses ASoc version 0.13.2. Recording becomes noisy with an increase in recording gain, and with high internal gain microphones. If needed, adjust the recording gain (capture volume) using the ALSA mixer (see the reference manual). To ensure the best recording, use a microphone with low internal gain.
LCD	To disable the LCD automatic blank functionality, enter the command: **echo -e "\033[9;0]" > /dev/tty0**
Video	To play video when the system memory is low, run the command **"echo 1 > /proc/sys/vm/lowmem_reserve_ratio"** to protect the DMA zone and avoid memory allocation errors.
P-ATA	To cause the P-ATA to function on the i.MX31 3-Stack, you must modify the hardware, as follows: Remove R189. Connect R190 on the i.MX31 Personality board.

1.4 Supported Versions

- RedBoot version FSL 200910 source code and binary
  - — redboot_200910.zip
- Toolchain
  - — tc-fsl-x86lnx-armeabi-nptl-4.1.2-3.i386.rpm arm eabi nptl multilib gcc C compiler for cross compiling on either ARM9 or ARM11, including:
    - – Multilib toolchain for soft/hard (vfp) targets, optimized for armv5te architectures.
    - – gcc-4.1.2
    - – glibc-2.5
    - – glibc-ports-2.5
    - – binutils-2.17
    - – linux-2.6.20 headers
  - — Tool install path: /opt/freescale/usr/local/gcc-4.1.2-glibc-2.5-nptl-3/arm-none-linux-gnueabi

1.5 Proprietary Packages

All BSP source-code files are GPL or LGPL or another open source license. Some binary files contained in the included root file systems are built from proprietary source (not included in the BSP):

- /unit_tests/cam2mpeg4
- Files in package mbx-bin-3.4.2.tar.gz (version r2p0-00bet0 release of the AEL MBX OpenGL ES DDK)
- Files in package hantro-binary-mx31-imx_2.3.0.tar.gz

- Files in package csr-bt-bin-1.2.0.tar.gz
- Files in package csr-wifi-bin-3.4.2.tar.gz
- Files in package gl-gps-1.2.2.tar.gz
- Files in packages fsl-gui-imx31-9.4.0.tar.gz, fsl-gui-imx35-9.4.0.tar.gz

To enable the menus on **Package List > Freescale Multimedia Plugins/Codecs > fsl-mm-codec-libs/gstreamer-fsl-plugins** under LTIB, contact the business manager to obtain multimedia packages.

1.6 Compatible Packages

Various open source userspace packages including:
- ALSA_LIB
- ALSA_UTILS
- BASH
- BUSYBOX
- COREUTILS
- DROPBEAR
- E2FSPROGS
- FINDUTILS
- GDB
- GSTREAMER
- HDPARM
- HOTPLUG
- IRATTACH
- LIBID3TAG
- LIBMAD
- LIBUSB
- MADPLAY
- MODULE_INIT_TOOLS
- MTD_UTILS
- NCURSES
- NET_TOOLS
- NTPCLIENT
- PROCINFO
- PROCPS
- PSMISC
- QTOPIA
- FREESCALE GUI

- STRACE
- SYSCONFIG

2 Processor, Board, and Kernel Features

This package supports the following processor, board, and kernel features.

2.1 Processor Features

- Advanced Technology Attachment (ATA)
- Advanced Technology Attachment (ATA) Inter-IC (I2C)
- ARM L210 Cache Controller (L2CC)
- ARM Vectored Interrupt Controller (AVIC)
- ARM1136 CPU
- Configurable Serial Peripheral Interface™ (CSPI)
- Enhanced Periodic Interrupt Timer (EPIT)
- External Dedicated Input/Output (EDIO)
- General Purpose Input/Output (GPIO)
- i.MX31 Machine Specific Layers (MSL)
- Image Processing Unit (IPU)
- Input/Output Multiplexing (IOMUX)
- Inter-IC™ (I2C)
- Keypad Port (KPP)
- NAND Flash Controller (NANDFC)
- Phase-Locked Loop (PLL)
- Real-Time Clock (RTC)
- Security Controller (SCC) (untested)
- Shared Peripheral Bus Arbiter (SPBA)
- Smart Direct Memory Access (SDMA)
- Synchronous Serial Interface (SSI)
- Universal Asynchronous Receiver/Transmitter (UART)
- Universal Serial Bus On-the-Go (USB-OTG) (no HNP)
- Watchdogs (WDOG)

2.2 Board Features

- APM6628: WiFi 802.11g/b & BT2.0+EDR Combo Module
- Chrontel CH7024 TV-OUT

- Epson® VGA LCD
- GPS
- MC13783 Power Management IC (digitizer, audio interfaces, RTC, power management, connectivity, light)
- OV2640 Camera (Micron™ MT9V111 sensor) or Magnachip MC521DA camera
- Samsung™ NAND Flash K9K2G08/R0A
- Si4702 FM chip
- SMSC LAN9217 Ethernet

2.3 Kernel and Package Features

- Linux 2.6.26 Kernel
- Machine Specific Layers (MSL)
  — ARM Core
  — DMA (DMAC/SDMA)
  — GPIO/EDIO
  — Interrupt (AITC/AVIC)
  — IOMUX
  — SPBA
  — Times (GPT)
- Character Device Driver
  — MXC UART
- Disk Driver
  — ATA
- General Drivers
  — I2C
  — MMC/SD/SDIO Driver
  — PCMCIA
  — RTC
  — SPI
  — WDOG

- Graphics Drivers
  — EPSON VGA FB
  — GPU
  — Synchronous FB
- Input Device Driver
  — Keypad
- MTD drivers
  — NAND
  — NOR
- Multimedia Drivers
  — IPU
  — MPEG4/H.264 Filter
  — OmniVision™ OV2640 2MP camera
  — TV-Out
  — V4L2 Output
  — V4L2 Capture
- Networking Drivers
  — Bluetooth (CSR)
  — Ethernet (LAN9217)
  — Wi-Fi (CSR Unify)
- PMIC Drivers
  — Battery
  — Connectivity
  — Digitizer
  — Light
  — Power Management
  — Protocol
  — RTC
- Power Management Drivers
  — DPTC
  — DVFS
  — Low-Level Power Management
- Security Drivers
  — RNGA/RNGC
  — RTIC
  — SCC/SCC2

- Sound Drivers
  — AudMux
  — FM Receiver
  — SSI
  — Stereo Codec (MC13783)
- USB Drivers
  — Gadget Stack
  — Host Stack
  — USB OTG
- Bootloaders
  — RedBoot
- GUI
  — Qt/E
  — FSL GUI
- Add-on Features
  — GPS
  — MMA74501 Accelerometer driver

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