

# i.MX53 SABRE TABLET 11.05.01 Linux

## Release Notes

This document contains important information about the package contents, supported features, and known issues/limitations for the i.MX53 SABRE TABLET board.

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# 1 Release Contents

## 1.1 Contents

This release consists of the following package files:

- L2.6.35\_11.05.01\_ER\_source.tar.gz
- L2.6.35\_11.05.01\_ER\_images\_MX5X.tar.gz
- L2.6.35\_11.05.01\_ER\_docs.tar.gz

Note: i.MX53 SABRE TABLET was previously named as i.MX53 SMD. The machine ID registered under <http://www.arm.linux.org.uk/developer/machines/> was i.MX53 SMD. However, there are still references to “SMD” in the source code and binary files. Any instance of “SMD” should be treated as a reference to the i.MX53 SABRE TABLET.

The release version is named as “L<Kernel\_version>\_<yy>.<mm>.<ij>.”

- “<Kernel\_version>”: BSP Kernel version. (For example, “L2.6.35” indicates that this BSP release is based on the kernel version 2.6.35.)
- “<yy>.<mm>.<ij>”: Release date. (For example, “11.05.01” indicates that this BSP was released in March, 2011.)

[Table 1-1](#), [Table 1-2](#), and [Table 1-3](#) list the contents included in each package:

**Table 1-1. L2.6.35\_11.05.01\_ER\_images\_MX5X.tar.gz Content**

File	Description
u-boot-mx53-ard.bin	U-Boot bootloader for the i.MX53 SABRE ARD board.
u-boot-mx53-loco.bin	U-Boot bootloader for the i.MX53 START board.
u-boot-mx53-smd.bin	U-Boot bootloader for the i.MX53 SABRE Tablet board.
uImage	Binary kernel image for the Linux 2.6.35 kernel. The same image can run in all i.MX5 boards.
amd-gpu-x11-bin-mx51_11.05.01-1_armel.deb	Debian package for the GPU driver and the application for X11.
firmware-imx_11.05.01-1_armel.deb	Debian package for the firmware files, which includes VPU and Atheros WiFi.
imx-lib_11.05.01-1_armel.deb	Debian package for imx-lib binary.
imx-test_11.05.01-1_armel.deb	Debian package for the imx unit test binary
kernel_2.6.35.3-imx_11.05.01_armel.deb	Debian package for the Linux kernel image, kernel modules and the header files.
libz160-bin_11.05.01-1_armel.deb	Debian package for the GPU Z160 2D driver.

File	Description
modeps_11.05.01-1_armel.deb	Debianpackage for module dependencies
xserver-xorg-video-imx_11.05.01-2_armel.deb	Debian package for the i.MX accelerated video driver.
udev-fsl-rules_11.05.01-5_armel.deb	Debian package for udev rules

**Table 1-2. L2.6.35\_11.05.01\_ER\_source.tar.gz Content**

File	Description
EULA	Freescale End User License Agreement
Install	Install script for LTIB
ltib.tar.gz	LTIB (Linux Target Image Builder)
package_manifest.txt	Freescale LTIB open source packages
Pkgs	Source and patches for the root file system
pkgs/imx-test-11.05.01.tar.gz	Source code for the unit tests
pkgs/imx-lib-11.05.01.tar.gz	Source code for the libraries
pkgs/linux-2.6.35.3-imx_11.05.01.bz2	Freescale 2.6.35.3-11.05.01 kernel patches
pkgs/u-boot-v2009.08-imx_11.05.01.tar.bz2	i.MX U-Boot patches based on U-Boot version 200908
pkgs/firmware-imx-11.05.01.tar.gz	i.MX firmware packages
pkgs/xserver-xorg-video-imx-11.05.01.tar.gz	Source code of the i.MX accelerated video driver
pkgs/kobs-ng-11.05.01.tar.gz	Source code of kobs-ng package which is used to flash MX53 NAND U-Boot.
pkgs/gcc-4.4.4-glibc-2.11.1-multilib-1.0-1.i386.rpm	FSL Open source optimized toolchain gcc 4.4.4 which enables NEON for ARM cortex-A8.
tftp.zip	A Windows TFTP server program

**Table 1-3. L2.6.35\_11.05.01\_ER\_docs.tar.gz Content**

File	Description
EULA	Freescale End User License Agreement
readme.html	Readme file containing links to additional documentation
doc/mx5	i.MX53 Linux BSP Release Notes, User's Guide, Reference Manual

## 1.2 License

All source code files of the Board Support Package (BSP) are GNU General Public License (GPL) or GNU Lesser General Public License (LGPL), or another open source license.

The following binary files contained in the included root file systems are built from proprietary source not included in the BSP:

Files in package libz160-bin-11.05.01.tar.gz

Files in package amd-gpu-bin-mx51-11.05.01.tar.gz

## 2 System Requirements

### 2.1 Linux Host Server

See “[ltib\\_build\\_host\\_setup.pdf](#)” for host server setup.

### 2.2 MFG Tool

The `Mfgtools-Rel-11.05.01_ER_MX53_UPDATER.zip` package contains the image down loading tool.

### 2.3 i.MX53 SABRE TABLET Components

[Table 2-1](#) lists the hardware items contained in the i.MX53 SABRE Tablet package. Read MX53 SABRE Tablet Hardware user guide, before using it.

**Table 2-1 Kit Components**

Item	Description
Boards	i.MX53 SABRE Tablet board
Display	<ul style="list-style-type: none"><li>• LVDS</li><li>• HDMI</li><li>• CLAA WVGA panel (Optional Board)</li></ul>
Cables	<ul style="list-style-type: none"><li>• DB9 M/F RS-232 serial cable</li><li>• USB type A/M to MicroUSB type B/M shielded cable</li><li>• Ethernet straight cable</li></ul>
Data storage	<ul style="list-style-type: none"><li>• eMMC4.4 (Soldered on the board)</li><li>• SD/MMC card</li><li>• SATA</li><li>• SPI-NOR</li></ul>
Power Supply	Dedicated power supply box

## 3 What's New

This section describes the changes in this release, including new features and defect fixes.

### 3.1 New Features

See `ResolvedEnhancements.html` for the complete list of new features and enhancements since the last release.

A summary of the main new features is as follows:

- Support Mag3110 magnetometer sensor
- Support eGalax touch screen
- Default camera sensor is set to OV5642

## 3.2 Defect Fixes

See `ResolvedDefects.html`, referenced inside the file `readme.html`, for the list of the defects fixed in this release.

## 4 BSP Supported Features

[Table 4-1](#) describes the features that are supported in this BSP release.

**Table 4-1 Supported Features**

Feature	Supported?	Comments
<b>Kernel</b>		
Kernel	Yes	Kernel version: 2.6.35.3
File System	Yes	EXT2/EXT3/EXT4 are used as the file system in MMC/SD, SATA
<b>Bootloader</b>		
U-Boot	Yes	<ul style="list-style-type: none"> <li>• U-Boot delivery is based on U-Boot version 200908.</li> <li>• Supports SD,eMMC4.4, SATA boot.</li> <li>• Support SD/MMC/eMMC4.4/SATA “Read” and “Write” operations.</li> <li>• Support I2C commands to manipulate DA9053.</li> <li>• Supports FEC and console output.</li> <li>• Supports fuse and clock operations.</li> </ul>
<b>Machine Specific Layer</b>		
ARM Core	Yes	Supports Cortex-A8 (The default CPU frequency of SABRE tablet board is 1GHZ).
Memory	Yes	1G memory is used. The user/kernel space is split as 2G/2G.
Interrupt	Yes	Supports MXC TZIC module.
Clock	Yes	Control system frequency, clock tree distribution.
Timer (GPT)	Yes	System timer tick support.
GPIO/EDIO	Yes	GPIO is initialized in earlier phase according to hardware design.
IOMUX	Yes	Provides the interfaces for IO configuration. IOMUX-V3 version is used.
SPBA	Yes	Provides the interfaces to allow different masters to take or release ownership of a shared peripheral.
SDMA	Yes	SDMA script version is V1.1.0.
<b>Character Device Drivers</b>		
MXC UART	Yes	Support console output via UART1. Support Bluetooth connections via UART3.

Feature	Supported?	Comments
<b>Graphic Drivers</b>		
Frame Buffer Driver	Yes	MXC Frame buffer driver for IPU V3.
LVDS	Yes	Support HannStar LVDS.
VGA	No	No connector for the test. You can refer to Quick Start board codes for VGA enable.
TVE	No	No connector for the test. You can refer to Quick Start board codes for TVE enable.
HDMI	Yes	Supports Sii902x HDMI chip. Supports EDID feature.
WVGA	Yes	Supports CLAA and Seiko WVGA panel.
GPU	Yes	GPU software version: AMD Production Release 1.2. <ul style="list-style-type: none"> <li>Supports Z430 (3D) and Z160 (2D).</li> <li>Supports OpenGL ES 2.0 and 1.1, OpenVG 1.1, C2D custom API using Z160</li> <li>Provides debian packages to support EGL X-Window.</li> </ul>
<b>Multimedia Drivers</b>		
IPU V3 driver	Yes	Provides the interfaces to access IPU V3 modules.
V4L2 Output	Yes	Provides V4L2 implementations. Currently V4L only supports one instance. The IPU library located in the imx-lib package can support multiple instances. The de-interlace function for split mode (> 1024x1024) is not supported in this version.
VPU	Yes	VPU firmware version: v1.4.29 Supports VPU encoder and VPU decoder. For Real Video and DivX3 support information, contact a Freescale representative.
Camera	Yes	Support OV3640, OV5640, OV5642 camera sensors. OV3640 is supported by default.
<b>Power Management Drivers</b>		
PMIC	Yes	Supports the DA9053 PMIC via I2C interface.
Lower Power mode	Yes	Supports stop mode in mem state. Only supports power key and RTC as wakeup resources.
DVFS-Core	Yes	<ul style="list-style-type: none"> <li>HW DVFS-Core can be used for CPU frequency adjustment.</li> <li>For 1.2GHZ chip, supports 5 working points (1.2GHZ, 1GHZ, 800MHZ, 400MHZ).</li> <li>For 1GHZ chip, supports 4 working points (1GHZ, 800MHZ, 400MHZ).</li> </ul>
CPUFreq	Yes	CPUFreq can be used for CPU frequency adjustment.
Bus scaling	Yes	Bus scaling driver can be used for bus frequency adjustment.
Battery charging	Yes	Support battery charging using the MAX17058
<b>Sound Drivers</b>		
S/PDIF Tx	Yes	<ul style="list-style-type: none"> <li>Supports S/PDIF Transmit over HDMI.</li> <li>Supports inaccurate 48K sample rate because the OSC is 24MHZ.</li> <li>Support 44.4K sample rate.</li> </ul>
SSI/SGTL500	Yes	<ul style="list-style-type: none"> <li>Supports the STGL5000 stereo audio codec under ASoC framework.</li> <li>Supports audio playback and record.</li> </ul>
ASRC	Yes	Support ASRC module for sample rate conversion.
<b>Input Device Drivers</b>		
Touch panel	Yes	Supports P1003 and eGalax capacitive touch screen driver
Capacitive button		Support MPR121 capacitive button driver.
USB devices	Yes	Supports USB mouse and USB keypad via USB ports

Feature	Supported?	Comments
<b>MTD driver</b>		
SPI NOR	Yes	Support M25P32 SPI NOR flash.
SATA	Yes	Supports SATA driver with internal clock.
<b>Networking Drivers</b>		
FEC	Yes	Supports LAN8720 PHY.
<b>USB Drivers</b>		
USB Host	Yes	Supports USB HOST1 and USB OTG host.
USB Device	Yes	Supports USBOTG device mode.
<b>Security Drivers</b>		
Security drivers	Yes	Supports SCC2 and SAHARA.
<b>General drivers</b>		
SRTC	Yes	Supports for the LP domain.
MMC/SD/SDIO	Yes	<ul style="list-style-type: none"> <li>Supports i.MX eSDHC module with PIO and DMA modes.</li> <li>Supports eMMC4.4 DDR and SDR mode via SDHC3.</li> <li>Support Sandisk eMMC4.4 via SDHC3.</li> </ul>
WatchDog	No	Watchdog reset is failed on SMD board. Under debug.
I2C	Yes	Supports I2C master. Supports I2C1, and I2C2.
SPI	Yes	Supports SPI master mode.
PWM	Yes	Supports the backlight driver via PWM.
Temperate monitor	Partial	Support SATA temperature monitor to monitor chip temperature.
Accelerometer	Yes	Supports MMA8451.
Light Sensor	Yes	Support ISL29023 light sensor.
Magnetometer Sensor	Yes	Support Mag3110 magnetometer sensor.
WiFi	Yes	Supports AR6003 WiFi via USI dual band combo card.
Bluetooth	Yes	Supports AR3001 Bluetooth via USI dual band combo card.

## 5 Kernel boot parameters

Depending on the booting/usage scenario, you may need different kernel boot parameters. [Table 5-1](#) describes the different boot parameters.

**Table 5-1. Kernel Boot Parameters**

Kernel Parameters	Description	Typical Values	Used When
console	Where to output kernel logging by <code>printk</code> .	<code>console=ttymx0</code>	All cases

ip	Tell kernel how or whether to get IP address.	ip=none ip = dhcp ip=static_ip_address	"ip=dhcp" or "ip=static_ip_address" is mandatory in "boot from TFTP/NFS."
nfsroot	The location of the NFS server/directory.	nfsroot=<ip_address>:<rootfs path>	Used in "boot from tftp/NFS" together with "root=/dev/nfs."
root	The location of the root file system.	root=/dev/nfs or root=/dev/mmcblk0p2	Used in "boot from tftp/NFS" (that is, root=/dev/nfs); Used in "boot from SD" (that is, root=/dev/mmcblk0p2).
rootfstype	Indicates the file system type of the root file system	rootfstype=ext4	Used in "boot from SD" together with "root=/dev/mmcblk0p2."
rootwait	Wait (indefinitely) for root device to show up.	rootwait	Used when mounting an SD root file system.
tve	Enable TVOUT feature.	tve	<i>Used to enable TVOUT. After enabling tve, the video modes below will be added into the di1 FB mode list:</i>  TV-1080P24: D:1920x1080p-24 TV-1080P25: D:1920x1080p-25 TV-1080P30: D:1920x1080p-30 TV-1080I50: D:1920x1080i-50 TV-1080I60: D:1920x1080i-60 TV-720P30: D:1280x720p-30 TV-720P60: D:1280x720p-60 TV-PAL: D:720x576i-50 TV-NTSC: D:720x480i-60  <i>First column is FB mode's string name.</i>
vga	Enable VGA feature.	vga	<i>Used to enable VGA output. After enabling vga, the video modes below will be added into the di1 FB mode list:</i>  VGA-WSXGA+: D:1680x1050p-60 VGA-SXGA: D:1280x1024p-60 VGA-XGA: D:1024x768p-60 VGA-SVGA: D:800x600p-60  <i>The first column is the name of the FB mode's string..</i>

hdmi	Enable Sii902x hdmi module.	hdmi	<i>Used to enable HDMI output. After enabling hdmi, the sii902x driver will try to fetch video modes by reading EDID. If successful, these video modes will be added into the di0 FB mode list.</i>
ldb=di<x>	Tells the kernel/driver to enable LDB driver	ldb=di1 or ldb=di0	<i>Used when an LVDS panel is connected via LVDS1 port  Used when an LVDS panel is connected via LVDS0 port</i>
di1_primary	Tells the kernel/driver that DI1 is the primary display	di1_primary	Used when primary display is on the DI1 port.
di0_primary	Tells the kernel/driver that DI0 is the primary display	di0_primary	Used when primary display is on the DI0 port.
ddc	Enable common MXC DDC driver. It will try to read EDID info from the I2C bus platform data defined.	ddc	<i>After enabling ddc, if EDID reading is successful, the video modes will be added to the defined di framebuffer modelist.</i>

video	<p>Tell kernel/driver which resolution/depth and refresh rate should be used for display port 0 or 1.</p> <p>See the parameter information under Documentation/fb/modedb.txt</p> <p>Tells the kernel/driver which IPU display interface format should be used.</p>	<p>1. video=mxcdilfb:RGB666,XGA di1_primary ldb=di1</p> <p>2.video=mxcdi0fb:RGB565,CLAA-WVGA di0_primary</p> <p>3.video=mxcdi0fb:RGB24,SEIKO-WVGA di0_primary</p> <p>4. video=mxcdi0fb:RGB24,1024x768 M@60 hdmi di0_primary</p> <p>5. video=mxcdilfb: YUV444, TV-1080P30 di1_primary tve</p> <p>6. video=mxcdi0fb:RGB565,int_clk 800x480M@55 di0_primary</p>	<p>1. Used when displaying on the HannStar LVDS</p> <p>2. Used when displaying on a CLAA WVGA LCD connected to display port 0</p> <p>3. Used when displaying on a SEIKO WVGA LCD connected to display port 0</p> <p>4. Used when displaying on a HDMI output device. The required video mode is 1024x768 at 60 refresh rate. After EDID reading, the nearest video mode will be chosen in the EDID video mode list.</p> <p>5. Used when displaying on a 1080P TV for display port 1.</p> <p>6. Display port 0 uses 800x480 CVT timing, pixel clock choose internal clock as clock source. Without the int_clk option, the display driver will automatically choose the clock source, it will try internal first, if not accurate, then external.</p> <p>NOTE: GBR24/RGB565/YUV444 etc represent the display HW interface format. Typical values for some different display devices are shown below:</p> <p>TVOUT: YUV444</p> <p>VGA: GBR24</p> <p>HDMI&amp;DVI: RGB24</p> <p>CLAA WVGA LCD: RGB565</p>
dmfc	<p>Tells the kernel/driver how to set the IPU DMFC segment size</p>	<p>None</p> <p>Or</p> <p>dmfc=3</p>	<p>"dmfc=1" means DMFC_HIGH_RESOLUTION_DC,</p> <p>"dmfc=2" means DMFC_HIGH_RESOLUTION_DP,</p> <p>"dmfc=3" means DMFC_HIGH_RESOLUTION_ONLY_DP.</p> <p>Note: DMFC_HIGH_RESOLUTION_ONLY_DP can only be set by the command line.</p>
mem	<p>Tell kernel how much memory can be used.</p>	<p>None or</p> <p>mem=864M</p>	<p>Note: 1G -&lt;mem&gt; -&lt;gpu_memory&gt; is reserved for X-Acceleration.</p>

gpu_memory	Tell kernel how much memory is reserved for GPU usage.	None or gpu_memory =128M	Used to indicate the memory size reserved for the GPU.
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## 6 Known Issues/Limitations

Read through all hardware related reference material and ensure the necessary hardware modifications have been made before using the software. [Table 6-1](#) lists some key known issues.

**Table 6-1 Known Issues and Workarounds**

Features	Category	Description	Resolution/Workaround
1.2GHZ	U-Boot	The default CPU frequency of SABRE Tablet is 1GHZ.	To support 1.2GHZ, do as the following: <ul style="list-style-type: none"> <li>- Check whether the chip supports 1.2GHZ.</li> <li>- In U-Boot console, increase VDDGP voltage and then increase CPU frequency: i2c mw 0x48 0x2e 0x60 i2c mw 0x48 0x3c 0x61 clk core 1200</li> </ul>
Display	Configuration	Display automatic blank functionality is enabled by default. So the display will power off automatically when the time is expired.	To disable LCD automatic blank functionality, enter the command: <code>echo -e "\033[9;0]" &gt; /dev/tty0</code>  When the display is off, enter the following command to power on the display: <code>echo 0 &gt; /sys/class/graphics/fb0/blank</code>
Video	Configuration	When playing the video for a long time, allocation of contiguous memory may fail (memory fragmentation).	To play video when the system memory is low, run the command: <code>echo 1 &gt; /proc/sys/vm/lowmem_reserve_ratio</code> It protects the DMA zone and avoids memory allocation errors.
Video	TO2.0	Mosaic may be observed when playing video under heavy loading conditions.	The temporary workaround is to increase VCC voltage as 1.35V. The following u-boot commands can achieve it: i2c mw 0x48 0x2f 0x62 i2c mw 0x48 0x3c 0x62  Or reduce peripher clock just like the below: clk periph 380

Features	Category	Description	Resolution/Workaround
			Fixed on TO2.1
Video	BSP	ENGR151391 1080P playback: Allocation of the Frame Buffers Failed for some H.264 stream.	DMA allocation failure is found. Under debug
Camera	BSP	The default BSP only supports OV5642.	<p>To support OV3640, Do as the followings:</p> <ul style="list-style-type: none"> <li>- Modify arch/arm/mach-mx5/mx53_smd.c and change the camera type:</li> </ul> <pre>static struct i2c_board_info mxc_i2c0_board_info[] __initdata = { { .type = "ov3640", .addr = 0x3C, .platform_data = (void *)&amp;camera_data, }, };</pre> <ul style="list-style-type: none"> <li>- Enable configuration "CONFIG_MXC_CAMERA_OV3640".</li> </ul> <p>For OV5640, the similar changes are needed. Need to replace "ov5642" as "ov5640" and enable CONFIG_MXC_CAMERA_OV5640.</p>
SATA	Hardware	SATA with internal clock cannot boot.	Ensure the fuse "SATA_ALT_CLK_REF" is blown. The following u-boot command can blow SATA internal boot fuse: iim blow 4 3 4
SATA	TO2.0 ROM	If setting boot mode as SATA boot with internal clock, the boot is failed with Sandisk SSD card if pressing reset key.	No workaround. It can only use power key to repower up board if the reset is failed.  Fixed in TO2.1 ROM.
eMMC4.4	MFG	If setting boot pins as both fast boot and DDR mode (SW26 dip 2,3,5,6,7 ON, SW28 dip 8 ON. Others off), the boot is failed.	It's related to image flash operations. Need to update ucl.xml as:  <CMD type="push" body="\$ echo 18 >/sys/devices/platform/mxsdhci.2/mmc_host/mmc2/mmc2:0001/boot_bus_config">Set boot width is 8bits</CMD>

Features	Category	Description	Resolution/Workaround
HDMI	HW	If using HDMI cable for RevA board, no HDMI signal is output in RevB board.	The HDMI cables used in RevA and RevB boards are different. The HDMI cable used in RevA board is reworked (Can check the cable header to confirm). Please use the right HDMI cable for different boards.
DA9053	Hardware	Only the power key and RTC alarm can wakeup the system from the suspend state for DIALOG AA version and DIALOG BB version with old OTP.	To enable other wakeup resource, it needs to use DA9053 BB version with OTP update . This is because current OTP version needs a longer time to resume voltages to normal values so that it can not meet MX53 resume time requirements. And it caused the system resume unstable.
Reset	Hardware	Watchdog timeout is failed.	For watchdog timeout, it can work on other mx53 boards such as QuickStart etc. The debug shows it hangs in ROM clock check. Under debug.
Reset	DA9053	ENGR151187: [MX53_SMD] The kernel stopped at usb_driver after resetting in stop mode. 100%	It's because VUSB_2V5 voltage is not enabled by DA9053 by default. The workaround is to enable it in the bootloader. Please get the patch from the patch package.
P1003 touch screen	Hardware/BSP	ENGR143574: [MX53_SMD] The P1003 touch screen can not work well sometimes. 60%	If I2C failure is detected, please check whether the LVDS is connected well. It's suspected to be related to the firmware in P1003 touch screen controller. Consulting the vendor to debug.
SATA	BSP	ENGR151370 [MX53_SMD] SATA temperature monitor: No "temperature" in ahci.0 directory. 100%	This feature was broken by ENGR00144104 wrongly. Please get the patch "ENGR151370" from the patch package.
Resume	BSP	ENGR144479: [MX53_SMD] Suspend/Resume: Auto resume from stop mode at first time. 90%	One reason is because one GPIO pin is floating so that the wakeup interrupt is triggered. Please get the patch from the patch package.
HDMI	BSP	ENGR141256 [MX53_SMD] HDMI:TV can't get signals sometimes. 65%	One issue is related to I2C connection. Sometimes I2C_SDA signal is found to be pulled down sometimes so that HDMI can not work. One suspicion is that it maybe related to I2C PAD setting. Trying to modify I2C setting as MX53_I2C_PAD_CTRL_2 for arch/arm/plat-mxc/include/mach/iomux-mx53.h. More investigation is ongoing.

Features	Category	Description	Resolution/Workaround
			Another issue is about HDMI signal. One suspicion is related to the port on SMD board.
Power	U-Boot	If staying in U-Boot console, the chip becomes hot.	<p>This is because all clocks are enabled in U-boot. So the power in U-boot is higher. But the clocks are disabled in kernel initialization codes.</p> <p>To disable unused clocks in U-boot, the following codes under board/freescale/mx53_smd/lowlevel_init.S can be modified according to the actual use case: can be modified according to the actual use case:</p> <pre> /* Restore the default values in the Gate registers */ ldr r1, =0xFFFFFFFF str r1, [r0, #CLKCTL_CCGR0] str r1, [r0, #CLKCTL_CCGR1] ... </pre>
LTIB Build	LTIB	<p>When you install LTIB host packages and build elftosb, the following error is reported</p> <pre> /usr/bin/ld: ElftosbAST.o: in function elftosb::BinaryOpExprASTNode::reduce(elftosb::EvalContext&amp;):/opt/freescale/ltib/usr/src/rpm/BUILD/elftosb-10.10.00/elftosb2/ElftosbAST.cpp:758: error: undefined reference to 'powf' </pre>	<p>Modify elftosb-10.10.00/makefile.rules and change as the following:</p> <pre> -LIBS = -lstdc++ +LIBS = -lstdc++ -lm </pre>
WiFi	Environment Setup	<p>ENGR00141251 [MX53_SMD]Wifi: Can't get IP for wlan0. 100%</p>	Need to connect the antenna to the WiFi signal port of the Combo card (near PIN1).

Features	Category	Description	Resolution/Workaround
Battery	Hardware	ENGR144082: Battery is charging too long time. 100%	The root cause is the charge current is 200mA on SMD B-version board. Need to change the R961 to 33k to make the charge current increased, then the charging time will be short.
ARMV7	Hardware	<p>ENGcm11413 (Data abort when AXI access with BL&gt;8 is made):</p> <p>If an 8-bits NEON load to strongly ordered/device memory, and if the access size is more than 8 bytes, the AXI bus will use the burst (burst len more than 8, burst size is 1 byte).</p> <p>MX53 M4IF just supports the burst length up to 8.if burst length is larger than 8, MX53 reports the data abort.</p>	<p>The user should avoid <code>pgprot_noncached</code> to be used in <code>xxx_mmap</code> for DDR memory. The user should use <code>pgprot_writecombine</code> instead of <code>pgprot_noncached</code> to map the DDR memory to the user space.</p> <p>If the <code>pgprot_writecombine</code> is used for mapping a DDR area and DMA is enabled for this area, the user must do DSB(Data Synchronization Barrier) by using <code>dsb()</code> function for drawing the write buffer, before the DMA starting read from this area.</p>
NEON	Software	NEON should not be used at all for Linux kernel modules	Follow this rule.
toolchain	toolchain	<p>When writing assembly code to use neon/vfpv3 fpu and assemble it by binutils, the <code>vcvt</code> instruction will be incorrectly encoded as <code>vcvtr</code>. This leads to a major loss of performance</p> <p>For example, assembly code <code>test.s</code> with content as:</p> <pre>.text                                 .globl  t est                                 .align  2 test:                                 vcvt.s32. f32    s1, s1</pre> <p>Assemble with command:</p> <pre>arm-fsl-linux-gnueabi-as -march=armv7-a -mfpu=neon</pre>	Avoid using <code>vcvt</code> instructions.

Features	Category	Description	Resolution/Workaround
		<pre> -mfloat-abi=softfp test.s -o test.o  The instruction:     vcvts32.f32    s1, s1 is wrongly encoded to:                 vcvtr.s32 .f32    s1, s1 </pre>	

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