**OpenWrt/LEDE开发和使用过程中的那些事儿**

记录ls1043ardb/ls1012ardb等layerscape平台加入LEDE的开发过程 - v0.4

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# 一、OpenWrt/LEDE介绍和应用领域

OpenWrt是一个高度模块化、自动化的嵌入式Linux发行版（主流路由器固件有 dd-wrt,tomato,openwrt三类），拥有强大的网络组件和扩展性，常常被用于工控设备、电话、小型机器人、智能家居、路由器以及VOIP设备中。 同时，它还提供了很多已编译好的软件，囊括从工具链(toolchain)，到内核(linux kernel)，到软件包(packages)，再到根文件系统(rootfs)整个体系。

当年Linksys使用Linux开发了某款产品，被人发现后要求公开其源码。当Linksys释放 WRT54G/GS 的源码后，网上出现了很多不同版本的 Firmware 去增强原有的功能。OpenWrt第一个版本就是基于 Linksys 提供的 GPL 源码及 uclibc 中的 buildroot 项目，它选择了从零开始一点一点的把各软件加入进去，使其接近 Linksys 版 Firmware的功能，而OpenWrt 的成功之处是它的文件系统是可写的，开发者无需在每一次修改后重新编译，令它更像一个小型的 Linux 电脑系统。OpenWrt每隔一至三年会发布一个稳定的版本：White Russian，Kamikaze，Backfire，Attitude Adjustment，Barrier Breaker，目前最新的版本是Chaos Calmer。

2016年5月，OpenWrt脱胎换骨了，演化产生了LEDE: The LEDE project is a Linux-based, embedded meta-distribution based on OpenWrt, targeting a wide range of wireless SOHO routers and non-network devices. LEDE is an acronym for “Linux Embedded Development Environment”. 目前，绝大部分原OpenWrt的开发者都转到了LEDE社区，下面分别是OpenWrt和LEDE的官方网站：

[www.openwrt.org](http://www.openwrt.org)

[www.lede-project.org](http://www.lede-project.org)

# 二、OpenWrt/LEDE下载、编译、烧写

OpenWrt/LEDE在各自网站上都有maillist，也存有git管理的源代码：

git://git.openwrt.org/openwrt.git

<https://git.lede-project.org/source.git>

为了更方便的管理源代码，现在都迁移到了github上：

<https://github.com/openwrt/openwrt.git>

<https://github.com/lede-project/source.git>

订阅邮件：

<https://lists.infradead.org/mailman/listinfo/lede-dev>

<https://lists.openwrt.org/cgi-bin/mailman/listinfo>

## 下载源代码：

以LEDE为例，通过git下载源代码（事先安装git软件包，后续命令都在非root用户下执行）：

git clone https://github.com/lede-project/source.git

cd source/

ls -l

## 配置OpenWrt/LEDE菜单选项：

若在一个新安装的Ubuntu系统上第一次运行make menuconfig，可能会提示缺少某些软件包，按照提示安装它们，例如：

sudo apt-get install zlib.

sudo apt-get install openssl.

安装完成必要的软件包之后再继续运行make menuconfig

cd source/

make menuconfig

Target System (NXP Layerscape) --->

(X) NXP Layerscape

Subtarget (layerscape 64b boards) --->

(X) layerscape 64b boards

( ) layerscape 32b boards

Target Profile (Default Profile) --->

( ) Multiple devices

(X) Default Profile

( ) ls1012ardb-64b

( ) ls1043ardb-64b

Global build settings --->

Binary stripping method (none) --->

(X) none

( ) strip

( ) sstrip

[ ] Package the LEDE-based Toolchain

Boot Loaders --->

<\*> uboot-layerscape-64b-ls1012ardb

<\*> uboot-layerscape-64b-ls1043ardb

Firmware --->

<\*> fman-layerscape-ls1043ardb

<\*> ppfe-ls1012ardb

<\*> rcw-layerscape-ls1012ardb

<\*> rcw-layerscape-ls1043ardb

退出时保存配置选项。

几个关于菜单选项的注意事项：

* 在Target System中选定了NXP Layerscape后，Subtarget会默认选中layerscape 64b boards，Target Profile中默认打开Default Profile，此时将会同时编译ls1012ardb-64b和ls1043ardb-64b的固件。也可以单独选中其中一个，那么将只编译选中的那个目标固件。
* OpenWrt/LEDE在make的时候将会自动清理精剪可执行文件，这将导致ls1012ardb的ppfe网络驱动的固件被破坏，所以在编译ls1012ardb之前，必须选中CONFIG\_NO\_STRIP=y：Binary stripping method (none)
* 在现有的配置中，默认打开了ls1043ardb和ls1012ardb所需要的各种package：uboot、rcw、fman和ppfe，在编译的过程中，两个target的最终固件都会寻找到各自所需要的这些package。OpenWrt/LEDE允许手工打开或者关闭这些package，但这些package对target默认设定的package依赖打开规则只在第一次make menuconfig时有效，一旦保存过一次之后，再切换不同target，往往不同target所默认的package依赖打开将失效。所以，不清楚的情况下，保持这些package全部打开的状态就可以；若是关闭了某个必须要打开的package，那么编译到最后拼接固件的时候，将会报错找不到某个package。
* 若选中了[ ] Package the LEDE-based Toolchain，将会在编译完成的bin目录下存放一个toolchain压缩包，方便在其它地方编译kernel、uboot、应用程序使用，但在引用该版本的toolchain时需要指定一个工作目录参数STAGING\_DIR=

## 编译OpenWrt/LEDE：

在多核处理器环境下，为了加快编译的过程，可以使用make -j[N]参数，例如：

make -j20

编译过程只显示当前正在处理的那个package或者过程，不显示具体的每一行详细命令，在编译出现错误的时候，会提示执行下面的命令：

make -j1 V=s

此时，-j1表示只开一个编译进程，V=s表示显示编译的每一个详细命令，这时将会打印出在哪里出错，方便定位出错原因。

几个关于编译的注意事项：

* 在进行32b/64b的开发中，笔者会经常在32b/64b这两个subtarget之间切换编译，每次编译的中间结果不清理。此时在已有代码没有问题的情况下，间或遇到上一次64b编译出来的固件正常运行，而经过切换32b编译、再切换回64b编译后，却在固件的kernel启动过程中遇到莫名其妙的死锁。 怀疑OpenWrt/LEDE在增量编译或者不同target之间切换时，有些工作处理的不严密。遇到此类问题，可以在每次编译前先清理一下工作目录的中间结果：make clean。然后再重新make编译。
* 在使用make –j20打开多个进程编译时，偶尔会遇到前后有依赖关系的编译错误：前序编译任务还未完成，后续编译任务就开始了，结果往往会表现出在拼接最终固件时提示缺少某个package。遇到此类问题，重新执行一遍make –j20往往就能编译通过。虽然直接使用make -j1不会出此类问题，但这样的编译过程就太慢了。【该问题已经找到root cause，请翻阅后续章节：六.12，同一个device的多个固件含相同package编译时容易发生冲突】

## 烧写固件：

编译完成后，编译的一些中间结果（rcw、uboot、fman、kenrel、rfs image、kernel source and dtb等等）在这里：

build\_dir/target-aarch64\_armv8-a\_musl-1.1.15/linux-layerscape\_64b/

根文件系统目录在这里：

build\_dir/target-aarch64\_armv8-a\_musl-1.1.15/root-layerscape/

各种package等在这里：

build\_dir/target-aarch64\_armv8-a\_musl-1.1.15

最终的64b的target固件在这里：

ls –l bin/targets/layerscape/64b/

lede-layerscape-64b-ls1012ardb-squashfs-firmware.bin

lede-layerscape-64b-ls1012ardb-squashfs-firmware.ext4.bin

lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin

这些固件都是完整的flash 镜像文件，是由rcw、uboot、uboot env、fman、dtb、kernel、rfs等按照各自分区位置拼接填充而成，并且都在各自的uboot env中也根据分区表事先设定好了各自的启动bootargs，可以在uboot环境下直接从目标开发板flash的0偏移地址开始烧写，烧写完后reset就自动从uboot启动到kernel进而进入OpenWrt/LEDE的根文件系统。

烧写ls1012ardb固件的注意事项：

* 当前OpenWrt/LEDE中默认的固件名字是lede-layerscape-xxb-xxxdevice-squashfs-firmware.bin，例如ls1043ardb的64b固件是lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin。但由于ls1012ardb的qspi flash驱动和jffs2有个冲突还未解决，会导致根文件系统启动后极不稳定报错，因此当前版本的OpenWrt/LEDE同时提供了lede-layerscape-64b-ls1012ardb-squashfs-firmware.ext4.bin这样带.ext4.bin后缀的固件作为ls1012ardb默认烧写固件，uboot启动参数bootargs也默认指定了该ext4格式的根文件系统。使用该固件将不能启动OpenWrt/LEDE的根文件系统自动分裂为只读和可写两个分区、并由overlay fs统一掌管读写分区的机制，并无其它不良影响。【由于同一设备的多固件编译遇到的冲突问题，ls1012目前只保留了一个默认固件名字，但默认固件指定为ext4格式的rfs了，这一点不同于ls1043。】
* ls1012ardb的qspi flash驱动性能较慢，对于64M的一个bank，提供的是32M的固件，自0地址烧写就可以，后面32M的空间是作为一个用户分区存在的。这样可以缩短这个缓慢的烧写过程。希望qspi flash驱动的IP owner早点修复这个问题。

# 三、ls1043/ls1012相关源代码功能结构介绍

进入OpenWrt/LEDE源代码目录后，可以看到如下的主要目录结构：

bin/ --编译好的目标固件

build\_dir/ --编译中间结果

config/ --配置菜单

dl/ --下载的各种packages

docs/ --说明文档

include/ --全局变量、宏定义、函数

package/ --各类软件包的下载编译的源代码、配置和脚本

scripts/ --各种工具脚本

staging\_dir/ --编译中间结果

target/ --各类平台的源代码、配置和脚本

tmp/ --编译过程的临时文件夹

toolchain/ --各类toolchain的源代码、配置和脚本

tools/ --各类工具的源代码、配置和脚本

标红色的是几个开发过程中需要经常要进去打开瞧一眼代码和文件的目录：include/下面存放了大量定义好的变量和函数脚本，基本上常见的需要实现的功能都在该目录下有例程可用；最重要的是target/，各种平台target的源代码、配置和脚本等都在target/linux/下，ls1043/ls1012的相关支持代码就存放在了target/linux/layerscape/目录下；package/下也存放着另外几个必须用到的相关软件包代码：

package/boot/uboot-layerscape

package/boot/uboot-layerscape-32b/

package/firmware/rcw/

package/firmware/fman-ucode/

package/firmware/ppfe-firmware/

package/firmware/mc-binary/

接下来将挨个介绍这些源代码的主要功能。

## target/linux/layerscape/Makefile

这是layerscape target的主make配置文件，其中定义了开发平台名称、内核版本、主要特性、各个SUBTARGETS目录名字、默认packages、回调函数等。在后续的开发过程中，若需要对所有layerscape target都增加一些默认打开的内核选项或者外部软件包，可以考虑在此处的DEFAULT\_PACKAGES变量中添加。

## target/linux/layerscape/patches-4.4/

平台target的所有将打入kernel里的patch，这些patch名字有个规范，需要按照功能加以不同的前缀数字，参见target/linux/generic/PATCHES。若在target/linux/layerscape/Makefile里指定了其它版本的kernel，这里的目录名字后缀也需要同步修改。

## target/linux/layerscape/config-4.4

包扩各个SUBTARGETS在内、整个平台target的所有公共的kernel config选项，该文件中的内容将在OpenWrt/LEDE的make过程中添加入kernel source目录的最终配置文件中去。若在target/linux/layerscape/Makefile里指定了其它版本的kernel，这里的配置文件名字后缀也需要同步修改。

## target/linux/layerscape/64b/

ls1043和ls1012都是ARMv8 64bit的SOC，默认也是运行在64位模式下。为了方便客户让一些老的32位应用程序也能无障碍的运行在其上，ls1043和ls1012同时也提供了32位的运行模式。32b和64b的环境是由不同的toolchain编译kernel和rfs来实现的，这里就通过64b和32b两种SUBTARGETS来区分定义。

## target/linux/layerscape/64b/target.mk

主要定义了64b SUBTARGET的CPU架构，进而间接确定了toolchain，还有一些名字描述和编译参数的定义。

## target/linux/layerscape/64b/profiles/00-default.mk

定义了默认的profile文件，并在其中把ls1043和ls1012所必须的rcw、uboot、fman、ppfe等固件软件包添加到了DEFAULT\_PACKAGES默认软件包定义中。

## target/linux/layerscape/64b/config-default

针对64b SUBTARGET的kernel config选项，也会在编译的时候加入到kernel source目录的最终配置文件中去。

## target/linux/layerscape/32b/

描述请参照前面target/linux/layerscape/64b/，主要的不同在于target.mk里定义了ARMv7的参数， config-default也有调整，profiles/00-default.mk就是个指向64b SUBTARGET目录下相同文件名字的profile配置。

## target/linux/layerscape/image/Makefile

这个文件很重要！这里定义了各个target device的重要参数和固件的创建拼接过程。例如内核的加载地址和入口地址、dts文件、默认的packages、以分区表定义为划分的各功能块的创建拼接过程定义。

## target/linux/layerscape/modules.mk

内核模块定义文件。把ppfe相关选项和自动加载定义成一个OpenWrt/LEDE的kmod。更多内核模块的使用和定义可以参考package/kernel/linux/modules/下的各类文件。可以把这些kmod作为packages名字添加到DEFAULT\_PACKAGES、PACKAGES、DEVICE\_PACKAGES中，避免在kernel config打开过多的选项。各类kmod可以定义自动加载的顺序，这个加载过程是在真正的根文件系统挂载之前。

## target/linux/layerscape/base-files/etc/rc.local

target/linux/layerscape/base-files/该目录下的所有文件和目录，都会在OpenWrt/LEDE的时候直接复制到根文件系统中去。etc/rc.local是一个挂载根文件系统之后被调用执行一次的用户命令文件。由于ppfe网络驱动模块的特殊性：在初始化的时候需要读取/lib/firmware/下的几个固件文件，而上一节中提到kmod的自动加载是在真正的根文件系统挂载之前，这就导致ppfe kmod第一次加载时不能正确的初始化读到那些固件。因此，在挂载根文件系统之后被自动执行的etc/rc.local这个用户命令中加入了“modprobe pfe.ko”，使得ppfe二次加载，这时它才能正确的完成初始化过程。

# 四、How to add a new platform/target/device

增加一个新的layerscape平台目标设备到OpenWrt/LEDE，主要包括kernel的移植、uboot的移植、其它固件的准备、加入到已有平台架构的代码修改和增加。其中最重要的是kernel的移植。本章节将以OpenWrt/LEDE已经存在ls1043的支持代码架构为基础，详细描述新增ls1012支持时，如何修改和增加哪些相关代码。

## kernel的移植

目前OpenWrt/LEDE主要的kernel支持版本是4.4，ls1012 SDK release的kernel版本是4.1. 移植的目标就是把SDK release中ls1012ardb相关的平台和驱动patch正确的打入OpenWrt/LEDE kernel base。

ls1012ardb相关的平台和驱动patch，主要包含了dts、qspi flash、32bit等部分，中断、PCIE、USB、IFC等部分已经在先期的ls1043中移植过，并且部分可以直接使用。对于新手来说，到底需要移植哪些patch，可以找开发板或者IP的owner咨询。拿到这些patch之后，需要先把OpenWrt/LEDE kernel base提取出来，然后再处理打入该kernel base时的一些冲突。Kernel版本不同，冲突在所难免，有patch缺失的、有上下文找不对位置的，等等，具体patch冲突问题不在此文讨论范围内。这里重点介绍一下如何获得OpenWrt/LEDE kernel base的两个方法。

方法一：

选择并编译完ls1043 target之后，会在build\_dir/target-aarch64\_armv8-a\_musl-1.1.15/linux-layerscape\_64b/linux-4.4.27/目录留下完整的OpenWrt/LEDE kernel base，把该目录复制出来当做移植工作目录就可以，而且默认的.config也在有了。该方法简便，但获得的kernel base并非git管理，只是一个源代码的目录。

方法二：

之前曾经跟踪了一下OpenWrt/LEDE make的过程，记录了它下载kernel package然后复制进去一些OpenWrt/LEDE相关文件和打patch的过程。 可以参考以下步骤进行。

#从kernel.org手工下载kernel base并且reset到当前的具体小版本，kernel base可能随时有升级，在尝试的时候应当检查一下(include/kernel-version.mk)。

git clone git://git.kernel.org/pub/scm/linux/kernel/git/stable/linux-stable.git

git-checkout -b linux-4.4.y origin/linux-4.4.y

git reset --hard 3afd8362fabd167bb04f79501f21dd67aa9cb99f -- Linux 4.4.27

cd linux-stable

#复制OpenWrt/LEDE相关的文件到当前移植工作目录linux-stable，并用git管理打包这些新增文件。（/home/jyt/openwrt/project-github.source.git/source是笔者的LEDE源代码目录）

cp -fpR /home/jyt/openwrt/project-github.source.git/source/target/linux/generic/files/. ./

ll /home/jyt/openwrt/project-github.source.git/source/target/linux/generic/files

git add .

git commit -e -s -a -m "add openwrt/lede target/linux/generic/files"

#打入OpenWrt/LEDE相关的kernel patch。注意，这些原始patch并非git管理，打入之后再并用git管理打包这些新增patch为一个patch。

find ./ -name \\*.rej -or -name \\*.orig | xargs -r rm -f

ls /home/jyt/openwrt/project-github.source.git/source/target/linux/generic/patches-4.4 > patch.list

sed 's#^#patch -p1 </home/jyt/openwrt/project-github.source.git/source/target/linux/generic/patches-4.4/#g' patch.list | sh

rm patch.list

git add .

git commit -e -s -a -m "patch openwrt/lede target/linux/generic/patches-4.4/\*.patch"

#此时的移植工作目录已经算是OpenWrt/LEDE kernel base了，接下来可以顺序打入target/linux/layerscape/patches-4.4/目录下的已有ls1043移植过的patch了，这些patch都是用git管理生成，至此不再冗述。

整理好了移植的kernel patch，需要参照target/linux/generic/PATCHES文中的功能分类，修改每个patch的前缀数字，然后复制这些patch到target/linux/layerscape/patches-4.4/。复制前最好要检查确认，修改数字前缀后的patch是否能和已有的patch按照顺序打到kernel里。

## uboot的移植

uboot有两个package，分别是：

package/boot/uboot-layerscape --源代码形式，适用于64b SUBTARGET。实际上编出的bin也适用于32b SUBTARGET。取自：<http://git.freescale.com/git/cgit.cgi/ppc/sdk/u-boot.git/snapshot> 【截止12月初，已经在最新的SDK release uboot代码基础上又重新合并了ls1012的支持patch，为了方式sdk的tree rebase，现在已经把uboot source迁移到了github上，迁移patch已经提交还未接收：https://github.com/fsl-jyt/u-boot/tree/sdk-v2.0-1611\_ls1043-ls1012-ls1046】

package/boot/uboot-layerscape-32b/ --binary形式，仅仅用于32b SUBTARGE的固件编译。取自：<https://github.com/fsl-jyt/uboot-ls-32b.git>

64b和32b是分别用两种toolchain编译出来的kernel和rfs来实现的，uboot会在跳转到kernel之前判断目标kernel是64b还是32b，然后切换CPU到相应的模式后再跳转到kernel。而uboot只能用64b的toolchain编译出来，32b的toolchain不能编译该uboot。经过社区讨论决定，32b的uboot可以事先编译好，放到github网站，然后通过下载固件package的方式在OpenWrt/LEDE make 32b SUBTARGE时拉到本地参与固件的编译，这样就绕过了32b toolchain不能编译uboot的问题。

先介绍源代码形式的uboot移植，过程与kernel类似，通过阅读package/boot/uboot-layerscape/Makefile可知，基本的源代码包是SDK2.0 release的，然后打入了package/boot/uboot-layerscape/patches/目录下的patch，由此形成了OpenWrt/LEDE uboot base。而ls1012的sdk release的uboot源代码git tree地址是ssh://git@sw-stash.freescale.net/dnnpi/ls1012-uboot.git，branch是ls1012a\_brngup\_devel，将其中ls1012相关的patch提取出来，经过处理冲突之后打入OpenWrt/LEDE uboot base，经过编译验证，确认移植的ls1012 uboot patch没问题后，再把这些patch复制到package/boot/uboot-layerscape/patches/，注意patch的数字前缀顺序，不要跟已有的patch顺序冲突。之后修改package/boot/uboot-layerscape/Makefile增加下列代码配置：

359 +define uboot/ls1012ardb

360 + TITLE:=U-Boot $(PKG\_NAME)-$(PKG\_VERSION) for NXP ls1012ardb 64b Dev Board

361 + CONFIG=ls1012ardb\_qspi

362 + IMAGE=u-boot-swap.bin

363 +endef

364 +

365 UBOOTS := \

366 - ls1043ardb

367 + ls1043ardb \

368 + ls1012ardb

代码里的ls1012ardb\_qspi是ls1012的config名字。u-boot-swap.bin是指定的uboot编译之后的目标 binary文件名字，ls1043是默认的u-boot-dtb.bin；由于一些奇葩设计的原因，ls1012的rcw或者uboot需要在编译之后进行字节转换处理，于是在移植ls1012 uboot的时候，笔者把这个字节转换处理放到了uboot的Makefile里，在生成u-boot-dtb.bin的时候同时生成了另一个名字为u-boot-swap.bin的uboot binary。在UBOOTS中添加了ls1012ardb，以使其生成uboot-layerscape-64b-ls1012ardb的package。

接下来介绍binary形式的uboot-layerscape-32b，在上述源代码形式的uboot移植成功并验证可用之后，把编译出来的uboot binary上传到<https://github.com/fsl-jyt/uboot-ls-32b.git>，记录生成的新commit id，然后打开package/boot/uboot-layerscape-32b/Makefile做如下修改：

330 -PKG\_SOURCE\_VERSION:=4fbf7e76eb7671d9822d0310319f6ad70d324547

331 +PKG\_SOURCE\_VERSION:=719f8b606334bc73367f78c204dce69786963b65

。。。。。。

339 +define uboot/ls1012ardb

340 + TITLE:=U-Boot binary $(PKG\_NAME)-$(PKG\_VERSION) for NXP ls1012ardb 32b Dev Board

341 + CONFIG=ls1012ardb-uboot.bin.swap

342 +endef

343 +

344 UBOOTS := \

345 - ls1043ardb

346 + ls1043ardb \

347 + ls1012ardb

标红色的719f8b606334bc73367f78c204dce69786963b65就是上传新的uboot binary之后的patch commit id，ls1012ardb-uboot.bin.swap就是上传的经过了字节转换后的ls1012 uboot binary文件。

## 其它固件的准备

ls1012除了rcw之外，还有ppfe是其单独需要的，这些固件的处理方式类似于binary形式的uboot-layerscape-32b，可以参考已有代码的处理方式，此处不再冗述。

package/firmware/rcw/Makefile

package/firmware/fman-ucode/Makefile

package/firmware/ppfe-firmware/Makefile

## 加入到已有平台架构

在进行完上述的kernel、uboot、packages准备工作之后，最重要的就是在target/linux/layerscape下增加ls1012相关的支持代码，主要修改和增加如下：

* target/linux/layerscape/64b/profiles/00-default.mk

#增加ls1012所需要的各项默认的packages

18961 @@ -9,6 +9,8 @@ endef

18962

18963 DEFAULT\_PACKAGES+= \

18964 rcw-layerscape-ls1043ardb uboot-layerscape-$(SUBTARGET)-ls1043ardb \

18965 - fman-layerscape-ls1043ardb

18966 + fman-layerscape-ls1043ardb \

18967 + rcw-layerscape-ls1012ardb uboot-layerscape-$(SUBTARGET)-ls1012ardb \

18968 + kmod-ppfe ppfe-ls1012ardb

18969

18970 $(eval $(call Profile,Default))

* target/linux/layerscape/base-files/etc/rc.local

#挂载真正的根文件系统之后进行ppfe模块加载

18976 @@ -0,0 +1,4 @@

18977 +# Put your custom commands here that should be executed once

18978 +# the system init finished. By default this file does nothing.

18979 +modprobe pfe.ko

18980 +exit 0

* target/linux/layerscape/config-4.4

#增加ls1012所需的qspi flash驱动选项

18985 @@ -294,3 +294,5 @@ CONFIG\_USB=y

18986 CONFIG\_VITESSE\_PHY=y

18987 CONFIG\_XPS=y

18988 CONFIG\_ZLIB\_INFLATE=y

18989 +CONFIG\_MTD\_SPI\_NOR=y

18990 +CONFIG\_SPI\_FSL\_QUADSPI=y

增加kernel config选项后再去编译时，有时候会报错终止，再次运行make -j1 V=s时，会出现逐行确认打开或者关闭某些kernel选项的过程，此时要记录这些单独确认的选项，当进入到正常编译kernel时终止编译过程，并清理工作目录，然后把前面记录的那些选项再次加入到config-4.4或者config-default文件中去，再次重新编译，就不再出现报错终止或者逐行确认kernel选项的过程了。

* target/linux/layerscape/image/Makefile

#增加ls1012所需的设备名称和默认packages定义、dts源文件定义、固件各个组成部分及其size定义、ext4格式根文件系统制作函数定义。

#在每个append-xx系列函数之后配套的pad-to nM，表示追加一个固件组成部分之后，立刻填充空白到偏移地址nM。

# check-size表示要检查前面的文件size大小，若目标文件size为32M，那么该函数后边的参数应该设定为32M+1，即32\*1024\*1024+1=33554432+1= 33554433

#固件的组成是按照分区表来划分存储的，形成了完整的flash镜像文件。

18995 @@ -25,6 +25,11 @@ define Build/append-ls-dtb

18996 dd if=$(DTS\_DIR)/$(1).dtb >> $@

18997 endef

18998

18999 +define Build/append-ls-rootfs-ext4

19000 + $(STAGING\_DIR\_HOST)/bin/make\_ext4fs -l $(word 2,$(1)) -b 4096 -i 6000 -m 0 -J $(KDIR)/$(word 1,$(1))-$(word 2,$(1)).root.ext4 $(TARGET\_DIR)

19001 + dd if=$(KDIR)/$(word 1,$(1))-$(word 2,$(1)).root.ext4 >> $@

19002 +endef

19003 +

19004 define Device/Default

19005 PROFILES = Default

19006 FILESYSTEMS := squashfs

19007 @@ -57,4 +62,23 @@ endif

19008 endef

19009 TARGET\_DEVICES += ls1043ardb

19010

19011 +define Device/ls1012ardb

19012 + DEVICE\_TITLE := ls1012ardb-$(SUBTARGET)

19013 + DEVICE\_PACKAGES += rcw-layerscape-ls1012ardb uboot-layerscape-$(SUBTARGET)-ls1012ardb kmod-ppfe ppfe-ls1012ardb

19014 +ifeq ($(SUBTARGET),64b)

19015 + DEVICE\_DTS = freescale/fsl-ls1012a-rdb

19016 +endif

19017 +ifeq ($(SUBTARGET),32b)

19018 + DEVICE\_DTS = ../../../arm64/boot/dts/freescale/fsl-ls1012a-rdb

19019 +endif

19020 + IMAGE/firmware.bin = append-ls-rcw $(1) | pad-to 1M | append-ls-uboot $(1) | pad-to 3M | \

19021 + append-ls-dtb $$(DEVICE\_DTS) | pad-to 4M | append-kernel | pad-to 9M | \

19022 + append-rootfs | pad-to 32M | check-size 33554433

19023 + IMAGES += firmware.ext4.bin

19024 + IMAGE/firmware.ext4.bin = append-ls-rcw $(1) | pad-to 1M | append-ls-uboot $(1) | pad-to 3M | \

19025 + append-ls-dtb $$(DEVICE\_DTS) | pad-to 4M | append-kernel | pad-to 9M | \

19026 + append-ls-rootfs-ext4 $(1) 23M | check-size 33554433

19027 +endef

19028 +TARGET\_DEVICES += ls1012ardb

19029 +

19030 $(eval $(call BuildImage))

* target/linux/layerscape/modules.mk

#把ppfe网络驱动及其自动加载做成kmod

19044 +define KernelPackage/ppfe

19045 + SUBMENU:=$(NETWORK\_DEVICES\_MENU)

19046 + TITLE:=Freescale PPFE Driver support

19047 + KCONFIG:=CONFIG\_FSL\_PPFE

19048 + FILES:=$(LINUX\_DIR)/drivers/staging/fsl\_ppfe/pfe.ko

19049 + AUTOLOAD:=$(call AutoLoad,35,ppfe)

19050 +endef

19051 +

19052 +define KernelPackage/ppfe/description

19053 + Kernel modules for Freescale PPFE Driver support.

19054 +endef

19055 +

19056 +$(eval $(call KernelPackage,ppfe))

注意事项：

新加平台目标设备的过程不一定按照上述介绍的顺序，但必须首先开始于kernel移植和target/linux/layerscape/下各文件的增加和修改。固件拼接配置只包括dtb、kernel和rfs也可以，rcw和uboot可以直接使用SDK release的binary就可以，注意规划好uboot里bootargs中分区表和根文件系统的设置。

# 五、How to change the flash size

用户在开发实际产品时，往往不会用到现有开发板自带的那么大容量的flash，或者根据自己的需要重新规划分区表布局，这个时候必须配套的修改两个地方：uboot环境变量中bootargs的分区表，target/linux/layerscape/image/Makefile里的固件拼接配置，两处的各分区size定义必须保持一致。

## uboot环境变量中bootargs分区表的修改

在开发板启动过程中，uboot会根据启动参数的设定，从某个设定的flash位置读取dtb和kernel，然后把根文件系统挂载到指定的flash分区。以ls1012为例，它的uboot 默认环境变量的指定是在uboot源代码里的include/configs/ls1012a\_common.h文件中：

27 +#define WRTBOOT\_EXT4RFS "pfe stop && sf probe 0:0 && setenv bootargs " \

28 + "root=/dev/mtdblock5 rootfstype=ext4 noinitrd console=ttyS0,115200 " \

29 + "earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw)," \

30 + "1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user)" \

31 + " && sf read $fdtaddr 0x300000 100000 && " \

32 + "sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr"

其中，root=/dev/mtdblock5指定了根文件系统挂载到mtdblock5分区；mtdparts=1550000.quadspi指定了分区表对应的flash设备；1M(rcw), 1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user)是整个flash分区表的定义；sf read $fdtaddr 0x300000 100000是读取dtb；sf read $loadaddr 0x400000 500000是读取kernel；bootm $loadaddr - $fdtaddr是把读取到的dtb和kernel地址当做参数传递给启动跳转函数。具体patch参见package/boot/uboot-layerscape/patches/0092-armv8-set-openwrt-lede-default-boot-env-for-ls1012ar.patch

ls1043的uboot 默认环境变量定义在include/configs/ls1043a\_common.h中，详见package/boot/uboot-layerscape/patches/0005-armv8-set-openwrt-lede-default-boot-env-for-ls1043ar.patch

【由于新提交的patch把uboot源码迁移到了github上，所有uboot本地patch也都直接打入github上的tree，上述提到的patch可以在这个tree/branch里找到<https://github.com/fsl-jyt/u-boot/commits/sdk-v2.0.x_ls1043-ls1012> 】

## target/linux/layerscape/image/Makefile固件拼接配置的修改

打开target/linux/layerscape/image/Makefile可看到Device/ls1012ardb中有如下定义：

78 IMAGE/firmware.ext4.bin = append-ls-rcw $(1) | pad-to 1M | append-ls-uboot $(1) | pad-to 3M | \

79 append-ls-dtb $$(DEVICE\_DTS) | pad-to 4M | append-kernel | pad-to 9M | \

80 append-ls-rootfs-ext4 $(1) 23M | check-size 33554433

该固件拼接配置，与前一节uboot里bootargs的分区表定义1M(rcw), 1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user)完全对应，仅仅不包含最后32M的user分区，以便节省烧写固件的时间。

同一文件中Device/ls1043ardb的固件拼接配置定义如下：

59 IMAGE/firmware.bin = append-ls-rcw $(1) | pad-to 1M | append-ls-uboot $(1) | pad-to 3M | \

60 append-ls-fman $(1) | pad-to 4M | append-ls-dtb $$(DEVICE\_DTS) | pad-to 5M | \

61 append-kernel | pad-to 10M | append-rootfs | pad-to 64M | check-size 67108865

该固件拼接配置，与uboot源代码include/configs/ls1043a\_common.h中的分区表定义完全一致。

# 六、开发和使用过程中遇到的那些坑

OpenWrt/LEDE项目是笔者所在团队第一次涉猎，无前车之鉴，在移植和开发过程中遇到了不少问题，但都逐步克服。为使后来者和用户能更顺利的参与OpenWrt/LEDE项目，把这些经验记录传承下去非常必要。夹杂在前面章节中的一些注意事项就不在此处重复了，但清理工作目录确实需要强调一下。

## 清理工作目录

若遇到莫名其妙的问题，为了稳妥起见，完全清理工作目录环境非常必要，然后再去重新make menuconfig和make，看看能否复现错误。开发过程中随时遇到错误很正常，有些自己开发工作之外的其它包依赖、增量编译、检查不严谨等问题若在编译过程中出现并产生干扰，可能会使工作陷入困境，但清理干净工作目录之后的重新编译往往会排除掉这些因素。由此带来的影响只是多花了一点编译时间：

make clean

在开发过程中往往会不断的修改一些target/device/package的名字或者配置，而OpenWrt/LEDE可能无法完全同步回写重新生成所有对应的菜单选项，这时候把菜单和配置相关的文件清理一下十分必要：

rm .config tmp –rf

dl/目录下软件包的清理。uboot-layerscape-32b不是一次就成型为现在这个样子的，曾经也经历过返工 - 删除了整个https://github.com/fsl-jyt/uboot-ls-32b.git然后重新上传文件创建。但接下来OpenWrt/LEDE的make过程并未如自己料想的那样重新下载uboot-ls-32b.git并打包覆盖之前的压缩包。于是就手工删除了老的压缩包，再重新执行make，这才终于重新下载打包这个uboot-ls-32b.git并存放到了dl/目录下。成熟的patch和package下载打包后能直接用，也不会随意变动；但在开发过程中，这种变动是随时会有的，那么本地dl/目录下已经下载打包的压缩包不能同步更新就会显露出来，这往往跟正在调试的package对象有关，也容易及时察觉发现。为了稳妥起见，在做此类开发调试时，可以先直接把dl/目录下对应的压缩包删掉，再让make进行一遍彻底的下载和打包安装过程：

rm dl/uboot\* dl/rcw\* dl/ppfe\* dl/fman\*

## 关于kernel config选项

target/linux/layerscape/config-4.4

target/linux/layerscape/64b/config-default

target/linux/layerscape/32b/config-default

有时候在上面3个kernel配置文件里添加了某个选项之后，会发现编译出来的固件运行后还是没有打开目标配置。实际上，在OpenWrt/LEDE合并几个config文件之后，还会针对一些特定的kernel选项进行单独处理，那么前面配置文件中加入的一些选项就会被覆盖。所以在添加了配置选项之后，一定要在编译完成后的kernel源代码目录里检查一下.config里面是否真的打开或者关闭了你想操作的目标选项。

## 清理patch内容格式的命令

patch做的再好，也可能存留一些不经意非必要的东西在里面，OpenWrt/LEDE提供了一个命令可以重新整理target/linux/layerscape/patches-4.4/目录下的patches内容：

make target/linux/refresh V=s

整理完后可以通过git status命令查看到底有哪些patches被整理过，并可以由此生成一个新的整理patches的patch。

## make –jn多任务编译时偶尔报错找不到某些包

为了加快编译速度，笔者在多核处理器上往往会用make -j20这样的命令开多个进程去执行编译，但偶尔会有报错：

jyt@BP:~/openwrt/project-github.source.git/source$ make -j20

......

make[3] -C target/linux install

make -r world: build failed. Please re-run make with -j1 V=s to see what's going on

make: \*\*\* [world] Error 1

jyt@BP:~/openwrt/project-github.source.git/source$ make -j1 V=s

当根据提示再次执行“make -j1 V=s”时，却又编译成功了。这种错误在开发过程中并非经常出现，但总能偶尔遇到。分析猜测其机理，感觉是OpenWrt/LEDE在做多任务编译时，一些前序、后续任务的检查执行并非严密，导致有的前序工作(rcw/uboot/…)还未完成，而依赖它的后续工作(用rcw/uboot/…等等拼接固件)就开始了，于是后续工作找不到理应完成而存在的packages从而报错。遇到此类问题，再次执行一下make过程往往就成功了。原因应该是，当后续工作报错退出后，前序工作随后也完成退出了，再次执行make时，后续工作就拿到了前序工作上一次执行时的结果。

【该问题的root cause已经找到，后边有一节专门解释：“同一个device的多个固件含相同package编译时容易发生冲突” 】

## 获得toolchain

make menuconfig

[\*] Package the LEDE-based Toolchain

make

ls -l bin/targets/layerscape/64b/

lede-toolchain-layerscape-64b\_gcc-5.4.0\_musl-1.1.15.Linux-x86\_64.tar.bz2

解压缩该bz2包就可以得到toolchain了，便于在OpenWrt/LEDE环境之外进行一些开发编译工作。使用这个toolchain时需要指定一个临时工作目录的参数STAGING\_DIR，例如：

make STAGING\_DIR=/home/xxx/yyy/zzz ARCH=arm CROSS\_COMPILE=/your\_toolchain\_folder/bin/arm-openwrt-linux-

当前LEDE里layerscape 32b SUBTARGET的toolchain是：

bin/targets/layerscape/32b/lede-toolchain-layerscape-32b\_gcc-5.4.0\_musl-1.1.15\_eabi.Linux-x86\_64.tar.bz2

## 更新软件包

* 在OpenWrt/LEDE源代码目录下：

更新安装所有软件包：

./scripts/feeds update -a

./scripts/feeds install –a

make package/symlinks

只更新安装luci：

./scripts/feeds update luci

./scripts/feeds install -a -p luci

* 启动kernel之后从外部更新软件包

opkg update 更新可以获取的软件包列表

opkg upgrade 对已经安装的软件包升级

opkg install 安装指定的软件包

opkg instal /tmp/xxx.ipk

opkg install http://openwrt.8800.org:82/nwan.ipk

opkg install http://openwrt.8800.org/luci-app-nwan.ipk

opkg install --force-reinstall http://192.168.1.224/uhttpd\_32\_ar71xx.ipk

opkg remove 卸载已经安装的指定的软件包. opkg remove luci-i18n-chinese

opkg list

opkg list-installed

## mtd写flash分区命令

OpenWrt/LEDE的kernel启动之后，可以通过mtd命令把一个文件写入到指定的flash分区，通常用于固件升级。但使用该命令写flash时一定要注意：准备写入的文件源不能放在目标flash分区上！！！可以先把文件源放在/tmp/目录下，然后再执行写入命令：

mtd -r write /tmp/xxx.bin flash\_partition\_name

## 增加一个升级固件

由于ls1043和ls1012的支持patch提供了全flash镜像的固件，为了稳妥起见，防止用户烧写错了升级固件，综合考虑之后，在ls1043和ls1012的支持patch被upstream前去掉了专门用作升级固件的“firmware” 分区及其升级固件的拼接功能。若要增加这部分功能，以ls1043为例，修改两个地方：

* uboot分区表：

mtdparts=60000000.nor:1M(rcw),1M(u-boot),1M(u-boot-env),1M(fman),1M(dtb),5M(kernel),54M(rootfs),64M(otherbank),60M@0x400000(firmware)

在原有分区表基础上增加60M@0x400000(firmware)，其中60M表示分区size，@0x400000表示分区在整个flash的起始偏移地址，让该逻辑分区包含dtb、kernel和整个rootfs分区。

* target/linux/layerscape/image/Makefile拼接升级固件：

在Device/ls1043ardb原有全flash镜像固件基础上把dtb、kernel和整个rootfs分区分割出来当做升级固件，然后就可以在kernel启动之后通过mtd命令进行刷升级固件的操作了：

mtd -r write /tmp/xxx-firmware.update.bin firmware

## 神奇精妙的OpenWrt/LEDE rootfs很值得去学习分析

OpenWrt/LEDE有些奇妙的机制：在kernel启动到flash初始化的时候，会寻找名字叫做"rootfs"的分区，找到后会把它前面部分的squashfs格式的只读文件系统的末尾后位置自动分割，把后面剩余部分自动划分成jffs2格式的"rootfs\_data"分区。在kernel启动到挂载根文件系统时，又通过overlayfs的机制，把"rootfs\_data"分区当做可写的根文件系统。通过这些操作之后，若用户在写错了某些系统配置、破坏了已有的干净根文件系统时，只需要把"rootfs\_data"分区清除一下，就回到了系统初始状态。有的OpenWrt/LEDE系统提供的长按某个键回复系统初始配置也是利用了这个机制。

OpenWrt/LEDE在启动rootfs过程中还做了其它一些精妙的操作，很值得去学习分析一番。

## 修改uboot源代码后如何在32b subtarget下直接引用

32b的uboot由于只能由64b的toolchain编译，目前的方案是事先编译好后，传到了github上去，然后在本地OpenWrt/LEDE编译的时候再取下来参与完整固件的拼接。这是经过OpenWrt/LEDE社区讨论确定下来目前的方案。为了方便用户自行修改uboot代码后也能在编译32b subtarget时引用uboot，请按照下面的方法处理。

在target/linux/layerscape/image/Makefile中修改append-ls-uboot函数：判断当前是64b的时候就把uboot另存它处一份，若当前是32b就从它处直接复制过来使用。编译32b之前先编译64b，这样就绕过了32b的uboot被当做了固件需要从外部下载的既定流程。示例代码如下：

15 define Build/append-ls-uboot

16 if [ 64b = $(SUBTARGET) ]; then \

17 $(CP) $(KDIR)/$(1)-$(SUBTARGET)-uboot.bin ./ ; \

18 fi;

19 if [ 32b = $(SUBTARGET) ]; then \

20 $(CP) ./$(1)-64b-uboot.bin $(KDIR)/$(1)-$(SUBTARGET)-uboot.bin ; \

21 fi;

22 dd if=$(KDIR)/$(1)-$(SUBTARGET)-uboot.bin >> $@

23 endef

## overlayfs:/overlay机制在rfs挂载后可能需要多等一会

flash的写操作之前通常要先擦除，擦除后的flash将是些0xff。一开始做开发时，为了用户刷固件后的写操作能节省一个擦除的动作，默认把rfs后面的空白处填充了一些0xff，这样ls1043在rfs挂载后能迅速的切换到overlay机制。后来在社区开发者的建议下用公用的接口pad-to替换，该接口填充的是0x0，结果ls1043在rfs挂载后立刻用df查询时发现overlay机制没能启动，当时还误以为哪里出了问题，后来才发现需要多等一会，因为这里有一些flash的写操作，这就需要一些额外的时间。

再后来，根据社区开发者的建议，rfs后面用pad-rootfs来做标记，而不再填充任何默认值，这样就大大减小了固件的大小。当然，这也意味着rfs挂载后也就有了更多的刷新同步过程，overlay机制启动的时间可能就更多了一些。

ls1043ardb刷了新固件第一次启动到根文件系统之后，稍微等一会就能看到下面的一条打印信息，这时候再用df命令就可以看到overlayfs机制已经运作起来了：

jffs2: notice: (1076) jffs2\_build\_xattr\_subsystem: complete building xattr subsystem, 0 of xdatum (0 unchecked, 0 orphan) and 0 of xref (0 dead, 0 orphan) found.

## 同一个device的多个固件含相同package编译时容易发生冲突

第一版ls1012因为qspi flash的问题，除了IMAGE/firmware.bin外，还提供了IMAGE/firmware.ext4.bin，当进行多任务编译时，由于同一个device的多个固件包含了相同的packages，那么这个package在同一个目录下被不同的任务分别进行清除、编译、更名等操作，就会偶尔产生冲突。解决的办法是每个device只保留一个固件，在后续的patch中已经处理了该问题：直接把ext4格式的rfs定义到ls1012的IMAGE/firmware.bin，去掉了IMAGE/firmware.ext4.bin。

## 名字不在IMAGES中的固件将不会编译安装

target/linux/layerscape/image/Makefile中的define Device/Defaul，定义有IMAGES = firmware.bin，在每个device中也对应有IMAGE/firmware.bin = xxxxxx这样的固件拼接定义。若要增加一个新的固件拼接定义，不但要增加这样的定义IMAGE/firmware.new = yyyyyy，还需要增加IMAGES += firmware.new

## TCL脚本不是OpenWrt/LEDE的默认build环境支持

由于一些设计的问题，ls1012和其它某些平台的rcw/uboot需要在烧写前进行字节转换操作，这个字节转换操作是由一个TCL脚本程序处理的。这个脚本也随着patch被一并提交进了LEDE，结果社区开发者在build过程中发现了这个问题，建议用perl来重写。那个TCL脚本看起来并不复杂，学习了一下TCL和perl之后很快完成了重写，并提交了新的patch去替换原有的TCL脚本处理。

## 截至2016年12月12日晚，LEDE社区接收了ls1046ardb的支持patch

## OpenWrt kernel + SDK rootfs boot

开发过程中往往会遇到需要参考SDK的地方，尤其是移植kernel时要经常启动一下，这时并不适合把kernel patch加到OpenWrt/LEDE去编译整个固件，而是搭配着SDK的rootfs去尝试启动。如果要制作itb文件，注意检查its文件里kernel和rfs的是否压缩等参数设置。OpenWrt/LEDE的默认kernel config并不能直接启动SDK的rootfs，需要手工在OpenWrt/LEDE base的kernel中打开以下选项才行：

General setup --->

[\*] Initial RAM filesystem and RAM disk (initramfs/initrd) support

[\*] Support initial ramdisks compressed using gzip

Device Drivers --->

Generic Driver Options --->

[\*] Maintain a devtmpfs filesystem to mount at /dev

[\*] Automount devtmpfs at /dev, after the kernel mounted the rootfs

[\*] Block devices --->

<\*> Loopback device support

(8) Number of loop devices to pre-create at init time

<\*> RAM block device support

(16) Default number of RAM disks

(262144) Default RAM disk size (kbytes)

## 运行命令配置kernel选项

在OpenWrt/LEDE源代码目录下，运行下列命令，将会弹出kernel的配置菜单，并且可以手工调整kenrel选项

make kernel\_menuconfig

## 把根文件系统放在USB/SD设备上

两种编译打包rootfs的方法：

* 通过OpenWrt/LEDE打开cpio

Target Images --->

[\*] cpio.gz

ls -l bin/targets/layerscape/64b/lede-layerscape-64b-rootfs.cpio.gz

* 手工打包

cd build\_dir/target-aarch64\_armv8-a\_musl-1.1.15/root-layerscape/

find . | cpio -o -H newc | gzip -9n >rootfs.cpio.gz

得到rootfs.cpio.gz后，在Linux主机上手工分区并格式化USB/SD的第一个分区为ext2格式，mount上之后进入该分区目录，下载上面制作的xxxx-rootfs.cpio.gz，然后在当前分区目录解压缩：

cat rootfs.cpio.gz | gunzip | cpio -idm

此时就在USB/SD上部署好了rootfs的内容。把USB/SD插入开发板后上电启动，在uboot里参照下面的格式修改启动参数：

setenv bootargs root=/dev/mmcblk0p1 rw rootdelay=3 noinitrd ……

setenv bootargs root=/dev/sda1 rw rootdelay=3 noinitrd ……

备注：

* USB/SD设备需要有个识别分区和加载的过程，必须在bootargs中配置rootdelay参数，否则rootfs不能正常加载。
* USB驱动默认是作为kmod在rootfs加载之后才加载初始化的，若把rootfs放在USB盘上，必须事先把USB的驱动用build in的方式编进kernel里。

## 多核平台启动的core数量不对

在现有的配置文件target/linux/layerscape/config-4.4中有CONFIG\_NR\_CPUS=24，但是在移植ls1088ardb/ls2088ardb这样的8 core平台时发现，kernel只启动了4个core。OpenWrt/LEDE可能通过某些机制对NR\_CPUS做了单独处理，可以手工修改kernel配置的NR\_CPUS然后再编译：

make kernel\_menuconfig

Kernel Features --->

(24) Maximum number of CPUs (2-4096)

## 新增一个平台后要把前面所有的平台都重新验证一遍

在移植ls1046ardb的到已有ls1043/ls1012支持的OpenWrt/LEDE代码结构时，ls1046ardb验证了各项基本功能，但事后被FAE发现已有的ls1012的PCIE不工作了。经查是由于ls1046ardb的一个kernel patch引入了跟ls1012的冲突，后来修正了这个问题。由于各个平台的kernel patch都是打在同一个tree/branch上的，在每次增加新平台后，必须把之前所有的平台全部验证一遍，才能保证代码的安全可靠。

## ls1088ardb/ls2088ardb的uboot遇到toolchain差异问题

ls1088ardb的uboot用SDK的toolchain编译没问题，但用OpenWrt/LEDE的toolchain就提示有头文件/接口函数找不到，后来给ls1088ardb的uboot增加patch去引入那些缺少的头文件/接口函数，才用OpenWrt/LEDE的toolchain编译通过的。

再做ls2088ardb的时候又遇到了同样的问题，但增加patch引入那些头文件/接口函数后，uboot启动到一半就死锁了，而用SDK/Linaro的toolchain就没问题。这两种toolchain都是经过大小不等的修改和定制，遇到这样的问题我们暂时无能为力。于是ls2088ardb的uboot目前是通过用Linaro的toolchain编译后上传到github上当做一个uboot固件的方式来绕过去的。

现在SDK/NPI的各个平台的uboot都自成体系了，不再是之前一个统一的git tree/branch来管理了，这种局面不改变的话，以后遇到的问题恐怕会更多。

## upstream前把各个平台的uboot的支持合并到一起

接上一节，已经upstream的ls1043/ls1012/ls1046，其64b的uboot都是源代码形式的，自己在工作安排之外做了它们3个平台的uboot源代码的基本支持patch的合并工作。但由于现在的各个team的工作不统一、各个平台的uboot源代码自成体系，导致现在各个平台的uboot合并工作会有大量的冲突，靠自己单独节省出来的时间已经无法顺利的做这个合并工作了。希望以后各个team的工作回到统一的git tree/branch上来，尽快完成各平台的uboot支持的upstream。

## 各平台的bank切换命令不尽相同

ls1043ardb: cpld reset altbank

ls1046ardb: cpld reset altbank

ls1012ardb: bank1: i2c mw 0x24 0x7 0xfc; i2c mw 0x24 0x3 0xf4;

bank2: i2c mw 0x24 0x7 0xfc; i2c mw 0x24 0x3 0xf5;

ls1088ardb: from bank1 to bank0: i2c mw 66 50 0; i2c mw 66 10 20;i2c mw 66 10 21

from bank0 to bank1: i2c mw 66 50 20; i2c mw 66 10 20;i2c mw 66 10 21

ls2088ardb: qixis\_reset altbank

## ls1021atwr只有32b支持，暂不适合在当前代码架构下upstream

ls1021atwr的kernel和uboot代码已经upstream了，只需要添加很少的代码就可以在现有的OpenWrt/LEDE代码结构下增加其支持。但现有的代码结构是同时支持平台的64b和32b，而ls1021atwr只是32b的平台，虽然可以方便的把它添加进来，编译32b也没问题，但在选了64b后也会把它显示出来， OpenWrt/LEDE在做build时也会把所有的平台都编译一遍，那么编译它就会出错了。这样就暂时不适合把这部分支持代码upstream了，但不影响用户在32b下的编译和使用。

## LEDE的各平台patch打回到OpenWrt后，Target Profile里看不到各个平台设备

由于LEDE已经开发了一些新的特性，各平台的patch移植回到OpenWrt后，在Target Profile里看不到各个平台设备了。于是专门定义了一些profile和device关联起来，利用这种关联使得各个平台设备可以在OpenWrt里可见，并且一次只选定一个设备去编译。具体patch参见如下链接：

<https://github.com/fsl-jyt/openwrt/commit/f0e7a7e62dcda128c9b0c0e2901287a569262946>

## ls1088ardb/ls2088ardb的64b基本固件patch已经提交

由于ls1088ardb/ls2088ardb和先前的ls1012/ls1043/ls1046的u-boot的支持源代码之间冲突太多，暂时没有精力合并；而且ls1088ardb/ls2088ardb的32b支持也没有提到日程上来。ls1088ardb/ls2088ardb的支持patch未能做的与已经upstream的ls1012/ls1043/ls1046模式完全一样：非upstream版的patch采用了单独的binary package的方式去处理u-boot，32b可以编译但并没有验证，该版本patch存放在：

<https://github.com/fsl-jyt/source/tree/20161230_ls1088ardb-ls2088ardb-64b>

截止20170103，已经提交正在review的版本只包含了dtb、kernel和rfs的基本固件，绕过了u-boot的问题，但同样存在32b可以编译但并没有验证的问题。考虑到ls1088ardb/ls2088ardb两个板子相对高端，可能很少有客户会在其上运行32b模式，若有的话可以提出需求再单独安排32b的支持工作。该版本patch存放在：

<https://github.com/fsl-jyt/source/tree/20170103_ls1088ardb-ls2088ardb-64b-submitpatch>

## ls2088ardb和ls1043ardb有NOR flash选项冲突的问题

现有的kernel配置选项中有MTD\_CFI\_BE\_BYTE\_SWAP=y，已经upstream的ls1043在此配置下运行没问题。但在增加ls2088后，发现它需要配置为MTD\_CFI\_NOSWAP=y。这两个选项是互斥的，不能同时选中。因此，在提交upstream的ls1088ardb/ls2088ardb支持patch中并没有包含该选项，特在此处注明，编译ls2088时需要以下步骤去单独修改配置该选项：

make kernel\_menuconfig

Device Drivers --->

<\*> Memory Technology Device (MTD) support --->

RAM/ROM/Flash chip drivers --->

[\*] Flash chip driver advanced configuration options

Flash cmd/query data swapping (NO) --->

(X) NO

## 几个开发tree/branch的说明

<https://github.com/fsl-jyt/source> -- LEDE开发tree

<https://github.com/fsl-jyt/source/tree/20161230_ls1088ardb-ls2088ardb-64b> --基于已经upstream(ls1012/ls1043/ls1046)的ls1088ardb/ls2088ardb的full flash firmware的支持branch

<https://github.com/fsl-jyt/source/tree/20170103_ls1088ardb-ls2088ardb-64b-submitpatch> --基于已经upstream(ls1012/ls1043/ls1046)的ls1088ardb/ls2088ardb的basic firmware的支持branch

<https://github.com/fsl-jyt/source/tree/debug-20161208_ls1021atwr-full-flash> --基于已经upstream(ls1012/ls1043/ls1046)的ls1021atwr的full flash firmware的支持branch

<https://github.com/fsl-jyt/openwrt> -- openwrt开发tree

<https://github.com/fsl-jyt/openwrt/tree/20161230_ls1088ardb-ls2088ardb-64b> --backport已经upstream到LEDE的patch回到openwrt，ls1012ardb/ls1043ardb/ls1046ardb/ls1088ardb/ls2088ardb的全部支持branch

<https://github.com/fsl-jyt/u-boot> u-boot源代码tree

<https://github.com/fsl-jyt/u-boot/tree/sdk-v2.0-1611_ls1043-ls1012-ls1046> --基于SDK2.0的ls1012/ls1043/ls1046支持branch

<https://github.com/fsl-jyt/u-boot/tree/sdk_ls1088a_brngup_1612> --ls1088ardb的支持branch

<https://github.com/fsl-jyt/u-boot/tree/sdk_ls1088a_ls2088a_layerscape_1612> --ls2088ardb的支持branch

<https://github.com/fsl-jyt/uboot-ls-32b> --uboot binary tree

<https://github.com/fsl-jyt/mc-binary> --DPAA2.0 MC系列固件

<https://github.com/fsl-jyt/ppfe> --ppfe固件

<https://github.com/fsl-jyt/fm-ucode> -- fman固件

<https://github.com/fsl-jyt/linux-wrt> --OpenWrt/LEDE base Linux develop tree

## 截至2017年1月3日，LEDE社区接收了ls1088ardb/ls2088ardb的支持patch

## 欢迎大家继续补充开发过程中遇到的问题和记录解决的过程

技术的积累和经验的传承，需要每一个参与者的共同协作和努力。

# 七、ath9k wifi环境搭建

ls1043移植到OpenWrt之后，在谢啸东和廖国旗帮助下，搭建起来一个ls1043ardb使用ath9k无线卡的环境，主要涉及到一些OpenWrt、kernel、LUCI的配置，在此记录配置过程并对两位同事表示感谢！

OpenWrt/LEDE配置ls1043ardb使用ath9k无线卡

----------------------------OpenWrt/LEDE: make menuconfig

Libraries --->

<\*> libnfnetlink

<\*> libnl

Network --->

<\*> hostapd

-\*- hostapd-common

<\*> hostapd-utils

Kernel modules --->

Wireless Drivers --->

<\*> kmod-ath9k

Base system --->

<\*> dnsmasq

----------------------------OpenWrt/LEDE: make kernel\_menuconfig

[\*] Networking support --->

-\*- Wireless --->

[\*] Wireless extensions

[\*] WEXT\_SPY

[\*] WEXT\_PRIV

<\*> cfg80211 - wireless configuration API

[\*] enable powersave by default

<\*> Generic IEEE 802.11 Networking Stack (mac80211)

[\*] Minstrel

[\*] Minstrel 802.11n support

-\*- Enable LED triggers

Device Drivers --->

[\*] Network device support --->

[\*] Wireless LAN --->

<\*> Atheros Wireless Cards --->

[\*] Atheros bluetooth coexistence support

<\*> Atheros 802.11n wireless cards support

[\*] Atheros ath9k PCI/PCIe bus support

[\*] Atheros ath9k support for PC OEM cards

----------------------------kernel boot up:

/etc/init.d/firewall stop

vi /etc/config/wireless #删除或注释掉option disabled 1这句

wifi up

passwd #修改root用户密码

----------------------------luci login as root:

network->firewall->traffic rules->New source NAT(bottom):

name:xxxx

source zone:lan

destination zone:wan

to source IP:10.193.20.100(eth1)

[save & apply]

# 八、一些典型应用场景及所要搭配的相关软硬件

* 存储相关的：ftp，samba，pcie-sata，硬盘，离线下载
* 多媒体相关的：音频/视频-采集/播放，媒体服务器，点对点音频对话、视频播放，摄像头、显卡
* 网站相关的：LAMP，wifi广告，luci开发，外部访问家庭wifi上的个人博客，wifidog认证，wifi营业厅排队和广播
* 网络：无线互连自组网，室内wifi定位，翻墙，多拨叠加宽带，vpn，中继，防火墙，转发规则，蓝牙/zigbee/wifi网络互连
* 测试：Atheros/Broadcom/Marvell/Ralink/Realtek/等主流wifi卡搭配ls1043和ls1012时的性能数据？帮助用户选型。

高级无人餐厅：手机连接餐厅wifi网站，wifi餐厅菜单广告，微信/无线下单，wifi室内定位、辅助无人机餐厅内自动端盘送餐、无人机集成支付芯片完成现场买单。

# 九、烧写和启动log

## ls1012ardb 64b/32b

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1012AE (0x87040010)

Clock Configuration:

CPU0(A53):800 MHz

Bus: 250 MHz DDR: 1000 MT/s

Reset Configuration Word (RCW):

00000000: 08000008 00000000 00000000 00000000

00000010: 35080000 c000000c 40000000 00001800

00000020: 00000000 00000000 00000000 00014571

00000030: 00000000 18c2a120 00000096 00000000

I2C: ready

DRAM: 1022 MiB

SEC0: RNG instantiated

Using SERDES1 Protocol: 13576 (0x3508)

MMC: FSL\_SDHC: 0, FSL\_SDHC: 1

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

\*\*\* Warning - bad CRC, using default environment

PCIe1: Root Complex no link, regs @ 0x3400000

In: serial

Out: serial

Err: serial

Model: LS1012A RDB Board

Board: LS1012ARDB Version: unknown, boot from QSPI: bank1

SATA link 0 timeout.

AHCI 0001.0301 32 slots 1 ports 6 Gbps 0x1 impl SATA mode

flags: 64bit ncq pm clo only pmp fbss pio slum part ccc apst

Found 0 device(s).

SCSI: Net: cbus\_baseaddr: 0000000004000000, ddr\_baseaddr: 0000000083800000, ddr\_phys\_baseaddr: 03800000

class init complete

tmu init complete

bmu1 init: done

bmu2 init: done

GPI1 init complete

GPI2 init complete

HGPI init complete

hif\_tx\_desc\_init: Tx desc\_base: 0000000083e40400, base\_pa: 03e40400, desc\_count: 64

hif\_rx\_desc\_init: Rx desc base: 0000000083e40000, base\_pa: 03e40000, desc\_count: 64

HIF tx desc: base\_va: 0000000083e40400, base\_pa: 03e40400

HIF init complete

bmu1 enabled

bmu2 enabled

pfe\_hw\_init: done

pfe\_firmware\_init

pfe\_load\_elf: no of sections: 13

pfe\_firmware\_init: class firmware loaded

pfe\_load\_elf: no of sections: 10

pfe\_firmware\_init: tmu firmware loaded

ls1012a\_configure\_serdes 0

pfe\_eth0

Error: pfe\_eth0 address not set.

, pfe\_eth1

Error: pfe\_eth1 address not set.

Hit any key to stop autoboot: 0

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 quiet lpj=250000

bootcmd=run wrtboot\_ext4rfs

bootdelay=3

console=ttyAMA0,38400n8

ethact=pfe\_eth0

fdt\_high=0xffffffffffffffff

fdtaddr=8f000000

fdtcontroladdr=bfc7a348

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

kernel\_addr=0x100000

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0xa00000

loadaddr=82000000

ramdisk\_addr=0x800000

ramdisk\_size=0x2000000

ramdiskaddr=88000000

scsidevs=0

stderr=serial

stdin=serial

stdout=serial

verify=no

wrtboot=pfe stop && sf probe 0:0 && setenv bootargs root=/dev/mtdblock5 rootfstype=squashfs,jffs2 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(rootfs),32M(user) && sf read $fdtaddr 0x300000 100000 && sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr

wrtboot\_ext4rfs=pfe stop && sf probe 0:0 && setenv bootargs root=/dev/mtdblock5 rootfstype=ext4 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user) && sf read $fdtaddr 0x300000 100000 && sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr

wrtupdate= sf probe 0:0 && tftp 0xa0000000 <tftp\_folder>/lede-layerscape-64b-ls1012ardb-squashfs-firmware.ext4.bin && protect off all && sf erase 0 $filesize && sf write 0xa0000000 0 $filesize; reset

Environment size: 1540/262140 bytes

=> setenv serverip 10.192.208.142

=> setenv ipaddr 10.193.20.244

=> ping 10.192.208.142

Speed detected 3e8

\*\*\* ERROR: `ethaddr' not set

ping failed; host 10.192.208.142 is not alive

=> setenv ethaddr 00:04:9f:04:aa:22

=> setenv eth1addr 00:04:9f:04:aa:23

=> ping $serverip

Speed detected 3e8

Using pfe\_eth0 device

host 10.192.208.142 is alive

=> sf probe 0:0 && tftp 0xa0000000 jyt/openwrt/ls1012/lede-layerscape-64b-ls1012ardb-squashfs-firmware.bin && protect off all && sf erase 0 $filesize && sf write 0xa0000000 0 $filesize;

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

Speed detected 3e8

Using pfe\_eth0 device

TFTP from server 10.192.208.142; our IP address is 10.193.20.244

Filename 'jyt/openwrt/ls1012/lede-layerscape-64b-ls1012ardb-squashfs-firmware.bin'.

Load address: 0xa0000000

Loading: #################################################################

#################################################################

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###########

6.2 MiB/s

done

Bytes transferred = 33554432 (2000000 hex)

SF: 33554432 bytes @ 0x0 Erased: OK

device 0 offset 0x0, size 0x2000000

SF: 33554432 bytes @ 0x0 Written: OK

=> reset

resetting ...

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1012AE (0x87040010)

Clock Configuration:

CPU0(A53):800 MHz

Bus: 250 MHz DDR: 1000 MT/s

Reset Configuration Word (RCW):

00000000: 08000008 00000000 00000000 00000000

00000010: 35080000 c000000c 40000000 00001800

00000020: 00000000 00000000 00000000 00014571

00000030: 00000000 18c2a120 00000096 00000000

I2C: ready

DRAM: 1022 MiB

SEC0: RNG instantiated

Using SERDES1 Protocol: 13576 (0x3508)

MMC: FSL\_SDHC: 0, FSL\_SDHC: 1

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

\*\*\* Warning - bad CRC, using default environment

PCIe1: Root Complex no link, regs @ 0x3400000

In: serial

Out: serial

Err: serial

Model: LS1012A RDB Board

Board: LS1012ARDB Version: unknown, boot from QSPI: bank1

SATA link 0 timeout.

AHCI 0001.0301 32 slots 1 ports 6 Gbps 0x1 impl SATA mode

flags: 64bit ncq pm clo only pmp fbss pio slum part ccc apst

Found 0 device(s).

SCSI: Net: cbus\_baseaddr: 0000000004000000, ddr\_baseaddr: 0000000083800000, ddr\_phys\_baseaddr: 03800000

class init complete

tmu init complete

bmu1 init: done

bmu2 init: done

GPI1 init complete

GPI2 init complete

HGPI init complete

hif\_tx\_desc\_init: Tx desc\_base: 0000000083e40400, base\_pa: 03e40400, desc\_count: 64

hif\_rx\_desc\_init: Rx desc base: 0000000083e40000, base\_pa: 03e40000, desc\_count: 64

HIF tx desc: base\_va: 0000000083e40400, base\_pa: 03e40400

HIF init complete

bmu1 enabled

bmu2 enabled

pfe\_hw\_init: done

pfe\_firmware\_init

pfe\_load\_elf: no of sections: 13

pfe\_firmware\_init: class firmware loaded

pfe\_load\_elf: no of sections: 10

pfe\_firmware\_init: tmu firmware loaded

ls1012a\_configure\_serdes 0

pfe\_eth0

Error: pfe\_eth0 address not set.

, pfe\_eth1

Error: pfe\_eth1 address not set.

Hit any key to stop autoboot: 0

Stopping PFE...

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

device 0 offset 0x300000, size 0x100000

SF: 1048576 bytes @ 0x300000 Read: OK

device 0 offset 0x400000, size 0x500000

SF: 5242880 bytes @ 0x400000 Read: OK

## Booting kernel from Legacy Image at 82000000 ...

Image Name: ARM64 LEDE Linux-4.4.28

Image Type: AArch64 Linux Kernel Image (gzip compressed)

Data Size: 3227500 Bytes = 3.1 MiB

Load Address: 80080000

Entry Point: 80080000

## Flattened Device Tree blob at 8f000000

Booting using the fdt blob at 0x8f000000

Uncompressing Kernel Image ... OK

Using Device Tree in place at 000000008f000000, end 000000008f005772

Starting kernel ...

[ 0.000000] Booting Linux on physical CPU 0x0

[ 0.000000] Linux version 4.4.28 (jyt@BP) (gcc version 5.4.0 (LEDE GCC 5.4.0 r1262+1) ) #0 SMP Tue Nov 15 15:47:45 2016

[ 0.000000] Boot CPU: AArch64 Processor [410fd034]

[ 0.000000] earlycon: Early serial console at MMIO 0x21c0500 (options '')

[ 0.000000] bootconsole [uart0] enabled

[ 0.000000] efi: Getting EFI parameters from FDT:

[ 0.000000] efi: UEFI not found.

[ 0.000000] PERCPU: Embedded 15 pages/cpu @ffffffc03fdda000 s23808 r8192 d29440 u61440

[ 0.000000] Detected VIPT I-cache on CPU0

[ 0.000000] CPU features: enabling workaround for ARM erratum 845719

[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 257544

[ 0.000000] Kernel command line: root=/dev/mtdblock5 rootfstype=ext4 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user)

[ 0.000000] PID hash table entries: 4096 (order: 3, 32768 bytes)

[ 0.000000] Dentry cache hash table entries: 131072 (order: 8, 1048576 bytes)

[ 0.000000] Inode-cache hash table entries: 65536 (order: 7, 524288 bytes)

[ 0.000000] software IO TLB [mem 0xbaa00000-0xbea00000] (64MB) mapped at [ffffffc03aa00000-ffffffc03e9fffff]

[ 0.000000] Memory: 941792K/1046528K available (4796K kernel code, 289K rwdata, 2124K rodata, 252K init, 811K bss, 104736K reserved, 0K cma-reserved)

[ 0.000000] Virtual kernel memory layout:

[ 0.000000] vmalloc : 0xffffff8000000000 - 0xffffffbdbfff0000 ( 246 GB)

[ 0.000000] vmemmap : 0xffffffbdc0000000 - 0xffffffbfc0000000 ( 8 GB maximum)

[ 0.000000] 0xffffffbdc0000000 - 0xffffffbdc0ff8000 ( 15 MB actual)

[ 0.000000] fixed : 0xffffffbffabfd000 - 0xffffffbffac00000 ( 12 KB)

[ 0.000000] PCI I/O : 0xffffffbffae00000 - 0xffffffbffbe00000 ( 16 MB)

[ 0.000000] modules : 0xffffffbffc000000 - 0xffffffc000000000 ( 64 MB)

[ 0.000000] memory : 0xffffffc000000000 - 0xffffffc03fe00000 ( 1022 MB)

[ 0.000000] .init : 0xffffffc000745000 - 0xffffffc000784000 ( 252 KB)

[ 0.000000] .text : 0xffffffc000080000 - 0xffffffc000744384 ( 6929 KB)

[ 0.000000] .data : 0xffffffc000795000 - 0xffffffc0007dd600 ( 290 KB)

[ 0.000000] SLUB: HWalign=64, Order=0-3, MinObjects=0, CPUs=1, Nodes=1

[ 0.000000] Hierarchical RCU implementation.

[ 0.000000] CONFIG\_RCU\_FANOUT set to non-default value of 32

[ 0.000000] RCU restricting CPUs from NR\_CPUS=4 to nr\_cpu\_ids=1.

[ 0.000000] RCU: Adjusting geometry for rcu\_fanout\_leaf=16, nr\_cpu\_ids=1

[ 0.000000] NR\_IRQS:64 nr\_irqs:64 0

[ 0.000000] GIC: Using split EOI/Deactivate mode

[ 0.000000] Architected cp15 timer(s) running at 25.00MHz (phys).

[ 0.000000] clocksource: arch\_sys\_counter: mask: 0xffffffffffffff max\_cycles: 0x5c40939b5, max\_idle\_ns: 440795202646 ns

[ 0.000005] sched\_clock: 56 bits at 25MHz, resolution 40ns, wraps every 4398046511100ns

[ 0.008188] Calibrating delay loop (skipped), value calculated using timer frequency.. 50.00 BogoMIPS (lpj=250000)

[ 0.018641] pid\_max: default: 32768 minimum: 301

[ 0.023361] Mount-cache hash table entries: 2048 (order: 2, 16384 bytes)

[ 0.030129] Mountpoint-cache hash table entries: 2048 (order: 2, 16384 bytes)

[ 0.037954] EFI services will not be available.

[ 0.042572] ASID allocator initialised with 65536 entries

[ 0.048660] Brought up 1 CPUs

[ 0.051648] SMP: Total of 1 processors activated.

[ 0.056412] CPU: All CPU(s) started at EL2

[ 0.060549] alternatives: patching kernel code

[ 0.067625] DMI not present or invalid.

[ 0.071696] clocksource: jiffies: mask: 0xffffffff max\_cycles: 0xffffffff, max\_idle\_ns: 19112604462750000 ns

[ 0.081895] atomic64\_test: passed

[ 0.085860] NET: Registered protocol family 16

[ 0.091440] fsl-mc bus type registered

[ 0.095650] MC object device driver fsl\_mc\_dprc registered

[ 0.101237] MC object device driver fsl\_mc\_allocator registered

[ 0.107548] vdso: 2 pages (1 code @ ffffffc00079d000, 1 data @ ffffffc00079c000)

[ 0.115236] DMA: preallocated 256 KiB pool for atomic allocations

[ 0.121624] Serial: AMBA PL011 UART driver

[ 0.143101] ACPI: Interpreter disabled.

[ 0.147432] SCSI subsystem initialized

[ 0.152131] usbcore: registered new interface driver usbfs

[ 0.157723] usbcore: registered new interface driver hub

[ 0.163972] usbcore: registered new device driver usb

[ 0.169392] i2c i2c-0: IMX I2C adapter registered

[ 0.174302] i2c i2c-0: can't use DMA

[ 0.178336] dmi: Firmware registration failed.

[ 0.182933] No BMan portals available!

[ 0.187401] QMan: Allocated lookup table at ffffff80000b1000, entry count 65537

[ 0.194886] No QMan portals available!

[ 0.198896] No USDPAA memory, no 'fsl,usdpaa-mem' in device-tree

[ 0.205867] clocksource: Switched to clocksource arch\_sys\_counter

[ 0.212609] pnp: PnP ACPI: disabled

[ 0.217335] NET: Registered protocol family 2

[ 0.222679] TCP established hash table entries: 8192 (order: 4, 65536 bytes)

[ 0.229965] TCP bind hash table entries: 8192 (order: 5, 131072 bytes)

[ 0.236763] TCP: Hash tables configured (established 8192 bind 8192)

[ 0.243403] UDP hash table entries: 512 (order: 2, 16384 bytes)

[ 0.249419] UDP-Lite hash table entries: 512 (order: 2, 16384 bytes)

[ 0.256049] NET: Registered protocol family 1

[ 0.260685] RPC: Registered named UNIX socket transport module.

[ 0.266679] RPC: Registered udp transport module.

[ 0.271419] RPC: Registered tcp transport module.

[ 0.276167] RPC: Registered tcp NFSv4.1 backchannel transport module.

[ 0.283677] futex hash table entries: 256 (order: 3, 32768 bytes)

[ 0.290210] No memory allocated for crashlog

[ 0.305382] squashfs: version 4.0 (2009/01/31) Phillip Lougher

[ 0.312735] jffs2: version 2.2 (NAND) (SUMMARY) (LZMA) (RTIME) (CMODE\_PRIORITY) (c) 2001-2006 Red Hat, Inc.

[ 0.324629] io scheduler noop registered (default)

[ 0.330478] PCI host bridge /soc/pcie@3400000 ranges:

[ 0.335592] IO 0x4000010000..0x400001ffff -> 0x00000000

[ 0.341468] MEM 0x4040000000..0x407fffffff -> 0x40000000

[ 0.347240] layerscape-pcie 3400000.pcie: PCI host bridge to bus 0000:00

[ 0.354004] pci\_bus 0000:00: root bus resource [bus 00-ff]

[ 0.359645] pci\_bus 0000:00: root bus resource [io 0x0000-0xffff]

[ 0.365905] pci\_bus 0000:00: root bus resource [mem 0x4040000000-0x407fffffff] (bus address [0x40000000-0x7fffffff])

[ 0.377040] pci 0000:00:00.0: BAR 1: assigned [mem 0x4040000000-0x4043ffffff]

[ 0.384245] pci 0000:00:00.0: BAR 0: assigned [mem 0x4044000000-0x4044ffffff]

[ 0.391476] pci 0000:00:00.0: BAR 6: assigned [mem 0x4045000000-0x4045ffffff pref]

[ 0.399123] pci 0000:00:00.0: PCI bridge to [bus 01]

[ 0.405057] Serial: 8250/16550 driver, 2 ports, IRQ sharing disabled

[ 0.412516] console [ttyS0] disabled

[ 0.416398] 21c0500.serial: ttyS0 at MMIO 0x21c0500 (irq = 14, base\_baud = 7812500) is a 16550A

[ 0.425192] console [ttyS0] enabled

[ 0.425192] console [ttyS0] enabled

[ 0.432234] bootconsole [uart0] disabled

[ 0.432234] bootconsole [uart0] disabled

[ 0.440548] 21c0600.serial: ttyS1 at MMIO 0x21c0600 (irq = 14, base\_baud = 7812500) is a 16550A

[ 0.449898] Unable to detect cache hierarchy from DT for CPU 0

[ 0.460554] loop: module loaded

[ 0.465075] fsl-quadspi 1550000.quadspi: s25fl512s (65536 Kbytes)

[ 0.471485] 7 cmdlinepart partitions found on MTD device 1550000.quadspi

[ 0.478240] Creating 7 MTD partitions on "1550000.quadspi":

[ 0.483982] 0x000000000000-0x000000100000 : "rcw"

[ 0.489480] 0x000000100000-0x000000200000 : "u-boot"

[ 0.495272] 0x000000200000-0x000000300000 : "u-boot-env"

[ 0.501514] 0x000000300000-0x000000400000 : "dtb"

[ 0.507157] 0x000000400000-0x000000900000 : "kernel"

[ 0.512962] 0x000000900000-0x000002000000 : "ext4rfs"

[ 0.518920] 0x000002000000-0x000004000000 : "user"

[ 0.526193] libphy: Fixed MDIO Bus: probed

[ 0.531462] Freescale FM module, FMD API version 21.1.0

[ 0.537087] Freescale FM Ports module

[ 0.540791] fsl\_mac: fsl\_mac: FSL FMan MAC API based driver

[ 0.546743] fsl\_dpa: FSL DPAA Ethernet driver

[ 0.551258] fsl\_advanced: FSL DPAA Advanced drivers:

[ 0.556305] fsl\_proxy: FSL DPAA Proxy initialization driver

[ 0.561991] fsl\_dpa\_shared: FSL DPAA Shared Ethernet driver

[ 0.567765] fsl\_dpa\_macless: FSL DPAA MACless Ethernet driver

[ 0.573671] fsl\_oh: FSL FMan Offline Parsing port driver

[ 0.579245] i2c /dev entries driver

[ 0.583202] sdhci: Secure Digital Host Controller Interface driver

[ 0.589427] sdhci: Copyright(c) Pierre Ossman

[ 0.593896] sdhci-pltfm: SDHCI platform and OF driver helper

[ 0.600848] sdhci-esdhc 1560000.esdhc: No vmmc regulator found

[ 0.606719] sdhci-esdhc 1560000.esdhc: No vqmmc regulator found

[ 0.655877] mmc0: SDHCI controller on 1560000.esdhc [1560000.esdhc] using ADMA 64-bit

[ 0.666101] sdhci-esdhc 1580000.esdhc: No vmmc regulator found

[ 0.671944] sdhci-esdhc 1580000.esdhc: No vqmmc regulator found

[ 0.725886] mmc1: SDHCI controller on 1580000.esdhc [1580000.esdhc] using ADMA 64-bit

[ 0.734105] No fsl,qman node

[ 0.739437] Freescale USDPAA process driver

[ 0.743625] fsl-usdpaa: no region found

[ 0.747503] Freescale USDPAA process IRQ driver

[ 0.752999] NET: Registered protocol family 10

[ 0.766862] NET: Registered protocol family 17

[ 0.771363] bridge: automatic filtering via arp/ip/ip6tables has been deprecated. Update your scripts to load br\_netfilter if you need this.

[ 0.785157] 8021q: 802.1Q VLAN Support v1.8

[ 0.796396] fsl\_generic: FSL DPAA Generic Ethernet driver

[ 0.861729] EXT4-fs (mtdblock5): mounted filesystem without journal. Opts: (null)

[ 0.869433] VFS: Mounted root (ext4 filesystem) readonly on device 31:5.

[ 0.878431] Freeing unused kernel memory: 252K (ffffffc000745000 - ffffffc000784000)

[ 0.886243] Freeing alternatives memory: 48K (ffffffc000784000 - ffffffc000790000)

[ 1.552790] init: Console is alive

[ 1.951669] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 1.957419] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 1

[ 1.965240] xhci-hcd xhci-hcd.0.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 1.974051] xhci-hcd xhci-hcd.0.auto: irq 22, io mem 0x02f00000

[ 1.980609] hub 1-0:1.0: USB hub found

[ 1.984471] hub 1-0:1.0: 1 port detected

[ 1.988622] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 1.994125] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 2

[ 2.001883] usb usb2: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.010456] hub 2-0:1.0: USB hub found

[ 2.014314] hub 2-0:1.0: 1 port detected

[ 2.021287] usbcore: registered new interface driver usb-storage

[ 2.037621] init: - preinit -

[ 2.295156] random: jshn: uninitialized urandom read (4 bytes read, 3 bits of entropy available)

[ 2.323507] random: jshn: uninitialized urandom read (4 bytes read, 3 bits of entropy available)

Press the [f] key and hit [enter] to enter failsafe mode

Press the [1], [2], [3] or [4] key and hit [enter] to select the debug level

[ 5.466765] mount\_root: mounting /dev/root

[ 5.606973] random: nonblocking pool is initialized

[ 7.667429] EXT4-fs (mtdblock5): re-mounted. Opts: (null)

[ 7.673931] urandom-seed: Seed file not found (/etc/urandom.seed)

[ 7.835760] procd: - early -

[ 8.385358] procd: - ubus -

[ 8.459815] procd: - init -

Please press Enter to activate this console.

[ 37.443372] cbus\_baseaddr: ffffff8001500000, ddr\_baseaddr: ffffffc003400000, ddr\_phys\_baseaddr: 83400000, ddr\_size: c00000

[ 37.454497] pfe\_hw\_init

[ 37.456958] CLASS version: 20

[ 37.459926] TMU version: 1011231

[ 37.463154] BMU1 version: 21

[ 37.466043] BMU2 version: 21

[ 37.468924] EGPI1 version: 50

[ 37.471891] EGPI2 version: 50

[ 37.474857] HGPI version: 50

[ 37.477747] GPT version: 0

[ 37.480453] HIF version: 10

[ 37.483246] HIF NOPCY version: 10

[ 37.486572] bmu\_init(1) done

[ 37.489453] bmu\_init(2) done

[ 37.494556] class\_init() done

[ 37.507569] tmu\_init() done

[ 37.510364] gpi\_init(1) done

[ 37.513247] gpi\_init(2) done

[ 37.516138] gpi\_init(hif) done

[ 37.519192] bmu\_enable(1) done

[ 37.522245] bmu\_enable(2) done

[ 37.525300] pfe\_hif\_lib\_init

[ 37.635977] pfe\_hif\_init

[ 37.638521] pfe\_hif\_alloc\_descr

[ 37.641708] pfe\_hif\_init\_buffers

[ 37.645095] pfe\_firmware\_init

[ 37.689139] pfe\_load\_elf

[ 37.691689] pe\_load\_ddr\_section: load address(3fb0000) and elf file address(ffffff80002bb000) rcvd

[ 37.725090] PFE binary version: pfe\_ls1012a\_00\_3-3-g1fa4da1-dirty

[ 37.731205] pfe\_firmware\_init: class firmware loaded 0xa60 0xc3010000

[ 37.737662] pfe\_load\_elf

[ 37.741214] WARNING: PFE firmware binaries from incompatible version

[ 37.747587] pfe\_firmware\_init: tmu firmware loaded 0x200

[ 37.752924] pfe\_ctrl\_init

[ 37.815937] pfe\_ctrl\_init finished

[ 37.819343] pfe\_eth\_init

[ 37.821917] pfe\_eth\_mdio\_init

[ 37.825038] pfe\_ctrl\_timer

[ 37.837025] libphy: Comcerto MDIO Bus: probed

[ 37.851044] pfe\_phy\_init interface 3

[ 37.867598] eth0: pfe\_eth\_open

[ 37.870981] hif\_process\_client\_req: register client\_id 0

[ 37.876345] pfe\_hif\_client\_register

[ 37.879878] eth0: pfe\_gemac\_init

[ 37.913720] device eth0 entered promiscuous mode

[ 37.934054] br-lan: port 1(eth0) entered forwarding state

[ 37.939528] br-lan: port 1(eth0) entered forwarding state

[ 37.945252] eth0: pfe\_eth\_init\_one: created interface, baseaddr: ffffff8001700000

[ 38.018561] pfe\_phy\_init interface 7

[ 38.096323] eth1: pfe\_eth\_init\_one: created interface, baseaddr: ffffff8001720000

[ 38.103892] pfe\_debugfs\_init

[ 39.935876] br-lan: port 1(eth0) entered forwarding state

BusyBox v1.25.1 () built-in shell (ash)

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\ \ DE /

\ LE \ / -----------------------------------------------------------

\ DE \ / Reboot (HEAD, r1262+805)

\\_\_\_\_\_\_\_\_\/ -----------------------------------------------------------

=== WARNING! =====================================

There is no root password defined on this device!

Use the "passwd" command to set up a new password

in order to prevent unauthorized SSH logins.

--------------------------------------------------

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0

inet6 addr: fd94:b4ab:37fb::1/60 Scope:Global

inet6 addr: fe80::21a:2bff:fe3c:4d5e/64 Scope:Link

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:140 errors:0 dropped:0 overruns:0 frame:0

TX packets:9 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:9869 (9.6 KiB) TX bytes:1006 (1006.0 B)

eth0 Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:144 errors:0 dropped:0 overruns:0 frame:0

TX packets:11 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:12347 (12.0 KiB) TX bytes:1138 (1.1 KiB)

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:16 errors:0 dropped:0 overruns:0 frame:0

TX packets:16 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:1264 (1.2 KiB) TX bytes:1264 (1.2 KiB)

root@lede:/# ifconfig eth1 10.193.20.244

[ 67.605935] eth1: pfe\_eth\_open

[ 67.609341] hif\_process\_client\_req: register client\_id 1

[ 67.614659] pfe\_hif\_client\_register

[ 67.618181] eth1: pfe\_gemac\_init

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0

inet6 addr: fd94:b4ab:37fb::1/60 Scope:Global

inet6 addr: fe80::21a:2bff:fe3c:4d5e/64 Scope:Link

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:275 errors:0 dropped:0 overruns:0 frame:0

TX packets:10 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:20205 (19.7 KiB) TX bytes:1092 (1.0 KiB)

eth0 Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:519 errors:0 dropped:0 overruns:0 frame:0

TX packets:13 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:46138 (45.0 KiB) TX bytes:1270 (1.2 KiB)

eth1 Link encap:Ethernet HWaddr 00:AA:BB:CC:DD:EE

inet addr:10.193.20.244 Bcast:10.255.255.255 Mask:255.0.0.0

inet6 addr: fe80::2aa:bbff:fecc:ddee/64 Scope:Link

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:5 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:518 (518.0 B)

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:28 errors:0 dropped:0 overruns:0 frame:0

TX packets:28 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:2212 (2.1 KiB) TX bytes:2212 (2.1 KiB)

root@lede:/# ping 10.193.20.106

PING 10.193.20.106 (10.193.20.106): 56 data bytes

^C

--- 10.193.20.106 ping statistics ---

8 packets transmitted, 0 packets received, 100% packet loss

root@lede:/#

root@lede:/# ifconfig -a

br-lan Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0

inet6 addr: fd94:b4ab:37fb::1/60 Scope:Global

inet6 addr: fe80::21a:2bff:fe3c:4d5e/64 Scope:Link

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:395 errors:0 dropped:0 overruns:0 frame:0

TX packets:13 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:28449 (27.7 KiB) TX bytes:1350 (1.3 KiB)

eth0 Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:839 errors:0 dropped:0 overruns:0 frame:0

TX packets:13 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:81651 (79.7 KiB) TX bytes:1270 (1.2 KiB)

eth1 Link encap:Ethernet HWaddr 00:AA:BB:CC:DD:EE

inet addr:10.193.20.244 Bcast:10.255.255.255 Mask:255.0.0.0

inet6 addr: fe80::2aa:bbff:fecc:ddee/64 Scope:Link

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:5 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:518 (518.0 B)

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:48 errors:0 dropped:0 overruns:0 frame:0

TX packets:48 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:4056 (3.9 KiB) TX bytes:4056 (3.9 KiB)

root@lede:/# ifconfig eth1 down

[ 95.820775] eth1: pfe\_eth\_shutdown

[ 95.855877] hif\_lib\_client\_unregister : client: ffffffc039e1e788, client\_id: 1, txQ\_depth: 2048, rxQ\_depth: 256

[ 95.865998] hif\_process\_client\_req: unregister client\_id 1

[ 95.871490] pfe\_hif\_client\_unregister

root@lede:/#

root@lede:/# ifconfig br-lan 10.193.20.244

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

inet addr:10.193.20.244 Bcast:10.255.255.255 Mask:255.0.0.0

inet6 addr: fd94:b4ab:37fb::1/60 Scope:Global

inet6 addr: fe80::21a:2bff:fe3c:4d5e/64 Scope:Link

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:749 errors:0 dropped:0 overruns:0 frame:0

TX packets:13 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:53284 (52.0 KiB) TX bytes:1350 (1.3 KiB)

eth0 Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:1332 errors:0 dropped:0 overruns:0 frame:0

TX packets:13 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:140355 (137.0 KiB) TX bytes:1270 (1.2 KiB)

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:68 errors:0 dropped:0 overruns:0 frame:0

TX packets:68 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:5636 (5.5 KiB) TX bytes:5636 (5.5 KiB)

root@lede:/# ping 10.193.20.106

PING 10.193.20.106 (10.193.20.106): 56 data bytes

64 bytes from 10.193.20.106: seq=0 ttl=64 time=0.371 ms

64 bytes from 10.193.20.106: seq=1 ttl=64 time=0.181 ms

64 bytes from 10.193.20.106: seq=2 ttl=64 time=0.173 ms

--- 10.193.20.106 ping statistics ---

3 packets transmitted, 3 packets received, 0% packet loss

round-trip min/avg/max = 0.173/0.241/0.371 ms

root@lede:/#

root@lede:/# reboot

root@lede:/# [ 249.915709] br-lan: port 1(eth0) entered disabled state

[ 249.932826] device eth0 left promiscuous mode

[ 249.937273] br-lan: port 1(eth0) entered disabled state

[ 249.954678] eth0: pfe\_eth\_shutdown

[ 249.985941] hif\_lib\_client\_unregister : client: ffffffc039e1a788, client\_id: 0, txQ\_depth: 2048, rxQ\_depth: 256

[ 249.996076] hif\_process\_client\_req: unregister client\_id 0

[ 250.001568] pfe\_hif\_client\_unregister

[ 250.008506] IPv6: ADDRCONF(NETDEV\_UP): eth0: link is not ready

[ 253.485266] EXT4-fs (mtdblock5): re-mounted. Opts: (null)

[ 256.494111] reboot: Restarting system

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1012AE (0x87040010)

Clock Configuration:

CPU0(A53):800 MHz

Bus: 250 MHz DDR: 1000 MT/s

Reset Configuration Word (RCW):

00000000: 08000008 00000000 00000000 00000000

00000010: 35080000 c000000c 40000000 00001800

00000020: 00000000 00000000 00000000 00014571

00000030: 00000000 18c2a120 00000096 00000000

I2C: ready

DRAM: 1022 MiB

SEC0: RNG instantiated

Using SERDES1 Protocol: 13576 (0x3508)

MMC: FSL\_SDHC: 0, FSL\_SDHC: 1

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

\*\*\* Warning - bad CRC, using default environment

PCIe1: Root Complex no link, regs @ 0x3400000

In: serial

Out: serial

Err: serial

Model: LS1012A RDB Board

Board: LS1012ARDB Version: unknown, boot from QSPI: bank1

SATA link 0 timeout.

AHCI 0001.0301 32 slots 1 ports 6 Gbps 0x1 impl SATA mode

flags: 64bit ncq pm clo only pmp fbss pio slum part ccc apst

Found 0 device(s).

SCSI: Net: cbus\_baseaddr: 0000000004000000, ddr\_baseaddr: 0000000083800000, ddr\_phys\_baseaddr: 03800000

class init complete

tmu init complete

bmu1 init: done

bmu2 init: done

GPI1 init complete

GPI2 init complete

HGPI init complete

hif\_tx\_desc\_init: Tx desc\_base: 0000000083e40400, base\_pa: 03e40400, desc\_count: 64

hif\_rx\_desc\_init: Rx desc base: 0000000083e40000, base\_pa: 03e40000, desc\_count: 64

HIF tx desc: base\_va: 0000000083e40400, base\_pa: 03e40400

HIF init complete

bmu1 enabled

bmu2 enabled

pfe\_hw\_init: done

pfe\_firmware\_init

pfe\_load\_elf: no of sections: 13

pfe\_firmware\_init: class firmware loaded

pfe\_load\_elf: no of sections: 10

pfe\_firmware\_init: tmu firmware loaded

ls1012a\_configure\_serdes 0

pfe\_eth0

Error: pfe\_eth0 address not set.

, pfe\_eth1

Error: pfe\_eth1 address not set.

Hit any key to stop autoboot: 0

=>

=>

=>

=>

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 quiet lpj=250000

bootcmd=run wrtboot\_ext4rfs

bootdelay=3

console=ttyAMA0,38400n8

ethact=pfe\_eth0

fdt\_high=0xffffffffffffffff

fdtaddr=8f000000

fdtcontroladdr=bfc7a348

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

kernel\_addr=0x100000

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0xa00000

loadaddr=82000000

ramdisk\_addr=0x800000

ramdisk\_size=0x2000000

ramdiskaddr=88000000

scsidevs=0

stderr=serial

stdin=serial

stdout=serial

verify=no

wrtboot=pfe stop && sf probe 0:0 && setenv bootargs root=/dev/mtdblock5 rootfstype=squashfs,jffs2 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(rootfs),32M(user) && sf read $fdtaddr 0x300000 100000 && sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr

wrtboot\_ext4rfs=pfe stop && sf probe 0:0 && setenv bootargs root=/dev/mtdblock5 rootfstype=ext4 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user) && sf read $fdtaddr 0x300000 100000 && sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr

wrtupdate= sf probe 0:0 && tftp 0xa0000000 <tftp\_folder>/lede-layerscape-64b-ls1012ardb-squashfs-firmware.ext4.bin && protect off all && sf erase 0 $filesize && sf write 0xa0000000 0 $filesize; reset

Environment size: 1540/262140 bytes

=> setenv ethaddr 00:04:9f:04:aa:22

=> setenv eth1addr 00:04:9f:04:aa:23

=> setenv serverip 10.192.208.142

=> setenv ipaddr 10.193.20.244

=> ping $serverip

Speed detected 3e8

Using pfe\_eth0 device

ping failed; host 10.192.208.142 is not alive

=> ping $serverip

Speed detected 3e8

Using pfe\_eth0 device

host 10.192.208.142 is alive

=> sf probe 0:0 && tftp 0xa0000000 jyt/openwrt/ls1012/lede-layerscape-32b-ls1012ardb-squashfs-firmware.bin && protect off all && sf erase 0 $filesize && sf write 0xa0000000 0 $filesize;

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

Speed detected 3e8

Using pfe\_eth0 device

TFTP from server 10.192.208.142; our IP address is 10.193.20.244

Filename 'jyt/openwrt/ls1012/lede-layerscape-32b-ls1012ardb-squashfs-firmware.bin'.

Load address: 0xa0000000

Loading: #################################################################

#################################################################

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###########

6.2 MiB/s

done

Bytes transferred = 33554432 (2000000 hex)

SF: 33554432 bytes @ 0x0 Erased: OK

device 0 offset 0x0, size 0x2000000

SF: 33554432 bytes @ 0x0 Written: OK

=> reset

resetting ...

U-Boot 2016.01 (Oct 26 2016 - 21:48:17 +0000)

SoC: LS1012AE (0x87040010)

Clock Configuration:

CPU0(A53):800 MHz

Bus: 250 MHz DDR: 1000 MT/s

Reset Configuration Word (RCW):

00000000: 08000008 00000000 00000000 00000000

00000010: 35080000 c000000c 40000000 00001800

00000020: 00000000 00000000 00000000 00014571

00000030: 00000000 18c2a120 00000096 00000000

I2C: ready

DRAM: 1022 MiB

SEC0: RNG instantiated

Using SERDES1 Protocol: 13576 (0x3508)

MMC: FSL\_SDHC: 0, FSL\_SDHC: 1

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

\*\*\* Warning - bad CRC, using default environment

PCIe1: Root Complex no link, regs @ 0x3400000

In: serial

Out: serial

Err: serial

Model: LS1012A RDB Board

Board: LS1012ARDB Version: unknown, boot from QSPI: bank1

SATA link 0 timeout.

AHCI 0001.0301 32 slots 1 ports 6 Gbps 0x1 impl SATA mode

flags: 64bit ncq pm clo only pmp fbss pio slum part ccc apst

Found 0 device(s).

SCSI: Net: cbus\_baseaddr: 0000000004000000, ddr\_baseaddr: 0000000083800000, ddr\_phys\_baseaddr: 03800000

class init complete

tmu init complete

bmu1 init: done

bmu2 init: done

GPI1 init complete

GPI2 init complete

HGPI init complete

hif\_tx\_desc\_init: Tx desc\_base: 0000000083e40400, base\_pa: 03e40400, desc\_count: 64

hif\_rx\_desc\_init: Rx desc base: 0000000083e40000, base\_pa: 03e40000, desc\_count: 64

HIF tx desc: base\_va: 0000000083e40400, base\_pa: 03e40400

HIF init complete

bmu1 enabled

bmu2 enabled

pfe\_hw\_init: done

pfe\_firmware\_init

pfe\_load\_elf: no of sections: 13

pfe\_firmware\_init: class firmware loaded

pfe\_load\_elf: no of sections: 10

pfe\_firmware\_init: tmu firmware loaded

ls1012a\_configure\_serdes 0

pfe\_eth0

Error: pfe\_eth0 address not set.

, pfe\_eth1

Error: pfe\_eth1 address not set.

Hit any key to stop autoboot: 0

Stopping PFE...

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

device 0 offset 0x300000, size 0x100000

SF: 1048576 bytes @ 0x300000 Read: OK

device 0 offset 0x400000, size 0x500000

SF: 5242880 bytes @ 0x400000 Read: OK

## Booting kernel from Legacy Image at 82000000 ...

Image Name: ARM LEDE Linux-4.4.28

Image Type: ARM Linux Kernel Image (gzip compressed)

Data Size: 2818414 Bytes = 2.7 MiB

Load Address: 80008000

Entry Point: 80008000

## Flattened Device Tree blob at 8f000000

Booting using the fdt blob at 0x8f000000

Uncompressing Kernel Image ... OK

Using Device Tree in place at 000000008f000000, end 000000008f005772

Starting kernel ...

[ 0.000000] Booting Linux on physical CPU 0x0

[ 0.000000] Linux version 4.4.28 (jyt@BP) (gcc version 5.4.0 (LEDE GCC 5.4.0 r1262+664) ) #0 SMP Tue Nov 15 15:47:45 2016

[ 0.000000] CPU: ARMv7 Processor [410fd034] revision 4 (ARMv7), cr=30c5383d

[ 0.000000] CPU: PIPT / VIPT nonaliasing data cache, VIPT aliasing instruction cache

[ 0.000000] Machine model: LS1012A RDB Board

[ 0.000000] Truncating RAM at 0x0000000080000000-0x00000000bfe00000 to -0x00000000b0000000

[ 0.000000] Consider using a HIGHMEM enabled kernel.

[ 0.000000] Forcing write-allocate cache policy for SMP

[ 0.000000] Memory policy: Data cache writealloc

[ 0.000000] PERCPU: Embedded 12 pages/cpu @ef9e2000 s19328 r8192 d21632 u49152

[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 195072

[ 0.000000] Kernel command line: root=/dev/mtdblock5 rootfstype=ext4 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user)

[ 0.000000] PID hash table entries: 4096 (order: 2, 16384 bytes)

[ 0.000000] Dentry cache hash table entries: 131072 (order: 7, 524288 bytes)

[ 0.000000] Inode-cache hash table entries: 65536 (order: 6, 262144 bytes)

[ 0.000000] Memory: 760368K/786432K available (4286K kernel code, 144K rwdata, 1552K rodata, 256K init, 462K bss, 26064K reserved, 0K cma-reserved)

[ 0.000000] Virtual kernel memory layout:

[ 0.000000] vector : 0xffff0000 - 0xffff1000 ( 4 kB)

[ 0.000000] fixmap : 0xffc00000 - 0xfff00000 (3072 kB)

[ 0.000000] vmalloc : 0xf0800000 - 0xff800000 ( 240 MB)

[ 0.000000] lowmem : 0xc0000000 - 0xf0000000 ( 768 MB)

[ 0.000000] modules : 0xbf000000 - 0xc0000000 ( 16 MB)

[ 0.000000] .text : 0xc0008000 - 0xc05bbeb4 (5840 kB)

[ 0.000000] .init : 0xc05bc000 - 0xc05fc000 ( 256 kB)

[ 0.000000] .data : 0xc05fc000 - 0xc062016c ( 145 kB)

[ 0.000000] .bss : 0xc062016c - 0xc0693af8 ( 463 kB)

[ 0.000000] SLUB: HWalign=64, Order=0-3, MinObjects=0, CPUs=1, Nodes=1

[ 0.000000] Hierarchical RCU implementation.

[ 0.000000] RCU restricting CPUs from NR\_CPUS=4 to nr\_cpu\_ids=1.

[ 0.000000] RCU: Adjusting geometry for rcu\_fanout\_leaf=16, nr\_cpu\_ids=1

[ 0.000000] NR\_IRQS:16 nr\_irqs:16 16

[ 0.000000] GIC: Using split EOI/Deactivate mode

[ 0.000000] Architected cp15 timer(s) running at 25.00MHz (phys).

[ 0.000000] clocksource: arch\_sys\_counter: mask: 0xffffffffffffff max\_cycles: 0x5c40939b5, max\_idle\_ns: 440795202646 ns

[ 0.000005] sched\_clock: 56 bits at 25MHz, resolution 40ns, wraps every 4398046511100ns

[ 0.000015] Switching to timer-based delay loop, resolution 40ns

[ 0.000453] Calibrating delay loop (skipped), value calculated using timer frequency.. 50.00 BogoMIPS (lpj=250000)

[ 0.000466] pid\_max: default: 32768 minimum: 301

[ 0.000546] Mount-cache hash table entries: 2048 (order: 1, 8192 bytes)

[ 0.000555] Mountpoint-cache hash table entries: 2048 (order: 1, 8192 bytes)

[ 0.000965] CPU: Testing write buffer coherency: ok

[ 0.001151] CPU0: thread -1, cpu 0, socket 0, mpidr 80000000

[ 0.001180] Setting up static identity map for 0x800082c0 - 0x800082f4

[ 0.001799] Brought up 1 CPUs

[ 0.001808] SMP: Total of 1 processors activated (50.00 BogoMIPS).

[ 0.001814] CPU: All CPU(s) started in HYP mode.

[ 0.001820] CPU: Virtualization extensions available.

[ 0.004337] VFP support v0.3: implementor 41 architecture 3 part 40 variant 3 rev 4

[ 0.004483] clocksource: jiffies: mask: 0xffffffff max\_cycles: 0xffffffff, max\_idle\_ns: 19112604462750000 ns

[ 0.004566] pinctrl core: initialized pinctrl subsystem

[ 0.005141] NET: Registered protocol family 16

[ 0.005455] DMA: preallocated 256 KiB pool for atomic coherent allocations

[ 0.018725] SCSI subsystem initialized

[ 0.018969] usbcore: registered new interface driver usbfs

[ 0.019023] usbcore: registered new interface driver hub

[ 0.019067] usbcore: registered new device driver usb

[ 0.019385] i2c i2c-0: IMX I2C adapter registered

[ 0.019395] i2c i2c-0: can't use DMA

[ 0.019495] pps\_core: LinuxPPS API ver. 1 registered

[ 0.019502] pps\_core: Software ver. 5.3.6 - Copyright 2005-2007 Rodolfo Giometti <giometti@linux.it>

[ 0.019528] PTP clock support registered

[ 0.019797] No BMan portals available!

[ 0.020025] No QMan portals available!

[ 0.020240] No USDPAA memory, no 'fsl,usdpaa-mem' in device-tree

[ 0.021617] clocksource: Switched to clocksource arch\_sys\_counter

[ 0.022658] NET: Registered protocol family 2

[ 0.023129] TCP established hash table entries: 8192 (order: 3, 32768 bytes)

[ 0.023214] TCP bind hash table entries: 8192 (order: 4, 65536 bytes)

[ 0.023356] TCP: Hash tables configured (established 8192 bind 8192)

[ 0.023421] UDP hash table entries: 512 (order: 2, 16384 bytes)

[ 0.023457] UDP-Lite hash table entries: 512 (order: 2, 16384 bytes)

[ 0.023602] NET: Registered protocol family 1

[ 0.024799] futex hash table entries: 256 (order: 2, 16384 bytes)

[ 0.024886] No memory allocated for crashlog

[ 0.035139] squashfs: version 4.0 (2009/01/31) Phillip Lougher

[ 0.035164] jffs2: version 2.2 (NAND) (SUMMARY) (LZMA) (RTIME) (CMODE\_PRIORITY) (c) 2001-2006 Red Hat, Inc.

[ 0.036989] io scheduler noop registered

[ 0.037007] io scheduler deadline registered (default)

[ 0.037773] PCI host bridge /soc/pcie@3400000 ranges:

[ 0.037799] IO 0x4000010000..0x400001ffff -> 0x00000000

[ 0.037814] MEM 0x4040000000..0x407fffffff -> 0x40000000

[ 0.037970] layerscape-pcie 3400000.pcie: PCI host bridge to bus 0000:00

[ 0.037984] pci\_bus 0000:00: root bus resource [bus 00-ff]

[ 0.037995] pci\_bus 0000:00: root bus resource [io 0x0000-0xffff]

[ 0.038009] pci\_bus 0000:00: root bus resource [mem 0x4040000000-0x407fffffff] (bus address [0x40000000-0x7fffffff])

[ 0.038322] PCI: bus0: Fast back to back transfers disabled

[ 0.038414] PCI: bus1: Fast back to back transfers enabled

[ 0.038490] pci 0000:00:00.0: BAR 1: assigned [mem 0x4040000000-0x4043ffffff]

[ 0.038506] pci 0000:00:00.0: BAR 0: assigned [mem 0x4044000000-0x4044ffffff]

[ 0.038521] pci 0000:00:00.0: BAR 6: assigned [mem 0x4045000000-0x4045ffffff pref]

[ 0.038532] pci 0000:00:00.0: PCI bridge to [bus 01]

[ 0.038929] Serial: 8250/16550 driver, 2 ports, IRQ sharing disabled

[ 0.039604] console [ttyS0] disabled

[ 0.039649] 21c0500.serial: ttyS0 at MMIO 0x21c0500 (irq = 29, base\_baud = 7812500) is a 16550A

[ 0.629293] console [ttyS0] enabled

[ 0.633171] 21c0600.serial: ttyS1 at MMIO 0x21c0600 (irq = 29, base\_baud = 7812500) is a 16550A

[ 0.647658] loop: module loaded

[ 0.652115] fsl-quadspi 1550000.quadspi: s25fl512s (65536 Kbytes)

[ 0.658275] 7 cmdlinepart partitions found on MTD device 1550000.quadspi

[ 0.665027] Creating 7 MTD partitions on "1550000.quadspi":

[ 0.670612] 0x000000000000-0x000000100000 : "rcw"

[ 0.676155] 0x000000100000-0x000000200000 : "u-boot"

[ 0.682223] 0x000000200000-0x000000300000 : "u-boot-env"

[ 0.688392] 0x000000300000-0x000000400000 : "dtb"

[ 0.694074] 0x000000400000-0x000000900000 : "kernel"

[ 0.699912] 0x000000900000-0x000002000000 : "ext4rfs"

[ 0.705985] 0x000002000000-0x000004000000 : "user"

[ 0.712712] libphy: Fixed MDIO Bus: probed

[ 0.717645] Freescale FM module, FMD API version 21.1.0

[ 0.723106] Freescale FM Ports module

[ 0.726777] fsl\_mac: fsl\_mac: FSL FMan MAC API based driver

[ 0.732480] fsl\_dpa: FSL DPAA Ethernet driver

[ 0.736920] fsl\_advanced: FSL DPAA Advanced drivers:

[ 0.741906] fsl\_proxy: FSL DPAA Proxy initialization driver

[ 0.747560] fsl\_dpa\_shared: FSL DPAA Shared Ethernet driver

[ 0.753224] fsl\_dpa\_macless: FSL DPAA MACless Ethernet driver

[ 0.759050] fsl\_oh: FSL FMan Offline Parsing port driver

[ 0.764555] i2c /dev entries driver

[ 0.768390] sdhci: Secure Digital Host Controller Interface driver

[ 0.774591] sdhci: Copyright(c) Pierre Ossman

[ 0.778958] sdhci-pltfm: SDHCI platform and OF driver helper

[ 0.785833] sdhci-esdhc 1560000.esdhc: No vmmc regulator found

[ 0.791688] sdhci-esdhc 1560000.esdhc: No vqmmc regulator found

[ 0.851076] mmc0: SDHCI controller on 1560000.esdhc [1560000.esdhc] using ADMA 64-bit

[ 0.860104] sdhci-esdhc 1580000.esdhc: No vmmc regulator found

[ 0.865964] sdhci-esdhc 1580000.esdhc: No vqmmc regulator found

[ 0.921081] mmc1: SDHCI controller on 1580000.esdhc [1580000.esdhc] using ADMA 64-bit

[ 0.929306] No fsl,qman node

[ 0.932363] Freescale USDPAA process driver

[ 0.936549] fsl-usdpaa: no region found

[ 0.940394] Freescale USDPAA process IRQ driver

[ 0.945899] NET: Registered protocol family 10

[ 0.951669] NET: Registered protocol family 17

[ 0.956164] bridge: automatic filtering via arp/ip/ip6tables has been deprecated. Update your scripts to load br\_netfilter if you need this.

[ 0.968840] 8021q: 802.1Q VLAN Support v1.8

[ 0.973150] Registering SWP/SWPB emulation handler

[ 0.980876] fsl\_generic: FSL DPAA Generic Ethernet driver

[ 0.986465] hctosys: unable to open rtc device (rtc0)

[ 1.047502] EXT4-fs (mtdblock5): mounted filesystem without journal. Opts: (null)

[ 1.055063] VFS: Mounted root (ext4 filesystem) readonly on device 31:5.

[ 1.062169] Freeing unused kernel memory: 256K (c05bc000 - c05fc000)

[ 1.556116] init: Console is alive

[ 1.971288] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 1.976811] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 1

[ 1.984658] xhci-hcd xhci-hcd.0.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 1.993423] xhci-hcd xhci-hcd.0.auto: irq 37, io mem 0x02f00000

[ 2.000099] hub 1-0:1.0: USB hub found

[ 2.004066] hub 1-0:1.0: 1 port detected

[ 2.008210] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 2.013751] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 2

[ 2.023632] usb usb2: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.032287] hub 2-0:1.0: USB hub found

[ 2.036154] hub 2-0:1.0: 1 port detected

[ 2.045029] usbcore: registered new interface driver usb-storage

[ 2.061519] init: - preinit -

[ 2.300272] random: jshn: uninitialized urandom read (4 bytes read, 1 bits of entropy available)

[ 2.345652] random: jshn: uninitialized urandom read (4 bytes read, 1 bits of entropy available)

Press the [f] key and hit [enter] to enter failsafe mode

Press the [1], [2], [3] or [4] key and hit [enter] to select the debug level

[ 5.523339] mount\_root: mounting /dev/root

[ 5.712323] random: nonblocking pool is initialized

[ 7.671424] EXT4-fs (mtdblock5): re-mounted. Opts: (null)

[ 7.677870] urandom-seed: Seed file not found (/etc/urandom.seed)

[ 7.789870] procd: - early -

[ 8.332225] procd: - ubus -

[ 8.406314] procd: - init -

Please press Enter to activate this console.

[ 36.350698] cbus\_baseaddr: f2580000, ddr\_baseaddr: c3400000, ddr\_phys\_baseaddr: 83400000, ddr\_size: c00000

[ 36.360448] pfe\_hw\_init

[ 36.362911] CLASS version: 20

[ 36.365880] TMU version: 1011231

[ 36.369109] BMU1 version: 21

[ 36.372000] BMU2 version: 21

[ 36.374880] EGPI1 version: 50

[ 36.377848] EGPI2 version: 50

[ 36.380815] HGPI version: 50

[ 36.383704] GPT version: 0

[ 36.386410] HIF version: 10

[ 36.389203] HIF NOPCY version: 10

[ 36.392529] bmu\_init(1) done

[ 36.395410] bmu\_init(2) done

[ 36.400514] class\_init() done

[ 36.413533] tmu\_init() done

[ 36.416330] gpi\_init(1) done

[ 36.419213] gpi\_init(2) done

[ 36.422104] gpi\_init(hif) done

[ 36.425158] bmu\_enable(1) done

[ 36.428213] bmu\_enable(2) done

[ 36.431275] pfe\_hif\_lib\_init

[ 36.434253] pfe\_hif\_init

[ 36.436785] pfe\_hif\_alloc\_descr

[ 36.439970] pfe\_hif\_init\_buffers

[ 36.443361] pfe\_firmware\_init

[ 36.626374] pfe\_load\_elf

[ 36.630937] pe\_load\_ddr\_section: load address(3fb0000) and elf file address(f0a3b000) rcvd

[ 36.667313] PFE binary version: pfe\_ls1012a\_00\_3-3-g1fa4da1-dirty

[ 36.673429] pfe\_firmware\_init: class firmware loaded 0xa60 0xc3010000

[ 36.679879] pfe\_load\_elf

[ 36.683605] WARNING: PFE firmware binaries from incompatible version

[ 36.689970] pfe\_firmware\_init: tmu firmware loaded 0x200

[ 36.695317] pfe\_ctrl\_init

[ 36.771083] pfe\_ctrl\_init finished

[ 36.776503] pfe\_eth\_init

[ 36.779068] pfe\_eth\_mdio\_init

[ 36.782278] pfe\_ctrl\_timer

[ 36.804055] libphy: Comcerto MDIO Bus: probed

[ 36.813150] pfe\_phy\_init interface 3

[ 36.836874] eth0: pfe\_eth\_open

[ 36.840104] hif\_process\_client\_req: register client\_id 0

[ 36.845469] pfe\_hif\_client\_register

[ 36.849001] eth0: pfe\_gemac\_init

[ 36.891188] device eth0 entered promiscuous mode

[ 36.896174] eth0: pfe\_eth\_init\_one: created interface, baseaddr: f2780000

[ 36.952460] pfe\_phy\_init interface 7

[ 36.958345] br-lan: port 1(eth0) entered forwarding state

[ 36.963808] br-lan: port 1(eth0) entered forwarding state

[ 37.031559] eth1: pfe\_eth\_init\_one: created interface, baseaddr: f27a0000

[ 37.038457] pfe\_debugfs\_init

[ 38.961072] br-lan: port 1(eth0) entered forwarding state

BusyBox v1.25.1 () built-in shell (ash)

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\ \ DE /

\ LE \ / -----------------------------------------------------------

\ DE \ / Reboot (HEAD, r1262+805)

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=== WARNING! =====================================

There is no root password defined on this device!

Use the "passwd" command to set up a new password

in order to prevent unauthorized SSH logins.

--------------------------------------------------

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0

inet6 addr: fe80::21a:2bff:fe3c:4d5e/64 Scope:Link

inet6 addr: fd9e:dc36:52fd::1/60 Scope:Global

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:144 errors:0 dropped:0 overruns:0 frame:0

TX packets:9 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:11112 (10.8 KiB) TX bytes:1006 (1006.0 B)

eth0 Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:144 errors:0 dropped:0 overruns:0 frame:0

TX packets:10 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:13128 (12.8 KiB) TX bytes:1052 (1.0 KiB)

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:16 errors:0 dropped:0 overruns:0 frame:0

TX packets:16 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:1264 (1.2 KiB) TX bytes:1264 (1.2 KiB)

root@lede:/# ifconfig br-lan 10.193.20.244

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

inet addr:10.193.20.244 Bcast:10.255.255.255 Mask:255.0.0.0

inet6 addr: fe80::21a:2bff:fe3c:4d5e/64 Scope:Link

inet6 addr: fd9e:dc36:52fd::1/60 Scope:Global

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:224 errors:0 dropped:0 overruns:0 frame:0

TX packets:9 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:17742 (17.3 KiB) TX bytes:1006 (1006.0 B)

eth0 Link encap:Ethernet HWaddr 00:1A:2B:3C:4D:5E

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:224 errors:0 dropped:0 overruns:0 frame:0

TX packets:10 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:20878 (20.3 KiB) TX bytes:1052 (1.0 KiB)

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:24 errors:0 dropped:0 overruns:0 frame:0

TX packets:24 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:1896 (1.8 KiB) TX bytes:1896 (1.8 KiB)

root@lede:/# ping 10.193.20.106

PING 10.193.20.106 (10.193.20.106): 56 data bytes

64 bytes from 10.193.20.106: seq=0 ttl=64 time=0.383 ms

64 bytes from 10.193.20.106: seq=1 ttl=64 time=1.102 ms

^C

--- 10.193.20.106 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.383/0.742/1.102 ms

root@lede:/#

root@lede:/# df

Filesystem 1K-blocks Used Available Use% Mounted on

/dev/root 22036 9616 11952 45% /

tmpfs 380312 32 380280 0% /tmp

tmpfs 512 0 512 0% /dev

root@lede:/# cat /proc/interrupts

CPU0

16: 0 GICv2 29 Edge arch\_timer

17: 7421 GICv2 30 Edge arch\_timer

24: 2808 GICv2 94 Level mmc0

25: 2756 GICv2 97 Level mmc1

26: 3571975 GICv2 131 Level 1550000.quadspi

28: 0 GICv2 88 Level 2180000.i2c

29: 538 GICv2 86 Level serial

37: 0 GICv2 92 Level xhci-hcd:usb1

40: 499 GICv2 204 Level pfe\_hif

42: 0 MSI 0 Edge aerdrv

IPI0: 0 CPU wakeup interrupts

IPI1: 0 Timer broadcast interrupts

IPI2: 0 Rescheduling interrupts

IPI3: 0 Function call interrupts

IPI4: 0 Single function call interrupts

IPI5: 0 CPU stop interrupts

IPI6: 0 IRQ work interrupts

IPI7: 0 completion interrupts

Err: 0

root@lede:/#

root@lede:/#

root@lede:/#

root@lede:/# reboot

root@lede:/# [ 183.457869] br-lan: port 1(eth0) entered disabled state

[ 183.470701] device eth0 left promiscuous mode

[ 183.475189] br-lan: port 1(eth0) entered disabled state

[ 183.484545] eth0: pfe\_eth\_shutdown

[ 183.521088] hif\_lib\_client\_unregister : client: eed60484, client\_id: 0, txQ\_depth: 2048, rxQ\_depth: 256

[ 183.530508] hif\_process\_client\_req: unregister client\_id 0

[ 183.536010] pfe\_hif\_client\_unregister

[ 183.539923] IPv6: ADDRCONF(NETDEV\_UP): eth0: link is not ready

[ 186.903374] EXT4-fs (mtdblock5): re-mounted. Opts: (null)

[ 189.931492] reboot: Restarting system

U-Boot 2016.01 (Oct 26 2016 - 21:48:17 +0000)

SoC: LS1012AE (0x87040010)

Clock Configuration:

CPU0(A53):800 MHz

Bus: 250 MHz DDR: 1000 MT/s

Reset Configuration Word (RCW):

00000000: 08000008 00000000 00000000 00000000

00000010: 35080000 c000000c 40000000 00001800

00000020: 00000000 00000000 00000000 00014571

00000030: 00000000 18c2a120 00000096 00000000

I2C: ready

DRAM: 1022 MiB

SEC0: RNG instantiated

Using SERDES1 Protocol: 13576 (0x3508)

MMC: FSL\_SDHC: 0, FSL\_SDHC: 1

SF: Detected S25FS512S\_256K with page size 512 Bytes, erase size 128 KiB, total 64 MiB

\*\*\* Warning - bad CRC, using default environment

PCIe1: Root Complex no link, regs @ 0x3400000

In: serial

Out: serial

Err: serial

Model: LS1012A RDB Board

Board: LS1012ARDB Version: unknown, boot from QSPI: bank1

SATA link 0 timeout.

AHCI 0001.0301 32 slots 1 ports 6 Gbps 0x1 impl SATA mode

flags: 64bit ncq pm clo only pmp fbss pio slum part ccc apst

Found 0 device(s).

SCSI: Net: cbus\_baseaddr: 0000000004000000, ddr\_baseaddr: 0000000083800000, ddr\_phys\_baseaddr: 03800000

class init complete

tmu init complete

bmu1 init: done

bmu2 init: done

GPI1 init complete

GPI2 init complete

HGPI init complete

hif\_tx\_desc\_init: Tx desc\_base: 0000000083e40400, base\_pa: 03e40400, desc\_count: 64

hif\_rx\_desc\_init: Rx desc base: 0000000083e40000, base\_pa: 03e40000, desc\_count: 64

HIF tx desc: base\_va: 0000000083e40400, base\_pa: 03e40400

HIF init complete

bmu1 enabled

bmu2 enabled

pfe\_hw\_init: done

pfe\_firmware\_init

pfe\_load\_elf: no of sections: 13

pfe\_firmware\_init: class firmware loaded

pfe\_load\_elf: no of sections: 10

pfe\_firmware\_init: tmu firmware loaded

ls1012a\_configure\_serdes 0

pfe\_eth0

Error: pfe\_eth0 address not set.

, pfe\_eth1

Error: pfe\_eth1 address not set.

Hit any key to stop autoboot: 0

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 quiet lpj=250000

bootcmd=run wrtboot\_ext4rfs

bootdelay=3

console=ttyAMA0,38400n8

ethact=pfe\_eth0

fdt\_high=0xffffffffffffffff

fdtaddr=8f000000

fdtcontroladdr=bfc7a348

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

kernel\_addr=0x100000

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0xa00000

loadaddr=82000000

ramdisk\_addr=0x800000

ramdisk\_size=0x2000000

ramdiskaddr=88000000

scsidevs=0

stderr=serial

stdin=serial

stdout=serial

verify=no

wrtboot=pfe stop && sf probe 0:0 && setenv bootargs root=/dev/mtdblock5 rootfstype=squashfs,jffs2 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(rootfs),32M(user) && sf read $fdtaddr 0x300000 100000 && sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr

wrtboot\_ext4rfs=pfe stop && sf probe 0:0 && setenv bootargs root=/dev/mtdblock5 rootfstype=ext4 noinitrd console=ttyS0,115200 earlycon=uart8250,mmio,0x21c0500 mtdparts=1550000.quadspi:1M(rcw),1M(u-boot),1M(u-boot-env),1M(dtb),5M(kernel),23M(ext4rfs),32M(user) && sf read $fdtaddr 0x300000 100000 && sf read $loadaddr 0x400000 500000 && bootm $loadaddr - $fdtaddr

wrtupdate= sf probe 0:0 && tftp 0xa0000000 <tftp\_folder>/lede-layerscape-64b-ls1012ardb-squashfs-firmware.ext4.bin && protect off all && sf erase 0 $filesize && sf write 0xa0000000 0 $filesize; reset

Environment size: 1540/262140 bytes

=>

## ls1043ardb 64b/32b

U-Boot 2016.01 (Nov 07 2016 - 19:54:18 +0000)

SoC: LS1043AE (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

I2C: ready

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 0

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd0b000

All (4) cores are up.

Using SERDES1 Protocol: 5205 (0x1455)

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

SCSI: Error: SCSI Controller(s) 1B4B:9170 not found

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1, FM1@DTSEC2, FM1@DTSEC3 [PRIME], FM1@DTSEC4, FM1@DTSEC5, FM1@DTSEC6, FM1@TGEC1

Hit any key to stop autoboot: 0

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

bootcmd=cpld reset altbank

bootdelay=3

console=ttyAMA0,38400n8

eth1addr=00:e0:0c:00:77:01

eth2addr=00:e0:0c:00:77:02

eth3addr=00:e0:0c:00:77:03

eth4addr=00:e0:0c:00:77:04

eth5addr=00:e0:0c:00:77:05

eth6addr=00:e0:0c:00:77:06

ethact=FM1@DTSEC3

ethaddr=00:e0:0c:00:77:00

ethprime=FM1@DTSEC3

fdt\_high=0xffffffffffffffff

fdtaddr=8f000000

fdtcontroladdr=ffbc8738

fileaddr=a0000000

filesize=a21bb

fman\_ucode=60300000

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

ipaddr=10.193.20.127

kernel\_addr=0x100000

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0x61100000

loadaddr=82000000

mtdparts=mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

ramdisk\_addr=0x800000

ramdisk\_size=0x2000000

ramdiskaddr=88000000

serverip=10.192.208.233

stderr=serial

stdin=serial

stdout=serial

upaltuboot=tftp a0000000 houzq/ls1043ardb/u-boot-dtb.bin&& protect off all&&erase 64100000 +$filesize&&cp.b a0000000 64100000 $filesize

wrtboot=setenv bootargs root=/dev/mtdblock6 rootfstype=squashfs,jffs2 noinitrd earlycon=uart8250,mmio,0x21c0500 console=ttyS0,115200 mtdparts=60000000.nor:1M(rcw),1M(u-boot),1M(u-boot-env),1M(fman),1M(dtb),5M(kernel),54M(rootfs),64M(otherbank) && cp.b 60400000 $fdtaddr 100000 && cp.b 60500000 $loadaddr 500000 && bootm $loadaddr - $fdtaddr

wrtupdate=tftp a0000000 <tftp\_folder>/lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin && protect off all && erase 60000000 +4000000 && cp.b a0000000 60000000 $filesize && reset

Environment size: 2276/131068 bytes

=> setenv serverip 10.192.208.142

=> setenv ipaddr 10.193.20.244

=> ping 10.192.208.142

FM1@DTSEC3 Waiting for PHY auto negotiation to complete......... TIMEOUT !

...... TIMEOUT !

FM1@DTSEC3: No link.

FM1@DTSEC4 Waiting for PHY auto negotiation to complete......... TIMEOUT !

...... TIMEOUT !

FM1@DTSEC4: No link.

FM1@DTSEC5 Waiting for PHY auto negotiation to complete......... TIMEOUT !

FM1@DTSEC5: No link.

FM1@DTSEC6 Waiting for PHY auto negotiation to complete......... TIMEOUT !

FM1@DTSEC6: No link.

FM1@TGEC1 Waiting for PHY auto negotiation to complete................................ TIMEOUT !

FM1@TGEC1: No link.

FM1@DTSEC1 Waiting for PHY auto negotiation to complete......... TIMEOUT !

FM1@DTSEC1: No link.

Using FM1@DTSEC2 device

ping failed; host 10.192.208.142 is not alive

=> ping 10.192.208.142

Using FM1@DTSEC2 device

host 10.192.208.142 is alive

=> tftp a0000000 jyt/openwrt/ls1043/lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin && protect off all && erase 60000000 +4000000 && cp.b a0000000 60000000 $filesize

Using FM1@DTSEC2 device

TFTP from server 10.192.208.142; our IP address is 10.193.20.244

Filename 'jyt/openwrt/ls1043/lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin'.

Load address: 0xa0000000

Loading: #################################################################

#################################################################

#################################################################

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###################

6.8 MiB/s

done

Bytes transferred = 13631492 (d00004 hex)

Un-Protect Flash Bank # 1

................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................ done

Erased 512 sectors

Copy to Flash... 9....8....7....6....5....4....3....2....1....done

=> reset

resetting ...

?

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1043AE (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

I2C: ready

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 0

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd0b000

All (4) cores are up.

Using SERDES1 Protocol: 5205 (0x1455)

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

\*\*\* Warning - bad CRC, using default environment

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

SCSI: Error: SCSI Controller(s) 1B4B:9170 not found

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1, FM1@DTSEC2, FM1@DTSEC3 [PRIME], FM1@DTSEC4, FM1@DTSEC5, FM1@DTSEC6, FM1@TGEC1

Hit any key to stop autoboot: 0

## Booting kernel from Legacy Image at 82000000 ...

Image Name: ARM64 LEDE Linux-4.4.28

Image Type: AArch64 Linux Kernel Image (gzip compressed)

Data Size: 3227500 Bytes = 3.1 MiB

Load Address: 80080000

Entry Point: 80080000

Verifying Checksum ... OK

## Flattened Device Tree blob at 8f000000

Booting using the fdt blob at 0x8f000000

Uncompressing Kernel Image ... OK

Using Device Tree in place at 000000008f000000, end 000000008f0197c6

Starting kernel ...

[ 0.000000] Booting Linux on physical CPU 0x0

[ 0.000000] Linux version 4.4.28 (jyt@BP) (gcc version 5.4.0 (LEDE GCC 5.4.0 r1262+1) ) #0 SMP Tue Nov 15 15:47:45 2016

[ 0.000000] Boot CPU: AArch64 Processor [410fd034]

[ 0.000000] earlycon: Early serial console at MMIO 0x21c0500 (options '')

[ 0.000000] bootconsole [uart0] enabled

[ 0.000000] efi: Getting EFI parameters from FDT:

[ 0.000000] efi: UEFI not found.

[ 0.000000] Reserved memory: initialized node qman-fqd, compatible id fsl,qman-fqd

[ 0.000000] Reserved memory: initialized node qman-pfdr, compatible id fsl,qman-pfdr

[ 0.000000] Reserved memory: initialized node bman-fbpr, compatible id fsl,bman-fbpr

[ 0.000000] PERCPU: Embedded 15 pages/cpu @ffffffc07fd8e000 s23808 r8192 d29440 u61440

[ 0.000000] Detected VIPT I-cache on CPU0

[ 0.000000] CPU features: enabling workaround for ARM erratum 845719

[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 515592

[ 0.000000] Kernel command line: root=/dev/mtdblock6 rootfstype=squashfs,jffs2 noinitrd earlycon=uart8250,mmio,0x21c0500 console=ttyS0,115200 mtdparts=60000000.nor:1M(rcw),1M(u-boot),1M(u-boot-env),1M(fman),1M(dtb),5M(kernel),54M(rootfs),64M(otherbank)

[ 0.000000] PID hash table entries: 4096 (order: 3, 32768 bytes)

[ 0.000000] Dentry cache hash table entries: 262144 (order: 9, 2097152 bytes)

[ 0.000000] Inode-cache hash table entries: 131072 (order: 8, 1048576 bytes)

[ 0.000000] software IO TLB [mem 0xf6200000-0xfa200000] (64MB) mapped at [ffffffc076200000-ffffffc07a1fffff]

[ 0.000000] Memory: 1927044K/2095104K available (4796K kernel code, 289K rwdata, 2124K rodata, 252K init, 811K bss, 168060K reserved, 0K cma-reserved)

[ 0.000000] Virtual kernel memory layout:

[ 0.000000] vmalloc : 0xffffff8000000000 - 0xffffffbdbfff0000 ( 246 GB)

[ 0.000000] vmemmap : 0xffffffbdc0000000 - 0xffffffbfc0000000 ( 8 GB maximum)

[ 0.000000] 0xffffffbdc0000000 - 0xffffffbdc1ff8000 ( 31 MB actual)

[ 0.000000] fixed : 0xffffffbffabfd000 - 0xffffffbffac00000 ( 12 KB)

[ 0.000000] PCI I/O : 0xffffffbffae00000 - 0xffffffbffbe00000 ( 16 MB)

[ 0.000000] modules : 0xffffffbffc000000 - 0xffffffc000000000 ( 64 MB)

[ 0.000000] memory : 0xffffffc000000000 - 0xffffffc07fe00000 ( 2046 MB)

[ 0.000000] .init : 0xffffffc000745000 - 0xffffffc000784000 ( 252 KB)

[ 0.000000] .text : 0xffffffc000080000 - 0xffffffc000744384 ( 6929 KB)

[ 0.000000] .data : 0xffffffc000795000 - 0xffffffc0007dd600 ( 290 KB)

[ 0.000000] SLUB: HWalign=64, Order=0-3, MinObjects=0, CPUs=4, Nodes=1

[ 0.000000] Hierarchical RCU implementation.

[ 0.000000] CONFIG\_RCU\_FANOUT set to non-default value of 32

[ 0.000000] NR\_IRQS:64 nr\_irqs:64 0

[ 0.000000] GIC: Using split EOI/Deactivate mode

[ 0.000000] Architected cp15 timer(s) running at 25.00MHz (phys).

[ 0.000000] clocksource: arch\_sys\_counter: mask: 0xffffffffffffff max\_cycles: 0x5c40939b5, max\_idle\_ns: 440795202646 ns

[ 0.000002] sched\_clock: 56 bits at 25MHz, resolution 40ns, wraps every 4398046511100ns

[ 0.008166] Calibrating delay loop (skipped), value calculated using timer frequency.. 50.00 BogoMIPS (lpj=250000)

[ 0.018570] pid\_max: default: 32768 minimum: 301

[ 0.023240] Mount-cache hash table entries: 4096 (order: 3, 32768 bytes)

[ 0.029974] Mountpoint-cache hash table entries: 4096 (order: 3, 32768 bytes)

[ 0.037521] EFI services will not be available.

[ 0.042090] ASID allocator initialised with 65536 entries

[ 0.048027] Detected VIPT I-cache on CPU1

[ 0.048045] CPU1: Booted secondary processor [410fd034]

[ 0.048161] Detected VIPT I-cache on CPU2

[ 0.048173] CPU2: Booted secondary processor [410fd034]

[ 0.048280] Detected VIPT I-cache on CPU3

[ 0.048292] CPU3: Booted secondary processor [410fd034]

[ 0.048312] Brought up 4 CPUs

[ 0.079082] SMP: Total of 4 processors activated.

[ 0.083804] CPU: All CPU(s) started at EL2

[ 0.087920] alternatives: patching kernel code

[ 0.095462] DMI not present or invalid.

[ 0.099422] clocksource: jiffies: mask: 0xffffffff max\_cycles: 0xffffffff, max\_idle\_ns: 19112604462750000 ns

[ 0.109362] atomic64\_test: passed

[ 0.113025] NET: Registered protocol family 16

[ 0.117946] fsl-mc bus type registered

[ 0.121763] MC object device driver fsl\_mc\_dprc registered

[ 0.127299] MC object device driver fsl\_mc\_allocator registered

[ 0.133289] Bman ver:0a02,02,01

[ 0.140753] qman-fqd addr 0xff000000 size 0x800000

[ 0.145567] qman-pfdr addr 0xfc000000 size 0x2000000

[ 0.150552] Qman ver:0a01,03,02,00

[ 0.154039] vdso: 2 pages (1 code @ ffffffc00079d000, 1 data @ ffffffc00079c000)

[ 0.161576] DMA: preallocated 256 KiB pool for atomic allocations

[ 0.167735] Serial: AMBA PL011 UART driver

[ 0.212206] ACPI: Interpreter disabled.

[ 0.216274] SCSI subsystem initialized

[ 0.220251] usbcore: registered new interface driver usbfs

[ 0.225809] usbcore: registered new interface driver hub

[ 0.231168] usbcore: registered new device driver usb

[ 0.236753] i2c i2c-0: IMX I2C adapter registered

[ 0.241476] i2c i2c-0: can't use DMA

[ 0.245358] dmi: Firmware registration failed.

[ 0.249845] bman-fbpr addr 0xfe000000 size 0x1000000

[ 0.254846] Bman err interrupt handler present

[ 0.259666] Bman portal initialised, cpu 0

[ 0.263842] Bman portal initialised, cpu 1

[ 0.268015] Bman portal initialised, cpu 2

[ 0.272185] Bman portal initialised, cpu 3

[ 0.276300] Bman portals initialised

[ 0.280755] Qman err interrupt handler present

[ 0.285512] QMan: Allocated lookup table at ffffff800017d000, entry count 131073

[ 0.293681] Qman portal initialised, cpu 0

[ 0.298242] Qman portal initialised, cpu 1

[ 0.302807] Qman portal initialised, cpu 2

[ 0.307375] Qman portal initialised, cpu 3

[ 0.311483] Qman portals initialised

[ 0.315157] Bman: BPID allocator includes range 32:32

[ 0.320271] Qman: FQID allocator includes range 256:256

[ 0.325516] Qman: FQID allocator includes range 32768:32768

[ 0.331158] Qman: CGRID allocator includes range 0:256

[ 0.336431] Qman: pool channel allocator includes range 1025:15

[ 0.342436] No USDPAA memory, no 'fsl,usdpaa-mem' in device-tree

[ 0.348495] fsl-ifc 1530000.ifc: Freescale Integrated Flash Controller

[ 0.355061] fsl-ifc 1530000.ifc: IFC version 1.4, 8 banks

[ 0.361012] clocksource: Switched to clocksource arch\_sys\_counter

[ 0.367287] pnp: PnP ACPI: disabled

[ 0.371355] NET: Registered protocol family 2

[ 0.375977] TCP established hash table entries: 16384 (order: 5, 131072 bytes)

[ 0.383335] TCP bind hash table entries: 16384 (order: 6, 262144 bytes)

[ 0.390166] TCP: Hash tables configured (established 16384 bind 16384)

[ 0.396769] UDP hash table entries: 1024 (order: 3, 32768 bytes)

[ 0.402835] UDP-Lite hash table entries: 1024 (order: 3, 32768 bytes)

[ 0.409401] NET: Registered protocol family 1

[ 0.413894] RPC: Registered named UNIX socket transport module.

[ 0.419838] RPC: Registered udp transport module.

[ 0.424564] RPC: Registered tcp transport module.

[ 0.429284] RPC: Registered tcp NFSv4.1 backchannel transport module.

[ 0.436384] futex hash table entries: 1024 (order: 5, 131072 bytes)

[ 0.442748] No memory allocated for crashlog

[ 0.450402] squashfs: version 4.0 (2009/01/31) Phillip Lougher

[ 0.456655] jffs2: version 2.2 (NAND) (SUMMARY) (LZMA) (RTIME) (CMODE\_PRIORITY) (c) 2001-2006 Red Hat, Inc.

[ 0.466973] io scheduler noop registered (default)

[ 0.472495] PCI host bridge /soc/pcie@3500000 ranges:

[ 0.477574] IO 0x4800010000..0x480001ffff -> 0x00000000

[ 0.483090] MEM 0x4840000000..0x487fffffff -> 0x40000000

[ 0.488690] layerscape-pcie 3500000.pcie: PCI host bridge to bus 0000:00

[ 0.495428] pci\_bus 0000:00: root bus resource [bus 00-ff]

[ 0.500936] pci\_bus 0000:00: root bus resource [io 0x0000-0xffff]

[ 0.507147] pci\_bus 0000:00: root bus resource [mem 0x4840000000-0x487fffffff] (bus address [0x40000000-0x7fffffff])

[ 0.517941] pci 0000:00:00.0: BAR 1: assigned [mem 0x4840000000-0x4843ffffff]

[ 0.525119] pci 0000:00:00.0: BAR 0: assigned [mem 0x4844000000-0x4844ffffff]

[ 0.532292] pci 0000:00:00.0: BAR 6: assigned [mem 0x4845000000-0x4845ffffff pref]

[ 0.539897] pci 0000:00:00.0: PCI bridge to [bus 01]

[ 0.545042] PCI host bridge /soc/pcie@3600000 ranges:

[ 0.550117] IO 0x5000010000..0x500001ffff -> 0x00000000

[ 0.555631] MEM 0x5040000000..0x507fffffff -> 0x40000000

[ 0.561203] layerscape-pcie 3600000.pcie: PCI host bridge to bus 0001:00

[ 0.567935] pci\_bus 0001:00: root bus resource [bus 00-ff]

[ 0.573448] pci\_bus 0001:00: root bus resource [io 0x10000-0x1ffff] (bus address [0x0000-0xffff])

[ 0.582454] pci\_bus 0001:00: root bus resource [mem 0x5040000000-0x507fffffff] (bus address [0x40000000-0x7fffffff])

[ 0.593211] pci 0001:00:00.0: BAR 1: assigned [mem 0x5040000000-0x5043ffffff]

[ 0.600381] pci 0001:00:00.0: BAR 0: assigned [mem 0x5044000000-0x5044ffffff]

[ 0.607555] pci 0001:00:00.0: BAR 6: assigned [mem 0x5045000000-0x5045ffffff pref]

[ 0.615163] pci 0001:00:00.0: PCI bridge to [bus 01]

[ 0.620582] Serial: 8250/16550 driver, 2 ports, IRQ sharing disabled

[ 0.627406] console [ttyS0] disabled

[ 0.631018] 21c0500.serial: ttyS0 at MMIO 0x21c0500 (irq = 18, base\_baud = 25000000) is a 16550A

[ 0.639866] console [ttyS0] enabled

[ 0.639866] console [ttyS0] enabled

[ 0.646844] bootconsole [uart0] disabled

[ 0.646844] bootconsole [uart0] disabled

[ 0.654805] 21c0600.serial: ttyS1 at MMIO 0x21c0600 (irq = 18, base\_baud = 25000000) is a 16550A

[ 0.663664] of\_serial: probe of 21d0500.serial failed with error -28

[ 0.670036] of\_serial: probe of 21d0600.serial failed with error -28

[ 0.676645] Unable to detect cache hierarchy from DT for CPU 0

[ 0.684464] loop: module loaded

[ 0.689115] 60000000.nor: Found 1 x16 devices at 0x0 in 16-bit bank. Manufacturer ID 0x000089 Chip ID 0x00227e

[ 0.699116] Amd/Fujitsu Extended Query Table at 0x0040

[ 0.704255] Amd/Fujitsu Extended Query version 1.3.

[ 0.709297] number of CFI chips: 1

[ 0.712700] 8 cmdlinepart partitions found on MTD device 60000000.nor

[ 0.719129] Creating 8 MTD partitions on "60000000.nor":

[ 0.724435] 0x000000000000-0x000000100000 : "rcw"

[ 0.729412] 0x000000100000-0x000000200000 : "u-boot"

[ 0.734621] 0x000000200000-0x000000300000 : "u-boot-env"

[ 0.740175] 0x000000300000-0x000000400000 : "fman"

[ 0.745212] 0x000000400000-0x000000500000 : "dtb"

[ 0.750174] 0x000000500000-0x000000a00000 : "kernel"

[ 0.755391] 0x000000a00000-0x000004000000 : "rootfs"

[ 0.760591] mtd: device 6 (rootfs) set to be root filesystem

[ 0.766258] 1 squashfs-split partitions found on MTD device rootfs

[ 0.772430] 0x000000ce0000-0x000004000000 : "rootfs\_data"

[ 0.778077] 0x000004000000-0x000008000000 : "otherbank"

[ 0.784083] nand: device found, Manufacturer ID: 0x2c, Chip ID: 0xac

[ 0.790424] nand: Micron MT29F4G08ABBDAH4

[ 0.794430] nand: 512 MiB, SLC, erase size: 128 KiB, page size: 2048, OOB size: 64

[ 0.802251] Bad block table found at page 262080, version 0x01

[ 0.808544] Bad block table found at page 262016, version 0x01

[ 0.814961] fsl,ifc-nand 7e800000.nand: IFC NAND device at 0x7e800000, bank 1

[ 0.822784] libphy: Fixed MDIO Bus: probed

[ 0.826972] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.833270] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.839743] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.844745] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.849740] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.854741] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.859739] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.864740] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.869734] libphy: Freescale XGMAC MDIO Bus: probed

[ 0.886424] Freescale FM module, FMD API version 21.1.0

[ 0.893346] Freescale FM Ports module

[ 0.897002] fsl\_mac: fsl\_mac: FSL FMan MAC API based driver

[ 0.902910] fsl\_mac 1ae0000.ethernet: FMan MEMAC

[ 0.907524] fsl\_mac 1ae0000.ethernet: FMan MAC address: 00:e0:0c:00:77:00

[ 0.914594] fsl\_mac 1ae2000.ethernet: FMan MEMAC

[ 0.919204] fsl\_mac 1ae2000.ethernet: FMan MAC address: 00:e0:0c:00:77:01

[ 0.926032] fsl\_mac 1ae4000.ethernet: FMan MEMAC

[ 0.930642] fsl\_mac 1ae4000.ethernet: FMan MAC address: 00:e0:0c:00:77:02

[ 0.937469] fsl\_mac 1ae6000.ethernet: FMan MEMAC

[ 0.942083] fsl\_mac 1ae6000.ethernet: FMan MAC address: 00:e0:0c:00:77:03

[ 0.949149] fsl\_mac 1ae8000.ethernet: FMan MEMAC

[ 0.953763] fsl\_mac 1ae8000.ethernet: FMan MAC address: 00:e0:0c:00:77:04

[ 0.960830] fsl\_mac 1aea000.ethernet: FMan MEMAC

[ 0.965445] fsl\_mac 1aea000.ethernet: FMan MAC address: 00:e0:0c:00:77:05

[ 0.972275] fsl\_mac 1af0000.ethernet: FMan MEMAC

[ 0.976885] fsl\_mac 1af0000.ethernet: FMan MAC address: 00:e0:0c:00:77:06

[ 0.983746] fsl\_dpa: FSL DPAA Ethernet driver

[ 0.989814] fsl\_dpa: fsl\_dpa: Probed interface eth0

[ 0.996204] fsl\_dpa: fsl\_dpa: Probed interface eth1

[ 1.002931] fsl\_dpa: fsl\_dpa: Probed interface eth2

[ 1.010014] fsl\_dpa: fsl\_dpa: Probed interface eth3

[ 1.017477] fsl\_dpa: fsl\_dpa: Probed interface eth4

[ 1.025301] fsl\_dpa: fsl\_dpa: Probed interface eth5

[ 1.033490] fsl\_dpa: fsl\_dpa: Probed interface eth6

[ 1.038418] fsl\_advanced: FSL DPAA Advanced drivers:

[ 1.043381] fsl\_proxy: FSL DPAA Proxy initialization driver

[ 1.049073] fsl\_dpa\_shared: FSL DPAA Shared Ethernet driver

[ 1.054732] fsl\_dpa\_macless: FSL DPAA MACless Ethernet driver

[ 1.060552] fsl\_oh: FSL FMan Offline Parsing port driver

[ 1.066071] i2c /dev entries driver

[ 1.069739] sdhci: Secure Digital Host Controller Interface driver

[ 1.075911] sdhci: Copyright(c) Pierre Ossman

[ 1.080259] sdhci-pltfm: SDHCI platform and OF driver helper

[ 1.087015] sdhci-esdhc 1560000.esdhc: No vmmc regulator found

[ 1.092842] sdhci-esdhc 1560000.esdhc: No vqmmc regulator found

[ 1.141022] mmc0: SDHCI controller on 1560000.esdhc [1560000.esdhc] using ADMA 64-bit

[ 1.149501] Freescale USDPAA process driver

[ 1.153680] fsl-usdpaa: no region found

[ 1.157506] Freescale USDPAA process IRQ driver

[ 1.162391] NET: Registered protocol family 10

[ 1.167493] NET: Registered protocol family 17

[ 1.171950] bridge: automatic filtering via arp/ip/ip6tables has been deprecated. Update your scripts to load br\_netfilter if you need this.

[ 1.184549] 8021q: 802.1Q VLAN Support v1.8

[ 1.189044] fsl\_generic: FSL DPAA Generic Ethernet driver

[ 1.195048] fdt: not creating '/sys/firmware/fdt': CRC check failed

[ 1.202975] VFS: Mounted root (squashfs filesystem) readonly on device 31:6.

[ 1.210120] Freeing unused kernel memory: 252K (ffffffc000745000 - ffffffc000784000)

[ 1.217870] Freeing alternatives memory: 48K (ffffffc000784000 - ffffffc000790000)

[ 1.683982] init: Console is alive

[ 2.376150] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 2.381650] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 1

[ 2.389373] xhci-hcd xhci-hcd.0.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 2.398093] xhci-hcd xhci-hcd.0.auto: irq 27, io mem 0x02f00000

[ 2.404224] hub 1-0:1.0: USB hub found

[ 2.407973] hub 1-0:1.0: 1 port detected

[ 2.411976] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 2.417454] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 2

[ 2.425138] usb usb2: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.433396] hub 2-0:1.0: USB hub found

[ 2.437144] hub 2-0:1.0: 1 port detected

[ 2.441158] xhci-hcd xhci-hcd.1.auto: xHCI Host Controller

[ 2.446638] xhci-hcd xhci-hcd.1.auto: new USB bus registered, assigned bus number 3

[ 2.454360] xhci-hcd xhci-hcd.1.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 2.463066] xhci-hcd xhci-hcd.1.auto: irq 28, io mem 0x03000000

[ 2.469153] hub 3-0:1.0: USB hub found

[ 2.472907] hub 3-0:1.0: 1 port detected

[ 2.476894] xhci-hcd xhci-hcd.1.auto: xHCI Host Controller

[ 2.482378] xhci-hcd xhci-hcd.1.auto: new USB bus registered, assigned bus number 4

[ 2.490043] usb usb4: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.498295] hub 4-0:1.0: USB hub found

[ 2.502048] hub 4-0:1.0: 1 port detected

[ 2.506056] xhci-hcd xhci-hcd.2.auto: xHCI Host Controller

[ 2.511560] xhci-hcd xhci-hcd.2.auto: new USB bus registered, assigned bus number 5

[ 2.519279] xhci-hcd xhci-hcd.2.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 2.527985] xhci-hcd xhci-hcd.2.auto: irq 29, io mem 0x03100000

[ 2.534079] hub 5-0:1.0: USB hub found

[ 2.537826] hub 5-0:1.0: 1 port detected

[ 2.541833] xhci-hcd xhci-hcd.2.auto: xHCI Host Controller

[ 2.547311] xhci-hcd xhci-hcd.2.auto: new USB bus registered, assigned bus number 6

[ 2.554985] usb usb6: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.563241] hub 6-0:1.0: USB hub found

[ 2.566988] hub 6-0:1.0: 1 port detected

[ 2.571713] usbcore: registered new interface driver usb-storage

[ 2.583284] init: - preinit -

[ 2.684719] random: jshn: uninitialized urandom read (4 bytes read, 2 bits of entropy available)

[ 2.697253] random: jshn: uninitialized urandom read (4 bytes read, 2 bits of entropy available)

Press the [f] key and hit [enter] to enter failsafe mode

Press the [1], [2], [3] or [4] key and hit [enter] to select the debug level

[ 2.861046] usb usb5-port1: over-current condition

[ 2.881029] usb usb6-port1: over-current condition

[ 4.827522] mount\_root: jffs2 not ready yet, using temporary tmpfs overlay

[ 4.835366] urandom-seed: Seed file not found (/etc/urandom.seed)

[ 4.892544] procd: - early -

[ 5.501202] procd: - ubus -

[ 5.553590] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.562545] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.571424] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.580358] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.589236] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.598141] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.607046] random: ubusd: uninitialized urandom read (4 bytes read, 9 bits of entropy available)

[ 5.615986] procd: - init -

Please press Enter to activate this console.

[ 6.742705] random: jshn: uninitialized urandom read (4 bytes read, 10 bits of entropy available)

[ 7.147784] jffs2\_scan\_eraseblock(): End of filesystem marker found at 0x0

[ 7.158261] jffs2\_build\_filesystem(): unlocking the mtd device... done.

[ 7.164900] jffs2\_build\_filesystem(): erasing all blocks after the end marker...

[ 7.261486] device eth0 entered promiscuous mode

[ 7.267007] IPv6: ADDRCONF(NETDEV\_UP): br-lan: link is not ready

BusyBox v1.25.1 () built-in shell (ash)

\_\_\_\_\_\_\_\_\_

/ /\ \_ \_\_\_ \_\_\_ \_\_\_

/ LE / \ | | | \_\_| \| \_\_|

/ DE / \ | |\_\_| \_|| |) | \_|

/\_\_\_\_\_\_\_\_/ LE \ |\_\_\_\_|\_\_\_|\_\_\_/|\_\_\_| lede-project.org

\ \ DE /

\ LE \ / -----------------------------------------------------------

\ DE \ / Reboot (HEAD, r1262+805)

\\_\_\_\_\_\_\_\_\/ -----------------------------------------------------------

=== WARNING! =====================================

There is no root password defined on this device!

Use the "passwd" command to set up a new password

in order to prevent unauthorized SSH logins.

--------------------------------------------------

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:E0:0C:00:77:00

inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0

inet6 addr: fd90:1865:492::1/60 Scope:Global

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

eth0 Link encap:Ethernet HWaddr 00:E0:0C:00:77:00

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:6 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:1461 (1.4 KiB)

Memory:1ae0000-1ae0fff

eth1 Link encap:Ethernet HWaddr 00:E0:0C:00:77:01

inet addr:10.193.20.80 Bcast:10.193.20.255 Mask:255.255.255.0

inet6 addr: fe80::2e0:cff:fe00:7701/64 Scope:Link

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:164 errors:0 dropped:0 overruns:0 frame:0

TX packets:9 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:14035 (13.7 KiB) TX bytes:1754 (1.7 KiB)

Memory:1ae2000-1ae2fff

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

root@lede:/# ping 10.193.20.106

PING 10.193.20.106 (10.193.20.106): 56 data bytes

64 bytes from 10.193.20.106: seq=0 ttl=64 time=0.368 ms

64 bytes from 10.193.20.106: seq=1 ttl=64 time=0.170 ms

--- 10.193.20.106 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.170/0.269/0.368 ms

^Croot@lede:/#

root@lede:/# df

Filesystem 1K-blocks Used Available Use% Mounted on

/dev/root 3072 3072 0 100% /rom

tmpfs 963672 40 963632 0% /tmp

tmpfs 963672 20 963652 0% /tmp/root

overlayfs:/tmp/root 963672 20 963652 0% /

tmpfs 512 0 512 0% /dev

root@lede:/# [ 44.423201] random: nonblocking pool is initialized

root@lede:/# cat /proc/mtd

dev: size erasesize name

mtd0: 00100000 00020000 "rcw"

mtd1: 00100000 00020000 "u-boot"

mtd2: 00100000 00020000 "u-boot-env"

mtd3: 00100000 00020000 "fman"

mtd4: 00100000 00020000 "dtb"

mtd5: 00500000 00020000 "kernel"

mtd6: 03600000 00020000 "rootfs"

mtd7: 03320000 00020000 "rootfs\_data"

mtd8: 04000000 00020000 "otherbank"

mtd9: 20000000 00020000 "7e800000.flash"

root@lede:/# ls -l

drwxr-xr-x 2 root root 739 Nov 15 15:47 bin

drwxr-xr-x 4 root root 1720 Nov 15 15:47 dev

drwxr-xr-x 1 root root 120 Nov 15 15:47 etc

drwxrwxr-x 10 root root 387 Nov 15 15:47 lib

lrwxrwxrwx 1 root root 3 Nov 15 15:47 lib64 -> lib

drwxr-xr-x 2 root root 3 Nov 15 15:47 mnt

drwxr-xr-x 2 root root 3 Nov 15 15:47 overlay

dr-xr-xr-x 80 root root 0 Jan 1 1970 proc

drwxr-xr-x 16 root root 224 Nov 15 15:47 rom

drwxr-xr-x 2 root root 3 Nov 15 15:47 root

drwxr-xr-x 2 root root 640 Nov 15 15:47 sbin

dr-xr-xr-x 11 root root 0 Jan 1 1970 sys

drwxrwxrwt 12 root root 360 Nov 15 15:47 tmp

drwxr-xr-x 7 root root 102 Nov 15 15:47 usr

lrwxrwxrwx 1 root root 4 Nov 15 15:47 var -> /tmp

drwxr-xr-x 2 root root 3 Nov 15 15:47 www

root@lede:/# ls -l overlay/

root@lede:/#

root@lede:/# [ 73.734353] done.

[ 73.736280] jffs2: notice: (1076) jffs2\_build\_xattr\_subsystem: complete building xattr subsystem, 0 of xdatum (0 unchecked, 0 orphan) and 0 of xref (0 dead, 0 orphan) found.

root@lede:/#

root@lede:/# df

Filesystem 1K-blocks Used Available Use% Mounted on

/dev/root 3072 3072 0 100% /rom

tmpfs 963672 44 963628 0% /tmp

tmpfs 963672 20 963652 0% /tmp/root

tmpfs 512 0 512 0% /dev

/dev/mtdblock7 52352 1424 50928 3% /overlay

overlayfs:/overlay 52352 1424 50928 3% /

root@lede:/#

root@lede:/# ls -l overlay/

drwxr-xr-x 3 root root 0 Jan 1 1970 upper

drwxr-xr-x 3 root root 0 Nov 15 15:48 work

root@lede:/#

root@lede:/# reboot

root@lede:/# [ 87.083728] device eth0 left promiscuous mode

[ 87.088110] br-lan: port 1(eth0) entered disabled state

[ 87.110899] IPv6: ADDRCONF(NETDEV\_UP): eth0: link is not ready

[ 91.462410] reboot: Restarting system

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1043AE (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

I2C: ready

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 0

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd0b000

All (4) cores are up.

Using SERDES1 Protocol: 5205 (0x1455)

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

\*\*\* Warning - bad CRC, using default environment

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

SCSI: Error: SCSI Controller(s) 1B4B:9170 not found

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1, FM1@DTSEC2, FM1@DTSEC3 [PRIME], FM1@DTSEC4, FM1@DTSEC5, FM1@DTSEC6, FM1@TGEC1

Hit any key to stop autoboot: 0

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

bootcmd=run wrtboot

bootdelay=3

console=ttyAMA0,38400n8

eth1addr=00:e0:0c:00:77:01

eth2addr=00:e0:0c:00:77:02

eth3addr=00:e0:0c:00:77:03

eth4addr=00:e0:0c:00:77:04

eth5addr=00:e0:0c:00:77:05

eth6addr=00:e0:0c:00:77:06

ethact=FM1@DTSEC3

ethaddr=00:e0:0c:00:77:00

ethprime=FM1@DTSEC3

fdt\_high=0xffffffffffffffff

fdtaddr=8f000000

fdtcontroladdr=ffbc8738

fman\_ucode=60300000

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

kernel\_addr=0x100000

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0x61100000

loadaddr=82000000

mtdparts=mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

ramdisk\_addr=0x800000

ramdisk\_size=0x2000000

ramdiskaddr=88000000

stderr=serial

stdin=serial

stdout=serial

wrtboot=setenv bootargs root=/dev/mtdblock6 rootfstype=squashfs,jffs2 noinitrd earlycon=uart8250,mmio,0x21c0500 console=ttyS0,115200 mtdparts=60000000.nor:1M(rcw),1M(u-boot),1M(u-boot-env),1M(fman),1M(dtb),5M(kernel),54M(rootfs),64M(otherbank) && cp.b 60400000 $fdtaddr 100000 && cp.b 60500000 $loadaddr 500000 && bootm $loadaddr - $fdtaddr

wrtupdate=tftp a0000000 <tftp\_folder>/lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin && protect off all && erase 60000000 +4000000 && cp.b a0000000 60000000 $filesize && reset

Environment size: 2045/131068 bytes

=> cpld reset altbank?

U-Boot 2016.11-00005-g4c134be-dirty (Nov 15 2016 - 11:00:41 +0800)

SoC: LS1043AE Rev1.0 (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 4

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

I2C: ready

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

Using SERDES1 Protocol: 5205 (0x1455)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd13000

All (4) cores are up.

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1

Error: FM1@DTSEC1 address not set.

, FM1@DTSEC2

Error: FM1@DTSEC2 address not set.

, FM1@DTSEC3 [PRIME], FM1@DTSEC4

Error: FM1@DTSEC4 address not set.

, FM1@DTSEC5

Error: FM1@DTSEC5 address not set.

, FM1@DTSEC6

Error: FM1@DTSEC6 address not set.

, FM1@TGEC1

Error: FM1@TGEC1 address not set.

Hit any key to stop autoboot: 0

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

bootcmd=cp.b $kernel\_start $kernel\_load $kernel\_size && bootm $kernel\_load

bootdelay=10

console=ttyS0,115200

eth2addr=00:00:00:01:02:03

ethact=FM1@DTSEC3

ethprime=FM1@DTSEC3

fdt\_high=0xffffffffffffffff

fdtcontroladdr=ffbd0760

fman\_ucode=60300000

houboot=tftp a0000000 houzq/ls1043ardb/kernel-ls1043a-rdb.itb.sdk2.0&&bootm

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

ipaddr=10.193.20.127

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0x61100000

loadaddr=0x80100000

mtdparts=mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

serverip=10.192.208.233

stderr=serial

stdin=serial

stdout=serial

Environment size: 1413/131068 bytes

=> setenv ethaddr 00:04:9f:04:aa:22

=> setenv eth1addr 00:04:9f:04:aa:23

=> setenv serverip 10.192.208.142

=> setenv ipaddr 10.193.20.244

=> setenv ethact FM1@DTSEC2

=> ping 10.192.208.142

Using FM1@DTSEC2 device

ping failed; host 10.192.208.142 is not alive

=> ping 10.192.208.142

Using FM1@DTSEC2 device

host 10.192.208.142 is alive

=> tftp a0000000 jyt/openwrt/ls1043/lede-layerscape-32b-ls1043ardb-squashfs-firmware.bin && protect off all && erase 60000000 +4000000 && cp.b a0000000 60000000 $filesize

Using FM1@DTSEC2 device

TFTP from server 10.192.208.142; our IP address is 10.193.20.244

Filename 'jyt/openwrt/ls1043/lede-layerscape-32b-ls1043ardb-squashfs-firmware.bin'.

Load address: 0xa0000000

Loading: #################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#################################################################

#

6.8 MiB/s

done

Bytes transferred = 13369348 (cc0004 hex)

Un-Protect Flash Bank # 1

................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................ done

Erased 512 sectors

Copy to Flash... 9....8....7....6....5....4....3....2....1....done

=> reset

resetting ...

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1043AE (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

I2C: ready

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 0

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd0b000

All (4) cores are up.

Using SERDES1 Protocol: 5205 (0x1455)

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

\*\*\* Warning - bad CRC, using default environment

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

SCSI: Error: SCSI Controller(s) 1B4B:9170 not found

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1, FM1@DTSEC2, FM1@DTSEC3 [PRIME], FM1@DTSEC4, FM1@DTSEC5, FM1@DTSEC6, FM1@TGEC1

Hit any key to stop autoboot: 0

=> cpld reset altbank?

U-Boot 2016.01 (Oct 27 2016 - 22:06:10 +0000)

SoC: LS1043AE (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

I2C: ready

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 4

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd0b000

All (4) cores are up.

Using SERDES1 Protocol: 5205 (0x1455)

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

\*\*\* Warning - bad CRC, using default environment

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

SCSI: Error: SCSI Controller(s) 1B4B:9170 not found

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1, FM1@DTSEC2, FM1@DTSEC3 [PRIME], FM1@DTSEC4, FM1@DTSEC5, FM1@DTSEC6, FM1@TGEC1

Hit any key to stop autoboot: 0

=> pri

baudrate=115200

bootargs=console=ttyS0,115200 root=/dev/ram0 earlycon=uart8250,mmio,0x21c0500 mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

bootcmd=run wrtboot

bootdelay=3

console=ttyAMA0,38400n8

eth1addr=00:e0:0c:00:77:01

eth2addr=00:e0:0c:00:77:02

eth3addr=00:e0:0c:00:77:03

eth4addr=00:e0:0c:00:77:04

eth5addr=00:e0:0c:00:77:05

eth6addr=00:e0:0c:00:77:06

ethact=FM1@DTSEC3

ethaddr=00:e0:0c:00:77:00

ethprime=FM1@DTSEC3

fdt\_high=0xffffffffffffffff

fdtaddr=8f000000

fdtcontroladdr=ffbc8738

fman\_ucode=60300000

hwconfig=fsl\_ddr:bank\_intlv=auto

initrd\_high=0xffffffffffffffff

kernel\_addr=0x100000

kernel\_load=0xa0000000

kernel\_size=0x2800000

kernel\_start=0x61100000

loadaddr=82000000

mtdparts=mtdparts=60000000.nor:1m(nor\_bank0\_rcw),1m(nor\_bank0\_uboot),1m(nor\_bank0\_uboot\_env),1m(nor\_bank0\_fman\_uconde),40m(nor\_bank0\_fit),1m(nor\_bank4\_rcw),1m(nor\_bank4\_uboot),1m(nor\_bank4\_uboot\_env),1m(nor\_bank4\_fman\_ucode),40m(nor\_bank4\_fit);7e800000.flash:1m(nand\_uboot),1m(nand\_uboot\_env),20m(nand\_fit);spi0.0:1m(uboot),5m(kernel),1m(dtb),9m(file\_system)

ramdisk\_addr=0x800000

ramdisk\_size=0x2000000

ramdiskaddr=88000000

stderr=serial

stdin=serial

stdout=serial

wrtboot=setenv bootargs root=/dev/mtdblock6 rootfstype=squashfs,jffs2 noinitrd earlycon=uart8250,mmio,0x21c0500 console=ttyS0,115200 mtdparts=60000000.nor:1M(rcw),1M(u-boot),1M(u-boot-env),1M(fman),1M(dtb),5M(kernel),54M(rootfs),64M(otherbank) && cp.b 60400000 $fdtaddr 100000 && cp.b 60500000 $loadaddr 500000 && bootm $loadaddr - $fdtaddr

wrtupdate=tftp a0000000 <tftp\_folder>/lede-layerscape-64b-ls1043ardb-squashfs-firmware.bin && protect off all && erase 60000000 +4000000 && cp.b a0000000 60000000 $filesize && reset

Environment size: 2045/131068 bytes

=> boot

## Booting kernel from Legacy Image at 82000000 ...

Image Name: ARM LEDE Linux-4.4.28

Image Type: ARM Linux Kernel Image (gzip compressed)

Data Size: 2818414 Bytes = 2.7 MiB

Load Address: 80008000

Entry Point: 80008000

Verifying Checksum ... OK

## Flattened Device Tree blob at 8f000000

Booting using the fdt blob at 0x8f000000

Uncompressing Kernel Image ... OK

Using Device Tree in place at 000000008f000000, end 000000008f0197c6

Starting kernel ...

[ 0.000000] Booting Linux on physical CPU 0x0

[ 0.000000] Linux version 4.4.28 (jyt@BP) (gcc version 5.4.0 (LEDE GCC 5.4.0 r1262+664) ) #0 SMP Tue Nov 15 15:47:45 2016

[ 0.000000] CPU: ARMv7 Processor [410fd034] revision 4 (ARMv7), cr=30c5383d

[ 0.000000] CPU: PIPT / VIPT nonaliasing data cache, VIPT aliasing instruction cache

[ 0.000000] Machine model: LS1043A RDB Board

[ 0.000000] Truncating RAM at 0x0000000080000000-0x00000000ffe00000 to -0x00000000b0000000

[ 0.000000] Consider using a HIGHMEM enabled kernel.

[ 0.000000] Reserved memory: initialized node qman-fqd, compatible id fsl,qman-fqd

[ 0.000000] Reserved memory: initialized node qman-pfdr, compatible id fsl,qman-pfdr

[ 0.000000] Reserved memory: initialized node bman-fbpr, compatible id fsl,bman-fbpr

[ 0.000000] Forcing write-allocate cache policy for SMP

[ 0.000000] Memory policy: Data cache writealloc

[ 0.000000] PERCPU: Embedded 12 pages/cpu @ef1b2000 s19328 r8192 d21632 u49152

[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 195072

[ 0.000000] Kernel command line: root=/dev/mtdblock6 rootfstype=squashfs,jffs2 noinitrd earlycon=uart8250,mmio,0x21c0500 console=ttyS0,115200 mtdparts=60000000.nor:1M(rcw),1M(u-boot),1M(u-boot-env),1M(fman),1M(dtb),5M(kernel),54M(rootfs),64M(otherbank)

[ 0.000000] PID hash table entries: 4096 (order: 2, 16384 bytes)

[ 0.000000] Dentry cache hash table entries: 131072 (order: 7, 524288 bytes)

[ 0.000000] Inode-cache hash table entries: 65536 (order: 6, 262144 bytes)

[ 0.000000] Memory: 715068K/786432K available (4286K kernel code, 144K rwdata, 1552K rodata, 256K init, 462K bss, 71364K reserved, 0K cma-reserved)

[ 0.000000] Virtual kernel memory layout:

[ 0.000000] vector : 0xffff0000 - 0xffff1000 ( 4 kB)

[ 0.000000] fixmap : 0xffc00000 - 0xfff00000 (3072 kB)

[ 0.000000] vmalloc : 0xf0800000 - 0xff800000 ( 240 MB)

[ 0.000000] lowmem : 0xc0000000 - 0xf0000000 ( 768 MB)

[ 0.000000] modules : 0xbf000000 - 0xc0000000 ( 16 MB)

[ 0.000000] .text : 0xc0008000 - 0xc05bbeb4 (5840 kB)

[ 0.000000] .init : 0xc05bc000 - 0xc05fc000 ( 256 kB)

[ 0.000000] .data : 0xc05fc000 - 0xc062016c ( 145 kB)

[ 0.000000] .bss : 0xc062016c - 0xc0693af8 ( 463 kB)

[ 0.000000] SLUB: HWalign=64, Order=0-3, MinObjects=0, CPUs=4, Nodes=1

[ 0.000000] Hierarchical RCU implementation.

[ 0.000000] NR\_IRQS:16 nr\_irqs:16 16

[ 0.000000] GIC: Using split EOI/Deactivate mode

[ 0.000000] Architected cp15 timer(s) running at 25.00MHz (phys).

[ 0.000000] clocksource: arch\_sys\_counter: mask: 0xffffffffffffff max\_cycles: 0x5c40939b5, max\_idle\_ns: 440795202646 ns

[ 0.000002] sched\_clock: 56 bits at 25MHz, resolution 40ns, wraps every 4398046511100ns

[ 0.000008] Switching to timer-based delay loop, resolution 40ns

[ 0.000678] Calibrating delay loop (skipped), value calculated using timer frequency.. 50.00 BogoMIPS (lpj=250000)

[ 0.000685] pid\_max: default: 32768 minimum: 301

[ 0.000723] Mount-cache hash table entries: 2048 (order: 1, 8192 bytes)

[ 0.000728] Mountpoint-cache hash table entries: 2048 (order: 1, 8192 bytes)

[ 0.000967] CPU: Testing write buffer coherency: ok

[ 0.001093] CPU0: thread -1, cpu 0, socket 0, mpidr 80000000

[ 0.001109] Setting up static identity map for 0x800082c0 - 0x800082f4

[ 0.001696] CPU1: thread -1, cpu 1, socket 0, mpidr 80000001

[ 0.001933] CPU2: thread -1, cpu 2, socket 0, mpidr 80000002

[ 0.002164] CPU3: thread -1, cpu 3, socket 0, mpidr 80000003

[ 0.002187] Brought up 4 CPUs

[ 0.002196] SMP: Total of 4 processors activated (200.00 BogoMIPS).

[ 0.002199] CPU: All CPU(s) started in HYP mode.

[ 0.002202] CPU: Virtualization extensions available.

[ 0.005589] VFP support v0.3: implementor 41 architecture 3 part 40 variant 3 rev 4

[ 0.005670] clocksource: jiffies: mask: 0xffffffff max\_cycles: 0xffffffff, max\_idle\_ns: 19112604462750000 ns

[ 0.005712] pinctrl core: initialized pinctrl subsystem

[ 0.005991] NET: Registered protocol family 16

[ 0.006140] DMA: preallocated 256 KiB pool for atomic coherent allocations

[ 0.006359] Bman ver:0a02,02,01

[ 0.009197] qman-fqd addr 0xaf800000 size 0x800000

[ 0.009201] qman-pfdr addr 0xac000000 size 0x2000000

[ 0.009206] Qman ver:0a01,03,02,00

[ 0.040418] SCSI subsystem initialized

[ 0.040561] usbcore: registered new interface driver usbfs

[ 0.040593] usbcore: registered new interface driver hub

[ 0.040620] usbcore: registered new device driver usb

[ 0.041014] i2c i2c-0: IMX I2C adapter registered

[ 0.041019] i2c i2c-0: can't use DMA

[ 0.041138] pps\_core: LinuxPPS API ver. 1 registered

[ 0.041142] pps\_core: Software ver. 5.3.6 - Copyright 2005-2007 Rodolfo Giometti <giometti@linux.it>

[ 0.041157] PTP clock support registered

[ 0.041259] bman-fbpr addr 0xae000000 size 0x1000000

[ 0.041281] Bman err interrupt handler present

[ 0.041670] Bman portal initialised, cpu 0

[ 0.041721] Bman portal initialised, cpu 1

[ 0.041777] Bman portal initialised, cpu 2

[ 0.041826] Bman portal initialised, cpu 3

[ 0.041830] Bman portals initialised

[ 0.042937] Qman err interrupt handler present

[ 0.043762] Qman portal initialised, cpu 0

[ 0.044207] Qman portal initialised, cpu 1

[ 0.044651] Qman portal initialised, cpu 2

[ 0.045094] Qman portal initialised, cpu 3

[ 0.045097] Qman portals initialised

[ 0.045211] Bman: BPID allocator includes range 32:32

[ 0.045263] Qman: FQID allocator includes range 256:256

[ 0.045268] Qman: FQID allocator includes range 32768:32768

[ 0.045325] Qman: CGRID allocator includes range 0:256

[ 0.045456] Qman: pool channel allocator includes range 1025:15

[ 0.045529] No USDPAA memory, no 'fsl,usdpaa-mem' in device-tree

[ 0.045564] fsl-ifc 1530000.ifc: Freescale Integrated Flash Controller

[ 0.045575] fsl-ifc 1530000.ifc: IFC version 1.4, 8 banks

[ 0.046112] clocksource: Switched to clocksource arch\_sys\_counter

[ 0.046647] NET: Registered protocol family 2

[ 0.046882] TCP established hash table entries: 8192 (order: 3, 32768 bytes)

[ 0.046924] TCP bind hash table entries: 8192 (order: 4, 65536 bytes)

[ 0.046995] TCP: Hash tables configured (established 8192 bind 8192)

[ 0.047022] UDP hash table entries: 512 (order: 2, 16384 bytes)

[ 0.047040] UDP-Lite hash table entries: 512 (order: 2, 16384 bytes)

[ 0.047119] NET: Registered protocol family 1

[ 0.047647] futex hash table entries: 1024 (order: 4, 65536 bytes)

[ 0.047710] No memory allocated for crashlog

[ 0.050967] squashfs: version 4.0 (2009/01/31) Phillip Lougher

[ 0.050978] jffs2: version 2.2 (NAND) (SUMMARY) (LZMA) (RTIME) (CMODE\_PRIORITY) (c) 2001-2006 Red Hat, Inc.

[ 0.051554] io scheduler noop registered

[ 0.051561] io scheduler deadline registered (default)

[ 0.052279] PCI host bridge /soc/pcie@3500000 ranges:

[ 0.052293] IO 0x4800010000..0x480001ffff -> 0x00000000

[ 0.052301] MEM 0x4840000000..0x487fffffff -> 0x40000000

[ 0.052395] layerscape-pcie 3500000.pcie: PCI host bridge to bus 0000:00

[ 0.052403] pci\_bus 0000:00: root bus resource [bus 00-ff]

[ 0.052409] pci\_bus 0000:00: root bus resource [io 0x0000-0xffff]

[ 0.052416] pci\_bus 0000:00: root bus resource [mem 0x4840000000-0x487fffffff] (bus address [0x40000000-0x7fffffff])

[ 0.052580] PCI: bus0: Fast back to back transfers disabled

[ 0.052627] PCI: bus1: Fast back to back transfers enabled

[ 0.052669] pci 0000:00:00.0: BAR 1: assigned [mem 0x4840000000-0x4843ffffff]

[ 0.052677] pci 0000:00:00.0: BAR 0: assigned [mem 0x4844000000-0x4844ffffff]

[ 0.052685] pci 0000:00:00.0: BAR 6: assigned [mem 0x4845000000-0x4845ffffff pref]

[ 0.052691] pci 0000:00:00.0: PCI bridge to [bus 01]

[ 0.052865] PCI host bridge /soc/pcie@3600000 ranges:

[ 0.052875] IO 0x5000010000..0x500001ffff -> 0x00000000

[ 0.052881] MEM 0x5040000000..0x507fffffff -> 0x40000000

[ 0.052953] layerscape-pcie 3600000.pcie: PCI host bridge to bus 0001:00

[ 0.052959] pci\_bus 0001:00: root bus resource [bus 00-ff]

[ 0.052965] pci\_bus 0001:00: root bus resource [io 0x10000-0x1ffff] (bus address [0x0000-0xffff])

[ 0.052972] pci\_bus 0001:00: root bus resource [mem 0x5040000000-0x507fffffff] (bus address [0x40000000-0x7fffffff])

[ 0.053118] PCI: bus0: Fast back to back transfers disabled

[ 0.053161] PCI: bus1: Fast back to back transfers enabled

[ 0.053195] pci 0001:00:00.0: BAR 1: assigned [mem 0x5040000000-0x5043ffffff]

[ 0.053203] pci 0001:00:00.0: BAR 0: assigned [mem 0x5044000000-0x5044ffffff]

[ 0.053211] pci 0001:00:00.0: BAR 6: assigned [mem 0x5045000000-0x5045ffffff pref]

[ 0.053216] pci 0001:00:00.0: PCI bridge to [bus 01]

[ 0.053503] Serial: 8250/16550 driver, 2 ports, IRQ sharing disabled

[ 0.054014] console [ttyS0] disabled

[ 0.054030] 21c0500.serial: ttyS0 at MMIO 0x21c0500 (irq = 33, base\_baud = 25000000) is a 16550A

[ 0.854671] console [ttyS0] enabled

[ 0.858283] 21c0600.serial: ttyS1 at MMIO 0x21c0600 (irq = 33, base\_baud = 25000000) is a 16550A

[ 0.867162] of\_serial: probe of 21d0500.serial failed with error -28

[ 0.873543] of\_serial: probe of 21d0600.serial failed with error -28

[ 0.882624] loop: module loaded

[ 0.886795] 60000000.nor: Found 1 x16 devices at 0x0 in 16-bit bank. Manufacturer ID 0x000089 Chip ID 0x00227e

[ 0.896793] Amd/Fujitsu Extended Query Table at 0x0040

[ 0.901928] Amd/Fujitsu Extended Query version 1.3.

[ 0.906974] number of CFI chips: 1

[ 0.910376] 8 cmdlinepart partitions found on MTD device 60000000.nor

[ 0.916809] Creating 8 MTD partitions on "60000000.nor":

[ 0.922112] 0x000000000000-0x000000100000 : "rcw"

[ 0.927116] 0x000000100000-0x000000200000 : "u-boot"

[ 0.932362] 0x000000200000-0x000000300000 : "u-boot-env"

[ 0.937962] 0x000000300000-0x000000400000 : "fman"

[ 0.943052] 0x000000400000-0x000000500000 : "dtb"

[ 0.948059] 0x000000500000-0x000000a00000 : "kernel"

[ 0.953332] 0x000000a00000-0x000004000000 : "rootfs"

[ 0.958608] mtd: device 6 (rootfs) set to be root filesystem

[ 0.964269] 1 squashfs-split partitions found on MTD device rootfs

[ 0.970447] 0x000000ca0000-0x000004000000 : "rootfs\_data"

[ 0.976166] 0x000004000000-0x000008000000 : "otherbank"

[ 0.982248] nand: device found, Manufacturer ID: 0x2c, Chip ID: 0xac

[ 0.988597] nand: Micron MT29F4G08ABBDAH4

[ 0.992597] nand: 512 MiB, SLC, erase size: 128 KiB, page size: 2048, OOB size: 64

[ 1.000407] Bad block table found at page 262080, version 0x01

[ 1.006673] Bad block table found at page 262016, version 0x01

[ 1.013152] fsl,ifc-nand 7e800000.nand: IFC NAND device at 0x7e800000, bank 1

[ 1.021074] libphy: Fixed MDIO Bus: probed

[ 1.025745] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.032103] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.038602] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.043607] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.048620] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.053626] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.058636] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.063640] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.068651] libphy: Freescale XGMAC MDIO Bus: probed

[ 1.085512] Freescale FM module, FMD API version 21.1.0

[ 1.092880] Freescale FM Ports module

[ 1.096541] fsl\_mac: fsl\_mac: FSL FMan MAC API based driver

[ 1.102464] fsl\_mac 1ae0000.ethernet: FMan MEMAC

[ 1.107083] fsl\_mac 1ae0000.ethernet: FMan MAC address: 00:e0:0c:00:77:00

[ 1.114159] fsl\_mac 1ae2000.ethernet: FMan MEMAC

[ 1.118775] fsl\_mac 1ae2000.ethernet: FMan MAC address: 00:e0:0c:00:77:01

[ 1.125609] fsl\_mac 1ae4000.ethernet: FMan MEMAC

[ 1.130224] fsl\_mac 1ae4000.ethernet: FMan MAC address: 00:e0:0c:00:77:02

[ 1.137062] fsl\_mac 1ae6000.ethernet: FMan MEMAC

[ 1.141673] fsl\_mac 1ae6000.ethernet: FMan MAC address: 00:e0:0c:00:77:03

[ 1.148754] fsl\_mac 1ae8000.ethernet: FMan MEMAC

[ 1.153364] fsl\_mac 1ae8000.ethernet: FMan MAC address: 00:e0:0c:00:77:04

[ 1.160449] fsl\_mac 1aea000.ethernet: FMan MEMAC

[ 1.165060] fsl\_mac 1aea000.ethernet: FMan MAC address: 00:e0:0c:00:77:05

[ 1.171904] fsl\_mac 1af0000.ethernet: FMan MEMAC

[ 1.176520] fsl\_mac 1af0000.ethernet: FMan MAC address: 00:e0:0c:00:77:06

[ 1.183392] fsl\_dpa: FSL DPAA Ethernet driver

[ 1.189374] fsl\_dpa: fsl\_dpa: Probed interface eth0

[ 1.195287] fsl\_dpa: fsl\_dpa: Probed interface eth1

[ 1.201224] fsl\_dpa: fsl\_dpa: Probed interface eth2

[ 1.207159] fsl\_dpa: fsl\_dpa: Probed interface eth3

[ 1.213090] fsl\_dpa: fsl\_dpa: Probed interface eth4

[ 1.219042] fsl\_dpa: fsl\_dpa: Probed interface eth5

[ 1.224989] fsl\_dpa: fsl\_dpa: Probed interface eth6

[ 1.229925] fsl\_advanced: FSL DPAA Advanced drivers:

[ 1.234880] fsl\_proxy: FSL DPAA Proxy initialization driver

[ 1.240580] fsl\_dpa\_shared: FSL DPAA Shared Ethernet driver

[ 1.246252] fsl\_dpa\_macless: FSL DPAA MACless Ethernet driver

[ 1.252086] fsl\_oh: FSL FMan Offline Parsing port driver

[ 1.257627] i2c /dev entries driver

[ 1.261377] sdhci: Secure Digital Host Controller Interface driver

[ 1.267551] sdhci: Copyright(c) Pierre Ossman

[ 1.271899] sdhci-pltfm: SDHCI platform and OF driver helper

[ 1.278659] sdhci-esdhc 1560000.esdhc: No vmmc regulator found

[ 1.284481] sdhci-esdhc 1560000.esdhc: No vqmmc regulator found

[ 1.346111] mmc0: SDHCI controller on 1560000.esdhc [1560000.esdhc] using ADMA 64-bit

[ 1.358725] Freescale USDPAA process driver

[ 1.362901] fsl-usdpaa: no region found

[ 1.368740] Freescale USDPAA process IRQ driver

[ 1.377784] NET: Registered protocol family 10

[ 1.386888] NET: Registered protocol family 17

[ 1.391342] bridge: automatic filtering via arp/ip/ip6tables has been deprecated. Update your scripts to load br\_netfilter if you need this.

[ 1.403943] 8021q: 802.1Q VLAN Support v1.8

[ 1.408180] Registering SWP/SWPB emulation handler

[ 1.415238] fsl\_generic: FSL DPAA Generic Ethernet driver

[ 1.422757] hctosys: unable to open rtc device (rtc0)

[ 1.432272] fdt: not creating '/sys/firmware/fdt': CRC check failed

[ 1.442162] VFS: Mounted root (squashfs filesystem) readonly on device 31:6.

[ 1.449398] Freeing unused kernel memory: 256K (c05bc000 - c05fc000)

[ 1.854860] init: Console is alive

[ 2.569164] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 2.574655] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 1

[ 2.582386] xhci-hcd xhci-hcd.0.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 2.591099] xhci-hcd xhci-hcd.0.auto: irq 42, io mem 0x02f00000

[ 2.597278] hub 1-0:1.0: USB hub found

[ 2.601028] hub 1-0:1.0: 1 port detected

[ 2.605043] xhci-hcd xhci-hcd.0.auto: xHCI Host Controller

[ 2.610529] xhci-hcd xhci-hcd.0.auto: new USB bus registered, assigned bus number 2

[ 2.618205] usb usb2: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.626507] hub 2-0:1.0: USB hub found

[ 2.630257] hub 2-0:1.0: 1 port detected

[ 2.634284] xhci-hcd xhci-hcd.1.auto: xHCI Host Controller

[ 2.639776] xhci-hcd xhci-hcd.1.auto: new USB bus registered, assigned bus number 3

[ 2.647501] xhci-hcd xhci-hcd.1.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 2.656209] xhci-hcd xhci-hcd.1.auto: irq 43, io mem 0x03000000

[ 2.662355] hub 3-0:1.0: USB hub found

[ 2.666110] hub 3-0:1.0: 1 port detected

[ 2.670121] xhci-hcd xhci-hcd.1.auto: xHCI Host Controller

[ 2.675601] xhci-hcd xhci-hcd.1.auto: new USB bus registered, assigned bus number 4

[ 2.683276] usb usb4: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.691585] hub 4-0:1.0: USB hub found

[ 2.695334] hub 4-0:1.0: 1 port detected

[ 2.699388] xhci-hcd xhci-hcd.2.auto: xHCI Host Controller

[ 2.704870] xhci-hcd xhci-hcd.2.auto: new USB bus registered, assigned bus number 5

[ 2.712600] xhci-hcd xhci-hcd.2.auto: hcc params 0x0220f66d hci version 0x100 quirks 0x00010010

[ 2.721306] xhci-hcd xhci-hcd.2.auto: irq 44, io mem 0x03100000

[ 2.727468] hub 5-0:1.0: USB hub found

[ 2.731218] hub 5-0:1.0: 1 port detected

[ 2.735226] xhci-hcd xhci-hcd.2.auto: xHCI Host Controller

[ 2.740711] xhci-hcd xhci-hcd.2.auto: new USB bus registered, assigned bus number 6

[ 2.748386] usb usb6: We don't know the algorithms for LPM for this host, disabling LPM.

[ 2.756711] hub 6-0:1.0: USB hub found

[ 2.760474] hub 6-0:1.0: 1 port detected

[ 2.765159] usbcore: registered new interface driver usb-storage

[ 2.786186] init: - preinit -

[ 2.994726] random: jshn: uninitialized urandom read (4 bytes read, 1 bits of entropy available)

[ 3.011332] random: jshn: uninitialized urandom read (4 bytes read, 1 bits of entropy available)

[ 3.056143] usb usb5-port1: over-current condition

[ 3.076122] usb usb6-port1: over-current condition

Press the [f] key and hit [enter] to enter failsafe mode

Press the [1], [2], [3] or [4] key and hit [enter] to select the debug level

[ 3.412484] random: nonblocking pool is initialized

[ 6.204906] mount\_root: jffs2 not ready yet, using temporary tmpfs overlay

[ 6.212769] urandom-seed: Seed file not found (/etc/urandom.seed)

[ 6.267996] procd: - early -

[ 6.896423] procd: - ubus -

[ 6.956629] procd: - init -

Please press Enter to activate this console.

[ 8.511424] jffs2\_scan\_eraseblock(): End of filesystem marker found at 0x0

[ 8.518579] jffs2\_build\_filesystem(): unlocking the mtd device... done.

[ 8.525191] jffs2\_build\_filesystem(): erasing all blocks after the end marker...

[ 8.636624] device eth0 entered promiscuous mode

[ 8.642217] IPv6: ADDRCONF(NETDEV\_UP): br-lan: link is not ready

BusyBox v1.25.1 () built-in shell (ash)

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\ \ DE /

\ LE \ / -----------------------------------------------------------

\ DE \ / Reboot (HEAD, r1262+805)

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=== WARNING! =====================================

There is no root password defined on this device!

Use the "passwd" command to set up a new password

in order to prevent unauthorized SSH logins.

--------------------------------------------------

root@lede:/# ifconfig

br-lan Link encap:Ethernet HWaddr 00:E0:0C:00:77:00

inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0

inet6 addr: fd7c:3e87:d0b8::1/60 Scope:Global

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

eth0 Link encap:Ethernet HWaddr 00:E0:0C:00:77:00

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:6 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:1461 (1.4 KiB)

Memory:1ae0000-1ae0fff

eth1 Link encap:Ethernet HWaddr 00:E0:0C:00:77:01

inet addr:10.193.20.80 Bcast:10.193.20.255 Mask:255.255.255.0

inet6 addr: fe80::2e0:cff:fe00:7701/64 Scope:Link

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:309 errors:0 dropped:0 overruns:0 frame:0

TX packets:10 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:21001 (20.5 KiB) TX bytes:1844 (1.8 KiB)

Memory:1ae2000-1ae2fff

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

inet6 addr: ::1/128 Scope:Host

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

root@lede:/# ping 10.193.20.106

PING 10.193.20.106 (10.193.20.106): 56 data bytes

64 bytes from 10.193.20.106: seq=0 ttl=64 time=0.293 ms

64 bytes from 10.193.20.106: seq=1 ttl=64 time=0.769 ms

^C

--- 10.193.20.106 ping statistics ---

2 packets transmitted, 2 packets received, 0% packet loss

round-trip min/avg/max = 0.293/0.531/0.769 ms

root@lede:/# df

Filesystem 1K-blocks Used Available Use% Mounted on

/dev/root 2816 2816 0 100% /rom

tmpfs 357660 40 357620 0% /tmp

tmpfs 357660 20 357640 0% /tmp/root

overlayfs:/tmp/root 357660 20 357640 0% /

tmpfs 512 0 512 0% /dev

root@lede:/#

root@lede:/# cat /proc/mtd

dev: size erasesize name

mtd0: 00100000 00020000 "rcw"

mtd1: 00100000 00020000 "u-boot"

mtd2: 00100000 00020000 "u-boot-env"

mtd3: 00100000 00020000 "fman"

mtd4: 00100000 00020000 "dtb"

mtd5: 00500000 00020000 "kernel"

mtd6: 03600000 00020000 "rootfs"

mtd7: 03360000 00020000 "rootfs\_data"

mtd8: 04000000 00020000 "otherbank"

mtd9: 20000000 00020000 "7e800000.flash"

root@lede:/#

root@lede:/# ls -l

drwxr-xr-x 2 root root 739 Nov 15 15:47 bin

drwxr-xr-x 4 root root 1700 Nov 15 15:47 dev

drwxr-xr-x 1 root root 120 Nov 15 15:47 etc

drwxrwxr-x 10 root root 383 Nov 15 15:47 lib

drwxr-xr-x 2 root root 3 Nov 15 15:47 mnt

drwxr-xr-x 2 root root 3 Nov 15 15:47 overlay

dr-xr-xr-x 80 root root 0 Jan 1 1970 proc

drwxr-xr-x 16 root root 211 Nov 15 15:47 rom

drwxr-xr-x 2 root root 3 Nov 15 15:47 root

drwxr-xr-x 2 root root 652 Nov 15 15:47 sbin

dr-xr-xr-x 11 root root 0 Jan 1 1970 sys

drwxrwxrwt 12 root root 360 Nov 15 15:47 tmp

drwxr-xr-x 7 root root 77 Nov 15 15:47 usr

lrwxrwxrwx 1 root root 4 Nov 15 15:47 var -> /tmp

drwxr-xr-x 2 root root 3 Nov 15 15:47 www

root@lede:/# ls -l overlay/

root@lede:/#

root@lede:/# [ 74.339875] done.

[ 74.341806] jffs2: notice: (1024) jffs2\_build\_xattr\_subsystem: complete building xattr subsystem, 0 of xdatum (0 unchecked, 0 orphan) and 0 of xref (0 dead, 0 orphan) found.

root@lede:/#

root@lede:/# df

Filesystem 1K-blocks Used Available Use% Mounted on

/dev/root 2816 2816 0 100% /rom

tmpfs 357660 44 357616 0% /tmp

tmpfs 357660 20 357640 0% /tmp/root

tmpfs 512 0 512 0% /dev

/dev/mtdblock7 52608 1424 51184 3% /overlay

overlayfs:/overlay 52608 1424 51184 3% /

root@lede:/#

root@lede:/# ls -l overlay/

drwxr-xr-x 3 root root 0 Jan 1 1970 upper

drwxr-xr-x 3 root root 0 Nov 15 15:48 work

root@lede:/#

root@lede:/#

root@lede:/# reboot

root@lede:/# [ 84.982497] device eth0 left promiscuous mode

[ 84.986898] br-lan: port 1(eth0) entered disabled state

[ 85.016231] IPv6: ADDRCONF(NETDEV\_UP): eth0: link is not ready

[ 89.446457] reboot: Restarting system

U-Boot 2016.01 (Nov 15 2016 - 15:47:45 +0000)

SoC: LS1043AE (0x87920010)

Clock Configuration:

CPU0(A53):1600 MHz CPU1(A53):1600 MHz CPU2(A53):1600 MHz

CPU3(A53):1600 MHz

Bus: 400 MHz DDR: 1600 MT/s FMAN: 500 MHz

Reset Configuration Word (RCW):

00000000: 08100010 0a000000 00000000 00000000

00000010: 14550002 80004012 e0025000 c1002000

00000020: 00000000 00000000 00000000 00038800

00000030: 00000000 00001101 00000096 00000001

I2C: ready

Model: LS1043A RDB Board

Board: LS1043ARDB, boot from vBank 0

CPLD: V1.4

PCBA: V1.0

SERDES Reference Clocks:

SD1\_CLK1 = 156.25MHZ, SD1\_CLK2 = 100.00MHZ

DRAM: Initializing DDR....

Detected UDIMM Fixed DDR on board

2 GiB (DDR4, 32-bit, CL=11, ECC off)

SEC0: RNG instantiated

Not a microcode

Waking secondary cores to start from ffd0b000

All (4) cores are up.

Using SERDES1 Protocol: 5205 (0x1455)

Flash: 128 MiB

NAND: 512 MiB

MMC: FSL\_SDHC: 0

\*\*\* Warning - bad CRC, using default environment

EEPROM: Invalid ID (5a 5a 5a 5a)

PCIe1: disabled

PCIe2: Root Complex no link, regs @ 0x3500000

PCIe3: Root Complex no link, regs @ 0x3600000

In: serial

Out: serial

Err: serial

SCSI: Error: SCSI Controller(s) 1B4B:9170 not found

Net: Fman1: Uploading microcode version 108.4.5

FM1@DTSEC1, FM1@DTSEC2, FM1@DTSEC3 [PRIME], FM1@DTSEC4, FM1@DTSEC5, FM1@DTSEC6, FM1@TGEC1

Hit any key to stop autoboot: 0

=>