SYSLIB

Release Notes

TEXAS INSTRUMENTS

Document License

Contents

SYSLIB 4.00.00.00-Alpha

1 INTRODUCTION

1.1 Overview

This document provides the release information for the SYSLIB software package. The SYSLIB package includes the following:-

- SYSLIB Release Notes
- SYSLIB User's Guide
- Source code of all SYSLIB components
- Pre-built libraries (Little Endian) of all SYSLIB components
- API reference guide
- Software Manifest

This is an engineering tested alpha release package. Release notes from previous releases are also available in the release notes archive directory

2 RELEASE OVERVIEW

2.1 Hardware Device Support

The device and platforms tested for this release include:

- TMDXEVM6638lxe

2.2 Components and Tools

The SYSLIB package is verified/tested using the **MCSDK 3.01.02.05** package. Please refer to the MCSDK Release notes for a list of all the component information. The following is the list of additional packages which were used to test the release:

1. SNOW3G 1.0.0.2
2. CUIA 1.01.00.06 Custom

3. UIA 2_00_03_40_eng

4. [SA3GPP Enabler 3.0.0.0](#)

The SYSLIB supports **only the RT kernel** from the MCSDK release. Please use the RT DEVKIT for the development of user space applications.

2.3 Licensing

Please refer to the software manifest

2.4 MCSDK Patches

Please ensure that the following environment variable is defined and saved in the UBOOT environment:-

```
setenv mem_reserve 1536M
```

This will ensure that the kernel reserved the higher order 1.5GB of memory for the DSP. Failure to do so will result in the kernel overwriting DSP memory.

The SYSLIB release modifies the default MCSDK released kernel DTS files. The kernel DTS files have been modified for the following features:-

- GIC Queues 8722 to 8735 were originally reserved for the Linux kernel. These queues are not used by the Linux kernel so these have been marked as unreserved and could not be used by the ARM applications

- Wiring of the GIC Queue and INTC_SET2 interrupt queues from using the UIO module.

Along with the kernel DTS file; the SYSLIB RMv2 files have also been modified for the following features:-

- GIC Queues 8722 onwards have been marked as usable

- INTC_SET2 queues have been allocated to ARM

- Wildcarding support

- Simplified L2 and L3 QoS shapers. This is for illustration only. Customers are recommended to modify the shapers as per their requirements.

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<mark>NOTE:</mark> Please integrate the SYSLIB released DTS files with your application and always update the kernel DTB files and SYSLIB RMv2 DTB files.

3   What's new

3.1   New Features

1.   SOC Initialization application

The release introduces a new application which is responsible for the following:-

    a.   Initialization & configuration of the various CPPI CPDMA blocks in the system

    b.   Powering up CPPI peripherals.

    c.   Download of the QMSS PDSP3 Firmware

The application is executed during system initialization; since the CPDMA blocks are used by multiple entities in the system the application provides a centralized location which can be used to control their configuration. Sample configuration files are provided in the `ti/apps/soc_init` directory. The application can be executed using the following command:-

```
./soc_init_k2h.out -r Rm_System -c ./soc_k2h.conf
```

2.   Extended NETFP Socket Statistics support

The NETFP Socket module has been enhanced to provide statistics. The socket module now tracks statistics:-

- Total statistics for all packets sent by the socket.
- Statistics per socket priority

It is now possible to get and clear socket statistics through the `Netfp_getSockOpt` and `Netfp_setSockOpt` API. Please refer to the NETFP documentation for more information

3.   NETFP Hooks

The NETFP provides a hook framework which allows applications to capture packets at well-defined entry points in the packet flow through the NETFP module. The following table summarizes the supported hooks:

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Hook	Description
Netfp_Hook_PRE_OUTER_REASSEMBLY	The hook is invoked on the reception of a fragmented packet on the Outer IP channel.
Netfp_Hook_PRE_INNER_REASSEMBLY	The hook is invoked on the reception of a fragmented packet on the Inner IP channel.
Netfp_Hook_POST_OUTER_REASSEMBLY	The hook is invoked after the reassembly of all the outer IP fragments.
Netfp_Hook_POST_INNER_REASSEMBLY	The hook is invoked after the reassembly of all the inner IP fragments
Netfp_Hook_POST_ROUTING	This hook is registered per socket and is invoked once all the networking headers have been added and just before the packet is passed back to the NETCP.

4. NETFP support of shared SA

NETFP provides the support of shared SA between Fast Path and Linux stack.

5. NETFP L3 QoS configuration

NETFP Proxy provides IPC messages for interface creation, deletion and configuration of L3 QoS. The cmd_shell and default plugin have been modified to showcase the same.

3.2   Bug Fixes

1. Support of second PKTDMA flows and channels

MSGCOM now supports multiple CPPI Instances and allows the configuration of channels between multiple CPPI Instances.

2. NetFP support for more than 2 active ingress SAs during re-keying

NETFP now supports more than 2 active ingress SAs during re-keying.

3.3   API changes:

1. NETFP Master configuration file updated

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The NETFP Master and configuration file have been updated to specify the handling of non-IP packets. The configuration file has been updated to reflect the new configuration. Sample configuration files are present in the directory `ti/apps/netfp_master/netfp.conf`.

2. Obsoleted tmdxevm6638lxe_netfp.c

The file has been obsoleted since this information is stored in the NETFP Master. This information is passed from the NETFP Master to the NETFP Server during server initialization.

3.4 Feature list in JIRA:

Issue Type	Key	Summary	Requirements
Story	SCLTE-1916	NETFP Proxy Virtual and physical interface tracking	
Story	SCLTE-1918	NETFP Proxy handling VLANed bridged interfaces	
Story	SCLTE-1967	NetFP Interface creation API	SCLTE-1930
Bug	SCLTE-1981	Creation of both secure and non-secure inbound wild carded FP fails	
Story	SCLTE-1849	NetFP support of shared SA	SCLTE-1810
Bug	SCLTE-1991	NetFP support for more than 2 active ingress SAs during re-keying	
Story	SCLTE-1906	NetFP support of post-reassembly packet hook	SCLTE-1869
Story	SCLTE-1851	NetFP support of inner Reassembly Hook	SCLTE-1809
Story	SCLTE-1850	NetFP support for egress packet capturing	SCLTE-1710
Story	SCLTE-1796	NetFP support for dynamic L2 QoS mode configuration	SCLTE-1743
Story	SCLTE-1797	NetFP support for dynamic DSCP to L2 QoS mapping change	SCLTE-1745
Story	SCLTE-1798	NetFP support for dynamic VLAN pBit to L2 QoS mapping change	SCLTE-1746
Story	SCLTE-1848	NetFP support of Exception Route configuration	SCLTE-1815
Story	SCLTE-1931	NetFP support of packet/bytes statistics on egress direction	SCLTE-1707
Story	SCLTE-1825	NetFP IPSec statistics	SCLTE-357

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3.5   Known Issues:

Issue Type	Key	Summary	Priority
Bug	SCLTE-2000	NETFP run time configuration of L3 QoS is not supported	Major
Bug	SCLTE-1999	Netfp Proxy - Monitoring of aliased interface is not supported	Major
Bug	SCLTE-1924	Syslib4 uses dynamic local file handles	Minor
Bug	SCLTE-1921	CLONE - netfp fix to support drb-Identity less than 3	Major
Bug	SCLTE-1898	LTE Demos Not Supported	Major
Bug	SCLTE-1892	Kernel Crash [UIO Module]	Major
Bug	SCLTE-1795	Default route with Gateway IP as zero is not supported correctly in NetfpProxy	Major
Bug	SCLTE-1612	while(1) loop in msgcom code needs to be removed.	Minor

4   RELEASE BUILDING

Please setup the following environment variables:-

```
export
ARMTOOLS_INSTALL_PATH=/home/a0868491/tools/gcc-linaro-arm-linux-gnueabihf-4.7-
2013.03-20130313_linux

export
ARAGO_INSTALL_PATH=/home/a0868491/ti/mcsdk_linux_3_01_02_05_devkit_rt/sysroots
/cortexa15hf-vfp-neon-3.8-oe-linux-gnueabi

export CGT_INSTALL_PATH=/home/a0868491/ti/cgt_7.4.8

export XDC_INSTALL_PATH=~/ti/xdctools_3_30_04_52

export PDK_INSTALL_PATH=~/ti/pdk_keystone2_3_01_02_05/packages

export SNOW3G_INSTALL_PATH=~/ti/snow3g_1_0_0_2/packages

export UIA_INSTALL_PATH=~/ti/uia_2_00_03_40_eng/packages

export INSTALL_JAMMER_INSTALL_PATH=~/tools/installjammer-1.2.15

export BIOS_INSTALL_PATH=~/ti/bios_6_40_04_47/packages

export IPC_INSTALL_PATH=~/ti/ipc_3_30_01_12/packages

export CUIA_INSTALL_PATH=~/tools/cuia_1_01_00_06Custom

export SYSLIB_DEVICE=k2h

export SYSLIB_INSTALL_PATH=~/ti/syslib_4_00_00_00_alpha9/packages
```

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The environment variables are illustrative and should be modified by the customer as per their install paths.

Once configured please setup the build environment by executing the following script:-`SYSLIB_INSTALL_PATH/scripts/setupenv.sh`. This will setup the build environment and will also sanity check to make sure that all the required environment variables are configured.

Please execute the release script (`SYSLIB_INSTALL_PATH/scripts/release.sh`) as follows:-

```
source ./release.sh 1 0 1
```

The script takes 3 arguments:-

1. Argument1: Build the SYSLIB ARM libraries.

2. Argument2: Build the SYSLIB DSP libraries. [Should always be set to 0]

3. Argument3: Build the SYSLIB LTE Demo

To rebuild the DSP libraries; please execute the following path from the SYSLIB_INSTALL_PATH

```
xdc clean –PR .
xdc –PR .
```

For information on how to build the DSP and ARM unit tests and for execution instructions please refer to the SYSLIB Unit Test documentation.