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P4080 NetComm Software Release Notes

Overview

This document describes the main features of the P4080 NetComm Software (NCSW) B2.3 release, which integrates microcode packages, NetComm Device Drivers, Frame Manager Configuration Tool (FMC) and CommExpert suite of congfiguration and run-time tools.

This release supports the Freescale P4080 QorIQ processor.

The device drivers package consists of a set of powerful and flexible drivers for various peripherals and protocols.

Following are the main features of the drivers package:

- Modular system and peripheral drivers, supporting the majority of device functionality
- Memory management for multiple memory types and buses
- Drivers support both default (simple) configuration for quick setup, and advanced (detailed) configuration for fine-tuned applications
- MDS board support

Throughout this document, blue text denotes an addition over the previous release.

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NOTE

This packages supports Data Path drivers only. For platform related issue, please seek support from the SDK provider.

1 Package Contents

A hi-level structure of the contents is described below:

- <INSTALLDIR>\CommExpert\ - CommExpert tree
- <INSTALLDIR>\Documentation\ - Entire package doucmentation
- <INSTALLDIR>\FMC\ - FMC tree
- <INSTALLDIR>\License\ - License files
- <INSTALLDIR>\NetCommSw\ - NCDD and use cases tree

A breakdown of the contents is described below:

- Readme First document (<INSTALLDIR>\Readme-First-P4080-B2.3.pdf)
- CommExpert binaries and related files (located at: <INSTALLDIR>\CommExpert\bin)
- General NCSW documentation (located at <INSTALLDIR>\Documentation)
  - P4080 Release Note (this document)
  - P4080 Errata (NCSWErrata-P4080-B2.3.pdf)
  - P4080 Getting Started Guide (P4080NCSWGSG.pdf)
- CommExpert documents (located at :<INSTALLDIR>\Documentation\CommExpert\)
  - User Cases Description (CommExpertUCD.pdf)
  - User Guide (CommExpertUG.pdf)
  - Quick Reference Guide (CommExpertQRG.pdf)
- FMC documents (located at :<INSTALLDIR>\Documentation\FMC\)
  - FMC User Guide (FMCUG-0.1.pdf)
- Hardware documents (located at :<INSTALLDIR>\Documentation\Hardware\)
  - Processor reference manual (P4080RM_RevG.pdf)
- NCDD documentation (located at <INSTALLDIR>\Documentation\NCDD)
  - Porting Guide (NCDDPortingGuide.pdf)
  - API Differenece (NCDDAPIDIFF.pdf)
  - P4080 NCDD documentation (located at: <INSTALLDIR>\Documentation\NCDD\P4080)
    - P4080 Reference Manual - HTML format (P4080DRVRM/index.html)
    - P4080 Reference Manual - CHM format (P4080DRVRM.chm)
    - P4080 User’s Guide (P4080DRVUG..pdf)
    - P4080 Use Case User’s Guide (P4080DRVUCG.pdf)
- License agreements (located at: <INSTALLDIR>\License)

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- NCDD source code, including:
  - Platform drivers
  - Peripheral drivers
  - Protocol drivers
  - Related stacks
  - Bare-board system services
  - DS board support
  - Comprehensive use cases environment—Featuring structured CodeWarrior projects for compiling and running various drivers and protocols located at:
    - <INSTALLDIR>\NetCommSw\build\bare_4080_cw_build\UseCases.

2 Supported Devices

Supported Device	Description
P4080 Rev1	Silicon
P4080 Rev2	Simulator

Table 1. Supported Devices

3 Main Features

3.1 CommExpert

- FMan Configuration (FMC)
- BMan
- QMan
- DPAA

3.2 FMC

- Protocol definition file in NetPDL format
- Parse-Classify-Distribute (PCD) flows are defined by XML PCD file
- PCD definitions permit to:
  - Enable Frame Manager HW Parser
  - Prepare and load Soft Parser firmware
  - Configure KeyGen schemes
  - Configure Coarse Classification
  - Configure Policers
- PCD concept based on engine/port/policy/classification/distribution/policer hierarchy

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- The tool applies the configuration through the Frame Manager driver's (FMD) layer

3.3 Device Drivers

Supporting P4080 with the following protocols and peripherals:

- e500 Core
- L1 Cache
- DEC (Decrementer)
- MPIC (based on EPIC)
- DUART
- GPIO (Signal Multiplexing & General Purpose I/O)
- Frame-Manager: supporting 2 FMs. Each FM supports 4x1G MAC, 1x10G MAC, ieee1588, 7xOffline-Parsing ports (one of them may be used as Host-Command port), PCD (HW parser, SW parser, KeyGen, Coarse-Classification and Policer) and MURAM management driver.
- Queue-Manager, supporting 10 SW-portals.
- Buffer-Manager, supporting 10 SW-portals and up to 64 pools.
- DPAA (Data-Path port driver): supporting standard FM ports (1G and 10G), OP ports and IM ports.

3.4 Use Cases

Supporting P4080with the following DPAA level Use-Cases examples (refer to the UseCase Guide for further information about use-cases available in this package):

- Classification according to 3-tupple hash, 5-tupple hash, exact-matches examples.
- Policer usage examples

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4 Not Supported

4.1 FMC

- It is a pre-Beta release of the tool. The functionality is near feature complete. For example, sub-fields keys are not supported in this release
- Incorrect input verification and error messaging is better then in previous versions, but still is a subject for improving. It will be addressed in future versions of the tool

4.2 Device Drivers

- FM “debug registers” functionality is not supported
- FM 1G MAC in RTBI mode is not supported
- FM 10G MAC with optical interface is not supported
- QM Congestion-Groups (WRED and “tail-drop”) are not supported
- QM Oder-Restoration is not supported
- Busy exceptions in independent mode are not supported in guest partition

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5 System Configuration

Table 2 describes the tested system configurations.

Table 2. System Configuration

System Configuration	
Platform	**P4080**
Silicon Revision	1.0, 2.0 - on simulator
Drivers Version	Beta 2.02
Board	P4080DS
Simulators	Simics 4.2.37, p4080-4.2-pre43
	FM simulator rev R1.12.36
CodeWarrior Version	CodeWarrior PA_10.0 build 91215
FMan-Controller Code	Rev 92.4 (for rev1) and Rev 101.4 (for rev2)

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Table 3 describes the tested hardware configurations.

Table 3. Hardware Configuration

Hardware Configuration			
Platform		**P4080**	
Tested Configuration	**Config Name**	**SS (600)**	**RXX (700)**
	Core 0	1500MHz	1500MHz
	Core 1	1500MHz	1500MHz
	Core 2	1500MHz	1500MHz
	Core 3	1500MHz	1500MHz
	Core 4	1500MHz	1500MHz
	Core 5	1500MHz	1500MHz
	Core 6	1500MHz	1500MHz
	Core 7	1500MHz	1500MHz
	DDR (bus rate)	500MHz	650MHz
	FM1	600MHz	600MHz
	FM2	600MHz	600MHz
	Local bus	38MHz	44MHz
	System bus	600MHz	700MHz
	Clock in	100MHz	100MHz
	MMU	ON	ON
	DCACHE	OFF	OFF
	ICACHE	OFF	OFF
	L2 CACHE	OFF	OFF
	L3 CACHE	OFF	OFF
	TB	ON	ON
	FM1	4xSGMII (on bank 3)	1xRGMII (dTSEC2), 1x10G (on bank3)
	FM2	4xSGMII (on bank 2)	1x10G (on bank2)

NOTE

The following SDK configurations where also tested: RS, SS, RSX.

5.1 Minimum System Requirements

Table 4 defines minimum system requirements:

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Table 4. Minimal System Requirements

Hardware	PC with 1800 MHz Intel ® Pentium ® III - compatible processor 256 MB RAM. The PC COM port must be connected to the MDS serial port using RS-232 cable.
Operating system	Microsoft ® Windows XP Professional SP3
Free disk space	100 MB free space on installation drive 500 MB for CodeWarrior tools Additional space required for project files

6 Getting Support

For any issue related to this NetComm Software package or any other NetComm Software package request, please send an e-mail to **Support@freescale.com**.

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