QNX BSP for phyCORE-i.MX35

FULL Version

by IBV - Echtzeit- und Embedded GmbH & Co. KG

Subject: Release Notes
Version: 1.3, QNX 6.5
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1. Features

1.1. Components of the BASE Version of the BSP

Component	Format	Features, Notes
Startup (BASE version)	Source	♦ Reads out MAC address from U-Boot environment in NOR flash ♦ Detects type of base board (PCM-970 or KSP-0155) automatically
Serial	Source	♦ Supports i.MX35 UART1 and UART2
FEC Network	Source	♦ Supports i.MX35 Fast Ethernet Controller (FEC) ♦ 10/100 MBit speed ♦ Half / full duplex mode ♦ MAC address is used from U-Boot environment in NOR flash ♦ Additional library "devnp-shim.so" (part of QNX) is required for use of the driver with “io-pkt”

1.2. Components of the FULL Version of the BSP

Component	Format	Features, Notes
Startup (FULL version)	Source	♦ Reads out MAC address from U-Boot environment in NOR flash ♦ Detects type of base board (PCM-970 or KSP-0155) automatically
IPL	Source	♦ Small boot loader for fast booting the operating system from NOR flash. ♦ Boot menu for image selection
USB	Binary	♦ Supports i.MX35 USB HOST Controller (EHCI) in full-speed mode ♦ Driver is shipped as binary without support
I2C	Source	♦ Supports i.MX35 I2C1 and I2C3 in master mode and multi-master mode
NAND	Source	♦ Supports NAND flash on phyCORE-i.MX35
NOR	Source	♦ Supports NOR flash on phyCORE-i.MX35
SD	Source	♦ Supports i.MX35 eSDHC controller
CAN	Source	♦ Supports i.MX35 CAN1 and CAN2 controller ♦ Supported baud rates: 500 k, 250 k, 125 k or manual adjustment of timing registers ♦ Provides QNX CAN interface (POSIX API): CAN IDs are represented in as device special files. Control of the driver is supported via devctl().
RTC	Source	♦ Supports Real Time Clock on phyCORE-i.MX35

1.3. Optional Driver Modules (not part of FULL Version of the BSP)

GPIO		on request
Graphics	Source Binary	♦ Supports i.MX35 graphic controller with OpenVG hardware acceleration for applications working with the GF interface ♦ QNX Photon applications use the frame buffer interface ♦ OpenVG Libraries are shipped as binary without support

⇒ Please contact IBV for more information

1.4. Further BSPs for PHYTEC Boards

A complete list of all available QNX Board Support Packages for embedded boards by PHYTEC Messtechnik GmbH is available at:
http://www.ibv-augsburg.net/media/pdf/QNX_BSP_Overview_PHYTEC.pdf

2. Target System

- Phytec CPU Module phyCORE-i.MX35 (PCB# 1315.4):
  - Freescale i.MX357 applications processor
  - 32 MB NOR-Flash
  - 1024 MB NAND-Flash
  - 128 MB DDR2-RAM
  - 532 MHz clock
- Phytec Mapper-Module PhyMAP-i.MX35 (PCB# 1318.2)
- Phytec Baseboard i.MX Carrier Board PCM-970 (PCB# 1280.4)

or:

- Phytec Baseboard KSP-0155-0 (PCB#PL2261.1)

- Bootloader U-Boot 2.0.0-rc10-ptx-PD10.1.2 (Feb 18 2011 - 11:28:15)
- Operating system QNX 6.5

3. Host Development System

- QNX Momentics 6.5
- Terminal emulation program (Qtalk, Momentics IDE Terminal, tip, HyperTerminal, etc.)
- RS-232 serial port or a USB-to-serial adapter, and a straight-through serial cable
- Ethernet link

4. Known Issues for This BSP

- The serial driver “devc-sermx1” doesn't support hardware flow control.
- Card insertion and removal detection isn’t implemented in the “devb-mmcsd-imx35” driver. The SD card has to be inserted prior to starting the driver, and the card must not be removed while the driver is running.
- Because of a limitation of the QNX FFS3 library that’s used by “devf-generic” to implement the flash file system and programming operations it isn’t possible to erase the second, third and fourth block of the NOR flash (addresses 0xA0008000 to 0xA0020000) using QNX utilities.

5. Change History

5.1. Changes in Version 1.3

- I2C (bugfix): driver hung in multi-master operation when the CPU lost the arbitration
- CAN (enhanced): support of RTR, EID and LENGHT information
- CAN (enhanded): byte flipping for reading and writing of CAN messages changed
- Startup (bugfix): PATH set for qconn to support debugging
- FEC Network (bugfix): removed memory leak in case of lost RX packets
- FEC Network (bugfix): re-activate receiving after reading out from RX descriptor ring

5.2. Changes in Version 1.2.1

- IPL: changed minimum RAM-Refresh cycles from 8 to 16 (according to U-Boot 2.0.0-rc10-ptx-pcm043-1 (Jun 20 2011 - 14:47:46))
- IPL: changed NOR-Timing configuration

6. Sales / Technical Support

To get this BSP or to obtain technical support for the BSP, please contact:

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