

# QNX BSP for phyCORE-i.MX35

## FULL Version

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

Subject: Release Notes  
Version: 1.3, QNX 6.4.1  
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## 1. Features

### 1.1. Components of the BASE Version of the BSP

Component	Format	Features, Notes
Startup (BASE version)	Source	<ul style="list-style-type: none"> <li>◆ Reads out MAC address from U-Boot environment in NOR flash</li> <li>◆ Detects type of base board (PCM-970 or KSP-0155) automatically</li> </ul>
Serial	Source	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 UART1 and UART2</li> </ul>
FEC Network	Source	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 Fast Ethernet Controller (FEC)</li> <li>◆ 10/100 MBit speed</li> <li>◆ Half / full duplex mode</li> <li>◆ MAC address is used from U-Boot environment in NOR flash</li> <li>◆ Additional library "devnp-shim.so" (part of QNX) is required for use of the driver with "io-pkt"</li> </ul>

### 1.2. Components of the FULL Version of the BSP

Component	Format	Features, Notes
Startup (FULL version)	Source	<ul style="list-style-type: none"> <li>◆ Reads out MAC address from U-Boot environment in NOR flash</li> <li>◆ Detects type of base board (PCM-970 or KSP-0155) automatically</li> </ul>
IPL	Source	<ul style="list-style-type: none"> <li>◆ Small boot loader for fast booting the operating system from NOR flash.</li> <li>◆ Boot menu for image selection</li> </ul>
USB	Binary	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 USB HOST Controller (EHCI) in full-speed mode</li> <li>◆ Driver is shipped as binary without support</li> </ul>
I2C	Source	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 I2C1 and I2C3 in master mode</li> </ul>
NAND	Source	<ul style="list-style-type: none"> <li>◆ Supports NAND flash on phyCORE-i.MX35</li> </ul>
NOR	Source	<ul style="list-style-type: none"> <li>◆ Supports NOR flash on phyCORE-i.MX35</li> </ul>
SD	Source	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 eSDHC controller</li> </ul>
CAN	Source	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 CAN1 and CAN2 controller</li> <li>◆ Supported baud rates: 500 k, 250 k, 125 k or manual adjustment of timing registers</li> <li>◆ Provides QNX CAN interface (POSIX API): CAN IDs are represented in as device special files. Control of the driver is supported via devctl().</li> </ul>
RTC	Source	<ul style="list-style-type: none"> <li>◆ Supports Real Time Clock on phyCORE-i.MX35</li> </ul>

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

GPIO		on request
Graphics	Source	<ul style="list-style-type: none"> <li>◆ Supports i.MX35 graphic controller with OpenVG hardware acceleration for applications working with the GF interface</li> <li>◆ QNX Photon applications use the frame buffer interface</li> </ul>
	Binary	<ul style="list-style-type: none"> <li>◆ OpenVG Libraries are shipped as binary without support</li> </ul>

⇒ 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](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 6.4.1

## 3. Host Development System

- ◆ QNX Momentics 6.4.1
- ◆ 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 (enhanced): 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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