

# eQube board

## 2CA1004 series

## Yocto eGF Developer's guide

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## Revision History

Date	Doc. Rev.	Description
09/02/2018	Rev. A01	First Release.

## Summary

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## 1 Preface

This document covers the following products:

EVB PCB Code	SOM PCB Code	EVB Part Number
0609	0500	2CA1004

Following guide is applicable to yocto release yocto-egf-0609-001 and later.

## 2 SDK

Before building the toolchain follow the steps 5.1 and 5.2

Build the toolchain:

```
$ cd yocto\build
$ bitbake meta-toolchain-qt5
```

The output package will be located in tmp/deploy/sdk, run the script to install the toolchain:

```
$ tmp/deploy/sdk/fsl-imx-x11-glibc-x86_64-meta-toolchain-qt5-cortexa9hf-vfp-neon-toolchain-4.1.15-1.1.0.sh
```

Reply yes to all prompts and do not change the default values.

Every time you need to compile the shell session must be configured:

```
$ source /opt/fsl-imx-x11/4.1.15-1.1.0/environment-setup-cortexa9hf-vfp-neon-egf-linux-gnueabi
```

## 3 Yocto

### 3.1 Build host

Assuming you are using Ubuntu, install the required packages:

```
$ sudo apt-get install gawk wget git-core diffstat unzip texinfo gcc-multilib \
build-essential chrpath socat libstdc++12-dev xterm
```

Refer to official Yocto documentation for different build host configuration:

<http://www.yoctoproject.org/docs/2.0.2/mega-manual/mega-manual.html> / The build Host Packages

### 3.2 Download

Get repo:

```
$ mkdir ~/bin
$ curl http://commondatastorage.googleapis.com/git-repo-downloads/repo > ~/bin/repo
$ chmod a+x ~/bin/repo
$ export PATH=$PATH:~/bin
```

Prepare directories for yocto sources:

```
$ mkdir ~/yocto
$ cd ~/yocto
$ mkdir sources
$ cd sources
```

Get elettronica GF layer:

```
$ git clone https://<user>:<password>@ircost.visualstudio.com/DefaultCollection/CISA%20ePOD/_git/eQUBE_meta-egf -b 0609_eqube meta-egf
```

Replace <user> and <password> with Allegion repositories credentials

Get yocto:

```
$ cd ..
$ repo init -u sources/meta-egf -b 0609_eqube -m imx-4.1.15-1.1.2.xml
$ repo sync
```

Setup yocto:

```
$ cd sources
$ cd meta-egf
$ ./scripts/setup-egf.sh
```

This step must be performed only once.

The branch name is 0609\_eqube.

### 3.3 Setup

The meta-egf layer provides the following targets:

Machines:

0609equbeimx6q	0609 eQube board imx6 quad/dual
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Images:

egf-image	Image with X11 without QT5
egf-image-qt5	Image with X11, QT5 and all demos
egf-image-update	Live image used to update the system

Distro:

fsl-imx-x11	reference distro for elettronica GF hardware
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SDK:

meta-toolchain-qt5	SDK with QT5 support
meta-toolchain	SDK without QT support

Setup build environment:

```
$ cd ~/yocto
$ DISTRO=fsl-imx-x11 MACHINE=0609equbeimx6q source ./egf-setup-release.sh -b build
```

You can create different build configuration by changing the build directory after the '-b' parameter.

### 3.4 Build

```
$ bitbake <image>
```

Check the above table for available targets.

#### 3.4.1 Binaries

Images

Build output is located in tmp/deploy/images/0609equbeimx6q, the files are:

<image>-0609equbeimx6q.sdcard	This is a complete image ready to be flashed to an sdcard. This image contains 2 partitions, the first
-------------------------------	--

	contains the kernel and device trees, the second contains the rootfs
<image>-0609equbeimx6q.tar.bz2	This file is the tarball of the rootfs
<image>-0609equbeimx6q.cpio.gz	Live image to be embedded in the kernel, available only for egf-image-update
zImage	Kernel image
zImage-imx6-egf-WID0500_<hw_version>.dtb	Device tree of a specific hardware configuration. There will be one file for every hardware version of the module.

Eg. If image is “egf-image” and machine is “0609equbeimx6q” the .sdcard filename will be egf-image-0609equbeimx6q.sdcard. Since the module of eQube board is the 0500 and this one has three hw configurations you will find also these files:

```
zImage-imx6-egf-WID0500_AA01.01.dtb
zImage-imx6-egf-WID0500_AB01.01.dtb
zImage-imx6-egf-WID0500_AC01.01.dtb
```

### Sdk

The output path is located in tmp/deploy/sdk

fsl-imx-x11-glibc-x86_64-meta-toolchain-qt5-cortexa9hf-vfp-neon-toolchain-4.1.15-1.1.0.sh	Machine: x86_64 Distro: fsl-imx-x11 Kernel: 4.1.15 Yocto: 1.1.0
---	--

SDK name may vary depending on host machine, selected distro, kernel version and yocto version.