iWave
Embedding Intelligence

i.MX6 Pico ITX Single Board Computer

iW-RainboW-G15S
Quick Start Guide

R5.0

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Technical Support

iWave Systems technical support team is committed to provide the best possible support for our customers so that our Hardware and Software can be easily migrated and used.

For assistance, contact our Technical Support team at,

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INTRODUCTION

About this Guide

This document is intended as the guide for unpacking iWave's iW-RainboW-G15S - i.MX6 Pico ITX Single Board Computer (SBC) package and setting up the test environment for it. It also gives details about safety information and important cautions which should adhere while using the SBC.

SBC Overview

The iW-RainboW-G15S i.MX6 Pico ITX SBC which is based on Freescale's i.MX6 Series application processor. This integrates all standard interfaces into a single board with ultra-compact yet highly integrated system that can be utilized across multiple embedded PC and industrial designs.

Important Symbols Used

Important Note

Warning

Use ESD Protection

ROHS complaint

Check the local regulations for disposal of electronic products

UNPACKING

Safety Information

- Before unpacking and installing the SBC or adding devices on it, carefully read all the manuals that came with the package.

- Place the product on a stable surface. To avoid short circuits in electronics, keep all conducting material away from the SBC.

- Avoid using board in extreme dust, humidity and temperature conditions. Do not place the SBC in wet area.

- Before using the SBC, make sure that all cables are correctly connected and the power adopter is correctly selected.

- Make sure that Electrical Outlet where you connected the power adapter is not damaged and working fine.

- If the power adapter is broken, do not try to fix it by yourself. To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before displacing the system.

Check the local regulations for disposal of electronic products.

Package Checklist

The iW-RainboW-G15S Pico ITX SBC will be shipped with the following items:

Sl. No.	Package Item	Qty	Image
1	iW-RainboW-G15S i.MX6 Pico ITX SBC	1	All components used in this system is Lead free and ROHS complaint
2	5V,2.5A Power Adaptor with universal plugs	1	
3	USB OTG Cable	1	
4	DVD (Please refer DVD Content section)	1	
5	Quick Start Guide Hard copy	1	

Do not proceed with installation, if any of the items listed in the above checklist is missing or damaged. Contact iWave support team.

SETTING UP THE TEST ENVIRONMENT

Getting Start

This section describes the step by step procedure to setup the test environment for iW-RainboW-G15S SBC.

- Read the SBC Documents
- Check Boot Mode setting
- Setting up the Debug port
- Power ON the SBC

Read the Documents

Before setting up the test environment, one must read all the documents of the iW-RainboW-G15S SBC to know about the system, its features and to get familiar with it. These documents are available in the DVD which comes along with the iW-RainboW-G15S Package.

Below mentioned documents are available in the DVD,

- iW-RainboW-G15S Quick Start Guide (This Guide)
- i.MX6 Pico ITX SBC Hardware User Guide
- Software User Manual
- Release Notes for Software

Refer DVD contents section to know about the DVD content structure and system related document's path.

Boot Mode Setting

iW-Rainbow-G15S SBC supports different boot mode options for booting.

- Internal Boot Mode (Default):
  This mode is used for normal booting and default set while shipping. Please make sure that boot mode switch (SW4) is in this mode while setting up the Test Environment.

- Serial Downloader Mode:
  This mode is used when user wants to program boot media using MFG Tool. For more details, please refer Software User Manual.

Boot modes can be selected by user using boot mode switch (SW4) settings on i.MX6 SBC as mentioned below . For more details, refer i.MX6 Pico ITX SBC Hardware User Guide.

Boot Mode Settings Truth Table

Boot Mode Setting On i.MX6 SBC	SW4 (2 Position Switch)		
	POS1	POS2	Image
Internal Boot Mode (Default)	OFF	ON	
Serial Downloader Mode	ON	OFF	
ON - High OFF - Low			

Use ESD Protection while changing the switch setting.

Debug Port Setting

iW-RainboW-G15S SBC supports Micro USB Connector as Debug port for Debugging and Testing. Please follow the below procedure to setup the Debug port of SBC.

- Use USB MicroAB to Type A cable to connect between SBC and PC for debugging. Connect TypeA end of USB cable to PC and Micro AB end of USB cable to SBC's debug Micro USB connector(J8) as shown below.

Debug Port Connection

- Install the driver for Debug USB Port in Host PC/Laptop using the below link.

    Drivers located at: http://www.ftdichip.com/Products/ICs/FT232R.htm

- Open the HyperTerminal on PC/Laptop with the following setting.
    Baud rate   : 115200 bps
    Data bits   : 8
    Parity   : None
    Stop bits   : 1
    Flow control   : None

Powering ON iW-RainboW-G15S

iW-RainboW-G15S platform comes with 5V, 2.5A power supply with universal plugs. Please follow the below procedure to power ON the SBC.

■ Connect the 5V power supply plug to the power connector (J3) of the iW-RainboW-G15S SBC as shown below and switch ON the power supply.

Power Supply Connection

■ Once Power is applied to iW-RainboW-G15S SBC, the Power LED in the i.MX6 SBC module will glow as shown below.
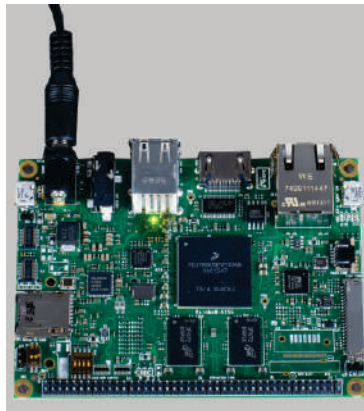
Power ON Indication

 Do not proceed with installation, if the Power Status LED is blinking or not glowing. Contact iWave support team.

Done with Test Environment

Once power is applied to iW-RainboW-G15S SBC as explained in the previous section, the HyperTerminal of the PC/Laptop which is connected to the SBC will immediately show the boot messages of the boot loader.

iWave supports below mentioned Operating System Releases for iW-RainboW-G15S SBC.

- Linux 3.10.17 (or higher)
- Android 4.3 (or higher)
- Windows Embedded Compact 7
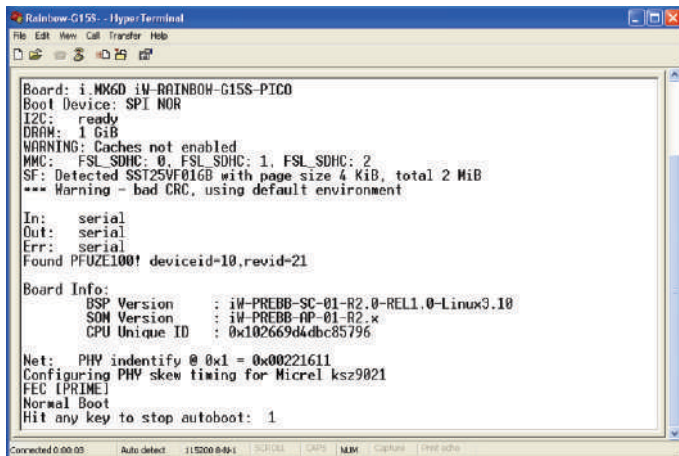
Depending upon the supported Operating system and boot loader on particular delivery, the Hyper Terminal will show the boot messages as described in the following section.

1. **SBC comes with bootable binary in default boot media.**
2. **Make sure that all the steps mentioned in Getting Start section is followed.**

Linux Test Environment

- In Linux Release, U-boot boot messages will appear in Hyper Terminal as shown below.

U-boot on Terminal

- Immediately after power on, Press any key in HyperTerminal to go to the U-boot command prompt as shown below. Otherwise Linux will launch automatically.

U-boot Command Prompt

■ Once linux is launched, if the HDMI display is connected to SBC, Yocto screen will appear as shown below and Hyper Terminal will show the linux command prompt.

■ Press Enter key in terminal to see the Linux command prompt as shown below. Once you get the prompt you are done with Test Environment setup on Linux delivery.

Linux Command Prompt

Refer Linux Software User Manual for further details.

Android Test Environment

■ In Andriod Release, U-boot boot messages will appear in Hyper Terminal as shown below.

U-boot on Terminal

■ Immediately after power on, Press any key in Hyper Terminal to go to the U-boot command prompt as shown below. Otherwise Android will launch automatically.

U-boot Command Prompt

- Once Android is launched, if the HDMI display is connected to SBC, Android screen will appear as shown below and Hyper Terminal will show the Android command prompt.

HDMI display after Android Launch

- Press Enter key in terminal to see the Android command prompt as shown below. Once you get the prompt you are done with Test Environment setup on Android delivery.

Android Command Prompt

Refer Android Software User Manual for further details.

WEC7 Test Environment

- In WEC7 Release, E-boot boot messages will appear in HyperTerminal as shown below.

E-Boot on HyperTerminal

- Immediately after power on, Press Space key in Hyper Terminal to go to the E-boot command prompt as shown below. Otherwise WEC7 will launch automatically.

E-Boot Command Prompt

■ Once WEC7 is launched, if the HDMI display is connected to SBC, WEC7 screen will appear as shown below. Once you get the WEC7 screen, you are done with Test Environment setup on WEC7 delivery.

HDMI display after WEC7 Launch

Note Refer WEC7 Software User Manual for further details.

DVD Contents

iWave supports below mentioned Operating System Releases for iW-RainboW-G15S SBC

- iW-G15S-PILXC - Linux 3.10.17 or higher
- iW-G15S-PILAC - Android 4.3 or higher
- iW-G15S-PIWCC - Windows Embedded Compact 7

DVD contents will differ depending upon the operating system supported on the particular delivery. The following Figures show the DVD content structure of each Operating System Release.

Linux Release DVD Contents
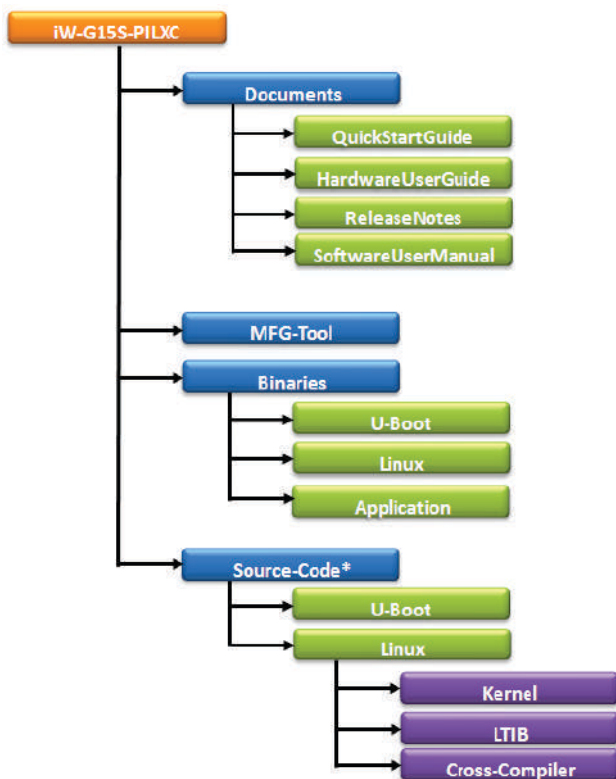
*Only Applicable for BSP source delivery

Android Release DVD Contents
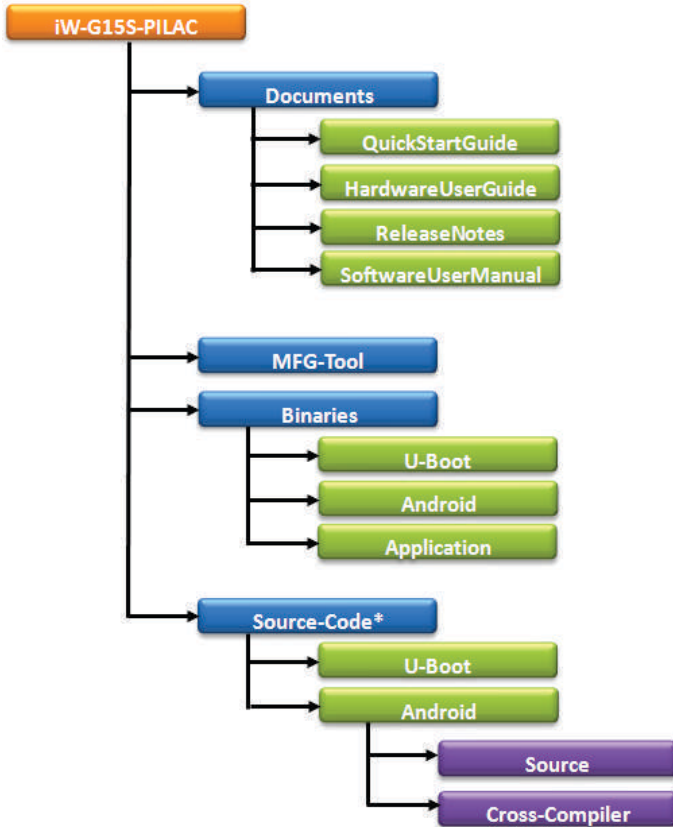
*Only Applicable for BSP source delivery

WCE7 Release DVD Contents
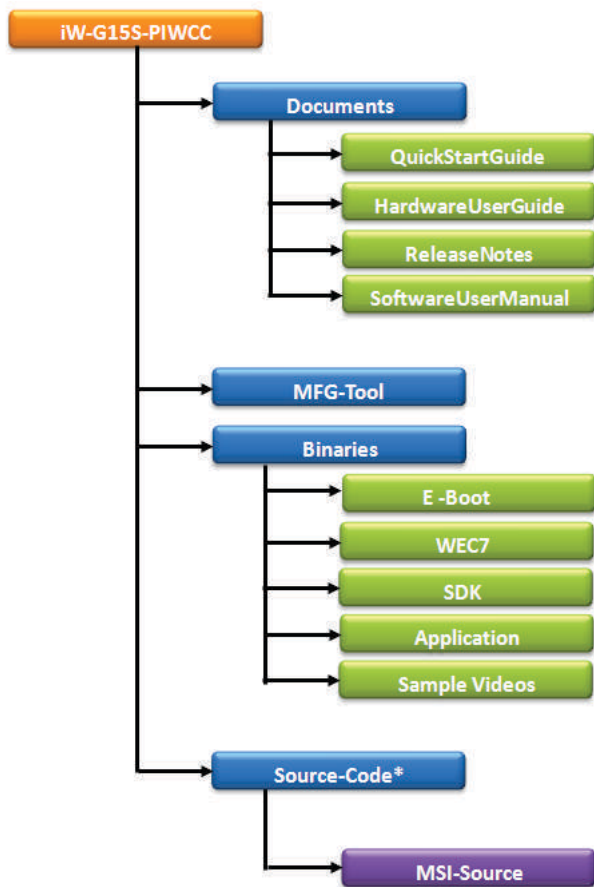
*Only Applicable for BSP source delivery

iWave continuously improves software releases with latest kernel version. Contact iWave for latest software release detail.

Unified LCD Add On Module for RainboW-G15S

■ iWave supports unified LCD add-on module for RainboW-G15S SBC which can be used to connect different size of LCD panels from 3.5 inch to 7.0 inch.
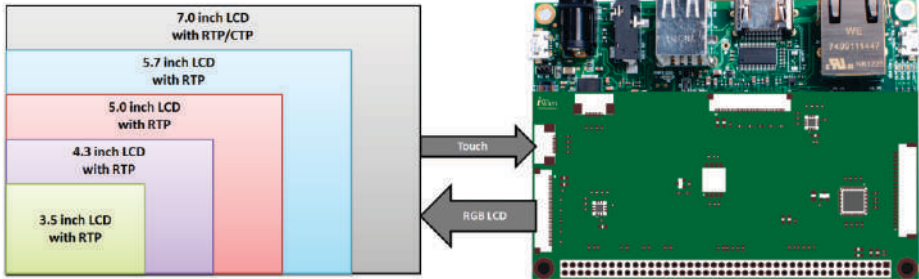
*For more details about Unified LCD add on module, contact iWave Sales Team.

Compatible LCD Panels

Sl. No.	Part No.	Manufacturer	Description
1	ET035080DH6	EDT Corp.	3.5 inch with RTP
2	ET035080DM6	EDT Corp.	3.5 inch without TP
3	ET043080DH6	EDT Corp.	4.3 inch with RTP
4	ET043080DM6	EDT Corp.	4.3 inch without TP
5	ET050080DH6	EDT Corp.	5.0 inch with RTP
6	ET050080DM6	EDT Corp.	5.0 inch without TP
7	ET057080DH6	EDT Corp.	5.7 inch with RTP
8	ET057080DM6	EDT Corp.	5.7 inch without TP
9	ET070080DH6	EDT Corp.	7.0 inch with RTP
10	ET070080DM6	EDT Corp.	7.0 inch without TP
11	ETM070080ADH6	EDT Corp.	7.0 inch with CTP

Acronyms:
TP   - Touch Panel
RTP - Resistive Touch Panel
CTP - Capacitive Touch Panel

iWave's Other Products

iW-RainboW-G15M-SM i.MX6 SODIMM Module

The i.MX6 SODIMM SOM is industry latest ultra-compact yet highly integrated SOM based on Freescale's i.MX6 Series Quad/Dual/Solo core processor running at 1GHz. A single ruggedized miniature SODIMM connector allows compact carrier board form factors which is ideally suitable for space constraint embedded applications.

iW-RainboW-G18M-SM i.MX6 Ultra Lite SODIMM Module

iWave's i.MX6UL based SODIMM CPU module integrates power efficient high performance ARM Cortex A7 CPU core operating up to 528MHz speed. The SOM is ultra-compact in size and integrated with on-board PMIC, Flash, DDR3 and dual Ethernet PHY. The SOM is ideally suitable for the cost & power optimized general embedded and industrial applications.

iWave's Other Products

iW-RainboW-G15D-SODIMM i.MX6 SODIMM Development Platform

iWave's i.MX6 SODIMM development board incorporates i.MX6 SODIMM SOM Which is based on Freescale's high performance i.MX6 Series ARM Cortex A9 processor and the carrier board with optional 4.3" resistive display kit. The development board can be used for quick prototyping of various applications targeted by the i.MX6 processors. With the 100mm x72 mm Pico ITX size, the kit is highly packed with all the necessary on-board connectors to validate the i.MX6 CPU features.

iW-RainboW-G18D i.MX6UL SODIMM Development Platform
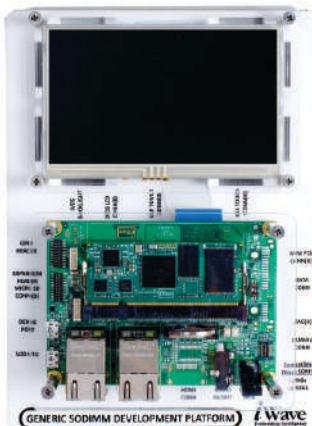
iWave's i.MX6UL SODIMM Development Board incorporates i.MX6UL SODIMM SOM which is based on Freescale's power efficient i.MX6UL ARM Cortex A7 processor and the carrier board with optional 4.3" resistive display kit. The development board can be used for quick prototyping of various applications targeted by the i.MX6UL processor. With the 100mmx72mm Pico ITX size, the kit is highly packed with all the necessary on-board connectors to validate the i.MX6UL CPU features.

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