*i*Wave
Embedding Intelligence

iW-RainboW-G22D
Quick Start Guide

R2.2

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INTRODUCTION

About this Guide

This document is intended as the guide for unpacking iWave's iW-RainboW-G22D RZ/G1E Development Platform 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 platform.

Development Platform Overview

The iW-RainboW-G22D RZ/G1E Development Platform incorporates RZ/G1E SODIMM SOM which is based on Renesas power effecient RZ/G1E Dual ARM Cortex A7 MPU and SODIMM Compatible Carrier Board. This platform can be used for quick prototyping of any high end applications in verticals like Automotive, Industrial & Medical. The board is highly packed with all necessary on-board connectors to validate almost complete RZ/G1E CPU features.

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 Development Platform 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 Development Platform.

■ Avoid using board in extreme dust, humidity and temperature conditions. Do not place the Development Platform in wet area.

■ Before using the Development Platform, make sure that all cables are correctly connected and the power adapter 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.

■ Don't try to remove th RZ/G1E SOM module from the Development platform unless really required.

■ Before connecting or removing RZ/G1E SOM module from the Development platform, ensure that power cable is unplugged and ESD antistatic guidelines are followed.

Check the local regulations for disposal of electronic products.

Unpacking Guidelines

Please follow the below guidelines while unpacking the iW-RainboW-G22D Development platform.

■ Wear the anti-static wristband while unpacking and handling the Development platform to prevent electrostatic discharge.

■ Use anti-static pad/mat with proper grounding to place the Development platform.

■ Don't touch the inside surface of the Development platform circuit board.

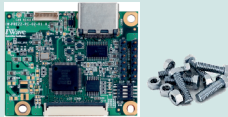■ Self-grounding: Touch a grounded conductor every few minutes to discharge any excess static build-up.

■ Make sure that packing box is facing upwards while opening.

■ Make sure that the entire packing list items mentioned in Package Checklist are present.

Static electricity can destroy electronics in the platform. Make sure to follow the ESD precautions to prevent damage to the platform and injury to the user.

Package Checklist

The iW-RainboW-G22D RZ/G1E Development Platform will be shipped with the following items:

| Sl. No.	Package Item	Qty	Image
1	iW-RainboW-G22D RZ/G1E Development Platform	1	All components used in this platform 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	
6	HDMI Add On Module (With Screw Bag)	Optional	
7	JTAG Cable	Optional	
8	SPI Programmer Board	Optional	

Note

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

Get to know the RZ/G1E Development Platform

The iW-RainboW-G22D RZ/G1E Development Platform consists of 67.6mm x 37mm RZ/G1E SODIMM SOM and 100mmx72mm Pico-ITX form factor SODIMM Carrier Card as shown in below figure.
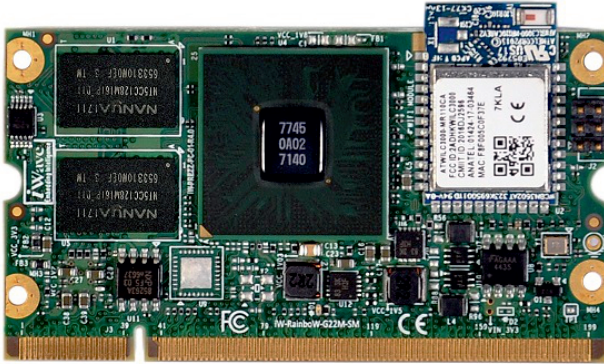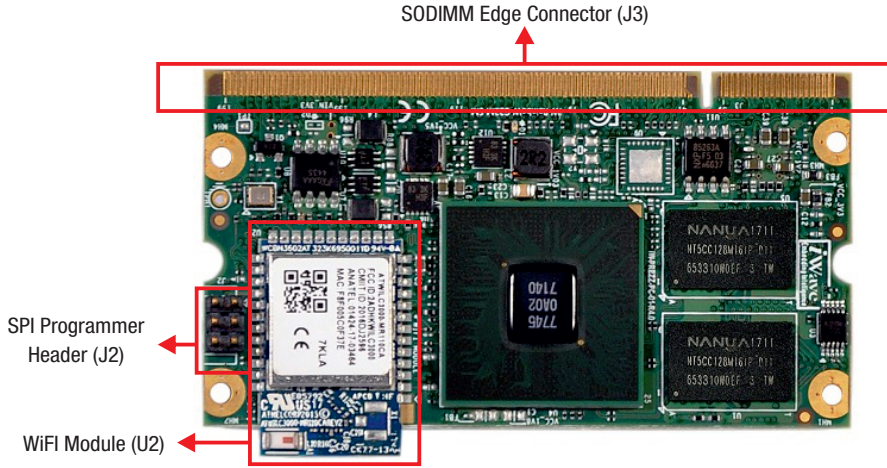

RZ/G1E SODIMM SOM
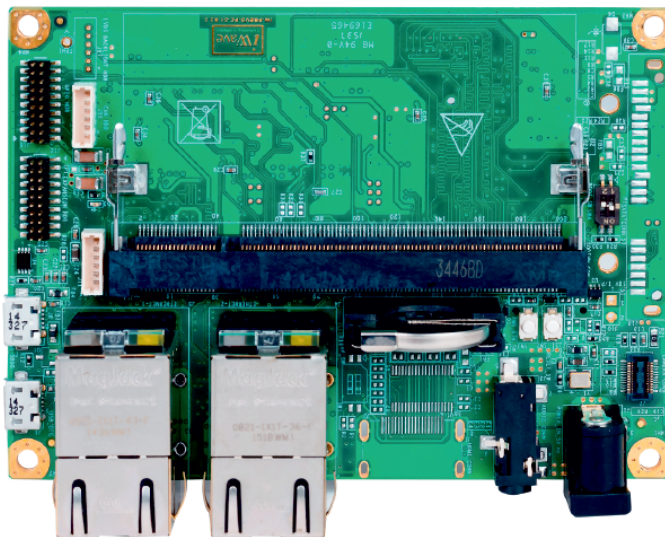
RZ/G1E SODIMM Carrier Card

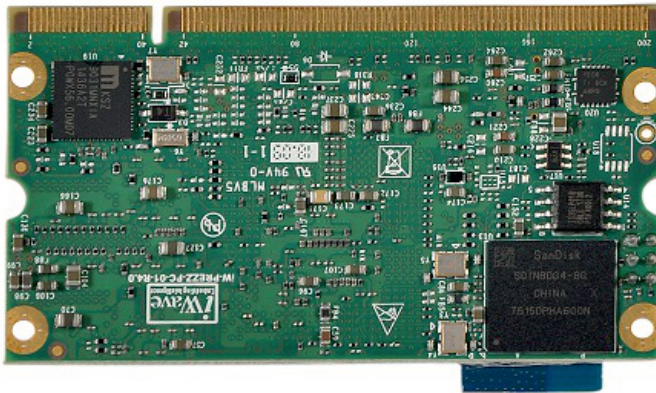The iW-RainboW-G22D RZ/G1E Development Platform supports the following features.

RZ/G1E SODIMM SOM Features	
CPU	Renesas RZ/G1E MPU Dual Core ARM Cortex A7 @ 1GHz Three-Dimensional Graphics Engines
Memory	512MB DDR3 (Expandable) 8GB eMMC Flash (Expandable) 2MB SPI NOR Flash (Expandable) Micro SD Slot
Wireless Communication	Wifi Bluetooth 4.0
Real Time Clock	RTC Controller
RZ/G1E SODIMM Carrier Board Features	
Serial Interface	Debug UART through USB Micro AB Connector Data UART (SCIF5) x 1 Port through Header
Communication Interface	100/1000Mbps Ethernet through RJ45MagJack USB 2.0 Host x 1 Port through Type A Connector USB 2.0 OTG x 1 Port through Micro AB Connector CAN x 1 Port through Heade
Audio/Video Interface	I2S Audio Codec with 3.5mm Audio IN and OUT jack 4.3" RGB LCD Connector with ResistiveTouch 8bit CMOS Camera
On Board Switches	Power ON/OFF Switch Reset Switch Boot mode setting Switch
Additional Features	SPI Flash (MSIOF2 with SS#1) RTC Coin Cell holder 20Pin GPIO & Expansion Header
General Specification	Power Supply : 5V,2.5A Power Input Jack Form Factor : 100mmx72mm Pico ITX

The RZ/G1E SODIMM SOM major components location are shown in the below figure.

SODIMM Edge Connector (J3)

SPI Programmer
Header (J2)

WiFI Module (U2)

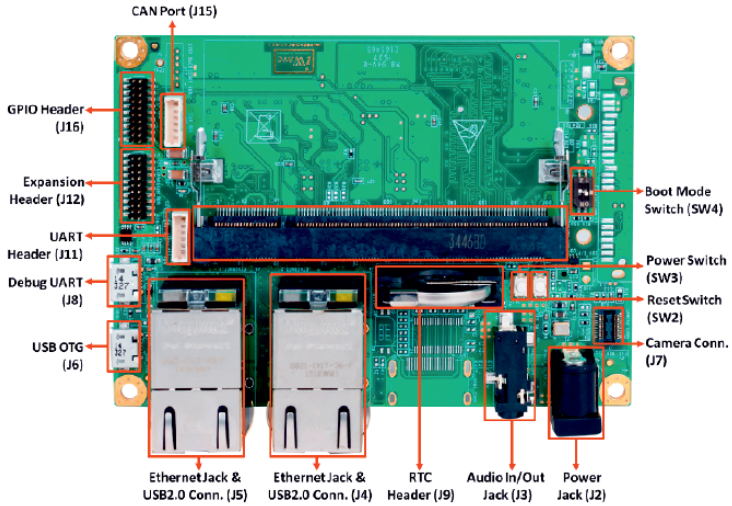**Top View of RZ/G1E SODIMM SOM**

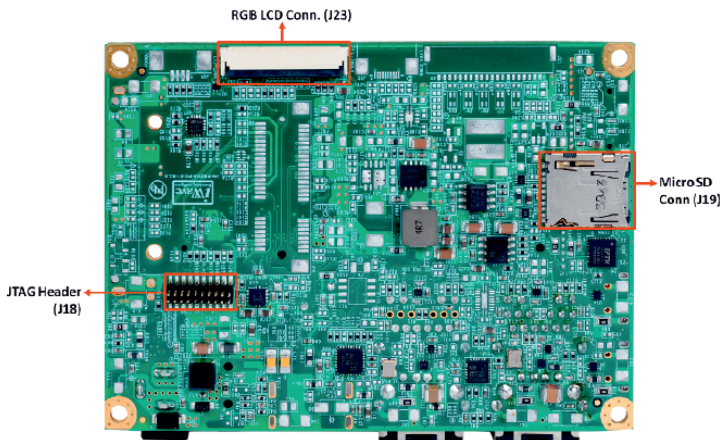**Bottom View of RZ/G1E SODIMM SOM**

Note   **Refer Hardware User Guide for more details**

The RZ/G1E Carrier Card major components location are shown in the below figure.

Top View of RZ/G1E SODIMM Carrier Card

Bottom View of RZ/G1E SODIMM Carrier Card

Refer Hardware User Guide for more details

SETTING UP THE TEST ENVIRONMENT

Getting Start

This section describes the step by step procedure to setup the test environment for iW-RainboW-G22D RZ/G1E Development Platform.

- ■ Read the Development Platform Documents
- ■ Setting up the Debug port
- ■ Power ON the Development platform

Read the Documents

Before setting up the test environment, one must read all the documents of the iW-RainboW-G22D RZ/G1E Development Platform to know about the Platform, its features and to get familiar with it. These documents are available in the DVD which comes along with the iW-RainboW-G22D Package.

Below mentioned documents are available in the DVD,

- ■ iW-RainboW-G22D Quick start Guide (This Guide)
- ■ RZ/G1E SODIMM SOM Hardware User Guide
- ■ RZ/G1E SODIMM DevKit Hardware User Guide
- ■ RZ/G1E SODIMM SOM Software User Guide
- ■ RZ/G1E SODIMM SOM Release Notes for Software

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

Debug Port Setting

Please follow the below procedure to setup the Debug Micro USB of iW-RainboW-G22D RZ/G1E Development Platform

■ Connect TypeA end of USB cable to PC and Micro AB end of USB cable to Development platform's debug Micro USB connector(J8) as shown below.
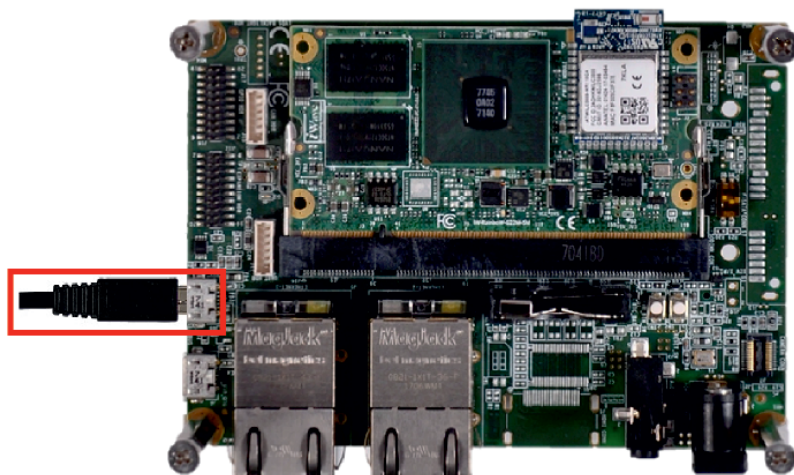
Debug Port Connection

■ 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-G22D RZ/G1E Development Platform

iW-RainboW-G22D RZ/G1E Development Platform comes with 5V, 2.5A power supply with universal plugs. Please follow the below procedure to power ON the Development platform.

■ Connect the 5V power supply plug to the power connector (J2) of the iW-RainboW-G22D platform as shown below and switch ON the power supply.
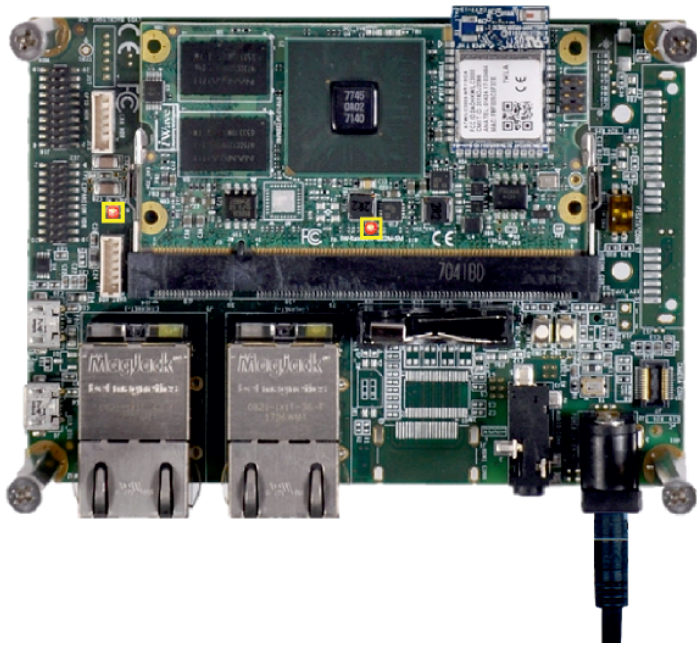
Power Supply Connection

■ Once Power is applied to iW-RainboW-G22D RZ/G1E Development Platform, the Red Power LEDs in the RZ/G1E SODIMM SOM and carrier board will glow as shown in the above image.

⚠ **Do not use different power adapter other than the supplies one.**
Do not proceed with installation, if any of the Power Status LEDs are blinking or not glowing. Contact iWave support team.

Done with Test Environment

Once power is applied to iW-RainboW-G22D RZ/G1E Development Platform as explained in the previous section, the HyperTerminal of the PC/Laptop which is connected to the Development platform will immediately show the boot messages of the boot loader.

iWave supports below mentioned Operating System Releases for iW-RainboW-G22D RZ/G1E Development Platform.

■ Linux 3.10.31(or higher)

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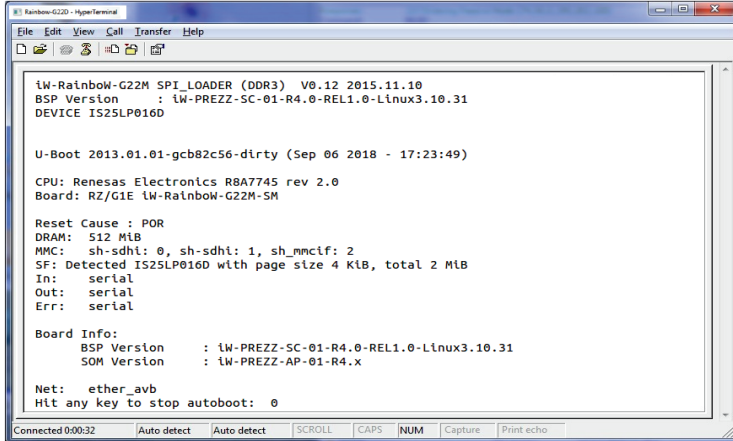
1. Platform comes with bootable binary in default boot media.
2. Make sure that all the steps mentioned in Getting Start section is followed.

Linux Test Environment

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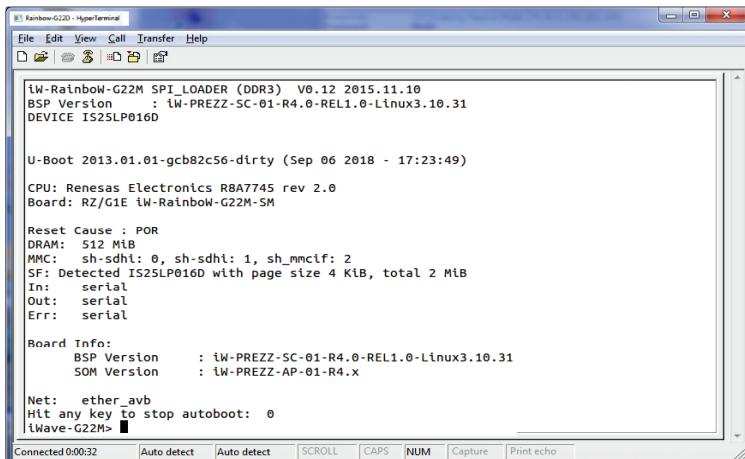
U-boot on Terminal

■ 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, the LCD will show the Yocto images as shown below and HyperTerminal will show the Linux Login.

LCD after Linux Launch

■ To Login in Linux, enter "root" in terminal and you will get the Linux command prompt as shown below. Once you get the prompt you are done with Test Environment setup on Linux delivery.
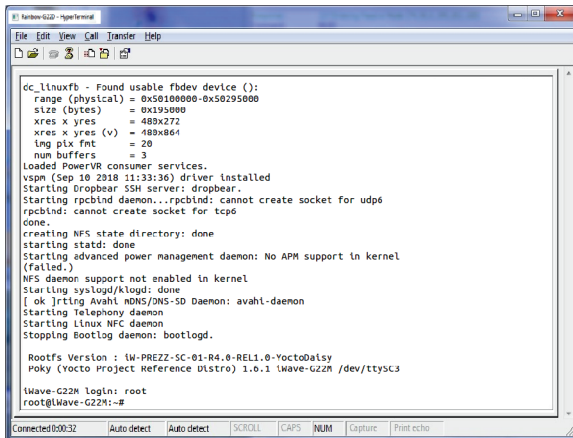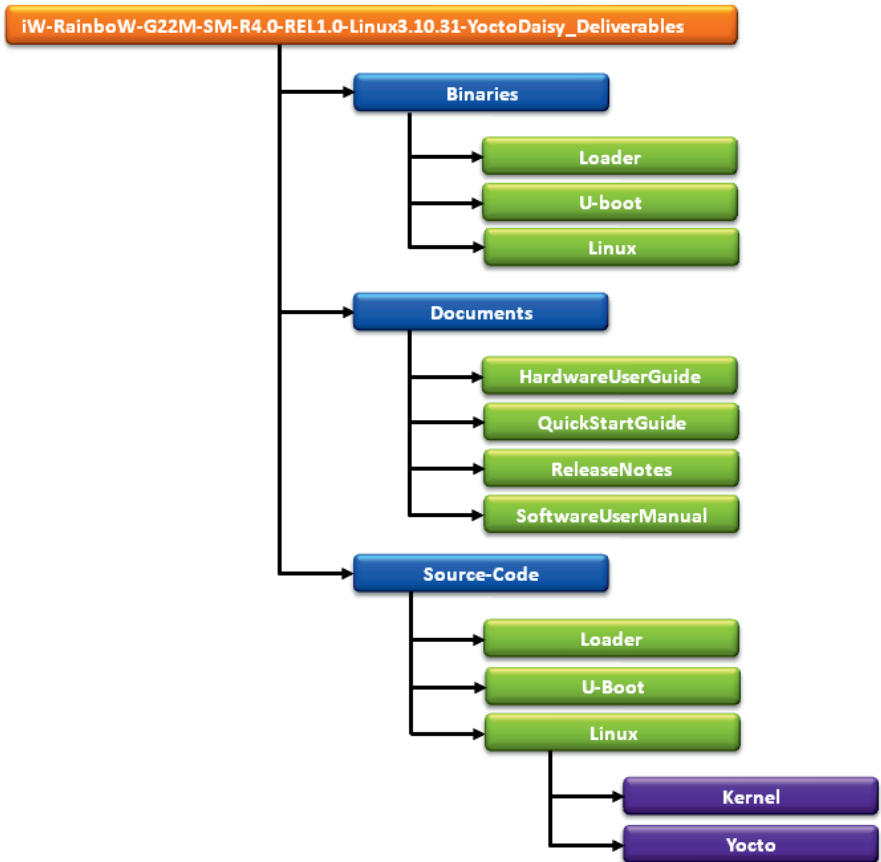

Linux Command Prompt

Refer Linux Software User Guide for further details.

DVD Contents

The following Figure show the DVD content structure for Linux Operating System Release.

Linux Release DVD Contents

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

RZ/G1E HDMI Add On Module

■ iWave supports HDMI Add-on Module for iW-RainboW-G22D RZ/G1E Development Platform, which supports following features.

| RZ/G1E HDMI Add On Module Features	
Video Features	HDMI Output through HDMI Transmitter (24bpp DU0) x 1 Port
Communication Features	CAN1 Header x 1 Port
Serial Interface Features	Data UART RS232 Header (SCIF1 and SCIF5) x 2 Ports High Speed UART RS232 Header (HSCIF2) x 1 Port
General Specification	Form Factor : 50mm X 40mm
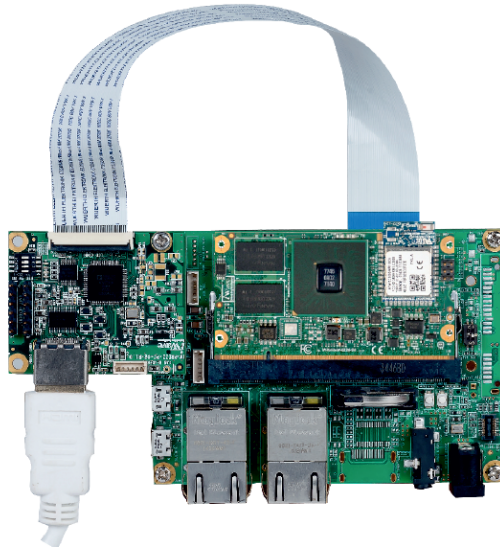
Note **For More details about HDMI Add-on Module, contact iWave Sales Team.**

iWave's other Products

iW-RainboW-G21M-RZ/G1H Qseven SOM

The RZ/G1H Qseven SOM is based on the Renesas's RZ/G1H Octa Core processor running at 1.4GHz ARM Cortex®-A15 MPCore cores. A single ruggedized Qseven connector provides the carrier board interface to carry all the I/O signals to and from the Qseven SOM. This SOM supports 2GB DDR3L RAM (Expandable) and 4GB eMMC Flash (Expandable) by default.
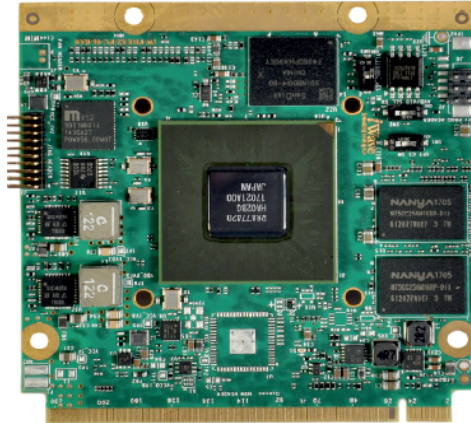
iW-RainboW-G20M-RZ/G1M/G1N Qseven SOM

The RZ/G1M/G1N Qseven SOM is based on the Renesas's RZ/G1M/G1N Dual Core processor running at 1.5GHz ARM Cortex®-A15 MPCore cores. A single ruggedized Qseven connector provides the carrier board interface to carry all the I/O signals to and from the Qseven SOM. This SOM supports 1GB DDR3L RAM (Expandable) and 4GB eMMC Flash (Expandable) by default.
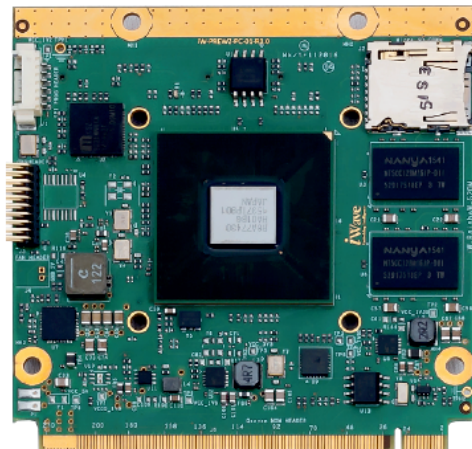
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