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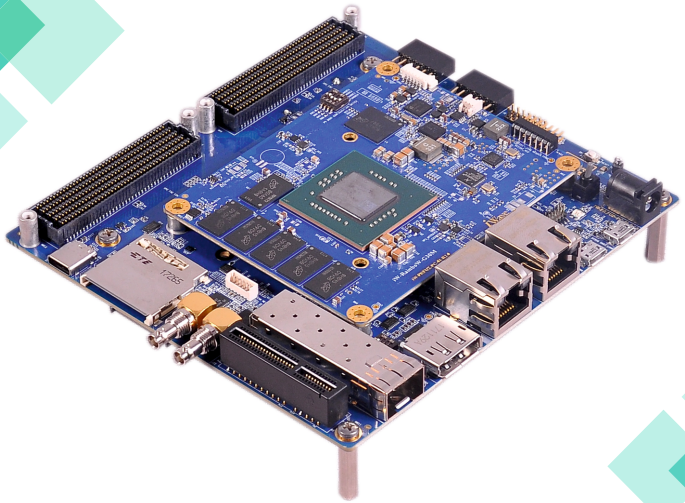
Embedding Intelligence

Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) SOM Development Platform



iW-RainboW-G30D Quick Start Guide

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Introduction

Quick Start Guide (QSG)

This Quick Start Guide (QSG) is designed for users to quickly understand the iW-RainboW-G30D-Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) SOM Development Platform and start the evaluation. It provides the instructions for setting-up the Development Platform from the packed box.

Development Platform Description

The iW-RainboW-G30D Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) SOM Development platform incorporates with iWave's Zynq Ultrascale+ MPSoC based SOM and High Performance carrier board with all necessary interface connectors for developing an embedded application based on Xilinx Zynq Ultrascale+ MPSoC.

Some Key Features of the Board Include:

- Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) with upto 504K
- 4GB PS DDR4 with ECC & 1GB PL DDR4
- 8GB eMMC Flash (Boot & OS storage)
- Standard SD Port
- Dual Gigabit Ethernet RJ45 Magjack
- PCIe x1 Port
- Display Port
- USB 3.0 Type C Port
- M.2 Connector for SATA
- SFP+ Connector
- SDI Video In & Video Out Connectors
- Dual FMC and Dual PMOD Connectors

Safety

Environmental Compliance

iW-RainboW-G30D-Zynq Ultrascale+ MPSoC SOM Development Platform is designed by using RoHS2 and REACH compliant components and manufactured on lead free production process.

ESD Protection

This development platform is ESD sensitive. Handle the product only in accordance with the installation instructions given in the manual. Therefore ESD precautions should be taken care during transport and handling.

Must use a ESD ground strap or other grounded source before unpacking or handling the hardware.

Product Disposal

Check the local regulations for disposal of electronic products before disposing.

Quick Start Steps

Step 1 - Unpacking

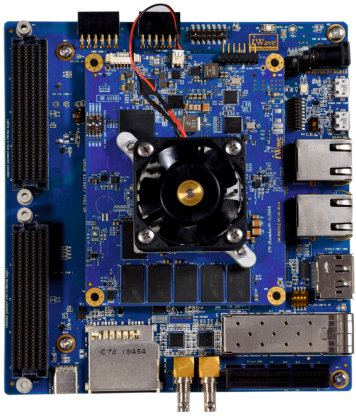
Remove the Development platform from antistatic cover and place it above the ESD free area. Use anti-static pad/mat with proper grounding to place the Development Platform. Don't touch inside surface of the circuit board.

Avoid using board in extreme dust, humidity and temperature conditions. Also this development platform is not water proof. Keep away from wet surface.

Package Box

Step 2 - What's Inside The Box ?

Make sure that, below deliverables are received without any physical damage.



Development Platform

USB OTG Cable

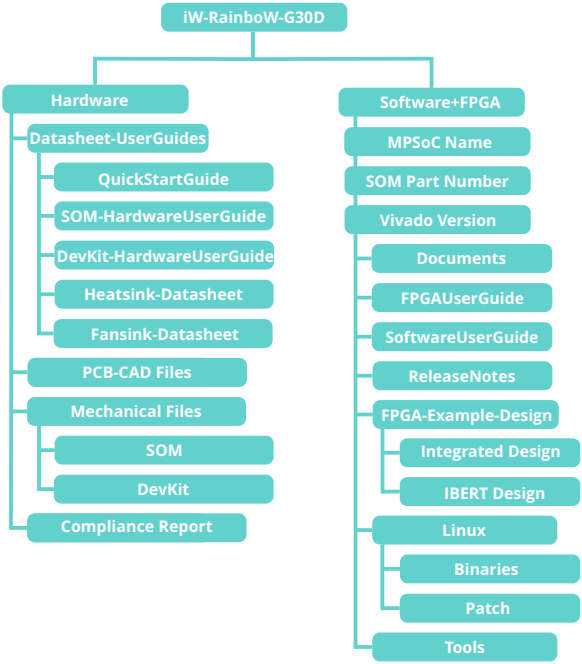
12V,5A Power Supply

QSG

Step 3 - Download FTP Contents

All the technical resources of iW-RainboW-G30D Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) SOM Development platform is available in iWave FTP server.

FTP Folder Structure



For FTP Credentials, Contact ***: mktg@iwavesystems.com***

Step 4 - Read Documents

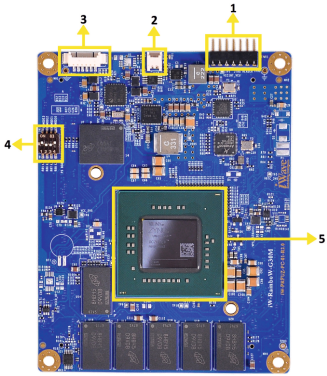
Before moving to next step, one must go through all the documents including Hardware User Guides and get familiar about iW-RainboW-G30D Development platform.

Development Platform Documents:

- Quick Start Guide (This document)
- SOM Hardware User Guide
- DevKit Hardware User Guide
- Release Notes
- Software User Guide
- FPGA User Guide

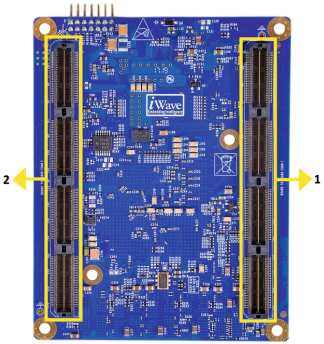
Step 5 -Quick View-SOM

TOP View



1. JTAG Header
2. FAN Header
3. PMIC Programming Header
4. Boot Mode Switch
5. Zynq US+ MPSoC

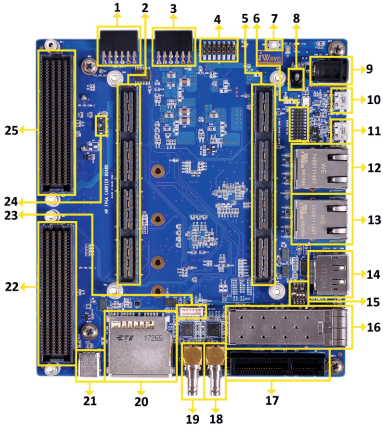
BOTTOM View



1. Board to Board connector 1
2. Board to Board connector 2

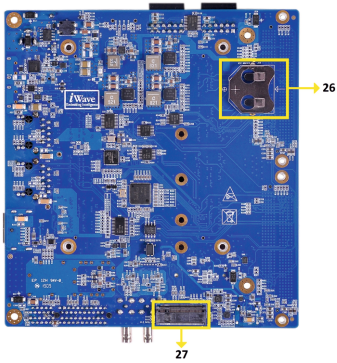
Step 6 - Quick View-Carrier Board

TOP View



01. PMOD Connector 2
02. Board to Board Conn 1
03. PMOD Connector 1
04. JTAG Header
05. Board to Board Conn 2
06. PS IO Header
07. RESET Switch
08. ON/OFF Switch
09. Power Jack
10. Debug UART Connector
11. USB OTG Connector
12. GEM0 Ethernet Jack
13. GEM3 Ethernet Jack
14. Display Port
15. PS GTR Config Switch
16. SFP+ Connector
17. PCIe X1 Connector
18. SDI IN HD BNC Jack
19. SDI OUT HD BNC Jack
20. Standard SD Connector
21. USB Type C Connector
22. FMC Connector 1
23. CAN Header
24. FMC Voltage Select Switch
25. FMC Connector 2
26. RTC Battery Holder
27. M.2 SATA Connector

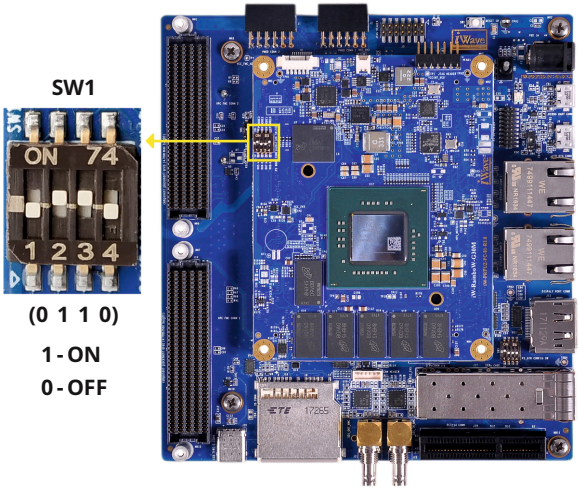
BOTTOM View



Step 7 - Setting-Up

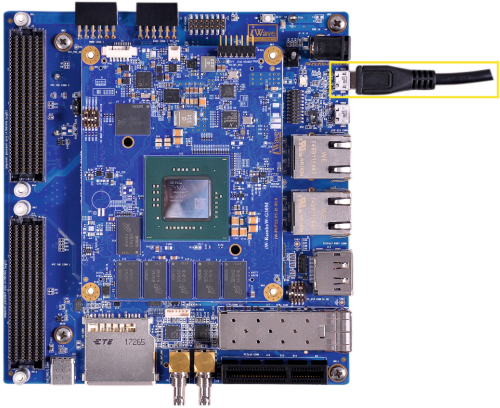
On Board Switch Setting

Make sure that On-SOM Boot Mode Switch (SW1) is set for eMMC boot as shown in below image.



Debug Port Setting

Connect TypeA end of USB cable to PC and MicroB end of USB cable to Development platform's Debug USB MicroAB Connector (J5) as shown below.



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

https://ftdichip.com/products/ft232rq/

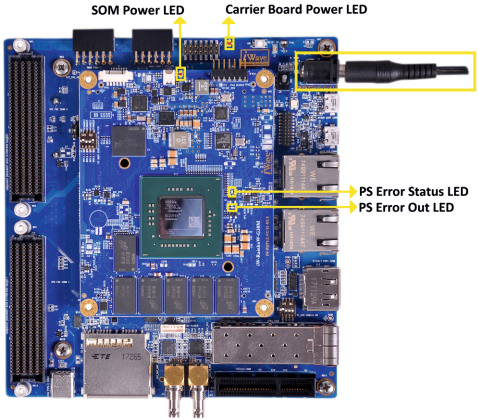
Setup the Debug Terminal parameters.

- Baud Rate : 115200
- Data bits : 8
- Parity : None
- Stop Bits : 1
- Flow Control : None

Step 8 - Power-ON the Development Platform

Connect the 12V power supply plug to the power connector (J4) of the Development platform as shown below and switch ON the power supply.

Once power is applied to the Development platform, the power LEDs in Zynq Ultrascale+ MPSoC SOM and High Performance carrier board will glow as shown in the below image.



Warning :

1. Do not try to connect any other power supply other than supplied along with the Development platform.

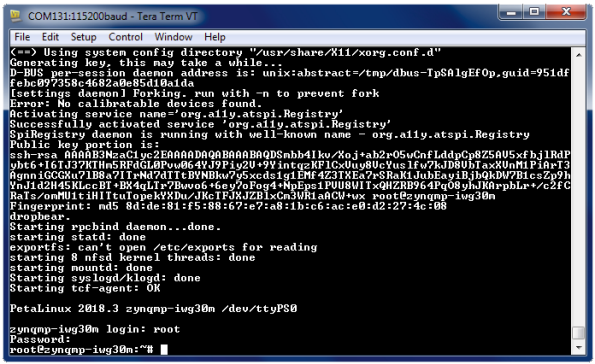
2. Do not plug or remove the Zynq Ultrascale+ MPSoC / FPGA SOM from carrier board with live power.

3. Contact iWave if power status LEDs are not glowing or PS Error status LEDs are glowing.

Step 9 - Test Environment setup

Once power is applied to the Development Platform as explained in the previous section, boot messages being displayed in the debug terminal of the PC/Laptop which is connected to the Development platform. Press any key in terminal immediately to see the command prompt of the Boot loader or wait until OS boots.

After OS boots, Login prompt being displayed in the debug terminal. Enter username and password as “root” to get the Linux command prompt as shown below.



Debug Terminal

Heat Sink Integration

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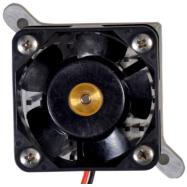
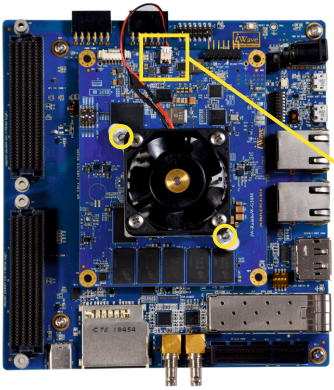
iW-RainboW-G30D Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) SOM Development platform comes with Heatsink+Fan attached to it. Makesure to power up the platform only with Heatsink+Fan attached.

Below is the Heatsink+Fan integration procedure for reference.



Heatsink + Fan

Peel off Thermal pad sticker



Fix the heatsink in to SOM with two screws

Connect the Fan cable to SOM Fan Header

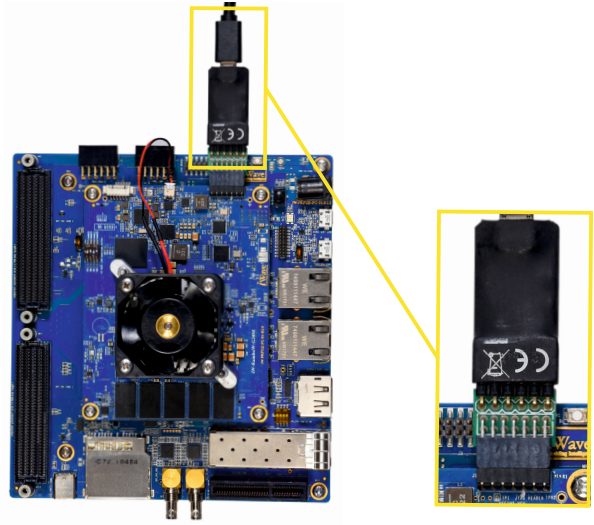
JTAG Connection

iW-RainboW-G30D Zynq Ultrascale+ MPSoC (ZU7/ZU5/ZU4) SOM Development platform Support JTAG interface in SOM and Carrier Board for MPSoC/FPGA Programming and debugging.

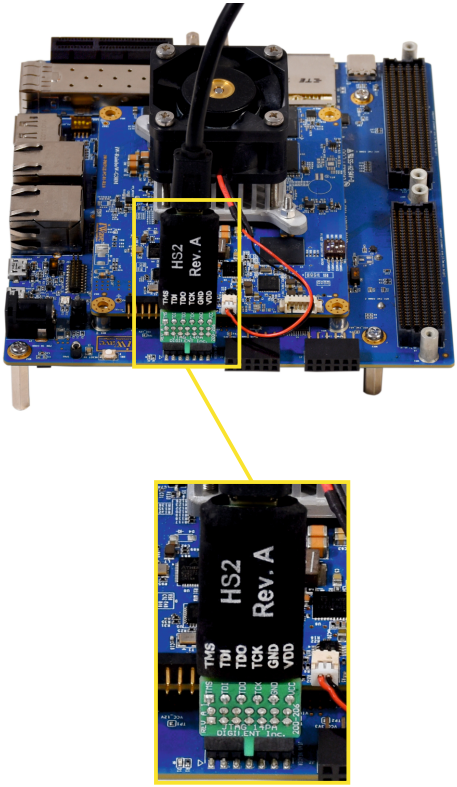
Example JTAG Cable which is tested with this Platform is mentioned below.

JTAG-HS2 Programming Cable
Part Number: 410-249

JTAG Connection to SOM :



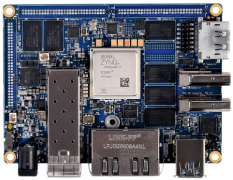
JTAG Connection to Carrier Board :



iWave's Other Products

Product Name: Zynq 7000 SODIMM SOM
Processor: Xilinx Zynq 7000 SoC
RAM: 512MB DDR3*
Application: Industrial Automation, Industrial Equipments, Machine Vision, Control & Measurement.

Product Name: iMX8 SMARC SOM
Processor: NXP's iMX8 QuadMax SoC
RAM: 8GB LPDDR4*
Application: Industrial Control Systems & HMI, Portable Medical devices, Augmented & Virtual Reality.



Product Name: Zynq UltraScale+ MPSoC (ZU5/ZU4/ZU3/ZU2) SBC
Processor: Xilinx's Zynq US+ MPSoC (2/3/4/5-EV/EG/CG)
RAM: 8GB PS DDR4* & 4GB PL DDR4*
Application: AI/ML, Industrial IoT, Human Machine Interface, Advanced Driver Assistance Systems.

Product Name: Zynq US+ MPSoC (11/17/19-EG) SOM
Processor: Xilinx's Zynq US+ MPSoC (11/17/19-EG)
RAM: 4GB PS DDR4*
4GB Dual PL DDR4*
Application: Video Surveillance, Cloud Computing, Artificial Intelligence/Machine Learning, 5G Wireless,

RAM size is expandable. Contact iWave team for further details

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■Live Chat

We provide Live Chat technical support to our customers. Contact your iWave window to enable Live Chat support.

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Call us on : +91-80-26683700, 26781643, 26786245

Warranty & RMA

Warranty support for Hardware: 1 Year from iWave or iWave's EMS partner.

For Warranty terms & Registration, scan the QR code or go to :
https://www.iwavesystems.com/support/warranty/

For Return Merchandise Authorization (RMA),scan the QR code or go to :
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Headquarters: INDIA

iWave Systems Tech. Pvt. Ltd.
7/B, 29th Main, BTM Layout 2nd Stage, Bengaluru-560076,India.
Ph: +91-80-26683700, 26781643
Email: mktg@iwavesystems.com
www.iwavesystems.com

JAPAN

iWave Japan, Inc.
8F-B, Kannai Sumiyoshi Building, 3-29, Sumiyoshi-cho, Naka-ku, Yokohama, Kanagawa, Japan.
Email: mktg@iwavesystems.com

UNITED STATES

iWave USA
1692 Westmont Ave., Campbell, CA95008 USA
Ph: 408-206-5958
Email: info@iwavesystems.us

EUROPE

iWave Europe.
International Sales and Marketing, Europe.
Venkelbaan 55 2908KE Capelle aan den Ijssel
Email: info@iwavesystems.eu

Our Partners Across The Globe

GLOBAL
Arrow Electronics, Inc.
9201 East Dry Creek Road
Centennial, CO 80112 USA
NA: +1-855-326-4757
websupport@arrow.com
EMEA: +49 (0) 6102 5030 0
esc@arroweurope.com
Asia: +86 0755 82505643
murphy.chan@arrowasia.com

GLOBAL
Future Electronics
237 Hymus Blvd.,
Pointe Claire, Quebec,
Canada H9R 5C7.
Tel: 514-694-7710
Email: eservices@futureelectronics.com
EMEA: +44 178 427 5000
FES-EMEA@FutureElectronics.com
Asia: info-sales-asia@futureelectronics.com

GLOBAL
Mouser Electronics, Inc.
1000 North Main Street
Mansfield, Texas 76063,USA
Tel: +1 800-346-6873
E-mail: sales@mouser.com

ONLINE
Digi-Key Corporation
701 Brooks Avenue South
Thief River Falls,
MN 56701-0677
Tel: +1 800-344-4539
E-mail: sales@digikey.com

NETHERLANDS, BELGIUM
Batenburg Adelco Electronics
Venkelbaan 55
2908 KE Capelle aan den Ijssei,
The Netherlands
Tel: +31 (0)10 2580580,
+32 (0)3 3374499
Email: info@adelco.nl

FRANCE
EUROCOMPOSANT
1, rue Rene Caudron - BP 15
78960 Voisins-le-Bretonneux,
France
Tel: +33-130642600
Fax: +33-130436827
Email: pparisot@eurocomposant.fr

USA
Embedded Technologies, Inc
2870 Scott St, Suite 101,
Vista, CA USA,
Tel:+1 760 5982870,
E-mail: info@embeddedtechnologies.com

RUSSIA
Symmetron
Business-Park River City,
Leningradskoe Shosse 69,
Building 1, Moscow, Russia, 125445.
Tel: +7(495)961-2020
Email: Mark.Volodarskiy@symmetron.ru

KOREA
J.S Communications
#913, Dojung Tower, Anyang-ro 115,
Manan-gu, Anyang-si, Gyeonggi-do, Korea
Tel : +82-31-349-9793
Email: scott.lee@jscoms.co.kr

TURKEY
ÖZDİSAN ELEKTRONİK A.Ş.
DES Sanayi Sitesi 104 Sokak A07
Blok No: 54-56 Upper Dudullu / Ümraniye
Istanbul - Turkey
Tel: +90 216 420 18 82
E-mail: info@ozdisan.com

SWEDEN
Acte Solutions AB
Box 4115,
SE-171 04 Solna,
Sweden.
Tel: +46 8 445 2800 / 46
Email: peter.olsson@acte.se

SPAIN
Anatronic
Paseo de los Melancólicos, N° 9-2° A
28005 MADRID, Spain
Tel : +34 91 366 01 59
Email: bpater@anatroinc.com