



# Gowin PicoRV32 Software and Hardware Reference Design

## **Release Note**

RN912-1.2E, 06/01/2020

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## Revision History

Date	Version	Description
01/16/2020	1.0E	Initial version published.
03/12/2020	1.1E	<ul style="list-style-type: none"><li>● MCU supports GPIO of Wishbone bus interface;</li><li>● MCU supports extended AHB bus interface;</li><li>● MCU supports off-chip SPI-Flash download and startup;</li><li>● MCU supports the read, write and erasure SPI-Flash;</li><li>● MCU supports Hardware Stack Protection and Trap Stack Overflow.</li></ul>
06/01/2020	1.2E	<ul style="list-style-type: none"><li>● MCU software online debugging function supported;</li><li>● MCU core interrupt handling function enhanced;</li><li>● MCU core instructions optimized;</li><li>● Mergebin tool updated and naming convention resolution for the synthesis tool of "GowinSynthesis" supported.</li></ul>

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# 1 About This Release

This release includes the followings:

- MCU software online debugging function is supported;
- MCU core interrupt handling function is enhanced;
- MCU core instructions are optimized;
- Mergebin tool updated and naming convention resolution for the synthesis tool of “GowinSynthesis” is supported.

Gowin\_PicoRV32 software development kit is given at [http://cdn.gowinsemi.com.cn/Gowin\\_PicoRV32\\_V1.0.zip](http://cdn.gowinsemi.com.cn/Gowin_PicoRV32_V1.0.zip).

Parameters have been configured in Gowin\_PicoRV32 software and hardware reference designs. These reference designs can be used in GOWIN MCU Designer (V1.1 and above) and GOWIN YunYuan software (V1.9.6 Beta and above).

# 2 Function and Enhancement Summary

The Gowin\_PicoRV32 IP functions and enhancement items are as follows:

Function	Description
Front-end synthesis tool	<ul style="list-style-type: none"> <li>● Synplify Pro P-2019.09G-Beta2 and above</li> <li>● GowinSynthesis V1.9.5 Beta and above</li> </ul>
Release function	<ul style="list-style-type: none"> <li>● MCU software online debugging function supported;</li> <li>● MCU core interrupt handling function enhanced;</li> <li>● MCU core instructions optimized;</li> <li>● Mergebin tool updated and naming convention resolution for the synthesis tool of "GowinSynthesis" supported.</li> </ul>
Back-end place & route tool	Gowin_V1.9.6 Beta and above
Software compile tool	GOWIN MCU Designer V1.1 and above
Enhancements	–
New Devices Supported	<ul style="list-style-type: none"> <li>● GW1N-9/GW1NR-9/GW1N-9C/GW1NR-9C</li> <li>● GW2A-18/GW2A-18C/GW2AR-18/GW2A-18C/GW2AR-18C/GW2ANR-18C</li> <li>● GW2A-55/GW2A-55C</li> </ul>

# 3 Platform Supported

The corresponding software of the released IP supports the following platforms:

Windows	Windows 7/8/10(32 bit/64 bit)
Linux	Centos 6.8/7.0/7.5(64 bit) Ubuntu 18.04 LTS

# 4 Documents

The released IP manuals are listed in the table below. You can download the PDF manuals at Gowin website or read online.

**Table 4-1 Documents List**

Documents	
<a href="#">IPUG914</a> , Gowin PicoRV32 Hardware Design Reference Manual	Online, PDF
<a href="#">IPUG913</a> , Gowin PicoRV32 Software Download Reference Manual	Online, PDF
<a href="#">IPUG911</a> , Gowin PicoRV32 Software Programming Reference Manual	Online, PDF
<a href="#">IPUG915</a> , Gowin PicoRV32 Quick Start Reference Manual	Online, PDF
<a href="#">IPUG910</a> , Gowin PicoRV32 IDE Software Reference Guide	Online, PDF
<a href="#">RN912</a> , Gowin PicoRV32 Software and Hardware Reference Design Release Note	Online, PDF



