

# EVAL-pSRAM-GW1NR4 Development Board Quick Start User Guide



Figure 1 PCB Components



# Kit List



#### **Figure 2 Development Board**

### Introduction

Thank you very much for taking EVAL-pSRAM-GW1NR4 as the development & learning platform. This user guide can help you install the required software, compile the Demo, and download it to the development board to test so as to be familiar with the development flow.

### **Install Software**

Install Gowin EDA software (Gowin YunYuan Software) to creat, compile and download FPGA Demo program. Download the EDA software, apply for a license, and obtain software user guide at GOWINSEMI website <u>https://www.gowinsemi.com/en/support/home/</u>. For details on the software installation method and usage, please refer to <u>SUG100</u>, Gowin YunYuan Software User Guide.

### **Development Board Power-on Test**

The test program has been downloaded into the on-chip FLASH



before the delivery of EVAL-pSRAM-GW1NR4 development board. The development board can be checked whether to work when it is powered on.

Plug the 5V power supply into the power socket of the development board. Switch on the power to start the internal FLASH to load. After loading is done, eight green LEDs will blink, indicating that the development board can work.

### **Compile Demo Program**

The LED test program is to demonstrate eight LEDs blinking. Users

can download the corresponding demo at Gowinsemi website:

https://www.gowinsemi.com/en/support/database/. Save the project in the

directory with no Chinese characters. Open and compile this demo using

Gowin YunYuan software.

- Open the "LED\_test.gprj" project and the follows are displayed in the "Design" window:
  - GW1NR-LV4MG81C6/I5: Gowin FPGA device part number;
  - LED\_test.v: Verilog code;
  - LED\_test.cst: Physical constraints file.

#### Figure 3 Design





2. Right click "Place & Route" in the "Process" window and select "Rerun All";

Figure 4 Select Rerun All			
Process	8	×	
<ul> <li>Design Summary</li> <li>User Constraints</li> <li>FloorPlanner</li> <li>Timing Constraints Editor</li> <li>Synthesize (Synplify Pro)</li> <li>Synthesis Report</li> </ul>			
Netlist File			
<ul> <li>Place &amp; Route</li> <li>Place &amp; Route Report</li> <li>Timing Analysis Report</li> <li>Ports &amp; Pins Report</li> <li>Power Analysis Report</li> <li>Program Device</li> </ul>	► 0 2	Run Rerun Rerun All Stop Clean	
	Ø	Configuration	

 After compilation, the following information will be displayed. The generated bitstream file is saved in: ..LED\_test\impl\pnr\LED\_test.fs.
 Figure 5 Compiling Completed

Output	
Info	(TA0001) : Timing analysis completed.
Info	(FS0001) : Bitstream generation in progress
Info	(FS0002) : Bitstream generation completed.
Info	(PW0001) : Power analysis completed.
Info	(CM0008) : Generate 'LED_test.power.html' file completed.
Info	(CM0008) : Generate 'LED test.tr.html' file completed.
Info	(CM0008) : Generate 'LED test.rpt.html' file completed.
Info	(CM0008) : Generate 'LED_test.rpt.txt' file completed.
Info	(CM0001) : Mon Aug 13 09:15:29 2018
Output	Error Warning Info

### Download and Run

 Connect the JTAG (J2) of development board with PC using the download cable and switch on the power. Double-click on the "Program Device" in the "Process" window. The "Programmer" window will pop up. Right-click on the device list, and select "Configure Device". The Device configuration dialog box will pop up.



#### **Figure 6 Programmer**

🚧 Progran	nmer 2					
File Edit	About					
			<b>P</b>			
Enable	Fa	mily	Device	•	Operation	
1 🔽	GW1NR		GW1NR-4		SRAM Program	
				Ad De Ma Co Pra SV I/C	d Device lete Device over Device Up over Device Down infigure Device ogram/Configure F File Create 9 State curity Key Setting	

2. Set the download mode as shown below and specify the bitstream file path.

**Figure 7 Device Configuration** 

👾 Device configuration	? ×		
-Device Operaion			
Access Mode:	SRAM Mode 🔻		
Operaion:	SRAM Program 🔻		
Configure SRAM from Programmer(external host) without compression, encryption and security!			
- Programming Options			
Programming File: H	:/code/LED_test/impl/pnr/LED_test.fs		
	Save Cancel		

3. After configuration, click the "Program/Configure" to download the program. After finishing, the eight LEDs of the development board will blink.

#### Figure 8 Program/Configure

F	ile Edit	About			
******	-	8119			
	Enable	Family	Program/C	Configure Operation	
1	<b>V</b>	GW1NR	GW1NR-4	SRAM Program	F



# Support and Feedback

Gowin Semiconductor provides customers with comprehensive technical support. If you have any questions, comments, or suggestions, please feel free to contact us directly by the following ways.

Website: www.gowinsemi.com

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### **Revision History**

Date	Version	Description
02/25/2020	1.0E	Initial version published.