Gowin Software

# Release Note

**RN100-1.9.12.04E, 09/22/2026**

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# 1 About This Release

## Gowin Software Release Note

The V1.9.12.04 release includes features and enhancement functions of Gowin Software. GOWINSEMI recommends downloading this version to obtain the latest software improvements.

The following table summarizes the release items:

| Feature | Description |
|---|---|
| Gowin Software: V1.9.12.04 | |
| PNs Added | ● GW1AN-5 Version B<br>- GW1AN-LV5MG132XC6/I5<br>- GW1AN-UV5MG132XC6/I5<br>● GW5A-25 Version B<br>- GW5A-LV25MG196C1/I0<br>- GW5A-LV25MG196C2/I1<br>● GW3AR-20 Version A<br>- GW3AR-LV20UG256DC1/I0 |
| Devices Removed | ● GW1AN-5 A<br>● GW1AN-3 A |
| New Functions | ● Added IP cores: AXI DMA, AHB DMA, Gowin_GoRV64, SerDes USB3.2 PHY, UBM, RNG, GMT, and OSC for GW1AN-5/GW1AN-3 devices.<br>● Added Tcl support for the PLLVR, SSRAM, and Gowin_EMPU IP cores.<br>● Added support for reading initial value files in hexadecimal-format for the BSRAM IP core on GW3A(R)-20 devices.<br>● Added support for downloading .bin and .binx bitstream files using GAO Programmer.<br>● Disabled the Initial Value configuration option when no signal is set for Probe Out in GVIO.<br>● Added device information and software version information to synthesized netlists and output reports.<br>● Added the "Retiming Resource" option to the Place configuration page to select target resources for timing optimization for BSRAM/DSP-related logic. For details, |

| Feature | Description |
| --- | --- |
| | see Section 4.3.3 "Place" in *SUG100, Gowin Software User Guide*.<br>● Added the "Tie Unused Routing Resources to VCC" option to the Route configuration page. For details, see Section 4.3.3 "Route" in *SUG100, Gowin Software User Guide*.<br>● Added support for multi-corner timing analysis settings in the Timing Constraints Editor.<br>● Added the D0LN_RX_RD_STD, D1LN_RX_RD_STD, and D2LN_RX_RD_STD parameters to MIPI_CPHY for Arora V devices.<br>● Made the GW_JTAG primitive available, allowing users to use custom JTAG data registers in the TAP controller.<br>● Added the CHOP test port to the SARADC primitive on GW3A(R)-20 devices.<br>● Added support for GPIO Slew Rate settings on GW3A(R)-20 devices.<br>● Added support for mDRP-related ports to the MIPI_DPHY primitive on GW5AR(T)-15 devices.<br>● Added support for internal logic control of the RECONFIGN/JTAGSELN functions on GW1AN-5 devices.<br>● Added support for background erase of external Flash on LittleBee family, GW2A(N)(R)-18 devices, and GW2A(R)-55 devices in Programmer. |
| Updates | ● Updated IP cores: Gowin_GoRV32_FP, Gowin_GoRV32, PDM2PCM, CSC, DDR3, MIPI_CPHY, USB3.1 PHY, PWM, Gowin_EMPU_M1, USB 2.0 Device Controller, EasyCDR, PCIe SGDMA, Lite PSRAM Memory Interface, and MIPI TX/RX Advance.<br>● Optimized the GAO command-line mode and output files. For details, see Chapter 5 "Using GAO from the Command Line" in *SUG114, Gowin Analyzer Oscilloscope User Guide*.<br>● Updated the View Help documentation to include information about the newly added messages.<br>● Updated the LQFP100X package for GW1AN-5 devices. For details, see the *UG192, GW1AN-5 Pinout*.<br>● Updated Pin 22 information of the QN32/QN32X package for the GW1N-2 device: changed it from NC to VSS. For details, see *UG171, GW1N-2 Pinout*.<br>● Updated the Background Programming options for GW2AN-9X/GW2AN-18X devices by replacing the original I2C/JTAG/SSPI/QSSPI option with two independent options: I2C/JTAG and SSPI/QSSPI.<br>● Added support for Place Option values 3 and 4 on all devices.<br>● Removed the DSim Cloud simulation tool access entry from the GUI menu bar and toolbar.<br>● Removed the text-format timing report configuration option. Text-format timing reports are now generated by default. |

| Feature | Description |
| --- | --- |
| | ● Removed LVCMOS25UD33 support for GW5A(S)(T)-138/GW5AT-75 devices.<br>● Changed the message from Error to Warning when the PLL VCO or CLKOUT frequency is below the lower limit.<br>● Updated the fuse configuration of the MIPI_OBUF_A primitive for GW3A(R)-20 devices to improve I/O drive capability.<br>● For GW5AR(T)-15 devices, updated the fuse configuration for Drive = 2 mA when I/O Type is set to LVCMOS18 or LVCMOS15 and VCCX = 1.8 V, to improve I/O drive capability.<br>● Changed Message PA2126 from Warning to Error when a primitive input is unconnected or connected to a passive net.<br>● Reported an Error and terminated the process when the PLL output port requirements and parameter restrictions are inconsistent.<br>● Optimized the JTAG Server programmer selection process. When the programmer location information (Location) is not transmitted correctly, the first programmer detected on the computer is selected and opened by default. |

### IP Release Note

- USB 3.2 PHY (V1.0)
  - Added support for the USB 3.2 PHY at 20 Gbps, 10 Gbps, and 5 Gbps
- GMT (V1.0)
  - Added support for the GMT hard core, including matrix transposition
- RNG (V1.0)
  - Added support for the RNG hard core, including random number generation
- UBM (V1.0)
  - Added support for the UBM hard core, including arbitrary bit mapping
- PCIe SGDMA (V1.1)
  - Added support for interrupt mode
- CSC (V1.3)
  - Added support for GW3A devices
- EasyCDR (V1.5)

  - Added support for GW3A devices

- USB Device Controller (V3.4)
  - Added the High Speed manual enable control option and corresponding interface, allowing users to switch between High Speed and Full Speed modes through logic control. The option is disabled by default and can be enabled as needed, mainly for UAC audio applications.
  - Added endpoint valid information to the dbg interface for user observation.
  - Added the device descriptor interface timing configuration option, allowing users to store device descriptors in external RAM. The option is disabled by default.
- PDM2PCM (V1.7)
  - Upgraded the IP Core to fix an error in data output amplitude truncation
- DDR3 Memory Interface (V6.1)
  - Fixed an issue causing inconsistencies between the VO and RTL simulation results when the memory clock frequency exceeded 400 MHz
- PWM (V1.1)
  - Changed the Cycle Width parameter range in the GUI from 2–32 to 4–32
- USB3.1 PHY (V1.2)
  - Fixed a descrambling error occurring between two consecutive SKPs during full-bandwidth transmission

# 2 Platform Supported

The software is supported on the platforms listed below.

| | |
|---|---|
| Windows | Windows 7/8/10/11 (64-bit) |
| Linux | Centos 7.0/7.3/7.5/8.2/9 (64-bit)<br>Ubuntu 18.04/20.04/22.04/24.04/24.10 LTS |
| macOS | Sonoma 14.4/14.6.1 (M2)<br>Ventura 13.6 (M2)<br>Sequoia 15.2 (M4)<br>Sequoia 15.3 (M2) |

**Note!**

- Apple's official signing and notarization process of the current macOS dmg package has not yet completed, and users may encounter system security prompts during installation.
- When running Gowin Software on a Linux system, you need to set the environment variable LD_LIBRARY_PATH first, such as
  export LD_LIBRARY_PATH=installPath/Gowin_V1.9.12.04/IDE/lib
- If you need Gowin Software V1.9.12.04(32-bit) in Windows or CentOS 6 (64-bit), please contact GOWIN Support.

# 3 Memory Requirements

The table below lists the minimum and recommended memory requirements for Gowin Software to support GOWIN devices. It is recommended to use a 64-bit operating system when running Arora V devices on the Windows platform.

| Device | Minimum | Recommended |
|---|---|---|
| GW5A(S)(T)-138/75 | 3GB | 5GB |
| GW5A(T)-60 | 3GB | 5GB |
| GW2A(N)-55 | 2GB | 2.5GB |
| GW5A(S)(R)-25 | 2GB | 4GB |
| GW3A(R)-20 | 2GB | 4GB |
| GW2A(N)(R)-18 | 1GB | 1.5GB |
| GW5A(R)T-15 | 1GB | 1.5GB |
| GW1N(R)-9 | 512MB | 1GB |
| GW1AN-5 | 256MB | 1GB |
| GW1N(S)(E)(R)(F)-4 | 256MB | 1GB |
| GW1N(Z)(R)-2 | 128MB | 1GB |
| GW1(A)(N)(Z)(R)-1 | 128MB | 1GB |

# 4 Ports

| Port No. | Port Type | Port Description |
|---|---|---|
| 36546 | Fixed Protocol Port | Used for Gowin Analyzer Oscilloscope (GAO) display communicating with JTAG server |
| 36547 | Fixed Protocol Port | Used for Gowin Analyzer Oscilloscope (GAO) display communicating with JTAG server |
| 36548 | Custom Protocol Port | Used for Gowin Programmer communicating with JTAG server |
| 10559 | Custom Protocol Port | The license server port for Gowin Software |
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# 5 Documents

The released documents are listed in the table below and the PDF versions are packaged in the installation directory.

| Documents | Description |
|---|---|
| SUG501, Gowin Software Quick Installation User Guide | PDF |
| SUG918, Gowin Software Quick Start Guide | PDF |
| SUG100, Gowin Software User Guide | PDF |
| SUG940, Gowin Design Timing Constraints User Guide | PDF |
| SUG114, Gowin Analyzer Oscilloscope User Guide | PDF |
| SUG282, Gowin Power Analyzer User Guide | PDF |
| SUG283, Gowin Primitive User Guide | PDF |
| SUG550, GowinSynthesis User Guide | PDF |
| SUG1541, Gowin Software Physical Constraints User Guide | PDF |
| SUG502, Gowin Programmer User Guide | PDF |
| SUG937, Gowin Software User Messages Reference | Online help, PDF |
| SUG755, Gowin HDL Schematic Viewer User Guide | PDF |
| SUG949, Gowin HDL Coding User Guide | PDF |
| UG287, Gowin DSP User Guide | PDF |
| UG285, Gowin BSRAM & SSRAM User Guide | PDF |
| UG286, Gowin Clock User Guide | PDF |
| UG288, Gowin Configurable Function Unit (CFU) User Guide | PDF |
| UG289, Gowin Programmable IO (GPIO) User Guide | PDF |
| UG295, Gowin User Flash User Guide | PDF |
| UG300, Arora V BSRAM & SSRAM User Guide. | PDF |
| UG303, Arora V Configurable Function Unit (CFU) User Guide | PDF |
| UG304, Arora V Programmable IO (GPIO) User Guide | PDF |
| UG305, Arora V Digital Signal Processing (DSP) User Guide | PDF |
| UG306, Arora V Clock User Guide | PDF |
| SUG1189, Gowin Virtual Input Output User Guide | PDF |

| Documents | Description |
| --- | --- |
| SUG1220, Gowin Software Tcl Commands User Guide | PDF |

# 6 Known Problems and Solutions

The following problems apply to the supported functions in Gowin Software.

1. **In HDL design, undefined initial values of reg may cause mismatches between the synthesized netlist and the HDL description.**

   **Solution:** Define initial values for reg in the HDL design.

2. **An error is reported when launching the software on Linux: symbol lookup error: /lib/x86_64-linux-gnu/libfontconfig.so.1: undefined symbol: FT_Done_MM_Var**

   **Solution**: Delete the file /IDE/lib/libfreetype.so.6 located in the software installation directory.

3. **The information output pane displays messy code on Ubuntu 18.04 LTS system**

   The information output pane displays messy code in Linux; when the content is copied and pasted to the code editing pane, the display is normal.

   **Solution:** Delete the file /IDE/lib/libfreetype.so.6 located in the software installation directory.

4. **If Smart App Control is enabled on Windows 11, the software may be blocked, causing the installation to fail. Even if the installation succeeds, the software may take a long time to launch**

   **Solution**: Disable Smart App Control.

5. **Failure to generate SSCPLL and SerDes IP on Windows 7 system**

   **Solution**: Update the Windows operating system to Windows 8 or later.

### 6. GAO BSRAM Placement Failure

**Solution:** Reduce the number of BSRAMs used in the .gao configuration, for example by reducing the configured capture depth, reducing the number of captured signals, or modifying the implementation method of the trigger expression.

### 7. GAO Capture Signal Failure

**Solution:** Try to reduce the number of capture signals and capture depth. If the problem still exists, please contact GOWIN support.

### 8. GAO PnR Failure

ERROR (PR1011): Failed to capture GAO signal<name>, because there is no wire to route for the signal.

**Solution:** Check whether the signal is hard-wired, such as the output of IOLOGIC.

### 9. If the simulator reports the following error during timing simulation using the .vho file: Failed to find INSTANCE 'GSR'

It is due to the fact that VHDL language does not support the duplication of names for primitives and their instantiations.

**Solution:** Modify the instantiation name of the primitive GSR in both the .vho and .sdf files to "GSR_ins".


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