**GigaDevice Semiconductor Inc.** 

**GD-Link Adapter** 

**User Manual** 



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## 1 Introduction

GD-Link adapter is a three-in-one multi-function development tool for GD32 series of MCUs. It provides CMSIS-DAP debugger port with JTAG/SWD interface. User can use GD-Link adapter for online programming or debug code in compatible IDE such as Keil or IAR. Another important function is offline programming.

The objective of this user manual is to describe how to use GD-Link adapter to achieve the above function.

### 2 Update user code

Plug GD-Link adapter into PC USB connector, LED4 will turn on, which indicates that GD-Link power on normally.LED2 will flash faster when GD-Link communication with PC correctly, and GD-Link will be enumerated as HID by PC, it indicates that GD-Link is working normally.

Open the "GD-Link Programmer" software, Click tool menu "File->Open", and choose the user code.

💑 GD-Link Programmer 1.2.0.1209		
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Click tool menu "Download->Update download file"





3

Click "Yes" and update user code.



### Connecting GD-Link adapter with target board

The following figure and table shows the electrical connection relationship between GD-Link adapter and SWD interface of the target board, according to the information, connect GD-Link adapter with target board via DuPont lines or other connecting wires.

Figure 1. Schematic diagram of GD-link adapter





#### Table 2. Pin function of GD-link adapter

GD-Link Adapter	Target Board
+3V3	+3V3
GND	GND
TMS/IO	SWDIO(PA13)
TCK/CLK	SWCLK(PA14)
TReset	NRst

## 4 Offline programming

Complete the above steps correctly, presses button key K1, then LED1 will flash at the moment, it indicates that the GD-Link adapter is downloading the user code to target board.

If the user code is downloaded to the target board correctly, LED1 will stop flashing and turn on normally.

### 4.1 In Keil (Version 4.7 above) for programming

Power on and connect GD-Link adapter with target board via JTAG/SWD interface.

Select "CMSIS-DAP Debugger" in "Configure Flash Tools" Tools menu.

🛚 Options for Target 'GD32F10x'	×
Device   Target   Output   Listing   User   C/C++   A	Asm Linker Debug Vtilities
<ul> <li>C Use Simulator</li> <li>Limit Speed to Real-Time</li> <li>✓ Load Application at Startup</li> <li>✓ Run to main() Initialization File:</li> <li>✓ Breakpoints</li> <li>✓ Toolbox</li> <li>✓ Watch Windows &amp; Performance Analyzer</li> <li>✓ Memory Display</li> <li>✓ System Viewer</li> </ul>	<ul> <li>Use: CMSIS-DAP Debugger ▼ Settings</li> <li>Altera Blaster Cortex Debugger ↑</li> <li>Stellaris ICDI</li> <li>Stellaris ICDI</li> <li>J-LINK / J-TRACE Cortex</li> <li>Initializatid</li> <li>ULINK / Debugger</li> <li>SiLabs UDA Debugger</li> <li>SiLabs UDA Debugger</li> <li>ST-Link Debugger</li> <li>Fast Models Debugger</li> <li>Warch windows</li> <li>✓ Memory Display</li> <li>✓ System Viewer</li> </ul>
CPU DLL: Parameter: SARMCM3.DLL Dialog DLL: Parameter:	Driver DLL: Parameter: SARMCM3.DLL Dialog DLL: Parameter:



Click "Settings'	' command button,	select "JTAG"	or "SWD"	port.

Options for Target 'GD32F10     Device Target Output Listing Vser     O Use Simulator	x <sup>2</sup> C/C++ A Settings	usm Linker Debug U	Jtilities Jgger ▼ Settings
☐ Limit Speed to Real-Time ✓ Load Application at Startup ✓ Run Initialization File:	to main()	✓ Load Application at Start Initialization File:	up 🔽 Run to main()
Debug Flash Download CMSIS-DAP - JTAG/SW Adapter JTA CMSIS-DAP GD32 V Serial No: Firmware Version: 1.0 TC Wax Clock: 1MHz V	G Device Chain D DCODE O 0x4BAC 0x7900 Automatic Dete Manual Configu Add Delete	Device Name Device Name Od477 ARM CoreSight JTAG 07A3 Unknown JTAG devic ection ID CODE: ration Device Name: e Update IR len:	AP: 0x00
Debug Connect & Reset Options Connect: Normal Reset: Auto	odetect –	Cache Options	Download Options



🛚 Options for Target 'GD32F10x'
Device Target Output Listing User C/C++ Asm Linker Debug Utilities
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Initialization File:       Initialization File:
Cortex-I Target Driver Setup
Debug       Flash Download         CMSIS-DAP - JTAG/SW Adapter       SW Device         CMSIS-DAP GD32       SW         Serial No:       IDCODE       Device Name         Firmware Version:       1.0         SWJ       Port:       SW         Max Clock:       1MHz       Add         Delete       Update       AP:
Debug       Connect & Reset Options       Download Options         Connect:       Normal       Reset:       Autodetect       Image: Cache Code       Download Options         Image: Cache Antiperson of the section of the

Select "Utilities" page, and then select "CMSIS-DAP Debugger", then click "Settings" command button, "Add" the correct flash programming algorithm according to the GD32 MCU which is using.



🖫 Options for Target 'GD32F10x'	×
Device Target Output Listing Vser C/C++ Asm Linker Debug Vtilities	1
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CMSIS-DAP Debugger       Settings       Update Target before Debugging         Init File:       ULINK2/ME Cortex Debugger        Edit         Stellaris ICDI        Edit         Signum Systems JTAGjet        Edit         J-LINK / J-TRACE Cortex       ULINK Pro Cortex Debugger          Command:       SiLabs UDA Debugger          Arguments:       ST-Link Debugger          Fast Models Debugger	
Configure Image File Processing (FCARM): Output File: Add Output File to Group:	
User	
Image Files Root Folder:	
OK Cancel Defaults Help	

🖫 Options for Target 'GD32F10x'						
Cortex-I Target Driver Setup						
Debug       F1ash Download         Download Function       Image: Program in the second						
Start: Size: Size: Add Remove	Help					
OK Cancel Defaults	Help					



## 4.2 In IAR (Version 6.5 above) for programming

Power on and connect GD-Link adapter with target board via JTAG/SWD interface.

Right-click the project name, select the "Options"

😵 systick_led - IAR Embedded Wo	orkbench IDE						
File Edit View Project Simul	lator Tools Window Help						
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SysTick_LED - Det	Ontions	io.h>					
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	Open Containing Folder	Para GPIO InitStructure:					
	File Properties						
	Set as Active	GPIOC clock */					
SusTick IED	GPIO_Ini GPIO_Ini GPIO_Ini GPIO_Ini GPIO_Res	<pre>tStructure.GPIO_Pin = GPIO_PIN_6 GPIO_PIN_7 GPIO_PIN_8 GPIO_PIN_9; tStructure.GPIO_Speed = GPIO_SPEED_50MH2; tStructure.GPIO_Mode = GPIO_MODE_OUT_PP; t(GPIOC, &amp;GPIO_InitStructure); etBits(GPIOC, GPIO_PIN_6 GPIO_PIN_7 GPIO_PIN_8 GPIO_PIN_9);</pre>					
SysTick_LED	<	III					



#### Select "CMSIS-DAP" in "Debugger->Setup->Driver" tools menu.

Options for node "Sys	Options for node "SysTick_LED"					
Category: General Options Runtime Checking C/C++ Compiler Assembler Output Converter Custom Build Build Actions Linker Debugger Simulator Angel CMSIS DAP GDB Server IAR ROM-monitor I-jet/JTAGjet J-Link/J-Trace TI Stellaris Macraigor PE micro	Factory Settings         Setup       Download         Images       Extra Options         Multicore       Plugins         Driver       Images         Simulator       main         Simulator       main         GDB Server       Images         IAR ROM-monitor       Images         I-jet/JTAGjet       Images         J-Link/J-Trace       Images         RDI       ST-LINK         ST-LINK       Images         Macraigor       Images         RDI       Images         Stoloo/200/ICDI       Images					
RDI ST-LINK Third-Party Driver XDS 100/200/ICDI	OK Cancel					



Select "JTAG or SW" interface in "CMSIS DAP->JTAG/SW->Interface" tool menu.

Options for node "LE	)• <b>X</b>
Category: General Options Runtime Checking C/C++ Compiler Assembler Output Converter Custom Build Build Actions Linker Debugger Simulator Angel CMSIS DAP GDB Server IAR ROM-monitor I-jet/JTAGjet J-Link/J-Trace TI Stellaris Macraigor PE micro RDI ST-LINK	Setup       JTAG/SWD       Breakpoints         Probe config       Probe configuration file
Third-Party Driver XDS 100/200/ICDI	OK Cancel



# 5 Revision history

#### Table 1. Revision history

Revision No.	Description	Date
1.0	Initial Release	Jul.15, 2015