GigaDevice Semiconductor Inc.

GD-Link Adapter

User Guide

Revision 2.4

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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 debugging code in compatible IDE such as Keil or IAR. Another important function is offline programming.

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

2. Interactive mode and hardware connection

2.1. Buttons and LED

There are a button KEY1 and 4 LEDs on GD-Link. The button KEY1 is used for firmware upgrade and offline programming. The LEDs are used to display the working status of GD-Link. The *Figure 2-1. GD-Link adapter hardware* shows the position of KEY1 and LEDs on GD-Link. *Table 2-1. The working status of GD-Link adapter represented by different LEDs* briefly describes GD-Link working status indicated by each LED status. The specific meaning of the LED status and the use of the button will be described in detail in the following chapters.



Figure 2-1. GD-Link adapter hardware

Table 2-1. The working status of GD-Link adapter represented by different LEDs

LED	LED status GD-Link working statu	
LED1	always bright	offline programming successful
LEDI	flashing	offline programming
	always bright	firmware upgrade status
LED2	flashing fast	USB connection successful
	flashing slow	USB not connected
LED3	always bright	firmware upgrade status



LED	LED status	GD-Link working status
LED4	always bright	power supply is normal

2.2. Connecting GD-Link adapter with target board

The <u>Figure 2-2. Schematic diagram of GD-Link adapter</u> and <u>Table 2-2. Pin function of</u> <u>GD-Link adapter</u> 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.

Note: It is recommended that the length of the DuPont lines not exceed 10cm.

Figure 2-2. Schematic diagram of GD-Link adapter

+ <u>3V</u> 3	JP2	
	1 2	TMS/IO
	3 4	TCK/CLK TDO/SWO
	5 6	TDI
	9 10	TReset
-	5×2P2.54	
GND		

Table 2-2. Pin function of GD-Link adapter

GD-Link	Target Board(SWD)	Target Board(JTAG)
+3V3	+3V3	+3V3
GND	GND	GND
TMS/IO	JTMS/SWDIO(PA13)	JTMS/SWDIO(PA13)
TCK/CLK	JTCK/SWCLK(PA14)	JTCK/SWCLK(PA14)
TDO/SWO		JTDO(PB3)
TDI		JTDI(PA15)
TReset	NRST	NRST

3. Offline programming

3.1. Tool download

When using the GD-Link offline programming function, please download the latest version of the PC tool GigaDevice GD-Link Programmer from the website <u>https://www.gd32mcu.com/cn/download/7?kw=</u> and perform the following operations.

3.2. Update user code

Plug GD-Link adapter into PC USB connector, LED4 will turn on, which indicates that GD-



Link is powered 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.

First configure the offline download file, open GD-Link Programmer software, click tool menu "GD-Link->Configuration".

- 1. Configure whether to add read protection to the target chip after downloading code.
- 2. Select erase mode, page erase or chip erase.
- 3. Set the maximum number of programming.

Figure 3-1. GD-Link adapter offline download configuration

G	D-Link Configuration
1	Offline-Programming Configuration 2 Secure After Programming Erase Option Chip
	Program Limit Count 2 3
	Online-Programming Configuration Secure After Programming Reset Before Programming
	Product SN Write SN SN Address:0x 00000000
	Next SN: 1 SN Increment: 1
	OK Cancel

Then select the file to download, click tool menu "GD-Link->Upadata file", and choose a specific GD MCU model.

Figure 3-2. Choose the GD MCU model

📸 GD-Link Programmer 4.3.7.9536		-	
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)			
Update File	Propertie	ies	▼ 0.>
Configuration	Propert	ies Window	
	8: 21	3	
Update Firmware		rice(GD-Linl	k)
			USB[Device 0]
GD-Link Update File Configuration X	Devi	ice Inter	
	Firm	ware Ve	58
Part No. : [00222507RCTart] choose the GD mcu model	UID		47313F2916393.
	SN		6E91C6A4B47E.
Download Qo GD32E507RET6	🗉 JTAC		
GD32E507VCT6			500 kHz
File Index G032E307/ETF6 He Path File Size Address	🗉 MCU		
GD32E507ZET6		U Part No.	
GD32EPRTNDT6 GD32EPRTNDT6	Endi	ian I ck.core ID	Unknown
GD32F007C8T6 V	Core		res Unknown
			Yes
		Address	
			Unknown
	UID		Unknown
	🗉 Flast	h Info	
Delete Add	Size		Unknown
	Flash	h Base I	Unknown
Cancel Update			
Dutout Difference Control Cont			▼ 0.0
Show initial information and software information here.			
H () H Status			
Ready		C	AP NUM SCRL



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Next, click "Add" label and load the bin file, fill in the address of the target mcu to be downloaded in the pop-up interface box. In this process, user can add multiple bin files (supports up to eight files) at the same time and download them to different address ranges of the target MCU.

📸 GD-Link Programmer 4.3.7.9536	- 0 X
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)	
	Properties 👻 🛡 >
	Properties Window
	論 打开 ×
	← → ∨ ↑ → 此电脑 → 新加卷 (E:) → Bin v ひ 提案"Bin" ク
	组织 🔻 新建文件夹 🔢 🔻 🛄 🚷
GD-Link Update File Configuration X	■ 文档 ★ ▲ 名称 ▲ 修改日期 …
	■ 图片 ポ IProject1.bin 2020/9/17 17:02
Part No. : GD32E507RCT6 💌	o fw32101 / Project2.bin 2020/9/17 17:02
Download Configuration	✓ ■ 此电脑 ② Project3.bin 2020/9/17 17:02
File Index File Path File Size Address	→ 1 3D 对象
	> 圖 视频
	> 圖 文档
	> 👆 下载
	> 1 音乐
	> " Windows (C:)
Delete Add	> 新加卷 (D:)
Cancel Update	文件名(N): Project1.bin v *.bin; v
	打开(2) 取消
Output Show initial information and software information here.	▼ 0.>
Show initial information and software information here.	
H () H Status	
Ready	CAP NUM SCRL

Figure 3-3. Load the bin file

Figure 3-4. Fill in the address

GD-Link Update File Configuration		\times
Part No. : GD32E507RCT6 Enter Programming Address Fill in address Starting Address: 0x 800000 OK Cancel	X File Size	Address
	Delete	Add
	Cancel	Update

If the MCU selection is the GD32W515 series chip, it will also support option bytes configuration. The user can configure the option bytes of the target MCU through this interface. If the configuration is completed, click "OK" lable.



Figure 3-5. Configure option byte

📸 GD-Link Programmer 4.3.7.9536				-	\Box \times
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)					
				Properties	▼ 0 ×
				Properties Windo	v V
				🎥 순대 🖬 🗲	
	GD-Link Option Bytes Configuration	1	×	Device(GD-Li	ak)
				Connect	USB[Device 0]
				Device Inter	
GD-Link Update File Configuration	OptionBytes 0x40022040		^	Firmware Ve	
	FMC_OBR	0x000080AA		UID	Unknown
Part No. : GD32W515PIQ6	TZEN	 Trust zone enable bit 		SN	Unknown
	SRAM1_RST	SRAM1 reset enable bit		JTAG/SWD	
Download Configuration	SPC	0xAA Flash security protection value		Initial Speed	500 kHz
File Index File Path File Size Address	= FMC_OBUSR	0x7FFFFFFF		MCU Part No.	Unknown
Hie Index Hie Path Hie Size Audress	USER	0x7FFFFFFF Option byte USER value		Endian	Unknown
	FMC_SECMCFG0	0x003F0000		Check core ID	
	SECM0_EPAGE	0x3F End page of secure mark area 0		Core ID	Unknown
	SECM0_SPAGE	0x0 Start page of secure mark area 0		Use RAM	Yes
	E FMC_DMP0	0x00000000		RAM Address	Unknown
	DMPOEN	DMP area 0 enable		RAM Size	Unknown
	DMP0 EPAGE	0x0 End page of DMP area 0		UID	Unknown
			. •	Flash Info	
	End page of secure mark area 0			Size	Unknown
Delete Add				Flash Base	Unknown
Cancel Update					
	Tips: please refer to the chip User Man	ual to modify the option bytes.			
		ок	Cancel		
	L				
Output					▼ 0 ×
Show initial information and software information here.					
Updating offline-programming file: 					
H 4 + H Status					
Ready					CAP NUM SCRL

After adding the bin file and configuring option bytes, click lable menu "Update" and "Yes" to update user code.

Figure 3-6. Updata bin file

GD-Link Update File Configuration	\times
Part No. : GD32E507RCT6 Download Configuration File Index GD-Link Programmer Address 0x8000000 Are you sure to update?, Confirm to do this, please click "Yes"; Otherwise please click "No".	,
是(1) 斉(1)	
Delete Add	
Cancel Update	



Figure 3-7. GD-Link adapter update file finished

📸 GD-Li	ink Prograv	immer 4.3.7.	.9536																				-		\times
File(F)	Target(T)	GD-Link Re	efresh Edit(8	E) View(V)	Help(H)																				
																-		_	_	_	_	 Pro	perties		
																						Pro	perties Wind	ow.	*
																						8.	21 🖪 🗲		
																							Device(GD-Li	ink)	
																							Connect	USB[De	vice 0]
																							Device Inter	SWD	
																							Firmware Ve	58	
																							UID		2916393
																_							SN	6E91C6	6A4B47E
						GD-Link Progr	gress	ress	s						×	× 🗌							JTAG/SWD		
																							Initial Speed	500 kHz	z
																							MCU Info		
						Operation:																	MCU Part No.		
						RealTime:	: Up	Upda	pdatir	dating (g Offline-	e-Progran	mming File	e Successful	y!								Endian	Unknov	wn
						Time Cost:	t: 0.	0.188	. 188 s	.88 s													Check core ID		
												100%											Core ID	Unknov	wn
												ОК	-										Use RAM	Yes	
												GK											RAM Address		
						-																	RAM Size UID	Unknov	
																							Flash Info	Unknov	wn
																							Flash Into Size	Unknov	
																							Flash Base		
																							FidSfi Dase	Unknov	wn
Output																									▼ 0 ×
Show init Updating Eras Upda	ial informs offline-pro ing comple- ting compl	ation and so ogramming fi te! ete!	oftware info ile:	rmation her	e.																				
	Status	/																							
Ready																								CAP NUM	M SCRL -

Complete the above steps correctly, presses button KEY1, 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, the buzzer will sound and at the same time, LED1 will stop flashing and turn on normally.

3.3. Update firmware

When updating the firmware using the new version of the GD-Link Programmer, click tool menu "GD-Link->Updata Firmware" first. There are two specific situations, please follow the instructions of GD-Link Programmer to upgrade the firmware.

3.3.1. Update prompt type 1

- When the GD-Link Programmer prompts that GD-Link needs to be powered off, click OK. The prompt interface is shown in *Figure 3-8. GD-Link adapter update firmware* situation 1 figure 1.
- Then long press KEY1 to power on, when LED3 is always on, release the button KEK1, and click the tool menu "GD-Link->Updata Firmware" to update again. The prompt interface is shown in *Figure 3-9. GD-Link adapter update firmware situation 1 figure 2*.

Figure 3-8. GD-Link adapter update firmware situation 1 figure 1



B-Link Programmer 4.6.10.13769	-	o ×
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)		
Update Fire Configuration Update Fireware 1 GD-Link Programmer MC Perform the update again. Please hold on offline-programming button on GD-Link before power on, then release the button.	Properties Properties Properties Properties Properties Device Inter- connect Device Inter- properties Device Inter- properties Dial Dial MCU Jano MCU Jano MCU Jano MCU Jano MCU Jano MCU Jano Check core ID Use RAM MA Address Flash Info Size Flash Base	nk) US8(Device 0) SWD 665 (2116393 665 (2116393 662) (CARA DEVICE) 10000 kHz Unknown Unknown Unknown Unknown Unknown Unknown Unknown
Output Show initial information and software information here.		▼ 0 ×
N () N Status		CAP NUM SCRL

Figure 3-9. GD-Link adapter update firmware situation 1 figure 2

🛸 GD-Link Programmer 4.6.10.13769		-	□ ×
File/Fi Taroet/TI GD-Link Refresh Edit/E) View/Vi Helo/Hi			
Play Pary Confuguration Update Fire 1 GD-Link Programmer 2 Play Play Refere State Play Play Bitomare 2	Prope D D C D D C D D C D D D D D D D D D D D D D	Device Inter immvare Ve JID VITAG/SWD TAG/SWD TAG/SWD TAG/SWD ACU Part No. indian Check core ID Core ID Core ID Core ID Core ID See RAM VAM Address KAM Size JID Lash Info Lize A	Ink) USB[Device 0] SWD Unknown Unknown 10000 kHz Unknown Yes Unknown Yes
Show initial information and software information here.			
It () H Status			CAP NUM SCRI

 There are two steps in the upgrade process. In step1, GD-Link LED3 is always bright. In step2, GD-Link LED2 is always bright. The prompt interface is shown in <u>Figure 3-10. GD-Link adapter update firmware situation 1 figure 3</u> and <u>Figure 3-11. GD-Link adapter</u> update firmware situation 1 figure 4.

Note: Please do not disconnect the GD-Link from the computer during the upgrade process.

Figure 3-10. GD-Link adapter update firmware situation 1 figure 3



📸 GD-Link Programmer 4.6.10.13769		-	
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)			
	GD-Link Progress X Operation: Upgrading GD-Link firmware in two steps ReatTime: Prease DD NDT disconnect from PC in step 1. Time Cost: 6-578 s 43% © C	Device Inter Firmware Ve UID SN Initial Speed MCU Info MCU Part No. Endian Check core ID Core ID Use RAM RAM Address RAM Address RAM Size UID Flash Info Size	hà US8[Device 0] SVD Unknown Unknown 10000 kHz Unknown 10000 kHz Unknown Yes Unknown Unknown Unknown Unknown Unknown
Output Show initial information and software information here.			₩ 0 X
H + + H Status			
Paady			AD NHM SCRU



📸 GD-	Link Progr	ammer 4.(5.10.1376	59			-	- 🗆 🗙
E File(F)	Target(T)	GD-Link	Refresh	Edit(E)	View(V)	Help(H)		
							Properties	▼ # ×
							Properties Win	ndow 💌
							🔠 🛃 🖬 🗲	
							Device(GD	
							Connect	USB[Device 0]
							Device Inter	SWD
							Firmware Ve	Unknown
							UID	Unknown
							SN	Unknown
							JTAG/SWD	
								10000 kHz
							MCU Info	
								o. Unknown
							Endian	Unknown
							Check core	
						GD-Link Progress ×	Core ID	Unknown
							Use RAM	Yes
								ss Unknown
						Operation: Upgrading GD-Link firmware in two steps	RAM Size	Unknown
						RealTime: Please DO NOT disconnect from PC in step 2.	UID Elash Info	Unknown
						Time Cost: 47.735 s	E Flash Into	Unknown
						51%		. Unknown
						×	Plash base	. Unknown
Output								▼ 0 ×
	tial infor		l softwar	e inform	ation her			
H 4 🕨	H Statu	•/						
Ready								CAP NUM SCRL

 When the progress bar reaches 100%, click OK to complete the firmware update. The prompt interface is shown in <u>Figure 3-12. GD-Link adapter update firmware situation</u> <u>1 figure 5</u>.

Figure 3-12. GD-Link adapter update firmware situation 1 figure 5



📸 GD-Link Programmer 4.6.10.13769	- 🗆 ×
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)	
Comput Sher initial infernation and software information here.	Propertie Image: Construction Progenties: Sindle Image: Construction Provide (Col-Link) Connect Usilippice (0) Device (Inter.: SVD Usinnown Sindle (Col-Link) Usinnown Sindle (Col-Link) Divide (Inter.: SVD Usinnown Sindle (Col-Link) Usinnown Sindle (Col-Link) Divide (Inter.: SVD Usinnown Divide (Inter.: SVD Usinnown Context: Usinnown Usinnown Check corell Visinnown Usinnown Ulo Unknown Ulo Unknown Ulo Unknown Ulo Unknown Size Unknown Flash Base Unknown Size
H () H Status	
Paardy	CAP NUM SCRU

 The firmware version number is displayed on the right side of the interface, indicating that the firmware upgrade is successful. The prompt interface is shown in <u>Figure 3-13. GD-</u> <u>Link adapter update firmware situation 1 figure 6</u>.

Figure 3-13. GD-Link adapter update firmware situation 1 figure 6

📸 GD-	60-Link Programmer 4.6.10.13769 – 🗆 🗙								
E File(F)	Target(T)	GD-Link	Refresh Edi	(E) View(V)	Help(H)				
						Prop	perties	→ 0 ×	
						Prop	erties Windo	w 🔻	
						0::	2 🗄 🗲		
							Device(GD-Li	ink)	
							Connect	USB[Device 0]	
							Device Inter	SWD	
							Firmware Ve	68	
							טוט	47515F2910595	
							5N	6E91C6A4B47E	
							JTAG/SWD		
							nitial Speed	10000 kHz	
							MCU Info		
							MCU Part No.		
							Endian Check core ID	Unknown	
							Check core ID Core ID	ves Unknown	
							Use RAM	Yes	
							RAM Address		
							RAM Size	Unknown	
							UID	Unknown	
						•	Flash Info		
						1	Size	Unknown	
							Flash Base	Unknown	
						_			
								▼ # ×	
Output			software in					- 4 X	
Show 1h1	tist infor	stion and	sorrare in	ormation he	м.				
14 4 b	H Statu					_			
Ready									

3.3.2. Update prompt type 2

 After clicking tool menu "GD-Link->Updata Firmware", user can directly update the firmware without powering off and then long pressing KEY1 to power on, and click "OK" for firmware update. The prompt interface is shown in <u>Figure 3-14. GD-Link adapter</u> <u>update firmware situation 2 figure 1</u>.

Figure 3-14. GD-Link adapter update firmware situation 2 figure 1



📸 GD-Link Programmer 4.6.9.13723	-	o x
File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)		
Update File Configuration Update File 1	Device Inter Firmware Ve UID SN JTAG/SWD Initial Speed MCU Info MCU Part No. Endra Check core ID Check core ID Use RAM RAM Address RAM Size UID	nk) USB[Device 0] SWD 66 47313F2916393 6691C6A4847E 10000 kHz Unknown Ves Unknown Unknown Unknown Unknown
Show initial information and software information here.		
H () H Status		
N () N ()		

Complete the firmware update when the progress bar reaches 100%. During the firmware update process, the GD-Link LED2 is always bright. The prompt interface is shown in *Figure 3-15. GD-Link adapter update firmware situation 2 figure 2*.



📸 GD-Link Programmer 4.6.9.13723	_	
: File(F) Target(T) GD-Link Refresh Edit(E) View(V) Help(H)		
	Properties	
	Properties Windo	• •
	🔠 🤰 🔳 🗲	
	Device(GD-Li	nk)
		USB[Device 0]
GD-Link Progress X	Device Inter	
	Firmware Ve	
		47313F2916393
Operation: Upgrading GD-Link firmware		6E91C6A4B47E
RealTime: Ready to upgrade, please DO NOT disconnect from PC!	 JTAG/SWD Initial Speed 	10000 kHz
Time Cost: 36.828 s	MCU Info	TUUUU KHZ
57%	MCU Info MCU Part No.	Unknown
		Unknown
OK	Check core ID	
		Unknown
		Yes
	RAM Address	Unknown
	RAM Size	Unknown
GD-Link Progress X		Unknown
	Flash Info	
Operation: Upgrading GD-Link firmware		Unknown
RealTime: Upgrading GD-Link fmmvare Successfully1	Flash Base	Unknown
The mine:		
100%		
OK		
Outout		▼ 0 ×
Show initial information and software information here.		
H () H Status		
Ready		

 The firmware version number is displayed on the right side of the interface, indicating that the firmware upgrade is successful. The prompt interface is shown in <u>Figure 3-16. GD-</u> <u>Link adapter update firmware situation 2 figure 3</u>.





📸 GD-I	Link Progra	mmer 4.	6.9.13723	3				-		Î
Eile(F)	Target(T)	GD-Link	Refresh	Edit(E)	View(V)	Help(H)				
								perties Windo	v 🔻	
							0	2 🗄 🗲		
								Device(GD-Li	nk)	
								Connect	USB[Device 0]	
							Ι.	Device Inter	SWD	
								Firmware Ve		
									47313F2916393	
								SN	6E91C6A4B47E	
								JTAG/SWD		
								Initial Speed	10000 kHz	
								MCU Info		
								MCU Part No.		
								Endian	Unknown	
								Check core ID		
								Core ID Use RAM	Unknown Yes	
								RAM Address		
									Unknown	
									Unknown	
								Flash Info	UTIKITOWIT	
								Size	Unknown	
									Unknown	
Show ini	tial inform	ation and	d softwar	e inform	ation her	ê.				1
	N Statu:						_			ļ
	Jocatus	·								
Ready									CAP NI	

3.4. Auto-load signal introduction

GD-Link provides some signals for the burning machine. The *Figure 3-17. Schematic diagram of GD-Link auto load signals* shows the definitions of the auto-load signals.





All signals are active low.

When is programming, the BUSY signal is low (0V). The GOOD signal and NG signal are high (3.3V).

When programming is successful, the GOOD signal is low (0V). The BUSY signal and NG signal are high (3.3V).

When the programming fails, the NG signal is low (0V). The BUSY signal and GOOD signal are high (3.3V).

The START signal is normally weakly pulled-up and remains high (3.3V). If the device is in



the idle state of offline programming, the START signal line receives a low-level signal of 100ms and then a pragramming can be started.

4. **Programming in IDE**

4.1. In Keil (Version 5.26 above) for programming

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

Select "CMSIS-DAP Debugger" or "CMSIS-DAP ARMv8-M Debugger" in "Configure Flash Tools" Tools menu.

Figure 4-1. Debug settings in Keil

Options for Target 'GD32E230'	×
Device Target Output Listing User C/C++ (AU C Use Simulator with restrictions Settings Image: Limit Speed to Real-Time Settings	C8) Asm Linker Debug Vtilities
✓ Load Application at Startup ✓ Run to main() Initialization File:	✓ Load Application at Startup ✓ Run to main() Initialization File:
Restore Debug Session Settings Breakpoints Toolbox Watch Windows & Performance Analyzer Memory Display System Viewer	Restore Debug Session Settings Breakpoints Toolbox Watch Windows Memory Display System Viewer
CPU DLL: Parameter: Dialog DLL: Parameter:	Driver DLL: Parameter: SARMV8M.DLL -MPU Dialog DLL: Parameter: TCM.DLL -pCM23
Wam if outdated Executable is loaded Manage Component Vie	Wam if outdated Executable is loaded
OK Car	ncel Defaults Help

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



Image: Contract C	 36) Asm Linker Debug Utilities (* Use: CMSIS-DAP ARMv8-M Debugg ▼ Settings 				
✓ Load Application at Startup ✓ Run to main() Initialization File:	✓ Load Application at Startup ✓ Run to main() Initialization File:				
CMSIS-DAP ARMv8-M Target Driver Setup Debug Trace Flash Download CMSIS-DAP - JTAG/SW Adapter SW Device Any IDCODE Serial No: SwDiO Firmware Version: 2.0.0 SWJ Port: Max Clock: 1MHz	F11477 ARM Core Sight SW-DP Up Down Down tection ID CODE: guration Device Name:				
Debug Connect & Reset Options Download Options Connect: Nomal Reset: Autodetect Cache Options Ownload Options Image: Connect: Nomal Reset: Autodetect Image: Cache Code Ownload Options Image: Connect: Nomal Image: Cache Code Image: Cache Memory Image: Cache Memory Image: Download to Flash Image: Connect image: Cache Code Image: Cache Memory Image: Cache Memory Image: Download to Flash Image: Cache Code Image: Cache Memory Image: Cache Memory Image: Download to Flash					
OK	Cancel Help				

Figure 4-2. JTAG/SWD Port selection in Keil

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 'GD32E230'	x					
Device Target Output Listing User C/C++ (AC6) Asm Linker Debug Utilities						
Configure Flash Menu Command						
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CMSIS-DAP ARMv8-M Debugger 💌 Settings 🔽 Update Target before Debugging						
CMSIS-DAP ARMv8-M Target Driver Setup	x					
Debug Trace Flash Download						
Download Function C Erase Full Chip Image: Program Image: C Erase Sectors Image: Verify Start: 0x20000000 Size: 0x00001000 Image: C Erase Sectors Image: C						
Description Device Size Device Type Address Range						
GD32E230 EFMC 64k On-chip Flash 08000000H - 0800FFFFH						
Start: Size:						
Add Remove						
OK Cancel He	lp					

Figure 4-3. Flash programming algorithm selection in Keil

4.2. In IAR (Version 8.32 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".



	IAR Embedded Workbench IDE - A		
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	Remove	17	
	Rename	18 19	
	Version Control System	> 20	
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	Open Containing Folder	22 23	
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Project		33	3 ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED C

Figure 4-4. Project Options in IAR

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



Figure 4-5. Debugger settings in IAR

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

Figure 4-6. Interface selection in IAR

Options for node "Project"		×
Category: General Options Static Analysis Runtime Checking C/C++ Compiler Assembler Output Converter Custom Build Build Actions Linker Debugger Simulator CADI CMSIS DAP	Factory S Setup Interface Breakpoints Probe config Probe configuration file Image: Select Interface Explici CPU: Select Interface Explici t probe configuration Multi-target debug system Interface SWD Target number (TAP or 0	iettings
GDB Server I-jet/JTAGjet J-Link/J-Trace TI Stellaris Nu-Link PE micro ST-LINK Third-Party Driver TI MSP-FET TI XDS	Target with multiple C CPU number on 0 OK Cancel	



5. Revision history

Table 5-1. Revision history

Revision No.	Description	Date
1.0	Initial Release	Jul.15, 2015
2.0	Update file	Jul.8, 2019
2.1	Add instructions for new features in version 3.6	Sept.23, 2019
	1. Add recommended line length range	
2.2	2. Add the new version of the GD-Link Programmer	Aug.20, 2020
	to update the firmware operation process	
2.3	1. Add the new version of the GD-Link Programmer	
	to update the bin file operation process	
	2. Support multiple bin files offlineload function	Mar.20, 2021
	3. Offlline download supports option byte	
	configuration function (only GD32W515 serials)	
2.4	1.Add button and LEDs description	
	2. Add PC tool download address	May.12, 2022
	3. Update firmware update chapter description	



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