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 status
	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
	7 8	TReset
	³ 10	
GND	5×2P2.54	

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	Properti	ies	▼ 0 >
Configuration	Propert	ies Window	
	S= 41	3	
Update Firmware	E Dev	vice(GD-Lin	k)
	Con	nect I	USBIDevice 01
GD-link Update File Configuration	Devi	ice Inter	SWD
	Firm	ware Ve	58
The last in a second seco	UID	4	47313F2916393.
Part No.: Choose the GD micd model	SN		6E91C6A4B47E.
Download do (Go32E507RET6	🗉 JTAC	G/SWD	
G032E507VCT6 G03	Initia	al Speed	500 kHz
Internet indusces of the neuron of the neuro	🗉 MCU	U Info	
GD32E507ZET6	MCU	U Part No. 1	Unknown
GD32EPRTRDT6 GD32EPRTDT6	Endi	ian I	Unknown
GD32F007C8T6 V	Chee	ck core ID	Yes
	Use	PAM 1	Vec
	RAN	Address I	linknown
	RAN	A Size	Unknown
	UID		Unknown
	🗉 Flash	h Info	
Delete Add	Size		Unknown
	Flash	h Base I	Unknown
Cancel Update			
			~ 1 \
Subput 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.

18 GD Link Decomment 4.2.7 0526	- - · ·
Bile(F) Target(T) GD-Link Refresh Edit(E) View(V) Helg(H)	
	Properties 👻 🛡 🗧
	Properties Window
	論 打开 X
	← → ∨ ↑ 🔄 → 此电脑 → 新加卷 (E:) → Bin v Ö 提案"Bin" 🔎
	组织 🔻 新建文件夹 🔢 🔻 🛄 🚷
GD-Link Update File Configuration X	■ 文档 ★ ▲ 名称 ▲ 修改日期 …
	■ 图片 /
Part No. : GD32E507RCT6 💌	o fw32101 / Project2.bin 2020/9/17 17:02
Download Configuration	✓ ■ 此电脑 ②2020/9/17 17:02
File Index File Path File Size Address	
	> 圖 视频
	> 圖 文档
	> 👆 下载
	> 1 音乐
	> 🛀 Windows (C:)
Delete	> 新加卷 (D:)
	· · · · · · · · · · · · · · · · · · ·
Cancel Update	文件名(N): Project1.bin v *.bin; v
	打开② 取消
Output Shu initial information and software information have	· · · · · · · · · · · · · · · · · · ·
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 File Index File Index 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	▼ # ×
				Properties Windo	
				🎥 🛃 🔳 🗲	
	GD-Link Option Bytes Configuration	1	×	Device(GD-Li	nk)
				Connect	USB[Device 0]
				Device Inter	SWD
GD-Link Update File Configuration	OptionBytes 0x40022040		^	Firmware Ve	Unknown
	FMC_OBR	0x000080AA		UID	Unknown
Configure OntionPuter	TZEN	 Trust zone enable bit 		SN	Unknown
Part No. : ODS21VS13P1Q0 -	SRAM1_RST	SRAM1 reset enable bit		JTAG/SWD	
Download Configuration	SPC	0xAA Flash security protection value		Initial Speed	500 kHz
Ela Inday Ela Dath Ela Cira Address	E FMC_OBUSR	0x7FFFFFFF		MCU Det No	University
File Index File Path File Size Address	USER	0x7FFFFFFF Option byte USER value		Fodian	Unknown
	FMC_SECMCFG0	0x003F0000		Check core ID	Yes
	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		
Output					▼ # ×
Show initial information and software information here.					
Erasing complete!					
H + + 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(N)	
Delete Add	
Cancel Update	



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

📸 GD-L	ink Progra	.mmer 4.3.7	7.9536																			-		×
Eile(F)	Target(T)	GD-Link P	Refresh /	Edit(E) View	(V) Help(H)																			
							-									-	_	 -	-		Pr	operties		▼ 0 ×
																					Fr	operties Wind	200	-
																					8	i 🛃 🖪 🗲		
																						Device(GD-L	nk)	
																						Connect	USB[Dev	vice 0]
																						Device Inter	SWD	
																						Firmware Ve	58	
																						UID	47313F2	916393
																_						SN	6E91C6A	44B47E
						GD-Link Progr	ogress	ess	55							×					•	JTAG/SWD		
																						Initial Speed	500 kHz	
						Operations	100	Unda	Indati	datio		Con Drog									-	MCU Info		
						operation.	n: up.	Upua	Jpuss	Gaun	ang Orn	mherroy	gramming) File								MCU Part No.	Unknow	/n
						Reallime:	: Upo	Upda	Jpdat	datin	ting Off	Hine-Prog	gramming	File Succes	sfully!							Endian	Unknow	'n
						Time Cost:	t: 0.1	0.188	D. 188	188 s	3 s											Check core ID	Yes	
												100	0%									Core ID	Unknow	'n
											[0	к									RAM Address	Ilokoou	un l
											L											RAM Size	Unknow	n n
																						HID	Unknow	vn
																						Flash Info	0111	
																						Size	Unknow	vn
																						Flash Base	Unknow	vn
Output																								▼ 0 ×
Show init Updating Eras Upda	ial informs offline-pro ing comple iting comple	ation and s ogramming # .te! .ete!	software file:	information	here.																			
нчнэ	Status	1/																						
Ready																							CAP NUM	A 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)		
Implying the product of the programmer X Implying the programmer X	Properties Properties Properties Properties Properties Device Infer- ture Device Infer- ture Device Infer- ture DI TAG/SWD Infa/SWD MCU Info MCU Part No. Endan Check core ID Use RAM Distah Info Size Flash Base	w w with w Withmown w Unknown W Wahnown W Wahnown W
Source Star Start Star		- • • ×
H () H 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 Paget () CO-Unix Programmer Update Primware 1	Property of the second	rities artiss Window }	B C C
Show initial information and software information here.			
If () 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 stags ReadTime: Prese DD NDT disconrect from PC in stop 1 Time Cret: 6.578 4396	roperties Tierry roperties Tierry Device(GD-Li Connect Device Inter Firmware Ve UD 3 TAG/SWD Initial Speed MCU Part No. Check core ID USe RAM RAM Address Flash Base	v v v kl US8[Device 0] SV0 Unknown Unknown 10000 kHz Unknown 10000 kHz Unknown 10000 kHz Unknown Unknown Unknown Unknown Unknown Unknown
Output Show initial information and software information here.			▲ 0 ×
H + + H Status			
Paady			AD NHM SCRL



📸 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 Wir	ndow 💌
							🕾 👌 🔳 🗲	
							Device(GD	-Link)
							Connect	USB[Device 0]
							Device Inter	SWD
							Firmware Ve	Unknown
							UID	Unknown
							SN	Unknown
							□ JTAG/SWD	
							Initial Speed	10000 kHz
							MCU Info	
							MCU Part N	o. Unknown
							Endian	Unknown
							Check core	ID Yes
						GD-Link Progress ×	Core ID	Unknown
							Use RAM	Yes
							RAM Addre	ss Unknown
						Operation: Upgrading GD-Link firmware in two steps	RAM Size	Unknown
						RealTime: Please DO NOT disconnect from PC in step 2.	UID	Unknown
						Time Cost: 47.735 s	E Flash Info	
						51%	Size	Unknown
						×	Plash base	. Unknown
Output								▼ 0 ×
Show ini	tial infor	mation and	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.	Properties • • • • • • • • • • • • • • • • • • •
H () H Status	
Deardy	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-	Link Progr	ammer 4.6	6.10.13769				-	
E File(F)	Target(T)	GD-Link	Refresh Edit	E) View(V)	Help(H)			
						Prop	perties	▼ 8 ×
						Prog	perties Windo	•
						0	2 🗄 🗲	
						•	Device(GD-Li	ink)
							Connect	USB[Device 0]
						<u> </u>	Device Inter	SWD
							Firmware Ve	68
						_	UID	4/515F2910595
							SN	6E91C6A4B47E
						•	JTAG/SWD	
							Initial Speed	10000 kHz
						•	MCU Info	
							MCU Part No.	Unknown
							Endian	Unknown
							Check core ID	Yes
							Core ID	Unknown
							DAMA Address	res
							PAM Size	Unknown
							IIID	Unknown
							Flash Info	onkilowii
							Size	Unknown
							Flash Base	Unknown
						-		
Output								- a ×
Show ini	tial infor	mation and	software inf	ormation he	e.			
H 4 F	H \Statu	•/						
Ready								CAR NUM SCRI

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	-	
File/F) Target(T) GD-Link Refresh Edit(E) View(V) Help/H		
Output Image: SD-Link Programmer Image: SD-Link Programmer	Popentis Propertis Properity Properity	
Show initial information and software information here.		
N () N (Status		

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	▼ 0 ×
	Properties Windo	• •
	🔠 🛃 🔳 🗲	
	Device(GD-Lip	nk)
	Connect	USB[Device 0]
GD Liek Dearcer	Device Inter	SWD
	Firmware Ve	66
	UID	47313F2916393
Operation: Upgrading GD-Link firmware	SN	6E91C6A4B47E
RealTime: Ready to upgrade, please DO NOT disconnect from PC!	⊟ JIAG/SWD	10000 111
Time Cost: 36.828 s	Initial Speed	TUUUU KHZ
57%	MCU Part No	Unknown
	Endian	Unknown
OK OK	Check core ID	Vec
	Core ID	Unknown
	Use RAM	Yes
	RAM Address	Unknown
	RAM Size	Unknown
GD-Link Progress X	UID	Unknown
	Flash Info	
Operation: Upgrading GD-Link firmware	Size	Unknown
Realities - Unoracing GULink fermane Surgers full	Flash Base	Unknown
Recenting: Opport in intrivide Subject States		
ime cost: 52.0945		
OK		
Output		* L X
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	5.9.13723	3				-		
Eile(F)	Target(T)	GD-Link	Refresh	Edit(E)	View(V)	Help(H)				
							Pro			
							Pr	perties Windo	v -	•
							0	21 🖪 🗲		
								Device(GD-Li	nk)	
								Connect	USB[Device 0]	
								Device Inter	SWD	
							10	Firmware Ve	67	
								UID	47313F2916393.	
								SN	6E91C6A4B47E.	
								JTAG/SWD		
								Initial Speed	10000 kHz	
								MCU Info		
								MCU Part No.	Unknown	
								Endian	Unknown	
								Check core ID	Yes	
								Core ID	Unknown	
								Use RAM	Yes	
								RAM Address	Unknown	
								RAM Size	Unknown	
								UID	Unknown	
								Flash Info		
								Size	Unknown	
								Flash Base	Unknown	
										Π
output chui ini	1.1.1.1.E.m.								- 4 A	1
Show 1h1	tial inform	ation and	sortwar	e inform	ation her	w.				Į
	H Statu:	/								Ē
Ready										÷
										-

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 I Toolbox Watch Windows & Performance Analyzer Memory Display System Viewer	Restore Debug Session Settings Breakpoints I Toolbox Watch Windows Memory Display I 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.



Options for Target 'GD32E230' Device Target Output Listing Vser C Use Simulator with restrictions Settings Limit Speed to Real-Time	26) Asm Linker Debug Utilities			
✓ 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 Image: SWJ Port: Max Clock: 1MHz	E Update AP: 0x00			
Debug Connect & Reset Options Cache Options Download Options Connect: Normal Reset: Autodetect Image: Cache Code Image: Cache Code Image: Cache Memory Download to Flash Image: Cache Code Image: Cache Memory Image: Cache Memory Image: Cache Memory 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'	XX)				
Device Target Output Listing User C/C++ (AC6) Asm Linker Debug Utilities					
Configure Flash Menu Command	[]				
Use Target Driver for Flash Programming					
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 ✓ Program Image: C Erase Sectors ✓ Verify C Do not Erase ✓ Reset and Run					
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".



J						
Project - IAR Embedded Workbench IDE - Arm 8.32.1						
File Edit View Proj	ect CMSIS-DAP Tools	Window	v Help			
1 🗅 🔛 🕋 🔒	X 🗋 🗖 👌 C		- < Q > \$ HE < Q > 1 N H = 0			
Workspace	▼ ↓ ×	main.c	x			
GD32E230	•					
Files	ð •	1 [/*!			
	-	2	\file main.c			
Options		4	(brief fed spark with systick, USARI print and key example			
⊞ 🛑 Make		5	\version 2018-06-19, V1.0.0, firmware for GD32E230			
Compile		6	L */			
	ΔII	8 1	⊐ /*			
		9	Copyright (c) 2018, GigaDevice Semiconductor Inc.			
		10				
C-STAT	Static Analysis	+ 11	All rights reserved.			
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		31	PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF I			
		32	ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF			
Project		•				
Build						

Figure 4-4. Project Options in IAR

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



Figure 4-5. Debugger settings 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 GDB Server I-jet/JTAGjet J-Link/J-Trace TI Stellaris Nu-Link PE micro ST-LINK	Factory Settings Factory Settings Driver Images Extra Options Multicore Plugins Driver Imain Setup macros Use macro file(s) Images Imain Device description file Override default \$TOOLKIT_DIR\$\CONFIG\debugger\GD\GD32E230x8.ddf
Third-Party Driver TI MSP-FET TI XDS	OK Cancel

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

Figure 4-6. Interface selection in IAR

Options for node "Project"	X
Category: General Options Static Analysis Runtime Checking C/C++ Compiler Assembler Output Converter Custom Build Build Actions Linker Debugger Simulator CADI CMSIS DAP	Factory Settings Setup Interface Breakpoints Probe config Probe configuration file Image: CPU: CPU: CPU: CPU: CPU: CPU: CPU: CPU
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 O Interface Auto detec • 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
2.2	1. Add recommended line length range	
	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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