

GigaDevice MCU Team	Version	5 Pages
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	Name : GD32 MCU ISP Console User Manual	

# GD32 MCU ISP Console User Manual

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## Introduction

This user manual describes an application used to operate the flash or config GigaDevice MCUs with available USART peripheral and USB peripheral. It provides complete information on how to use GD32 ISP Console to use MCUs with command line easily.

## 1. Contraction

**ISP:** ISP is short for In System Program, which means users can download codes without removes MCU from the PCB.

**USART:** Universal Synchronous Asynchronous Receiver Transmitter. It is a full-duplex synchronous/asynchronous serial transceiver module, the interface is a highly flexible serial communication equipment.

**USB:** Universal Serial Bus. It is an external bus standard used to regulate the connection and communication between computers and external devices. It is an interface technology applied in the PC field.

## 2. The Sketch of GD32 ISP Console

### 2.1 Functions

GD32 ISP Console is based on GD serial port bootloader communication protocol. It can implement various operations on microcontroller flash memory. The user can use it erase some or all flash memory sectors, upload flash memory data, download the application program to the internal flash memory, Enable/Disable protections for some or all flash memory sectors or get/set option bytes by commands easily.

### 2.2 Operation Environment

The software can run on systems with Ubuntu 16 GLIBC 2.23 or higher.

### 3. Instructions

#### 3.1 Operation Process

If you want to use this software, you shouldn't worry about how to install. It is very easy for everyone. When you get the folder, you just have to decompress the folder. Then you can find the executable program named GD32\_ISP\_CLI in the bin folder, and some sh files in example folder. You can copy the sh files to the same directory level as the GD32\_ISP\_CLI and edit the sh file in command set format refer to the section 3.2, and execute it to run to achieve the operation of target MCU.

#### 3.2 Command Set

The command set is as follows:

Command	Sub Command	Remarks
-?		Show the help
-c		establish connection to the COM port
	--pn port number	e.g: 1, 2... default 1.
	--br baud rate	e.g: 115200, 57600 ...default 57600
	--db data bit	value in {5,6,7,8} ... default 8
	--pr parity	value in {NONE,ODD,EVEN} default EVEN
	--sb stop bits	value in {1,1.5,2} ... default 1
	--to time out	(ms) e.g 1000, 2000, 3000 ... default 5000
-dfu		Establish connection to the USB port
-Rts		set Rts line to Hi, Lo
	--State	State in {Hi, Lo} e.g --Hi
-Dtr		set Dts line to Hi, Lo
	--State	State in {Hi, Lo} e.g --Lo
-i	device name	e.g GD32F450ZKT6, [See the name in the chip]
-e		erase flash pages
	--all	erase all pages
	--sec number_of_pages_group pages_group_codes	erase specified group pages e.g -e --sec 2 0 1 (erase page0 and page1) or -e --sec 5 0-4(erase page0 1 2 3 4)
-u		upload flash contents to a .bin, .hex file
	--all all pages	upload all pages
	--sec number_of_pages_group pages_group_codes	upload specified group pages
	--fn file_name	full path name of the file
-d		download the content of a file into MCU flash
	--a address(hex)	address in hexadecimal; ignored if it is not a binary file

	--fn file_name	full path name (.bin, .hex file)
	--v	verify after download
	--n	erase necessary pages
-r		run the flash code at the specified address
	--a address(hex)	address in hexadecimal
-p		enable or Disable protections
	--dwp	disable write protection
	--drp	disable read protection
	--erp	enable read protection, all arguments following this one will fail
	--ewp number_of_sectors_group sectors_group_codes	enable write protection for sector codes e.g -e --ewp 2 0 1 (enable write protection for sector0 and sector1)
-o		get or Set option bytes to a .bin file
	--get --fn file_name	get option bytes from the device
	--set --fn file_name	load option bytes from the specified file
-otp		Get or Set OTP
	--get	get OTP data from the device
	--set	load OTP data from the specified file
	--fn file_name	full path name (.bin, .hex file)
	--a address(hex)	address in hexadecimal
-read		Read Data
	--a address(hex)	address in hexadecimal
	--len file_length	file_length (B)
	--fn file_name	full path name (.bin, .hex file)
-write		Write Data
	--a address(hex)	address in hexadecimal
	--fn file_name	full path name (.bin, .hex file)
-encrypt		Encrypt Data AES128CTR
	--fn file_name	
	--a address(hex)	Firmware download address
	--k key_file_name	Bin file,its size must be 16 bytes
	--iv iv_file_name	Bin file,its size must be 12 bytes
	--o out_file_name	Generate encrypted file(bin)

### 3.3 Command Example

COM_ERASE	-c --pn 4 --br 57600 --db 8 --pr EVEN --sb 1 --to 1000 -i GD32F103VCT6 -e --sec 3 1 4 15
USB_DOWNLOAD	-dfu -i GD32F307VET6 -d --a 08000000 --fn download.bin --v
USB_UPLOAD	-dfu -u --all --fn upload.bin
ENCRYPT	-encrypt --fn in.bin --a 0x08004000 --k key.bin --iv iv.bin --o out.bin