

# PY32Studio User Manual

PY32Studio for PY32 configuration and  
initialization C code generation



Puya Semiconductor (Shanghai) Co., Ltd.

# Introduction

PY32Studio is a graphical configuration and initial C code generation tool for PY32 products. It supports common development environments such as Keil, IAR, and GCC. By visually configuring chip pins, clocks, and peripherals through a graphical user interface, it generates initial C code, significantly transforming the PY32 development process.

PY32Studio offers the following key benefits:

- **Significantly improves development efficiency and lowers the entry barrier**
  - Say goodbye to tedious manual configuration: Previously, developing for PY32 required repeatedly flipping through hundreds of pages of data sheets, manually calculating complex clock tree parameters (such as PLL division factors), and writing initialization code line by line. PY32Studio makes all of this work graphical, allowing you to set up the basic environment for a complex MCU in just a few minutes.
  - Automatically generates high-quality code: Once configuration is complete, a single click generates well-structured, standards-compliant initialization C code that fully supports mainstream development environments such as Keil, IAR, and GCC, allowing you to skip low-level drivers and focus directly on business logic development.
- **Visual Configuration and Real-Time Error Prevention**
  - Graphical Pin Assignment and Conflict Detection: You can assign peripherals (such as UART and SPI) directly on the chip pin map, just like building with blocks. If two peripherals are assigned to the same physical pin, the tool will immediately display a warning, preventing hardware communication failures caused by improper pin multiplexing at the source.
  - Intelligent Clock Tree Calculation: With the built-in dynamic clock calculator, you simply select clock sources and divider parameters with a few mouse clicks, and it automatically calculates system and peripheral clock frequencies. It also performs real-time verification to ensure peripheral clock speeds do not exceed limits (e.g., USB clock must not exceed 48 MHz). If a limit is exceeded, it is immediately highlighted in red to prevent hardware errors.
- **Excellent Maintainability and Team Collaboration**
  - Configuration as Documentation (.pysprj Files): The .pysprj files generated by PY32Studio comprehensively document all hardware configurations, including pins, clocks, and middleware. This file serves as the project's "design asset"; new team members can instantly understand the hardware architecture just by opening it, significantly reducing maintenance costs.

Overall, PY32Studio frees developers from repetitive, error-prone low-level configuration tasks, making embedded development more standardized, visual, and engineering-oriented. If you're preparing to start a new PY32 project, it's definitely your top choice.

## Contents

<b>Introduction .....</b>	<b>2</b>
<b>1. Overview .....</b>	<b>4</b>
1.1. Key Features .....	4
1.2. Rules and restrictions .....	4
<b>2. Install and Run .....</b>	<b>5</b>
2.1. System Requirements .....	5
2.2. Installing and Uninstalling .....	5
2.3. Login and Registration .....	6
<b>3. Registration Page .....</b>	<b>7</b>
3.1. Sidebar .....	8
3.1.1 Chip Resources .....	8
3.1.2 Resource Download .....	8
3.1.3 Chip Docs .....	9
3.1.4 Chip Example .....	9
3.1.5 Download Center .....	10
3.2. Toolbar .....	11
3.2.1 File .....	11
3.2.2 Appearance .....	11
3.2.3 Project .....	12
3.2.4 Help .....	12
3.3. Tab Bar .....	12
<b>4. Quick Start .....</b>	<b>13</b>
4.1. New Project .....	13
4.2. Chip Configuration .....	16
4.2.1 Pinout and Configuration .....	16
4.2.2 Clock View .....	17
4.2.3 Waveform view .....	18
4.2.4 Peripheral Configuration .....	18
4.2.5 Project Manager .....	19
4.2.6 Generate Project .....	20
<b>5. Common Functions .....</b>	<b>21</b>
5.1. Language Switch .....	21
5.2. Theme Switch .....	21
5.3. Sign Out / Personal Center .....	21
5.4. Resize the Configuration Window .....	22
<b>6. Version history .....</b>	<b>23</b>

# 1. Overview

## 1.1. Key Features

PY32Studio has the following features:

- Easy Selection MCU

There is an independent chip resource page that provides different filtering options to simplify MCU selection.

- Document Downloads

You can download chip documentation, sample code, device support packages, software, development boards, firmware, CAD resources, tutorial videos, and other materials.

- Graphical User Interface

Visual configuration: pins, clocks, peripherals; graphical display: SPI, I2C, USART/UART, and TIM waveforms.

- Project Management

When launching PY32Studio, users can choose to create a new project or load a previously saved project.

- Code and IDE Project Generation

Generates initial C code and IDE projects; the IDE supports Keil, IAR, and GCC.

- Automatic Updates

The automatic update feature ensures users can keep the software and chip resources up to date at all times.

- Multi-Language Support

Supports both Chinese and English.

- Multi-Theme Support

Supports both dark and light themes.

## 1.2. Rules and restrictions

PY32Studio C code generation only covers the initialization code for peripherals and middleware components that use the drivers included in the PY32Studio embedded software package. Code generation for some peripherals and middleware components is not yet supported.

## 2. Install and Run

### 2.1. System Requirements

Operating System

- Windows® 10: 64 位 (x64)
- Windows® 11: 64 位 (x64)

Network

- Broadband Internet Connection

### 2.2. Installing and Uninstalling

Installation can be completed according to the installation wizard.

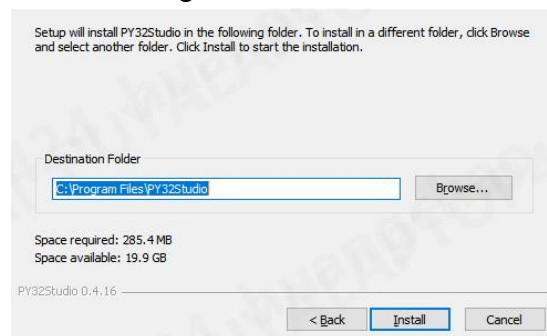


Figure 2- 1 PY32Studio installation wizard

If the following screen appears, the installation has been successful.

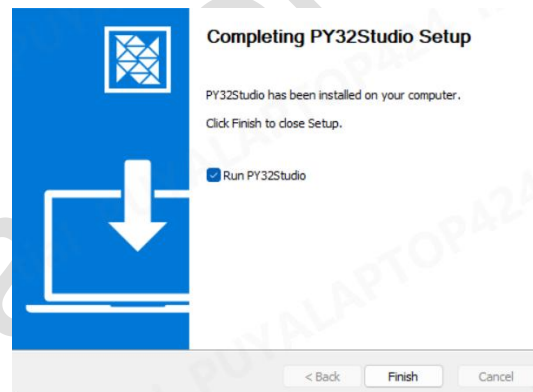


Figure 2-2 PY32Studio installation complete screen

Through the Windows Control Panel:

- a) Select **Programs and Features** from the **Windows Control** Panel to display the list of programs installed on your computer.
- b) Right-click **PY32Studio** and select **uninstall**

## 2.3. Login and Registration

Logging in is required when starting the software for the first time. If you don't have an account, you can register and then log in.

### ■ Login Page

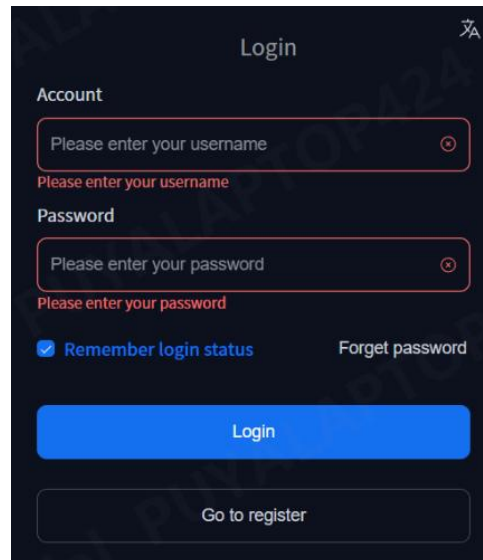
The login page has a dark background. At the top, the word "Login" is centered in white. Below it, the "Account" section contains a text input field with the placeholder "Please enter your username" and a red error message "Please enter your username" below it. The "Password" section contains a text input field with the placeholder "Please enter your password" and a red error message "Please enter your password" below it. There is a checked checkbox for "Remember login status" and a link for "Forget password". At the bottom, there are two buttons: a blue "Login" button and a white "Go to register" button.

Figure 2-4 PY32Studio login page

### ■ Registration Page

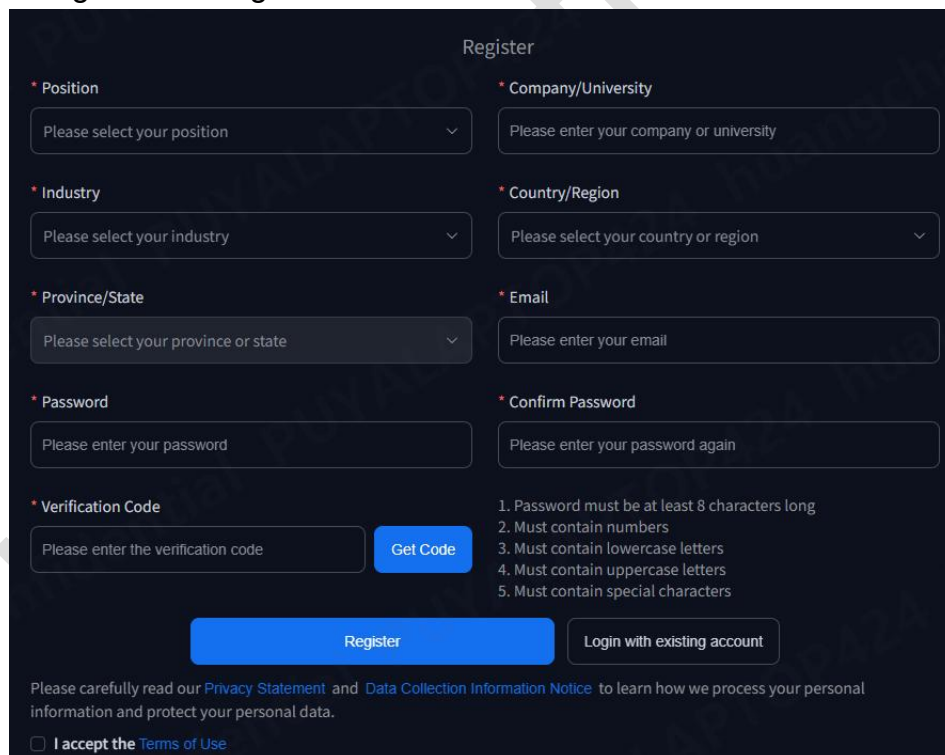
The registration page has a dark background. At the top, the word "Register" is centered in white. Below it, there are several form fields: "Position" (dropdown), "Company/University" (text input), "Industry" (dropdown), "Country/Region" (dropdown), "Province/State" (dropdown), "Email" (text input), "Password" (text input), "Confirm Password" (text input), and "Verification Code" (text input). There is a "Get Code" button next to the verification code field. Below the form fields, there are two buttons: a blue "Register" button and a white "Login with existing account" button. At the bottom, there is a link to "Privacy Statement" and a link to "Data Collection Information Notice". There is also a checkbox for "I accept the Terms of Use".

Figure 2-5 PY32Studio registration page

### 3. Registration Page

When starting the PY32Studio program, a welcome window will open, where the interface is divided into multiple areas:

- Sidebar
- Toolbar
- Tab Bar
- Page Content

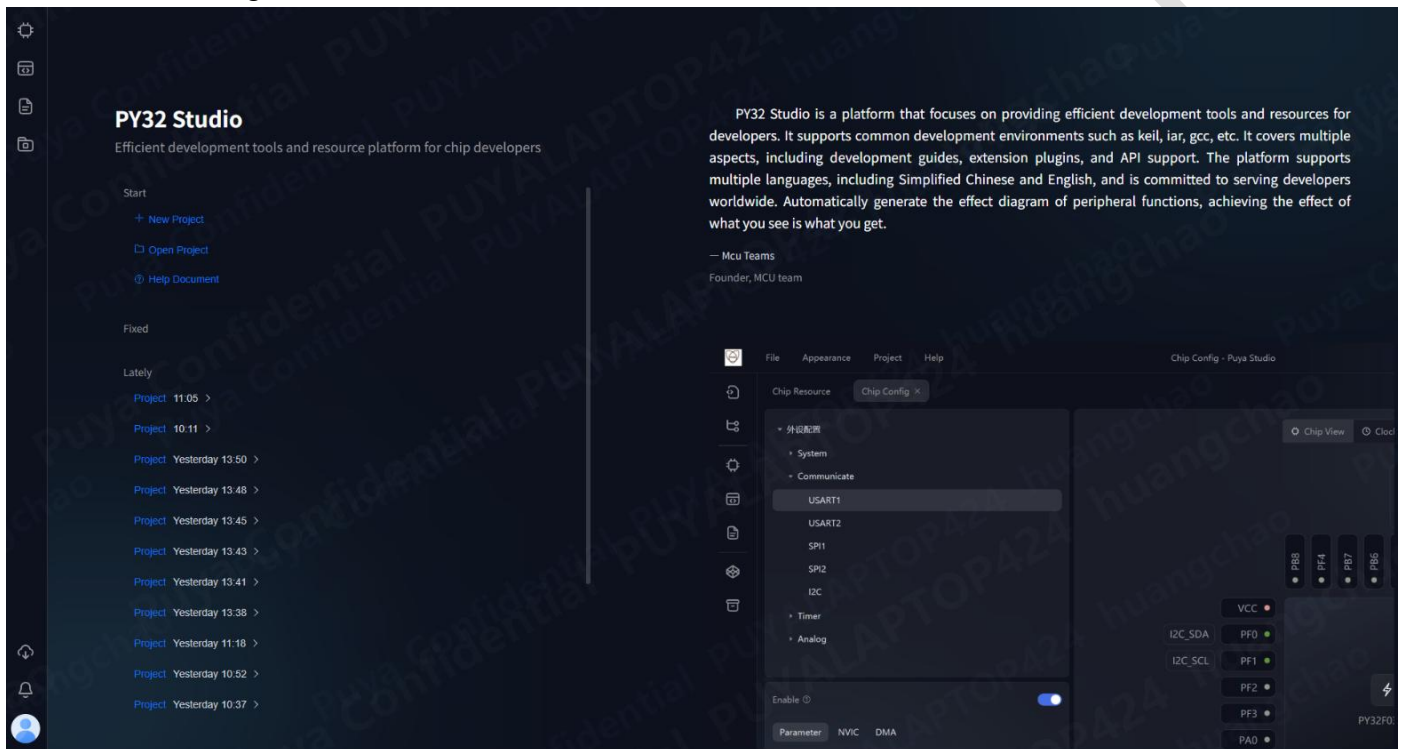


Figure 3- 1 PY32Studio start screen

## 3.1. Sidebar

### 3.1.1 Chip Resources

On the chip resource page, functions for downloading, updating, and creating new projects for the corresponding chip resources are provided.

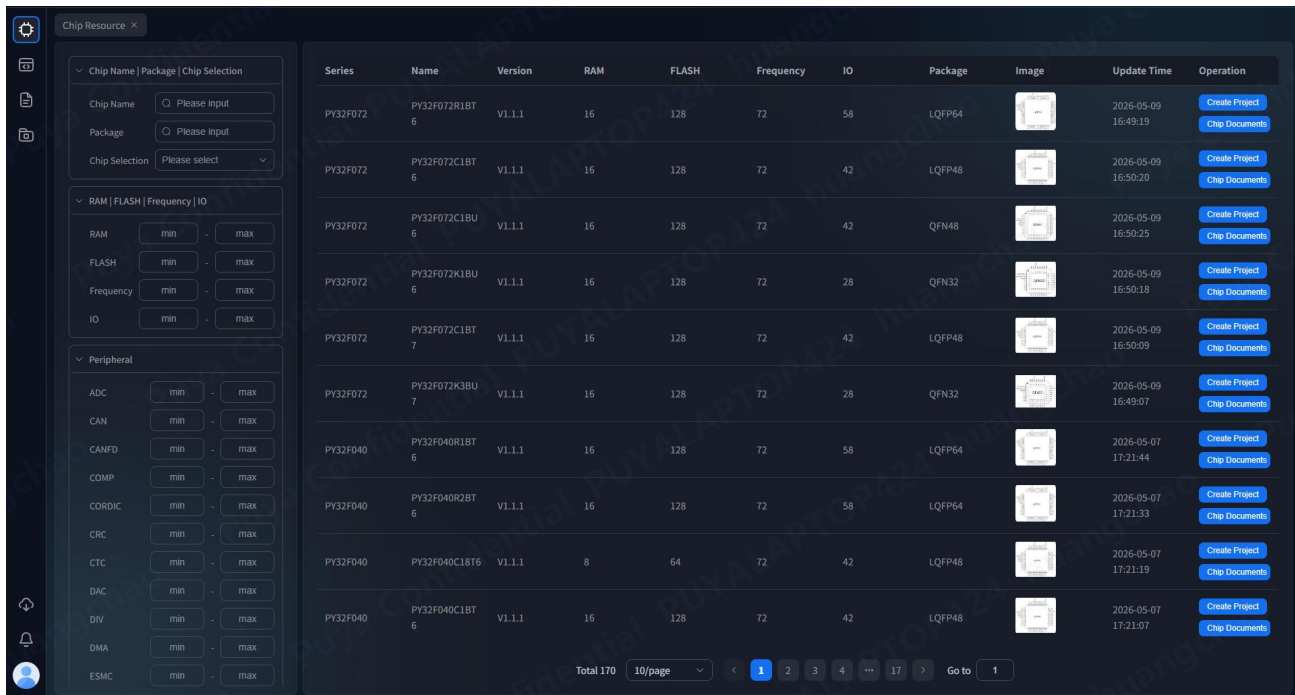


Figure 3-2 PY32Studio Chip Resources

### 3.1.2 Resource Download

On the resource download page, the download and update functions for the corresponding chip development package are provided.

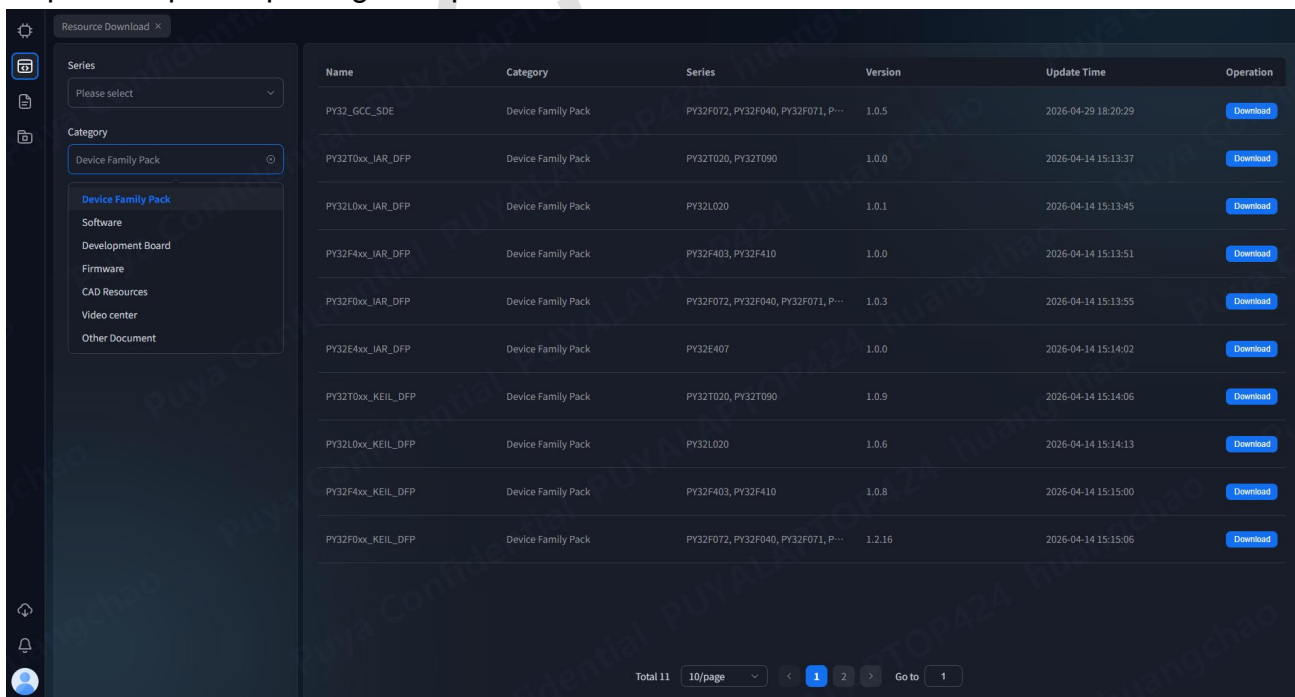


Figure 3-3 PY32Studio Resource Download



### 3.1.3 Chip Docs

On the chip documentation page, you can download the documents including datasheet, reference manual, user manual and application notes.

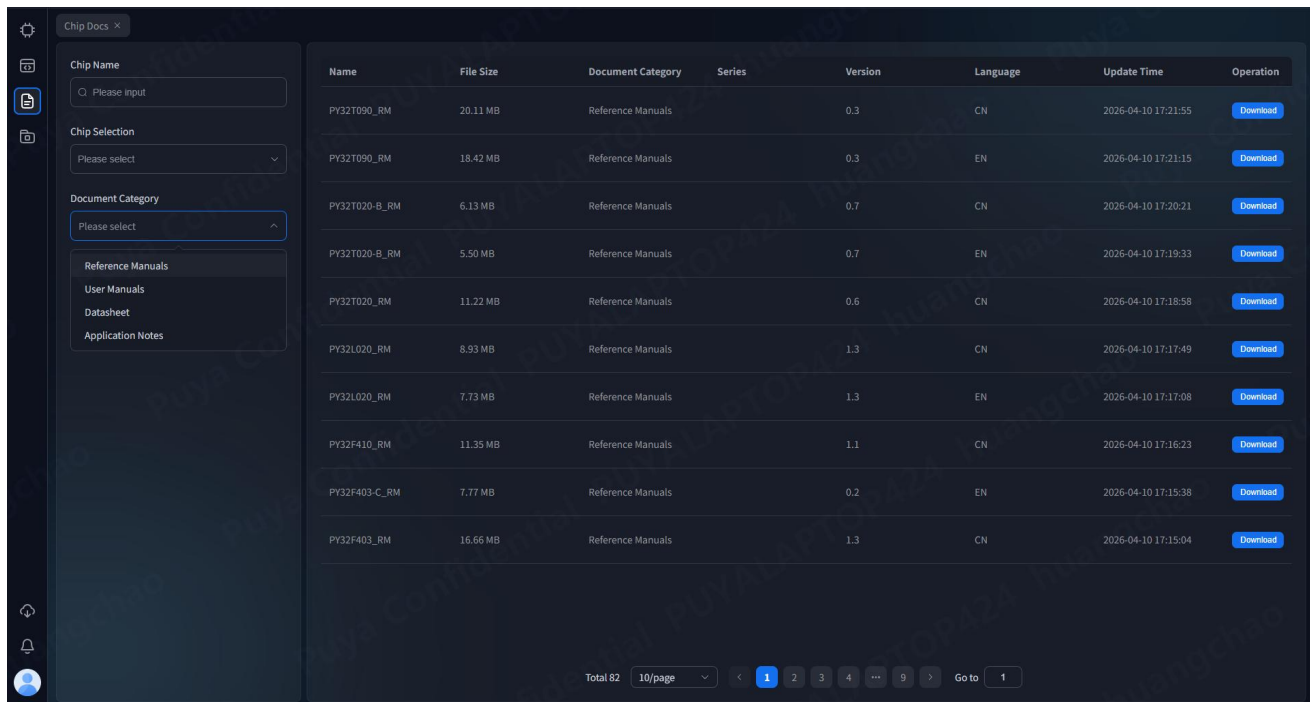


Figure 3-4 PY32Studio Chip Docs

### 3.1.4 Chip Example

On the chip example page, you can download the example by key word, chip name and example type.

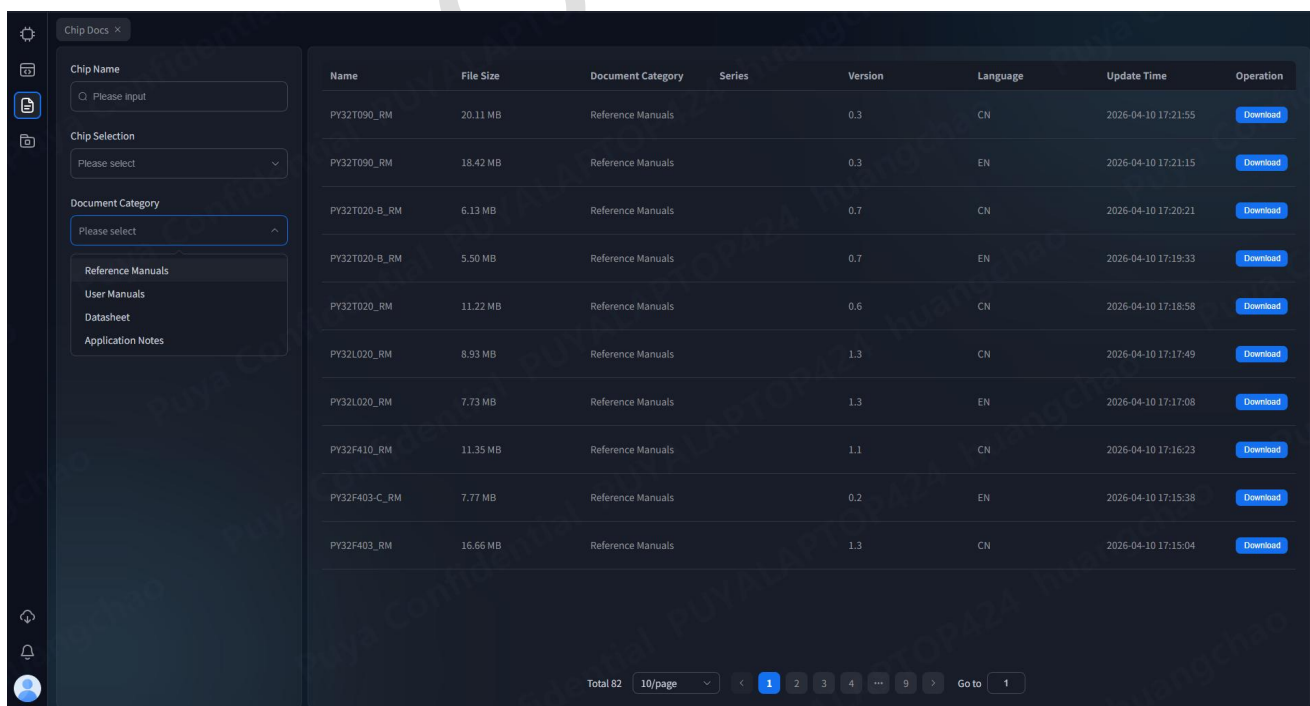


Figure 3-5 PY32Studio Chip Example

### 3.1.5 Download Center

When downloading content on the chip resource, chip development package, or chip documentation page, the download task will be displayed here.

Name	File Size	Document Category	Manufacturer	Series	Version	Language	Update Time	Operation
PY32T090_RM	20.11 MB	Reference Manuals	Puya	PY32T090	0.3	CN	2026-04-10 17:21:55	<a href="#">Download</a>
PY32T090_RM	18.42 MB	Reference Manuals	Puya	PY32T090	0.3	EN	2026-04-10 17:21:15	<a href="#">Download</a>
PY32T020-B_RM	6.13 MB	Reference Manuals	Puya	PY32T020	0.7	CN	2026-04-10 17:20:21	<a href="#">Download</a>
PY32T020-B_RM	5.50 MB	Reference Manuals	Puya	PY32T020	0.7	EN	2026-04-10 17:19:33	<a href="#">Download</a>
PY32T020_RM	11.22 MB	Reference Manuals	Puya	PY32T020	0.6	CN	2026-04-10 17:18:58	<a href="#">Download</a>
PY32L020_RM	8.93 MB	Reference Manuals	Puya	PY32L020	1.3	CN	2026-04-10 17:17:49	<a href="#">Download</a>
PY32L020_RM	7.73 MB	Reference Manuals	Puya	PY32L020	1.3	EN	2026-04-10 17:17:08	<a href="#">Download</a>
PY32F410_RM	11.35 MB	Reference Manuals	Puya	PY32F410	1.1	CN	2026-04-10 17:16:23	<a href="#">Download</a>

Total 82   10/page   1   2   3   4   ...   9   Go to 1

Figure 3- 6 PY32Studio Download Center

## 3.2. Toolbar

### 3.2.1 File

The File menu has the following main functions:

- Create, open project
- Language Switch
- Theme Switch

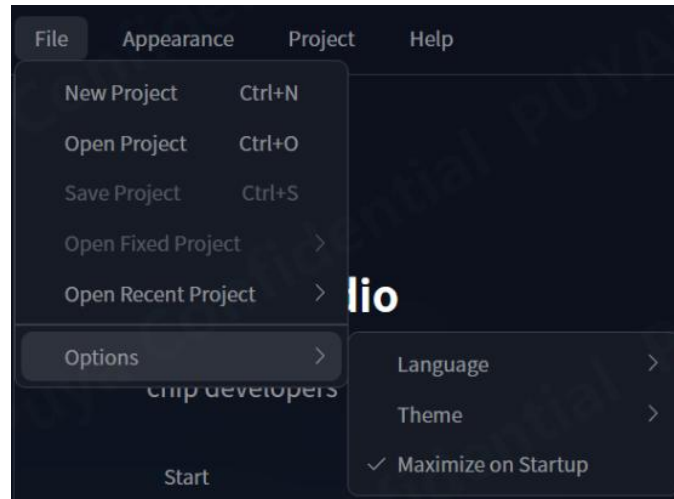


Figure 3-7 PY32Studio File menu

### 3.2.2 Appearance

The Appearance menu has the following main functions:

- Adjust Zoom
- Open/Close Sidebar
- Open/Close Tab Bar



Figure 3-8 PY32Studio Appearance menu

### 3.2.3 Project

The Project Menu has the following main functions (requires opening or creating a new project):

- Generate engineering code
- Modify project configuration
- Download chip documentation

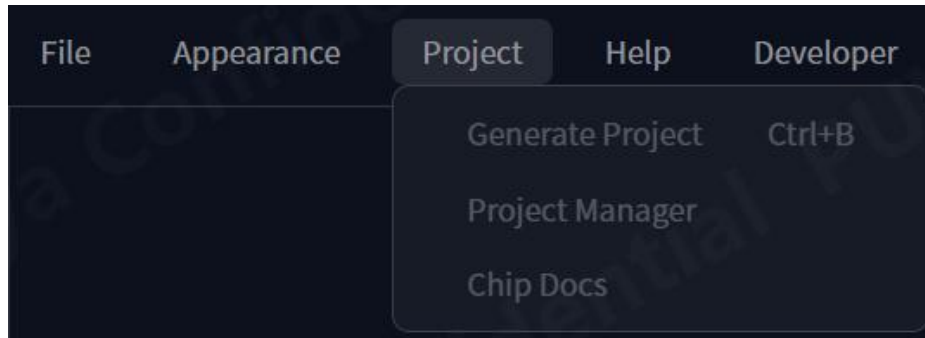


Figure 3-9 PY32Studio Project menu

### 3.2.4 Help

The Help Menu has the following main functions:

- Display the welcome page
- Show About Page
- Open the Help Document

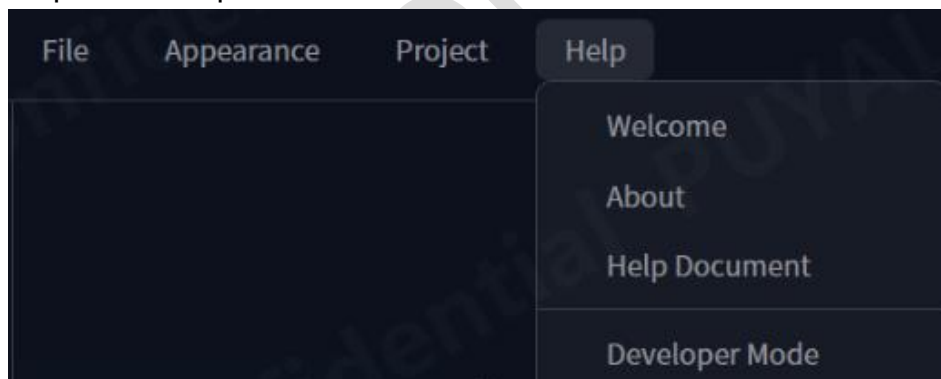


Figure 3-10 PY32Studio Help menu

## 3.3. Tab Bar

The tab bar allows users to switch between different open pages.



Figure 3-11 PY32StudioTab bar

## 4. Quick Start

### 4.1. New Project

1. There are three ways to create a new project:

- Click on Welcome Page for New Projects



Figure 4-1 Creating a new project in the PY32Studio welcome screen

- Click the toolbar File -> New Project

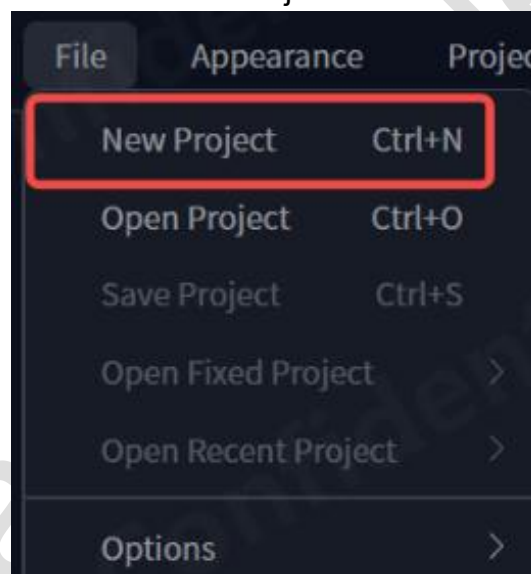


Figure 4-2 Creating a new project in PY32Studio

- Click on Create Project on the chip resources page

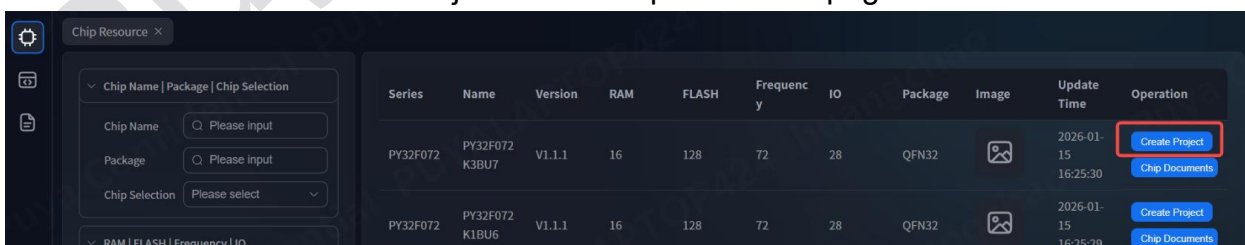
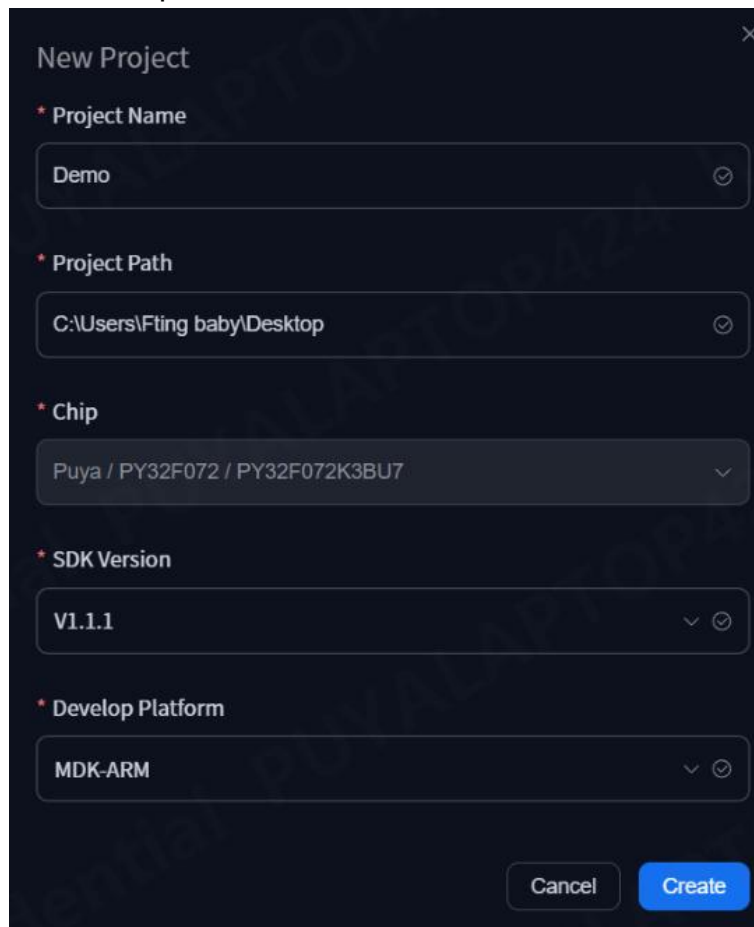


Figure 4-3 Creating a new project using the PY32Studio chip resources

2. Enter the project name and path as appropriate, select the relevant development platform, and then click 'Create'.



The 'New Project' dialog box is shown with the following fields and values:

- Project Name:** Demo
- Project Path:** C:\Users\Fting baby\Desktop
- Chip:** Puya / PY32F072 / PY32F072K3BU7
- SDK Version:** V1.1.1
- Develop Platform:** MDK-ARM

At the bottom right, there are 'Cancel' and 'Create' buttons.

Figure 4-4 Creating a PY32Studio project

3. If this is the first time a project is being created, or if there are updates to the resources, the relevant model data will be downloaded or updated automatically.

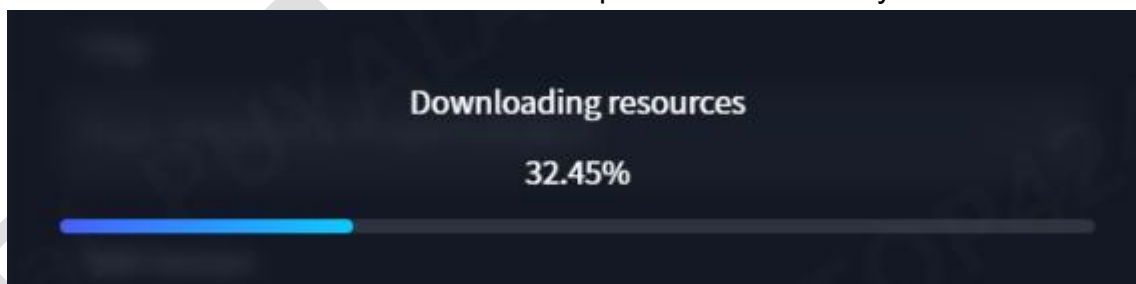


Figure 4-5 PY32Studio resource update interface

4. The project has now been created.

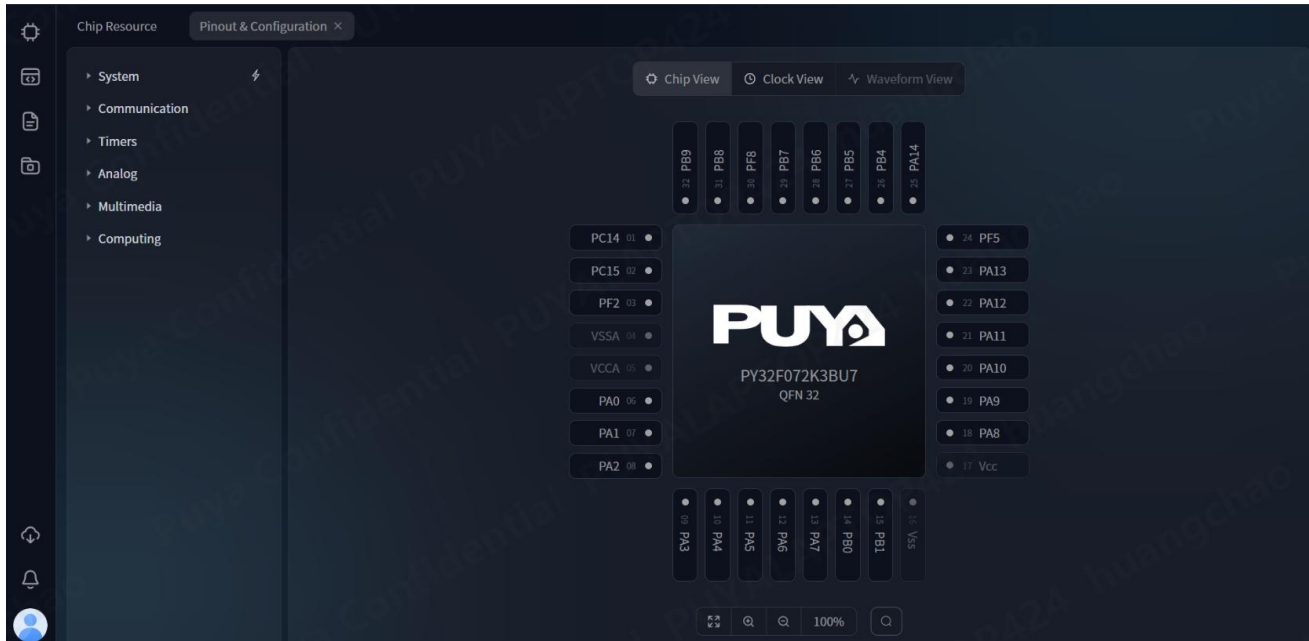


Figure 4-6 PY32Studio Project and Configuration

## 4.2. Chip Configuration

Different chips have different peripherals, and their specific functions also vary. The actual functions need to refer to the relevant documentation.

### 4.2.1 Pinout and Configuration

You can directly visualize and modify pin functions in chip view, and it supports searching for pin functions.

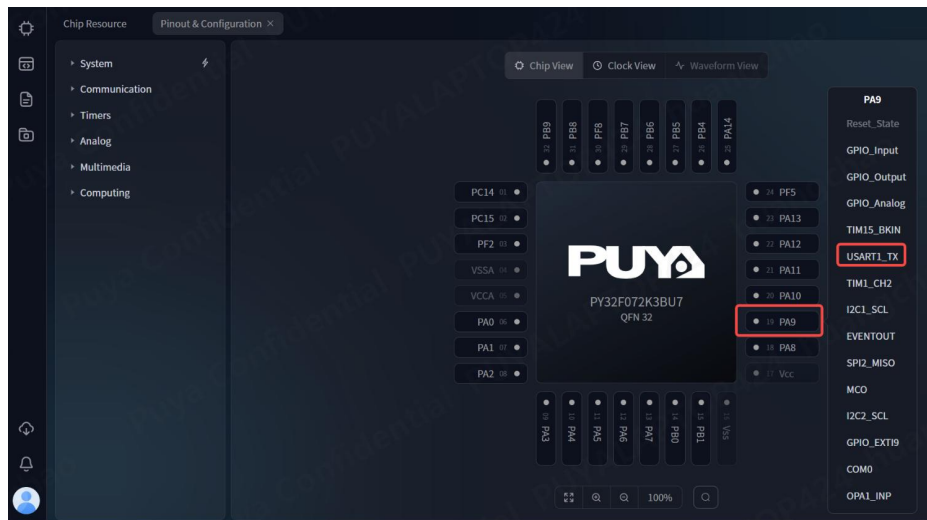


Figure 4-7 PY32Studio Pinout and Configuration

Supports fuzzy searches using pin names and function names, making it easier to configure pins.

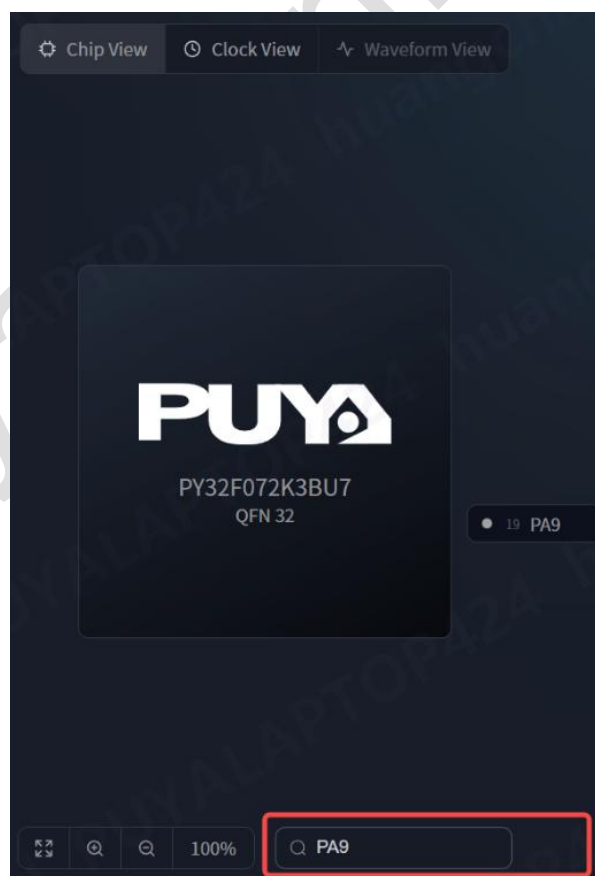


Figure 4-8 PY32Studio pin configuration search





Figure 4-9 PYStudio pin configuration search

### 4.2.2 Clock View

Can directly visualize and modify the clock in the clock view .

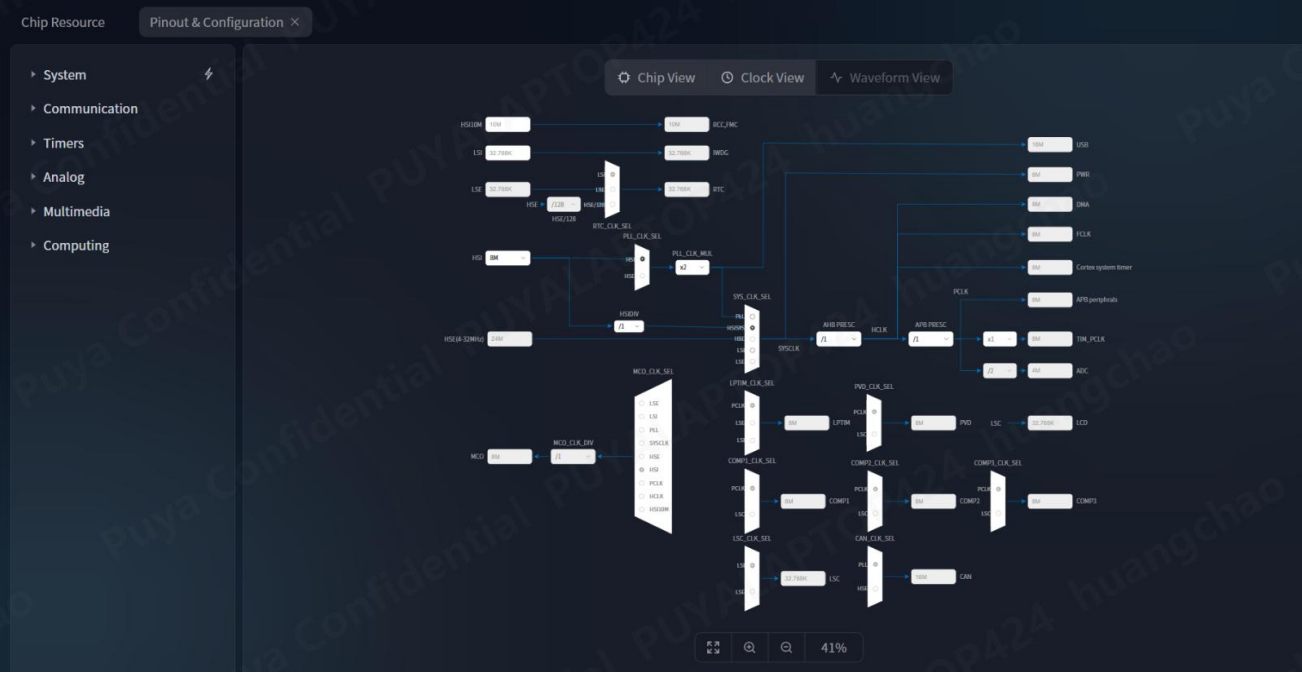


Figure 4- 10 PY32Studio Clock view

### 4.2.3 Waveform view

When the communication protocol is active, the waveform view will display the configured waveforms.



Figure 4-11 PY32Studio Waveform View

#### 4.2.4 Peripheral Configuration

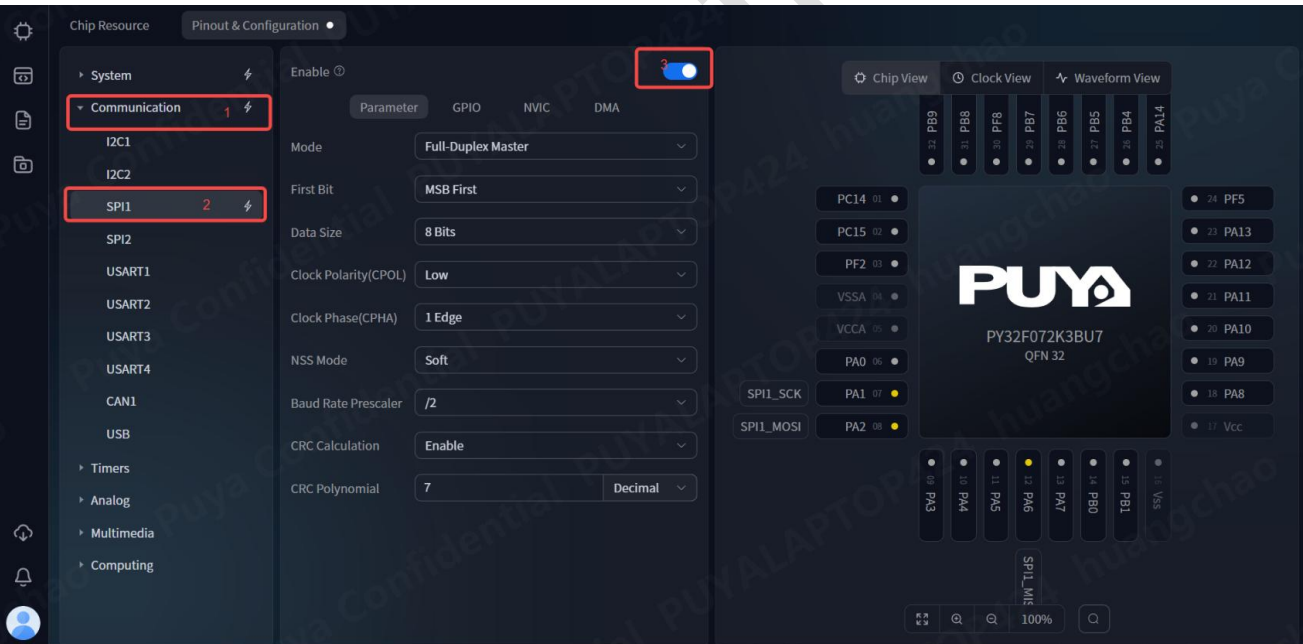


Figure 4-12 PY32Studio peripheral configuration

## 4.2.5 Project Manager

Click Project -> Project Manager in the toolbar to open the Project Manager interface. Here, you can set the stack size and choose to generate the corresponding code for the HAL library or the LL library.

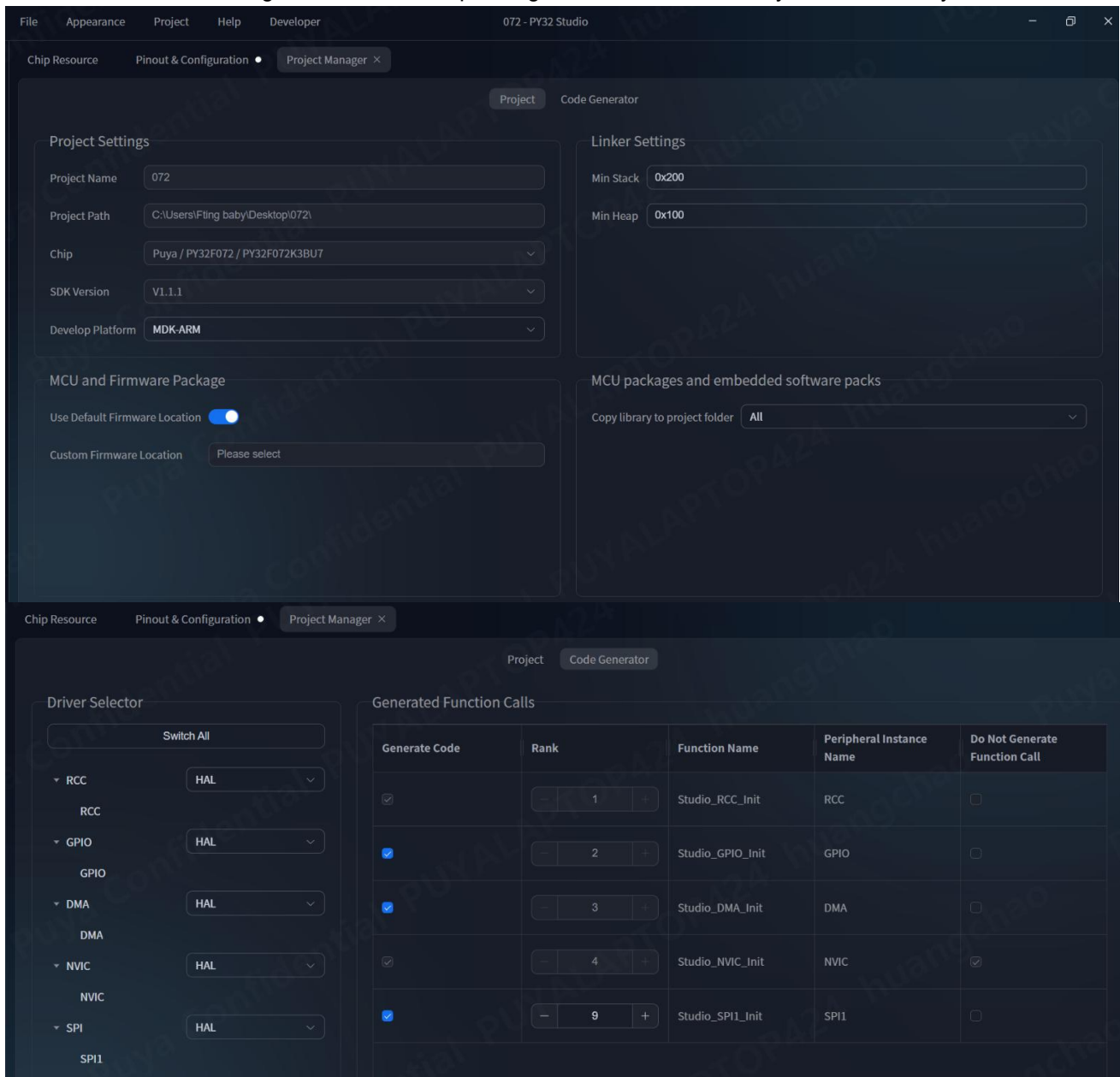


Figure 4-13 PY32Studio Project Manager

#### 4.2.6 Generate Project

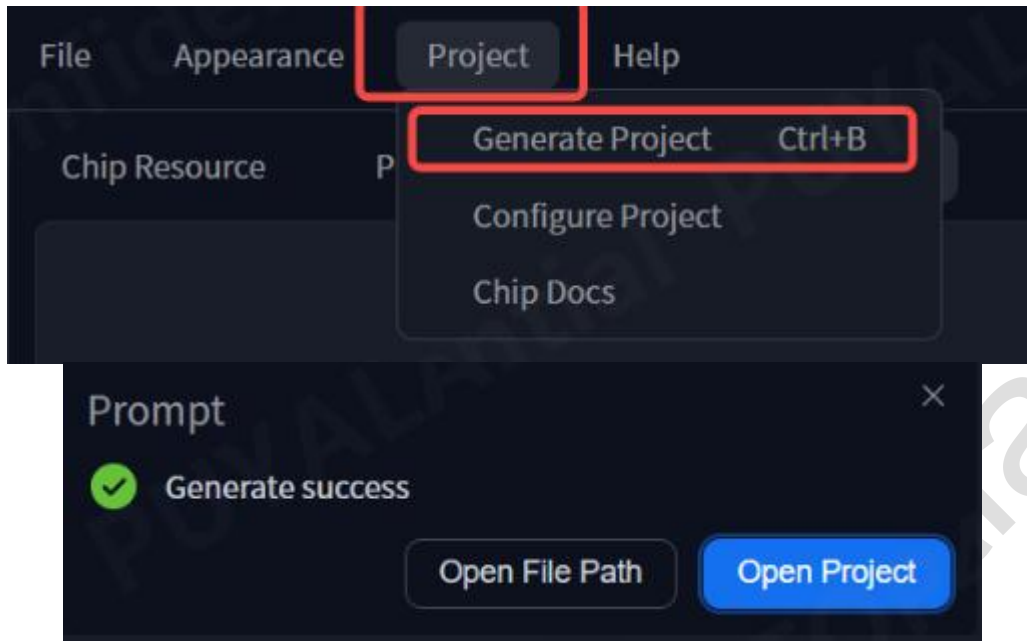


Figure 4-14 PY32Studio Generate Project

## 5. Common Functions

### 5.1. Language Switch

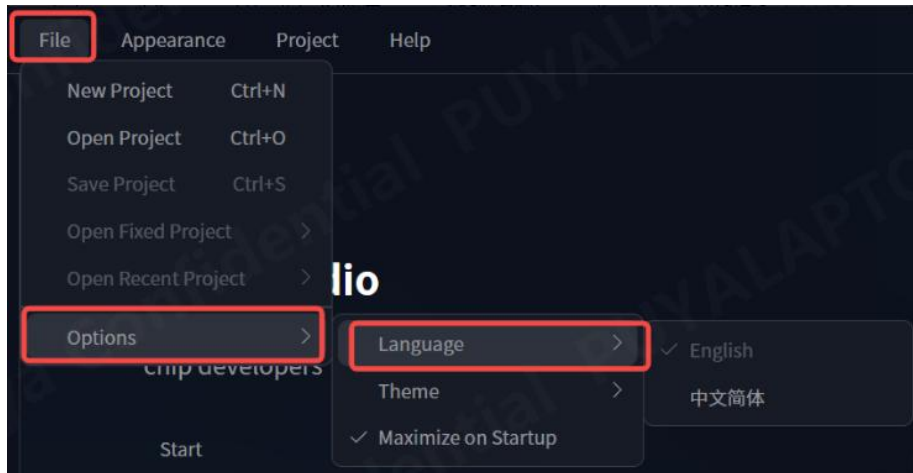


Figure 5-1 PY32Studio Language Switch

### 5.2. Theme Switch

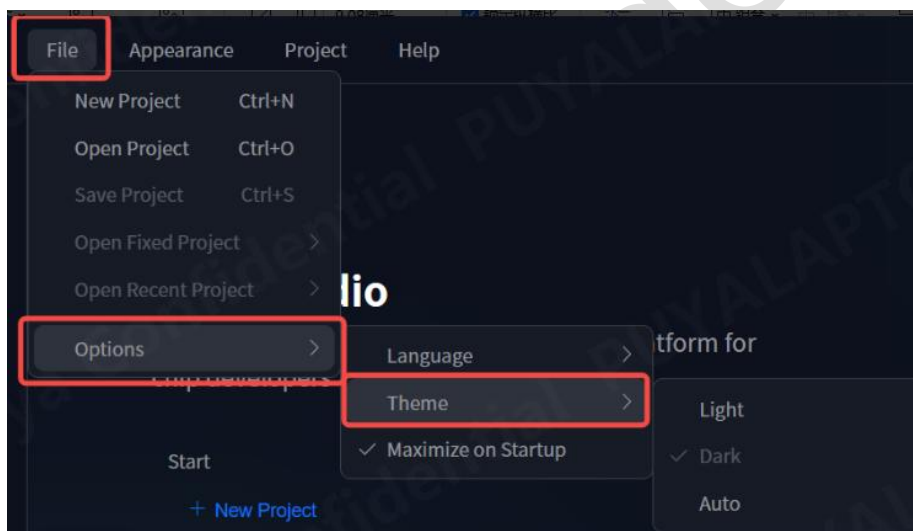


Figure 5-2 PY32Studio Theme Switch

### 5.3. Sign Out / Personal Center

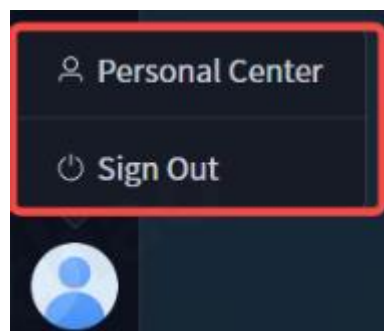


Figure 5-3 PY32Studio Sign out / Personal Center

## 5.4. Resize the Configuration Window

You can resize the configuration window by dragging the vertical divider on the right side of the window with the left mouse button. Alternatively, right-click the divider to display a context menu with options to minimize, restore, and maximize the window. Additionally, keyboard shortcuts are supported: click the divider with the middle mouse button to minimize the window, and double-click it to restore the window.

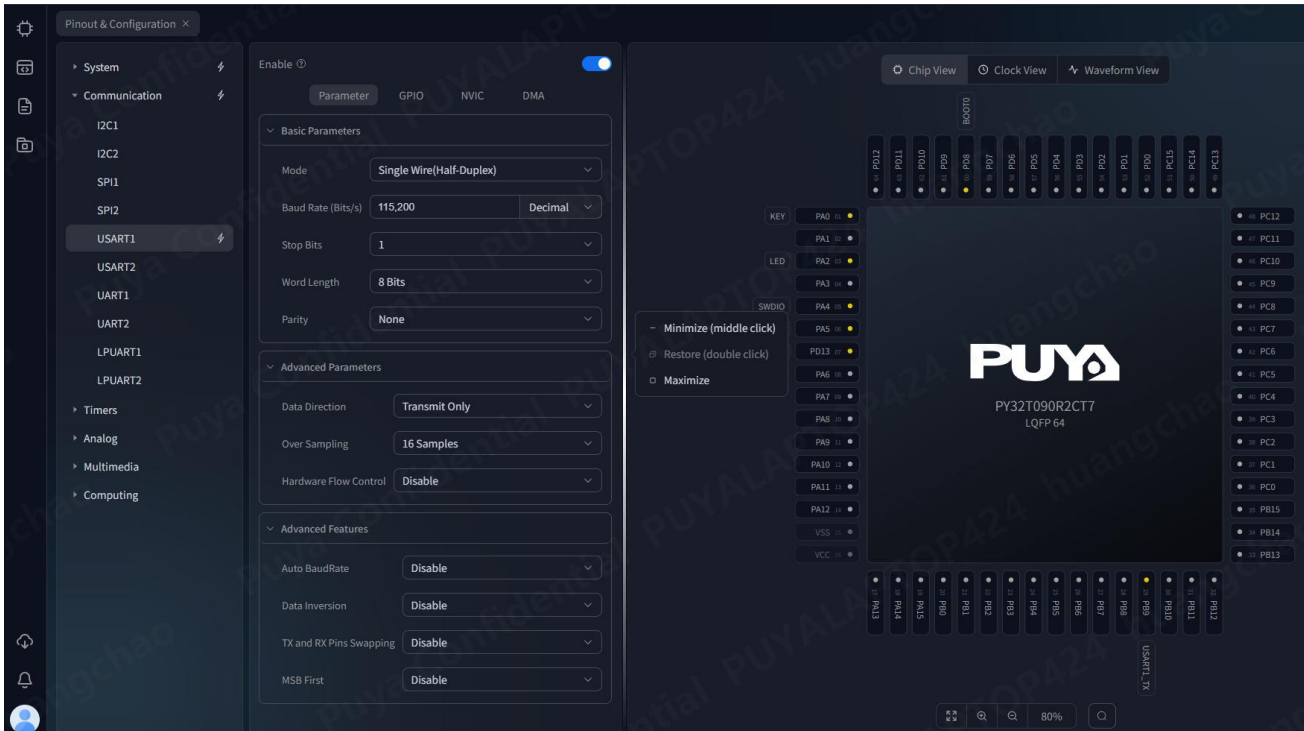


图 5-4 Resize the configuration window

## 6. Version history

Version	Date	Release Notes
V1.0	2026.05.20	1. First edition

Puya Confidential



## Puya Semiconductor Co., Ltd.

### IMPORTANT NOTICE

Puya reserve the right to make changes, corrections, enhancements, modifications to Puya products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information of Puya products before placing orders.

Puya products are sold pursuant to terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice and use of Puya products. Puya does not provide service support and assumes no responsibility when products that are used on its own or designated third party products.

Puya hereby disclaims any license to any intellectual property rights, express or implied.

Resale of Puya products with provisions inconsistent with the information set forth herein shall void any warranty granted by Puya.

Any with Puya or Puya logo are trademarks of Puya. All other product or service names are the property of their respective owners.

The information in this document supersedes and replaces the information in the previous version.

Puya Semiconductor Co., Ltd. – All rights reserved