

STM32 CUBE IDE INSTALLATION

Quickguide



1. GENERAL INFORMATION

Dear customer,

thank you very much for choosing our product.

In the following, we will introduce you to what to observe while starting up and using this product.

Should you encounter any unexpected problems during use, please do not hesitate to contact us.

In this short manual, we explain how to edit the OpenSource firmware of the StromPi 3 and how to create a firmware binary for flashing.

All functions of the StromPi can be read in the main manual of the Strom-Pi 3. You can download it <u>here</u>. First, download the STM32 Cube IDE 1.12.1 <u>here</u>. Then unpack the downloaded ZIP archive and execute the unzipped file to start the installation of the STM32 Cube IDE.



SLA0048 Rev4/March 2018

BY INSTALLING COPYING, DOWNLOADING, ACCESSING OR OTHERWISE USING THIS SOFTWARE PACKAGE OR ANY PART THEREOF (AND THE RELATED DOCUMENTATION) FROM STMICROELECTRONICS INTERNATIONAL N.V, SWISS BRANCH AND/OR ITS AFFILIATED COMPANIES (STMICROELECTRONICS), THE RECIPIENT, ON BEHALF OF HIMSELF OR HERSELF, OR ON BEHALF OF ANY ENTITY BY WHICH SUCH RECIPIENT IS EMPLOYED AND/OR ENGAGED AGREES TO BE BOUND BY THIS SOFTWARE PACKAGE LICENSE AGREEMENT.

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install STMicroelectronics STM32CubeIDE.



Read the license agreement and confirm that you agree with the terms by clicking "I Agree".

IDE STMicroelectronics STM32CubelDE	-		×	
Choose Install Location Choose the folder in which to install STMicroelectronics STM32CubeIDE.			IDE	
Setup will install STMicroelectronics STM32CubeIDE in the following folder different folder, click Browse and select another folder. Click Next to con	. To ins tinue.	tall in a		
Destination Folder C:\ST\STM32CubeIDE_1.3.0	Brov	vse		
Space required: 2.1 GB Space available: 24.6 GB				
< Back Next	>	Car	ncel	
JOY-iC®				

Select an installation directory and click "Next" to continue.

IDE STMicroelectronics STM32Cu		×					
Choose Components Choose which features of STMicroelectronics STM32CubeIDE you want to install.							
Check the components you wan install. Click Install to start the ir	Check the components you want to install and uncheck the components you don't want to install. Click Install to start the installation.						
Select components to install:	SEGGER J-Link drivers ST-LINK drivers ST-LINK server	Description Position you over a comp see its descr	r mouse onent to iption,				
Space required: 2.1 GB							
< Back Install Cancel							
JOY-iC®							

Start the installation with "Install".

IDE STMicroelectronics STM32CubelDE	—		×
Installation Complete Setup was completed successfully.			IDE
Completed			
Show details			
Si low uetails			
< Badk Nex	d >	Ca	ncel
	3)		

Click on "Next" to continue.

IDE STMicroelectronics	STM32CubelDE — 🗆 🗙			
Estimation of the second secon	Completing STMicroelectronics STM32CubeIDE Setup STMicroelectronics STM32CubeIDE has been installed on your computer. Click Finish to close Setup. ☐ Create desktop shortcut			
	< Back Finish Cancel			
JOY-it®				

Complete the installation by clicking on "Finish".

3. STM32 CUBE IDE SET UP

After the successful installation of the development environment, it is now set up. To do this, start STM32CubeIDE.

DE STM32Cub	pelDE Launcher		\times			
Select a directory as workspace STM32CubelDE uses the workspace directory to store its preferences and development artifacts.						
Workspace:	C:\Users\Entwicklung3\STM32CubelDE\workspace_1.3.0 ~	rowse				
Use this a:	s the default and do not ask again	Cancel				

Select a working directory for the development environment and start it by clicking on "Launch". Note: Add a firewall rule if necessary.

Updates Available	x
Updates are available for you Click to review and install up	ur software. odates.
You will be reminded in 4 Ho Set reminder preferences	ours.

If updates are available, install them first.



Open > Help > Eclipse Marketplace...

	Eclipse Marketplace — — X						
	Eclipse Marketplace						
e	Select solutions to install. Press Install Now to proceed with installation. Press the "more info" link to learn more about a solution.						
	Search Recent Popular Favorites Installed 🖓 Giving IoT an Edge						
	Find: $ ho$ egit × All Markets ~ All Categories ~ Go						
	EGit - Git Integration for Eclipse 5.6.1						
EGit is the Git integration for Eclipse. Git is a distributed versioning system, which means every developer has a full copy of all history of every revision of <u>more info</u>							
	by <u>Eclipse.org</u> , EPL egit jgit git dvcs scm						
	★ 1337 → Installs: 559K (2.549 last month) Install						

Enter "egit" in the search field and install the search result shown in the screenshot.

1						
	DE Eclipse Marketplace — 🗆 🗙					
	Confirm Selected Features					
	Press Confirm to continue with the installation. Or go back to choose more solutions to install.					
	 EGit - Git Integration for Eclipse 5.6.1 http://download.eclipse.org/egit/updates Git integration for Eclipse (required) Java implementation of Git (required) Java implementation of Git - ssh support using Apache MINA sshd (required) Git integration for Eclipse - Gitflow support Git integration for Eclipse - Task focused interface 					
	Image: Sava implementation of Git - optional LFS support Image: Sava implementation of Git - optional LFS support <t< th=""></t<>					

Click on "Confirm".

Eclipse Marketplace	— D X
Review Licenses	2
Licenses must be reviewed and accepted before th	e software can be installed.
Licenses:	License text:
> Eclipse Foundation Software User Agreement	Eclipse Foundation Software User Agreement
	November 22, 2017
	Usage Of Content
	THE ECLIPSE FOUNDATION MAKES AVAILABLE SOFTWARE, DOCUMENTATION, INFORMATION
	 I accept the terms of the license agreement
	○ I do not accept the terms of the license agreement
?	< Back Next > Finish Cancel

Read the license agreement and confirm that you agree with the terms with "I accept the terms..." and click "Finish".



Wait until the installation is complete, and then restart the Cube IDE.

IDE	workspace_1.3.0 - STM32CubeIDE	
File	Edit Source Refactor Navigate Search Project	t F
۵.	New Alt+Shift+N > Open File Open Projects from File System Recent Files >	Import Import Import Select Import one or more projects from a Git repository.
	Close Ctrl+W Close All Ctrl+Shift+W	D Select an import wizard:
	Save As Save As Save All Ctrl+Shift+S Revert	al >
69 N	Move Rename F2 Refresh F5 Convert Line Delimiters To >	t Projects from Git (with smart import) C Projects from Git (with smart import) Projects from
2	Print Ctrl+P	
	Import Export	Qı
	Properties Alt+Enter	
_	Switch Workspace > Restart Exit	C < Back Next > Finish Cancel

Open the import window with > File > Import ..., select "Projects from Git" and click on "Next".

DE Import Projects from Git	_		×
Select Repository Source Select a location of Git Repositories		G	T
type filter text Image: Second strength stre			
(?) < <u>Back</u> <u>Next</u> > <u>Finish</u>		Cance	ł

Select "Clone URI" and click on "Next".

DE Import Projects	from Git		—		×	
Source Git Reposi	tory			C	т	
Enter the location o	of the source repo	sitory.		G	<u> </u>	
					- 4	
Location						
UR <u>I</u> : ⁰	https://github.co	om/joy-it/strompi3		Local Fi	le	
Host:	github.com					
Repository path:	/joy-it/strompi3					
Connection						
Protoco <u>l</u> : https	~					
Port:						
Authentication					_	
<u>U</u> ser:						
Password:						
<u>S</u> tore in Secure Store						
				_		
Ø	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish	Canc	el	
Entor the followi	ng Cit-Uub add	rocc in the "UD!	" toyt boy:			
https://github.co	om/joy-it/stror	npi3	lext Dox.			
Then click on "Next".						
Import Projects	from Git		_		×	
Branch Selection	Branch Selection GIT					
Select branches to will be created to tr	clone from remot rack updates for th	e repository. Remote tese branches in the	e tracking branche remote repositor	es 🧮	-4	
				,		

Branches of https://github.com/joy-it/strompi3:

branches or https://gittub.com/joy-it/strompis.			
type filter text			
🗸 🚓 mas	ter		1
<u>S</u> elect All <u>D</u>	eselect All		
?	< <u>B</u> ack <u>N</u> ext >	<u>F</u> inish Cancel]

Click on "Next".

Import Projects from Git	– 🗆 X	
Local Destination Configure the local storage location for strompi3.		
Destination Directory: C:\Users\Entwicklung3\git\strompi3 Initial branc <u>h</u> : Clone <u>s</u> ubmodules	Bro <u>w</u> se	
Configuration Remote na <u>m</u> e: origin		
? < <u>B</u> ack <u>N</u> ext > <u>Finish</u>	Cancel	

Click on "Next".

Cloning from https://github.com/joy-it/strompi3	o x		
Select a wizard to use for importing projects	GIT		
Depending on the wizard, you may select a directory to determine the wizard's scope			
Wizard for project import			
Import <u>existing Eclipse projects</u>			
Import using the New Project wizard			
O Import as general project			
C Working Tree - C:\Users\Entwicklung3\git\strompi3			
(?) < <u>Back</u> <u>Next</u> > <u>Finish</u>	Cancel		

Click on "Next".

DE Cloning from ht	tps://github.com/	joy-it/strompi3	_		×
Import Projects				G	т
Import projects fro	m a Git repository			2	-
Projects:					
type filter text to filt	er unselected proj	ects		Selec	t All
🗹 🗁 RB-Strom	Pi3 (C:\Users\Desi	gn1\git\strompi3)		Desele	ct All
Search for nested	l projects				
Working sets					
Add project to	working sets			New	
W/				Calaat	
working sets:			~	Select	•
2	< Pack	Next 5	Einich	Cane	al

Click on "Next".





Open the file "main.c". Here it is now possible to make changes to the firmware.

In addition, you need to adjust a setting in the project properties, do the following:

Open the properties of the project.

Go to C/C++ Build ->Settings under Tool Settings go to MCU GCC Compiler -> Miscellaneous. Add a new flag there called "-fcommon" and apply the settings.



workspace_1.3.0 - STM32CubeIDE



Open the Debug Configurations

Debug Configurations			_	
Create, manage, and run configurations Program does not exist				Ś
Image: Second Secon	Name: RB-StromPi3 Debug Main	Common tromPi3.elf Obisable auto build Configure Workspace Settings	Search Project	Browse
Filter matched 10 of 10 items			Revert	Apply
0			Debug	Close

Enter your corresponding file path here



After you have made the desired changes to the firmware, you can start the debugging process by clicking the marked icon. By debugging the modified firmware, bugs can be found faster and the processes within the firmware can be viewed better.

If you have not connected a debugger, the following error message will appear:

185	{				
186	/* USER CODE BEGIN 1 */				
187					
1880	/*** The configuration, which is made in the serial con	isole,			
189	* are stored into the flash of the STM32F031 MCU with	the <u>flashconfig()</u> function.			
190	* In the following section, the configuration is read	out from the designated flash			
191	* and stored into variables i Droblem Occurred	_ n v			
192	Problem occurred				
193	modus = *(uint8 t *) modus Fla				
194	alarmDate = *(uint8 t *) alarm 🧑 'Launching RB-Strom	Pi3 Debug' has encountered a			
195	alarmWeekDay = *(uint8 t *) al 🚺 problem.				
196	alarmTime = *(uint8 t *) alarm				
197	alarmPoweroff = * (uint8 t *) a Error in final launch se	equence:			
198	alarm min = *(uint8 t *) alarm				
199	alarm hour = *(uint8 t *) alar Failed to start GDB ser	ver			
200	alarm min off = *(uint8 t *) a				
201	alarm hour off = *(uint8 t *)				
202	alarm day = *(uint8 t *) alarm	OK Details >>			
203	alarm month = *(uint8 t *) ala				
204	alarm weekday = *(uint8 t *) alarm weekday ElashAdress:				
205	alarm enable = *(uint8 t *) alarm enable ElashAdress:				
206	shutdown enable = *(uint8 t *) shutdown enable ElashAdr	ess:			
200	shutdown_time = *(uint16 t *) shutdown_time ElashAdress				
208	warning enable = *(uint8 t *) warning enable ElashAdres	· ·			
209	<pre>serialLessMode = *(uint8 t *) serialLessMode ElashAdres</pre>				
210	hat evel shutdown = *(uint8 t *) hat evel shutdown Flas	hAdress.			
211	alarmInterval = *(uint8 t *) alarmInterval ElashAdress:				
212	211 dlafminterval = '(ulnto_t') dlafminterval_riasHauress; 212 alarmintervalNinOn = *(uint16 t *) alarmintervalMinOn ElachAdress;				
213	212 diaminiter valuinon = (((inite_t))) alaminiter valuinon_rashadress; 213 alaminter valuinonff = *((inite_t *)) alaminiter valuinonff Elashadress;				
214	nowerOnButton enable = *(uint16 t *) nowerOnButton enable	le ElashAdress:			
015		lachAdnoss;			
	<				
🕞 Tacke	E Console 🕅 E Properties				
V-1 IUSKS					
<terminat< td=""><td>ted> RB-StromPi3 Debug [STM32 Cortex-M C/C++ Application] ST-LINK (ST-LI</td><td>NK GDB server) > IDE <terminated>R</terminated></td></terminat<>	ted> RB-StromPi3 Debug [STM32 Cortex-M C/C++ Application] ST-LINK (ST-LI	NK GDB server) > IDE <terminated>R</terminated>			
	Logging Level : 1	▲			
	Listen Port Number : 61234				
	Status Refresh Delay : 15s				
Verbose Mode : Disabled					
	SWD Debug : Enabled				
ST-Link	er tiek energetie feiled				
31-LTUK	enumeración ralleu				
Error i	n initializing ST-LINK device.				
Reason: ST-LINK DLL error.					
1					
<u> </u>		· · · · · · · · · · · · · · · · · · ·			

However, the binary file is still created.

By clicking on **Build All**, all files will be compiled and compressed.

workspace_1.4.0 - RB-StromPi3/Src/main.c - STM32CubeIDE File Edit Source Refactor Navigate Search Project Run Window Help Open Project 📑 🗕 🔚 🐘 🔊 🕶 🔨 🖛 📐 💩 📸 + 🔊 🛷 -Close Project 陷 Project Explorer 🛛 .c) 🗟 🛛 Build All Ctrl+B E 🕏 ∇ **Build Configurations** > RB-StromPi3 (in strompi3) [strompi3 r > 🗊 Includes Build Project gram body > 🚰 Drivers ****** Build Working Set > and all port > 🔐 Inc Clean... nt pairs USER > 🚰 Middlewares Build Automatically ons of this f 🗸 🚰 Src software dev > 💦 freertos.c **Build Targets** > ive copyright > 💦 main.c C/C++ Index > electronics I > 💦 stm32f0xx_hal_msp.c > ktm32f0xx_hal_timebase_TIM.c MX Generate Report > 💦 stm32f0xx_it.c Generate Code source and bi > 🚯 system_stm32f0xx.c d, provided t Properties > 🛵 UART_CLI.c 18 1. Redistribution of source code must r > 🚰 startup * this list of conditions and the foll 19 > 📂 Debug * 2. Redistributions in binary form must 20

If no errors occur, the created binary file (.bin) is saved under

"C:\Users\<User>\git\strompi3\Debug\RB-StromPi3.bin"

This file can then be transferred to the StromPi 3 according to the Flash instructions.



4. CONNECTING STROMPI 3 WITH DEBUGGER

When using a debugger, connect the marked solder pads to the pins of the debugger as shown in the figure.



Our information and take-back obligations according to the Electrical and Electronic Equipment Act (ElektroG)



Symbol on electrical and electronic equipment:

This crossed-out dustbin means that electrical and electronic appliances do not belong in the household waste. You must return the old appliances to a collection point.

Before handing over waste batteries and accumulators that are not enclosed by waste equipment must be separated from it.

Return options:

As an end user, you can return your old device (which essentially fulfils the same function as the new device purchased from us) free of charge for disposal when you purchase a new device.

Small appliances with no external dimensions greater than 25 cm can be disposed of in normal household quantities independently of the purchase of a new appliance.

Possibility of return at our company location during opening hours: SIMAC Electronics GmbH, Pascalstr. 8, D-47506 Neukirchen-Vluyn, Germany

Possibility of return in your area:

We will send you a parcel stamp with which you can return the device to us free of charge. Please contact us by email at Service@joy-it.net or by telephone.

Information on packaging:

If you do not have suitable packaging material or do not wish to use your own, please contact us and we will send you suitable packaging.

6. SUPPORT

If there are still any issues pending or problems arising after your purchase, we will support you by e-mail, telephone and with our ticket support system.

Email: service@joy-it.net

Ticket system: http://support.joy-it.net

Telephone: +49 (0)2845 98469-66 (Mon - Thur: 10:00 - 17:00 o'clock, Fri: 10:00 - 14:30 o'clock)

For further information please visit our website:

www.joy-it.net