ModusToolbox™ Programming tools release notes

ModusToolbox™ Programming tools package version 1.0

About this document

Scope and purpose

This document describes the features and known limitations for the ModusToolbox™ Programming tools package. This package includes several cross-platform programming tools that allow you to program flash on Infineon MCU and Kit devices. These are used within the ModusToolbox™ ecosystem, and you may also use them separately, if needed. This package provides a new delivery mechanism for these tools, as well as a new tool called ModusToolbox™ Programmer that replaces the legacy Cypress Programmer.

For more details about what is included with the ModusToolbox™ Programming tools package, see What's included in this document.

Reference documents

Refer to the Infineon programming solutions website for more information as needed.

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1 What's included

This release includes the following tools and versions:

Tool Name	Current Release	Previous Release
ModusToolbox™ Programmer (mtb-programmer)	5.0.0	Cypress Programmer 4.2
Firmware Loader (fw-loader)	3.5.1	3.5.0 with ModusToolbox 3.1
OpenOCD	5.0.1	5.0.0 with ModusToolbox 3.1
KitProg3	2.50.1	2.50.0 with ModusToolbox 3.1
ChipLoad	1.6.2	1.6.1 with ModusToolbox 3.1
DetAndID	5.0.1	5.0.0 with ModusToolbox 3.1
MbtP	5.0.1	5.0.0 with ModusToolbox 3.1

- ModusToolbox™ Programmer graphical user interface: This tool provides a graphical user interface to program, erase, verify, and read the flash of the target device.
- Firmware Loader: This tools provides a command-line interface to upgrade KitProg3 firmware and easily switch back and forth between legacy KitProg2 and KitProg3.
- OpenOCD: This tool provides debugging and in-system programming functionality for target devices for ModusToolbox™ and mtb-programmer.
- KitProg3: This asset provides communication firmware that supports both CMSIS-DAP programming and debugging.
- ChipLoad: This tool allows to download firmware to AIROC™ Bluetooth® platforms
- DetAndID: This tool allows to detect the serial port to which AIROC™ Bluetooth® device is connected
- MbtP: This tool allows to download firmware files to CYW955572BTEVK-01 devices to quickly disable the autobaud watchdog

1.1 Supported operating systems

- Windows 11 (x64), Windows 10 (x64) and Windows 7 SP1 (x64)
- macOS X 11 (x64) and macOS X 12 (x64), macOS 13 (x64)
- Ubuntu 18.04 LTS (x64), Ubuntu 20.04 (x64), and Ubuntu 22.04 (x64)

What's included

1.2 Supported Kits/Platforms

This release provides support for the following kits/platforms:

Platform	MCU/SOC/SIP
PSoC™ 6 kits	
CY8CKIT-062-BLE	CY8C6347BZI-BLD53
CY8CKIT-062-WIFI-BT	CY8C6247BZI-D54
CY8CPROTO-062-4343W	CY8C624ABZI-S2D44
CY8CPROTO-063-BLE	CYBLE-416045-02
CY8CKIT-062S2-43012	CY8C624ABZI-S2D44
CY8CPROTO-062S2-43012	CY8C624ABZI-S2D44
CY8CPROTO-062S3-4343W	CY8C6245LQI-S3D72
CY8CPROTO-062S2-43439	CY8C624ABZI-S2D44
CY8CEVAL-062S2	CY8C624ABZI-S2D44
CY8CKIT-062S4	CY8C6244LQI-S4D92
CYW9P62S1-43438EVB-01	CY8C6247BZI-D54
CYW9P62S1-43012EVB-01	CY8C6247FDI-D52
CY8CPROTO-064S1-SB	CYB06447BZI-D54
CY8CPROTO-064B0S3	CYB0445LQI-S3D42
CY8CPROTO-064B0S1-BLE	CYB06447BZI-BLD53
CY8CKIT-064B0S2-4343W	CYB0644ABZI-S2D44
CY8CKIT-064S0S2-4343W	CYS0644ABZI-S2D44
CY8CEVAL-064SXS2	CYB0644ABZI-S2D44
PSoC™ 4 kits	
CY8CKIT-041-40XX	CY8C4045AZI-S413
CY8CKIT-041-41XX	CY8C4146AZI-S433
CY8CKIT-145-40XX	CY8C4045AZI-S413
CY8CKIT-149	CY8C4147AZI-S475
CY8CKIT-045S	CY8C4548AZI-S485
CY8CKIT-041S-MAX	CY8C4149AZI-S598
CY8CKIT-040T	CY8C4046LQI-T452
PMG1 kits	
CY7110	CYPM1011-24LQXI
CY7111	CYPM1111-40LQXIT
CY7112	CYPM1211-40LQXIT
CY7113	CYPM1311-48LQXI
EVAL_PMG1_B1_DRP	CYPM1116-48LQXI
EVAL_PMG1_S1_DRP	CYPM1111-40LQXI
EVAL_PMG1_S3_DUALDRP	CYPM1322-97BZXI
AIROC™ Wi-Fi kits and boards	
BCM94343WWCD2	STM32F411
BCM943362WCD4	STM32F205
BCM943438WCD1	STM32F411
BCM943364WCD1	STM32F411

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What's included

Platform	MCU/SOC/SIP
CYW943012EVB-04	STM32L4A6VG
CYW943340WCD1	STM32F417
CYW943455EVB-02	STM32H7
CYW943907AEVAL1F (Rev 1.1)	CYW43907KWBG
CYW943907WAE4	CYW43907KWBG
CYW954907AEVAL1F	CYW54907KWBG
AIROC™ Bluetooth® kits and boards	
CYBT-213043-EVAL	CYBT-213043-02
CYBT-213043-MESH	CYBT-213043-02
CYBT-343026-EVAL	CYBT-343026-02
CYBT-413055-EVAL	CYBT-413055-02
CYBT-423054-EVAL	CYBT-423054-02
CYBT-483056-EVAL	CYBT-483056-02
CYW920719Q40EVB-01	CYW20719
CYW920719B2Q40EVB-01	CYW20719B2KUMLG
CYW920706WCDEVAL	CYW20706UA2KFFB4G
CYW920721B2EVK-02	CYW20721B2KUMLG
CYW920721B2EVK-03	AW-BT315W
CYW920735Q60EVB-01	CYW20835PB1KML1G
CYW920819EVB-02	CYW20819A1KFBG
CYW920820EVB-02	CYW20820A1KFBG
CYW989820EVB-01	CYW89820BWMLG
CYW9M2BASE-43012BT	CYW43012TC0EKUBGEST
CYW920829M2EVB-01	CYW20829A0LKML
CYW920829M2EVK-02	CYW20829A0LKML
CYW955513EVK-01	CYW55513IUBG
CYW920829SM2EVK-02	CYW20829B0
XMC7100/7200 kits and boards	
KIT_XMC72_EVK	XMC7200D-E272K8384
TraveoT2G kits	
KIT_T2G-B-E_LITE	CYT2BL5CAAQ0AZSGS

1.3   Supported product families

- PSoC™ 60xx, PSoC™ 61xx, PSoC™ 62xx, PSoC™ 63xx, PSoC™ 64xx

- PSoC™ 4000S, PSoC™ 4000T, PSoC™ 4100S, PSoC™ 4100S Plus, PSoC™ 4100S Max, PSoC™ 4500S, and PSoC™ 4500H

- PMG1-Sx, PMG1-Bx

- WLC1

- EZ-PD™ CCG7S, CCG7D

- CCG4, CCG3PA and CCG8

- PAG2S

What's included

- XMC7100/7200
- T2G CYT4BB/BF, CYT2Bx
- AIROC™ CYW20829
- FX3G2

1.4 Supported programming hardware

- SEGGER J-Link probe
- MiniProg4 stand-alone programmer/debugger
- KitProg3 onboard programmer/debugger
- FTDI FT2232H

1.5 Open source

Portions of this software package are licensed under free and/or open source licenses such as the GNU General Public License. Such free and/or open source software is subject to the applicable license agreement and not our license agreement covering this software package. The applicable license agreements are available online:

https://www.infineon.com/cms/en/design-support/software/free-and-open-source-software-foss/modustoolbox-foss-packages/

2 Installation

Download the applicable ModusToolbox™ Programming tools package for your operating system from a link available here:

https://www.infineon.com/cms/en/design-support/tools/programming-testing/psoc-programming-solutions/

2.1 System prerequisites

We recommend the following minimum system configuration:

- PassMark CPU score > 2000 (cpubenchmark.net)
- Minimum of 4 GB RAM
- Minimum 140 MB free disk space
- Minimum 1280x1024 screen resolution

2.2 Installing on Windows

1. Run the Windows installer program: *ModusToolboxProgtools_1.x.x.<build>.exe*
2. Follow the instructions of the installation wizard.
3. For unattended install run the installer with `/silent` argument:

        .\ModusToolboxProgtools_1.x.x.<build>.exe /silent

2.3 Installing on Ubuntu

Run the installer program: *ModusToolboxProgtools_1.x.x.<build>.deb*

2.4 Installing on macOS

1. Run the pkg installer: *ModusToolboxProgtools_1.x.x.<build>.pkg*.

    Follow the instructions on the installation wizard.
2. For unattended install, run the installer from the terminal:

        sudo installer -pkg ModusToolboxProgtools_1.x.x.<build>.pkg -target /

3 Design impact

This section includes issues and solutions for changes that may impact various designs.

3.1 Final support of older OS

This is the final release that will support Windows 7, macOS Big Sur, and Ubuntu 18.04. These older OS have reached end of life, and they will not be supported in future releases of ModusToolbox™ Programming tools.

4 Known issues/limitations

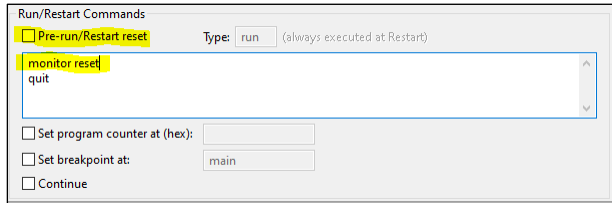This section lists the known issues/limitations of this release.

4.1 ModusToolbox™ Programmer GUI

Problem	Workaround
Not able to reliably program the following kits: • CYBT-213043-EVAL • CYBT-213043-MESH • CYBT-343026-EVAL • CYBT-413055-EVAL • CYBT-423054-EVAL • CYBT-483056-EVAL • CYW920719Q40EVB-01 • CYW920719B2Q40EVB-01 • CYW920706WCDEVAL • CYW920721B2EVK-02 • CYW920721B2EVK-03 • CYW920735Q60EVB-01 • CYW920819EVB-02 • CYW920820EVB-02 • CYW989820EVB-01	Put the device into recovery mode: 1. Press and hold the Recovery button. 2. Press and hold the Reset button for one second. 3. Release the Reset button. 4. Release the Recovery button. 5. Re-program the board as usual.
Read operation does not work on the following kits: • CYBT-213043-EVAL • CYBT-213043-MESH • CYBT-343026-EVAL • CYBT-413055-EVAL • CYBT-423054-EVAL • CYBT-483056-EVAL • CYW920719Q40EVB-01 • CYW920719B2Q40EVB-01 • CYW920706WCDEVAL • CYW920721B2EVK-02 • CYW920721B2EVK-03 • CYW920735Q60EVB-01 • CYW920819EVB-02 • CYW920820EVB-02 • CYW989820EVB-01 • CYW9M2BASE-43012BT	No workaround

Known issues/limitations

Problem	Workaround
Unable to program the following kits after erase: • CYW920719Q40EVB-01 • CYW920719B2Q40EVB-01 • CYW920819EVB-02 • CYW920820EVB-02 • CYW989820EVB-01 • CYW920721B2EVK-02 • CYW920721B2EVK-03 • CYW920706WCDEVAL • CYW920735Q60EVB-01 • CYBT-213043-EVAL • CYBT-213043-MESH • CYBT-343026-EVAL • CYBT-413055-EVAL • CYBT-423054-EVAL • CYBT-483056-EVAL	After erase put the device into recovery mode: 1. Press and hold the Recovery button. 2. Press and hold the Reset button for one second. 3. Release the Reset button. 4. Release the Recovery button. 5. Re-program the board as usual.
Some AIROC™ Bluetooth® kits may not be accessible if hot-plugged on particular Windows 10 x64 PCs. Affected platforms are CYW9207xx and CYW9208xx.	After restarting application, the device should be available in mtb-programmer.

4.2 OpenOCD

Problem	Workaround
When programming or debugging, you see the following error message: Error connecting DP: cannot read IDR This occurs if the debug port is disabled in the BSP for the specific project.	You can enable the debug port for the specific project, or safely ignore this message if the debug port is still disabled.
When programming a PSoC™ 64 device, the following error displays: Error: timed out while waiting for target halted	There is no impact on functionality, programming is successful. To suppress the message: 1. Open the "Program" launch configuration and navigate to the **Startup** tab. 2. In the **Run/Restart Commands** section, deselect the **Pre-run/Restart reset** check box. 3. Add the monitor reset command to the text field below the check box:
Debug doesn't work on AIROC™ CYW20829 devices with a J-Link probe in JTAG in Eclipse and VS Code IDEs.	Use the SWD interface.

Known issues/limitations

Problem	Workaround
While using the Eclipse IDE or Visual Studio Code on Windows for various program/debug operations, there's a plugin issue that prevents the debug port from shutting down. This could result in abnormal power consumption, the watchdog timer being blocked, or the inability to connect in JTAG mode after a successful connection in SWD mode.	Reset the device. For example, on the CY8CKIT-062S2-40312 kit, press the **SW1/XRES** button.

4.3   Installer

Problem	Workaround
Visual installer issues on Windows and Linux • The application entry in the "Apps & Features" list on Windows is displayed with the default logo • Clicking on "Project Website" in the Debian installer on Linux redirects user to incorrect web page.	No workaround
Debian installer on Ubuntu 18.04 allows to install same package build for several times.	No workaround

4.4   Limitations

Limitation description

Not able to detect KitProg3/MiniProg4 probe when the OpenOCD process has been killed. Killing the OpenOCD process leaves KitProg3/MiniProg4 in unpredictable/invalid state. Unplug KitProg3/MiniProg4 from the USB port and re-attach.

ModusToolbox™ Programmer GUI loses connection with CYW943907AEVAL1F, CYW943907WAE4 kits in case they are programmed with an invalid image. Messages about lost connection can be safely ignored. Connection with target is restored during next operation.

Unable to access PSoC™ 6 MCU via JTAG of J-Link if DAP has been switched to SWD mode previously. Hardware reset or power cycle is required to switch the DAP back to JTAG mode

There is a programming error for platforms that connect via FTDI on macOS Catalina. The boards include:
- CYW920819EVB-02
- CYW920820EVB-02
- CYW920719B2Q40EVB-01
- CYW920719Q40EVB-01
- CYW920721B2EVK-02
- CYW920721B2EVK-03
- CYW989820EVB-01
- CYW920706WCDEVAL
- CYW920735Q60EVB-01

This only happens in macOS Catalina 10.15.5 because of a serial port detection error. The macOS Catalina FTDI driver is missing the necessary device identification information.
To resolve this issue, update to macOS Catalina 10.15.6.

External memory programming does not work on CYW943340WCD1 kit

The CYW9M2BASE-43012BT kit supports only direct download to the RAM. To recover or reset this device, you should power cycle the board. Due to this limitation, the only allowed operation for this device is program to the RAM.

Known issues/limitations

Limitation description

Due to significant changes in design of production PSoC™ 64 devices, mtb-programmer does not support previous pre-released PSoC™ 64 secure devices. In case if pre-released PSoC™ 64 silicon is connected to mtb-programmer, the appropriate warning message is displayed in the Log view.

Some PMG1 devices can be acquired by programmer tool only in the Power Cycle mode. See description of the "Programming Mode" setting in the ModusToolbox™ user guide

Revision history

Revision	Date	Description of Change
**	2023-09-13	Initial release.