Installation and Quick Start Guide

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Table of Contents

Pa	rt I Features and Characteristics	4
1	Major features	4
2	Hardware characteristics	5
3	Software features	5
4	System Requirements	6
Par	t II Installation	7
1	Installing the ChipProgUSB Software	7
2	Installing the USB Drivers	11
3	Installing the ChipProg Hardware	11
4	Troubleshooting	
Part	III Programming Operations	13
Part	IV Getting Assistance	14
1	On-line Help	14
2	Technical Support	14
3	Contact Information	15
Inc	dex	17

1 Features and Characteristics

The **ChipProg-G4** is a 4-site gang programmer based on four ChipProg-48 single programmers enclosed in one case and driven from the ChipProgUSB software. It is intended for middle- and low-volume manufacturing. It supports in-socket and in-system programming of thousand of devices and has no valuable limitations for supporting future devices.



Standard package contents:

- One programmer unit
- One power cable
- One USB link cable
- One CD with the ChipProgUSB software

The ChipProgUSB software runs on the IBM PC hardware platform under the control of most popular Windows[™] versions (see the **System requirements**).

Optionally the package may include one or more programming adapters (if ordered with the programmer) and this "QuickStart" printed manual. See also for more details:

Major features Hardware characteristics Software features

1.1 Major features

- 1. Based on four ChipProg-48 tools enclosed in one case and connected to a PC via an embedded USB hub.
- 2. Allows independent and concurrent programming of up to four devices of the same type.
- 3. 48 pin ZIF sockets allow insertion of any DIP-packed devices with the package width from 300 to 600 mil (7.62 to 15.24 mm) and the number of leads up to 48 without additional adapters.

5

- 4. Links to a PC USB 2.0 compatible port via one link cable.
- 5. Provides fast programming; for example, completely writes a 64M bit NOR FLASH in less than 50 sec.
- 6. Can program target devices in its socket as well as devices installed in the equipment (ISP mode).
- Each programming site has a 'Start' button for fast manual launch of any single operation or a batch of operations.
- 8. Each programming site has three LEDs for displaying the programming status ("Good", "Busy", "Error").

1.2 Hardware characteristics

- 1. Enclosed in a durable steel case to be used in an industrial environment.
- 2. The tool gets power from a standard outlet 110-240V, 50-60 Hz.
- 3. Each programming site based on a single ChipProg-48 programmer has a 48-pin ZIF socket with a lever that enables the insertion and clamping of any DIP-packed devices with the package width from 300 to 600 mil (7.62 to 15.24 mm) and with the number of leads up to 48.
- 4. Adapters for programming devices in the SDIP, PLCC, SOIC, SOP, PSOP, TSOP, TSOPII, TSSOP, QFP, TQFP, VQFP, QFN, SON, BGA, CSP and other packages are available from Phyton and many third parties.
- 5. Single ChipProg-48 programmers inside of the tool enclosure are connected to an embedded USB 2.0 hub
- 6. Each programming site is built on the base of a very fast and powerful 32-bit embedded microcontroller and FPGA. These resources allow adding new targets to the device list by a simple software update.
- Most timing-critical parts of the programming algorithms are implemented on the FPGA devices and do not involve any operations on the embedded microcontroller that would slow down the programming speed.
- Implementation in the FPGA devices logical drivers enable outputting logical signals of any level (low, high, Pullup, Pulldown and external clock generator) to any pin of the programming ZIF socket.
- 9. The tool hardware features 10-bit digital-to-analog converters for accurate settings of the analog signals.
- 10. The tool hardware enables accurate programming of the rising and falling edges of the generated analog signals.
- 11. The tool hardware automatically adjusts the generated analog signals.
- 12. The generated analog signals for both the target supplying and programming can be outputted to any pins of the device being programmed.
- 13. The tool hardware can connect any pin of the device being programmed to the "Ground" level.
- 14. The tool hardware checks if every pin of the target device is reliably fixed by a ZIF socket's contacts ("bad contact" checking).
- 15. The tool hardware protects itself and the target device against incorrect insertions and other issues that cause a sharp increase in the currents though the target device circuits. This "over current" protection is very fast and reliable.
- 16. The target device pins are protected against the electrostatic discharge.
- 17. The tool's hardware has a programmable clock generator.
- 18. The self-testing procedure automatically executes at any time the programmer is powered on.

1.3 Software features

- 1. Works under control of Windows 2000/XP/Vista.
- 2. Friendly, intuitive graphic user interface allows monitoring the programming sites statuses and can zoom in on operations on each of four programming sites.
- Includes a set of basic commands: Blank Check, Erase, Read, Write, Verify, Lock, Set Configuration Bits, Data Memory Support, etc., executed by a single mouse click or via menu.

- 4. Enables programming a batch of the commands above and executed one after one by a manual start, by a mouse click or automatically upon the device insertion into the programming socket.
- 5. Allows serialization of the programming devices with auto incrementing the device numbers and storing a serialization log.
- 6. The program can calculate checksums of the selected data array and then write the checksum into a specified memory location of the target device. Several methods of the checksum calculation can be used.
- 7. The program allows writing a unique signature into a specified memory location of the target device for the device identification.
- 8. Project support speeds up and simplifies switching between different programming tasks.
- 9. The software allows pre-programming a particular operation (or a chain of operations), which is supposed to be automatically triggered when the programmer hardware detects insertion of the target device into the programming socket.
- 10. Unlimited number of memory buffers can be opened in the main ChipProgUSB window for each of four programming sites.
- 11. The software includes a full-scale binary editor allowing manual modification of the data in buffers as well as such helpful functions as Search and Replace, Fill, Compare, Copy, Invert, Calculate Checksum, and OR, AND, XOR logical operations on the blocks of data.
- 12. Loading and saving files in several standard and proprietary formats: Binary, Standard Extended Intel HEX, Motorola S-record, POF, JEDEC, PRG, Holtek OTP, ASCII HEC, ASCII OCTAL, Angstrem SAV. Special non-standard formats can be added on request.
- 13. The software is featured by a script language and a mechanism of handling the script scenarios for automation of the routine operations and chip replications. Limitation: The scripts may not modify a content of the buffer dump in a process of the programming.

1.4 System Requirements

To control a ChipProg-G4 programmer by means of the ChipProgUSB software you need an IBM PC-compatible computer with the following components:

- Pentium-III CPU or higher
- Windows 98/2000/XP/Vista OS
- 256MB of RAM
- At least one USB port
- A hard drive with at least 200MB of free space

7

2 Installation

2.1 Installing the ChipProgUSB Software

Insert the distributive ChipProgUSB disc into a CD drive of your PC. In a few seconds the picture below will appear on the screen.

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	1	5		111	Phyton WEB Site
9					Exit

click the **Install Programmer** button and then follow the series of prompts that will lead you through the installation process. If your computer cannot automatically start up the disc open the 'My Computer' folder on the PC desktop, expand the DVD-RAM or CD-ROM drive and click the **Setup.exe** file icon.

cense Agreement	
Please read the following license agreement car	efully.
NOTICE:	
Phyton, Inc. Microsystems and Development too software to you only upon the condition that you agreement. Please read the terms carefully befor button will indicate your assent to them. If you d button to exit install.	Is (hereafter Phyton) licenses the accompanying accept all of the terms contained in this license te continuing installation, as pressing the "yes" to not agree to these terms, please press the "no"
I accept the terms of the license agreement	

Carefully read the license agreement; if you agree with its terms check the I accept... radio button. Then click the Next button.

Fransfer Working Environne	nt from Previously Installed Version
Setup has found that the fol already installed on this com from one of the installed ver	lowing Phyton ChipProgUSB Programmer versions has been puter. You may wish to transfer the working environment sions. Click the Detail's button for more information.
Transfer working environ	ment from version:
1074:03:00	
	Details

If another, usually older, version of the ChipProgUSB software has been already installed and configured on your PC you may wish to keep the software configuration working with the new software version being installed. If so check the Transfer working environment from version box, select the version number which configuration you want to inherit and click the Next button.

Phyton ChipProgUSB Pro	grammer v. 4.62.00 Installation
Uninstall Previously Installed Versio	on(s)
Setup has found that the following already installed on this computer. Choose Phyton ChipProgUSB Pro 4.62.00:	(Phyton ChipProgUSB Programmer versions has been You may wich to uninstall some of these versions, grammer versions to uninstall before installing version
4.63.00	
X Exit	Back Next

If another, usually older, version of the ChipProgUSB software has been already installed on your PC you may wish to uninstall this version from your computer before installing a new version. If so check appropriate boxes with previously installed versions of the ChipProgUSB software and click the **Next** button. The chosen version will be removed from your PC.



By default the program offers to install the ChipProgUSB program into the destination folder ending with the abbreviation of the software version number. You can change it as you wish. Then click the **Next** button to begin the product installation. Then you can watch the process of the software installation.

Phyton ChipProgUSB Programmer v. 4.62.00 Installation	? 🗙
Installation Progress	
C:\Program Files\Chipprogusb\4_62_00\JEM-ARM\Flash\Analog Devices\ADuC70xy_flash.h]
	J 12%
Disk space used: 4,002,574 Bytes	
N	
4	
X Cancel	

At the end the installer will create a folder with ChipProgUSB tools' and documents' shortcuts:

Name 🔺	Size	Туре
😹 ChipProgUSB On-Line Help	1 KB	Shortcut
🛃 ChipProgUSB User's Guide	1 KB	Shortcut
💏 Phyton ChipProgUSB	1 KB	Shortcut
😹 Phyton ChipProgUSB Gang Mode	2 KB	Shortcut
🍰 Phyton ChipProgUSB Demo	2 KB	Shortcut
🗃 Phyton WEB site	1 KB	Shortcut
Programming Adapters	1 KB	Shortcut
🗃 Revision History	1 KB	Shortcut
🔝 Uninstall Phyton ChipProgUSB Progra	1 KB	Shortcut

Phyton ChipProgUSB -- Gang Mode - invokes the ChipProgUSB executable file and starts the ChipProg-G4 gang programmer.



< This shortcut starts the ChipProgUSB program to control a ChipProg -G4 gang programmer.

Phyton ChipProgUSB - invokes the ChipProgUSB executable file and starts operations for the ChipProg-48, ChipProg-40 and ChipProg -ISP programmers working in a single programming mode, e.g. when the programmer works alone.



< This shortcut starts the ChipProgUSB program to control a single programmer. **Do not use this shortcut** for starting a ChipProg-G4 programmers!

Phyton ChipProgUSB Demo - invokes a demo version of the ChipProgUSB software that allows evaluating the product without its hardware.

ChipProgUSB On-Line Help - opens the programmer on-line Help document.

ChipProgUSB User's Guide - opens the programmer user's guide in the PDF format.

Phyton WEB site - opens an Internet browser with the www.phyton.com website.

Programming Adapters - opens the adapters.chm file that list all the Phyton programming adapters with their short descriptions and wiring diagrams.

Revision History - opens the ChipProgUSB versions history file.

Uninstall Phyton ChipProgUSB Programmer - starts a process of removing the ChipProgUSB program from your computer.

2.2 Installing the USB Drivers

In a process of the software installation the USB drivers necessary to control the ChipProg -G4 gang programmer automatically install on a host PC. Read the Installing the ChipProgUSB Software.

2.3 Installing the ChipProg Hardware

Powering the programmer Plug the power cord to a power connector on the rear panel of the programmer, then plug an opposite site to the ~110/240V outlet. Make sure that all four "Good" green LEDs on the programmer are on.

Connecting to a PC Connect a USB port of your PC to a USB connector on the rear panel of the programmer by means of the USB cable.It's highly recommended to connect the programmer to a USB slot on the computer main unit and not connect it through a USB hub, especially through a passive hub. Use of the passive USB hubs for connecting the ChipProg-G4 programmer is not allowed.

Starting up



Important! When you start the programmer first time wait for about 20 seconds to allow the USB driver to be setup. Then, every time when you start the programmer, wait for 5...10 sec before launching the ChipProgUSB software.

Start the Phyton ChipProgUSB - Gang Mode program; if all the programmers pass the startup test successfully the first dialog prompts you to assign the number from one to N to each programming site. To assign the number push an appropriate Start button on a top panel of the programmer one by one. Then the ChipProgUSB main window will open and you will be able to work with the tool.

2.4 Troubleshooting

Potential problems with the ChipProgUSB software installation

If you meet a problem installing the ChipProgUSB software from a distributive disc make sure the disc surface has no scratches and other defects. Is the disc is defective you may require the disc replacement from Phyton or a local distributor. However, the easiest way to get the latest software version go to the download webpage on the Phyton website (URL: http://www.phyton.com/htdocs/support/update.shtml), select the ChipProgUSB. exe file, double click on the file name to begin the file download. Save the ChipProgUSB. exe file on a hard drive of your computer.

Then you should download the ChipProg USB drivers. Go to the webpage http://www. phyton.com/htdocs/support/drivers.shtml and double click the <u>Download the USB drivers</u> link to download the drivers. Save the **USB_drivers.exe** file on a hard drive of your computer.

Both the **ChipProgUSB.exe** and **USB_drivers.exe** files are self-extracted archives. Invoke the **ChipProgUSB.exe** file to extract the archive and to install the ChipProgUSB software on your computer. Then invoke the **USB_drivers.exe** file to extract the archive; then store the extracted drivers on a hard drive of your computer. You will need these drivers to istall them on your computer later.

Potential problems with installing the USB drivers for ChipProg

If your computer does not detect a ChipProg programmer when you connect it via a USB cable and you cannot drive the programmer from the ChipProgUSB program it is possible that there is already installed USB driver for another FTDI device similar to those one installed in your ChipProg programmer. In some cases this may cause a conflict between two drivers. It is also possible that the FTDI USB driver has been incorrectly installed on your computer. In both cases it is recommended to uninstall the USB device that conflicts with the ChipProg FTDI device. Right click on the **My Computer** icon on the computer desktop to open the **System Properties dialog**, open the **Hardware** tab and click the **Device Manager** button. In the opened device tree expand the **Universal Serial Bus controllers** group select the **FTDI FT8U2XX Device**, right click on it and in the pull-down menu click the **Uninstall** line. Then repeat an attempt to install the USB drivers following

the instructions of the Installing the USB drivers topic.

Potential problems with installing the ChipProg hardware

If you could manage to **SUCCESSfully** install the ChipProgUSB software and ChipProg USB drivers you should not meet any problems driving your ChipProg programmer. If, however, you get the error message below:

🎲 [ChipP	rag:48] Error 🛛
2	USB device driver error 0x0004 in 'FT_Write'. Cannot recover from this error, exiting. Please check if the programmer power is on. If yes, disconnect the USB cable from computer and connect it again, then restart the ChipProg-48 shell.
	Close 7 Help

check if the power adapter is plugged into the ~110/240V outlet, its output plug is connected to the ChipProg unit and the green LED "Good" is on, e.g. the programmer is powered. If it is powered but the error persists check if the USB cable is not broken and reliably plugged on both ends. If the cable has worn out or if it has open wires replace the cable by a USB A-B type double-shielded (with a dual foil and braid) cable. Use of not shielded cables may case unstable work of the ChipProg programmer and the electromagnetic emission exceeding the norms of the US and European standards.

3 Programming Operations

The **ChipProg-G4** programming operations are described in details in the ChipProg PDF manual that can be found on the Phyton distributive disc or can be downloaded from the http://www.phyton.com/htdocs/support/update.shtml web page.

Gang-programming mode has the following limitations:

- Only the same device type can be programmed concurrently in all the ChipProg-G4 programming sites (sockets);
- 2. Only the same set of data buffers can be opened in the ChipProgUSB;
- 3. Only the **AutoProgramming** function can be executed by the ChipProgUSB software when it controls the ChipProg-G4.

The programmers' sites work independently and concurrently, e.g. you can start programming on one site, insert a new device into a second socket, start the programming, insert a new device into a third socket, start the programming, remove the first programmed device, etc..

To launch ChipProgUSB program in the Multi-programming mode it should be invoked either by using the ChipProgUSB-GANG shortcut in the ChipProgUSB folder or from the command line with the key /GANG.

4 Getting Assistance

4.1 On-line Help

The ChipProgUSB software has a pretty comprehensive context-sensitive on-line **Help**. To access it press the **F1** key or use the **Help** menu. Almost every ChipProgUSB dialog, message box and menu has its own context-sensitive help, which can be invoked for the active dialog or menu by pressing **F1**.

In most cases you can find the necessary topic by searching for a keyword. For example, if you type "Verify" in the first box of the **Find** tab, the third box will list the topics related to the programming verification. Choose an appropriate topic from this list and press **Display**.

4.2 Technical Support

During a product's warranty period Phyton provides technical support free of charge. Though we have been selling the ChipProg programmers for many years the product software may contain minor bugs and some programming algorithms may not work stable on some of thousand supported devices. We kindly ask you to report bugs when you get an error message or have a problem with programming a particular device or devices. We commit prompt checking your information and fixing the detected bugs.

To minimize difficulties operating with ChipProgUSB it is highly recommended to get familiar with the manual before using the programmer. The ChipProgUSB user interface is quite standard and intuitive, however it includes some specific functions and control that the user should learn about.

Before contacting Phyton

- Make sure that you use the latest ChipProgUSB version always available for free download from the http://www.phyton.com.
- Make sure the detected error can be reproduced in the same working environment and is not a casual glitch.

When contacting us

Please, provide our technical support specialists with the following information:

- Your name, the name of your company, your contact telephone number and your e-mail address.
- Name of the ChipProg model and its serial number, if exists.
- Date of purchase, the Phyton invoice number, if available.
- Software version number taken from the About information box of the Help menu..
- Basic parameters of your computer and operating system.
- The device type, mechanical package and the type of the adapter if it's used
- Descriptions of detected errors, relevant bug reports and error screen shots.

Please send your requests or questions to **support@phyton.com**. This is the easiest way to get professional and prompt help. Also, see Contact Information.

4.3 Contact Information

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Index

- C -

ChipProg-48 4 Auto Programming 5 automatic insertion check 5 Bit lock 5 Blank Check 5 block operations 5 brief characteristics 4 buffer 5 Button "START" 4 checksum 5 Configuration Bits 5 editor 5 Erase 5 hardware characteristics 5 LED "Busy" 4 LED "Error" 4 LED "Good" 4 Lock 5 major features 4 multi programming 5 multiple buffers 5 Read 5 script language 5 scripts 5 serialization 5 signatures 5 software characteristics 5 start-up test 5 Verify 5 Write 5 ZIF socket 4 Contact Information 15

- D -

Drivers USB 11

- H -

Hardware Installation Gang Mode 11 Installation 11 Power adapter 11 USB cable 11 Help On-line 14 How to Get On-line Help 14

- | -

Install ChipProg 7 Install the ChipProg Software Gang programming mode 7 Single programming mode 7 Installing the USB Drivers 11

- 0 -

On-line Help 14

- P -

Programmer ChipProg-48 4 Programming program functions 13

- S -

Support 14 System Requirements Windows 6 Windows OS 6

- T -

Technical Support 14 Troubleshooting CD 12 Power adapter 12 USB cable 12 USB drivers 12

- U -

USB Drivers 11