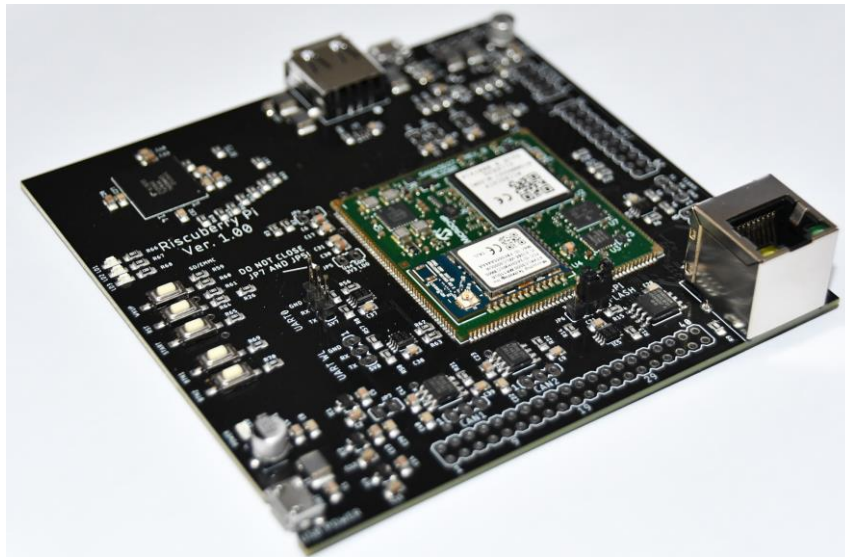


# Embedded Systems Security: Riscuberry PI training kit

## Quick Start Guide



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The information contained in this document is subject to change without notice.

The tools must be used according to their user guide or the instructions detailed in the accompanying training course from Riscure Academy. Any operation related to maintenance, repair or calibration of the included hardware tools must be carried out by qualified personnel. Consequently, in case of failure, contact Riscure Academy to find out about the procedure to follow.

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## Precautions before using the tools inside the box



**DO NOT USE THE TOOLS ON TOP OF A ELECTRICAL CONDUCTIVE SURFACE (e.g. a metallic table): THIS WILL IRREVERSIBLY DAMAGE THE HARDWARE TOOLS**







**DO NOT USE THE HARDWARE TOOLS NEXT TO OPEN CONTAINERS CONTAINING CONDUCTIVE LIQUIDS (e.g. a glass of water): THIS CAN LEAD INTO ACCIDENTAL IRREVERSIBLE DAMAGE OF THE HARDWARE TOOLS**








## What is in the box?





The box contains the Riscuberry PI embedded system, as well as all the required hardware accessories for completing the “Fundamentals of Embedded Systems Security” training course. The hardware kit additionally contains some tools: a multimeter, a PicoScope 2204A oscilloscope and a Bus Pirate device.




Box content checklisty [1]	Description		Identifier [2]
1	Riscuberry PI 1.0		Riscuberry
1	8 pin header  (usually shipped inside the Bus Pirate cable bag)		
2	2.54mm jumper  (usually 1x connected in the Riscuberry board, and 1x inside the Bus Pirate cable bag)		Jumper
1	Communication cable: USB-A - USB-mini B		USBmini



1	Communication cable: USB-A - USB-micro B		USBmicro
1	Hardware tool: - Bus Pirate v3.6		BusPirate
1	Bus Pirate probe set		
1	Hardware tool:  - PicoScope 2204A  - PicoScope 2204A USB 2.0 cable  - PicoScope 2204A manual (can be found below the padding foam)		PicoScope
1	PicoScope 2204A hook cap probes		

<p>1</p>	<p>BMP280 sensor</p> <p>(depending on sensor revision, it may have pin headers soldered or not)</p>		<p>BMP280</p>
<p>1</p>	<p>Hardware tool:</p> <ul style="list-style-type: none"> <li>- Digital Multimeter (including test leads)</li> </ul>		<p>Multimeter</p>
<p>1</p>	<p>FTDI cable USB-UART 3v3</p>		
<p>1</p>	<p>2.54mm jumper wires (male-male connectors)</p>		



1	2.54mm jumper wires (female-female connectors)		
1	"What's in the box" card		
-	This "Embedded Systems Security: Riscuberry PI training kit - Quick Start Guide"		

[1] The amount or number of registered items (quantity, Qty)

[2] Identifier used in this document to refer to the item.

## Quick initial verification of the devices

In order to verify whether the Riscuberry, BusPirate, PicoScope and Multimeter devices are working or not, you can perform the following quick checks:

### Check 1 – Riscuberry board

1. Make sure that one Jumper is placed in the position 1-2 of the JP6 connector (labeled as SPI FLASH in the PCB, check picture below). If there is no jumper in the JP6 connector: insert one of the supplied Jumpers in the position 1-2 as shown in the picture
2. Connect the USBmicro cable to a USB-A socket in your computer, and plug the USBmicro cable in the Riscuberry USBmicro-B socket labeled as USB POWER.
3. Check that the POWER LED next to the USB connector is on, and the LEDs LD1, LD2 and LD3 are off. This indicates that the board is correctly booting.



### Check 2 – BusPirate board

1. Connect the USBmini cable to a USB-A socket in your computer, and plug the USBmini cable in the BusPirate USBmini-B socket.
2. The BusPirate PWR LED should be ON, and the USB LED will typically blink a few times and then stay off: this usually indicates that the BusPirate is operative.



### Check 3 – PicoScope 2204A DSO

1. Connect the USB cable to a USB-A socket in your computer, and plug the USB cable in the PicoScope USB-B socket.
2. The PicoScope LED should turn ON: this usually indicates that the PicoScope 2204A is operative and ready to be configured by the PicoScope software running in the Virtual Machine provided with the training course.

### Check 4 – Multimeter

1. Rotate the multimeter center dial to any of the Voltage positions (labelled with the letter V)
2. Check the multimeter display: if it displays 0 V, the multimeter will be typically operational.



Detailed instructions on how to use each tool will be given throughout the training course, as well as troubleshooting tips and additional help.



**In order to avoid damaging the tools: disconnect the cables & turn off the power from each device after each initial quick check.**

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## Help and troubleshooting

### Common problems

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The Riscuberry board seems to not boot at all

**CAUSE:** No jumper in the JP6 connector leads to a boot failure of the Riscuberry board. This can be observed either by no LED turning on in the device, or the POWER LED turning on together with dim light in the LDx LEDs.

**SOLUTION:**

- Unplug the USBmicro cable from the Riscuberry
- Insert a jumper in JP6 in the 1-2 position
- Plug again the USBmicro cable to the Riscuberry and your computer

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The hardware tool seems to power up, but it doesn't work with the Virtual Machine software

**CAUSE:** The tool is connected to the physical machine host OS, but not connected to the VM guest OS

**SOLUTION:**

- Connect the device to the Virtual Machine guest OS by clicking on the appropriate USB device under the “Devices” menu in the VirtualBox application
- Make sure that the device shows a checkmark in the Devices menu afterwards (don't click again on the device, as this action will disconnect it)

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The PicoScope application is extremely slow in the Virtual Machine

**CAUSE:** The host computer for the VM environment is not suitable (or is incorrectly configured) for high-volume data transfers over USB

**SOLUTION:** install the PicoScope software in the host OS environment; you can download it from

<https://www.picotech.com/downloads>

## **Still have questions?**

1. The training course lessons usually have detailed instructions, as well as a troubleshooting section: make sure to follow the instructions exactly as presented, and check the troubleshooting sections if necessary.
2. The fastest way to get an answer from Riscure Academy is via the training course platform.
3. In case you wish to reach us via e-mail: you can contact us through the e-mail address [trainingacademy@riscure.com](mailto:trainingacademy@riscure.com)

# Riscuberry Pi - EC Declaration of Conformity

## EC-DECLARATION OF CONFORMITY

### Suppliers Details

Name

Riscure B.V.

Address

Frontier Building, Delftechpark 49, 2628 XJ Delft, The Netherlands

### Product Details

Product Name

Inspector

Model Name(s)

Riscuberry Pi

Trade Name

Riscure

### Applicable Standards Details

Directives:

- LVD (2006/95/EC) - EMC directive (2004/108/EC)

Standards:

- IEC 60825-1; IEC 320 C8; IEC 60950-1; 21 CFR 1040; ANSI/ESD S20.20:2007; BS EN 61340-5-1:2007; EN55022-B; EN61000-4-2, 4-5; CISPR 11; CISPR22-B; UL 1950

### Supplementary Information

The appliance fulfils the relevant requirements of the EMC-directive and the LVD-directive according to our technical documentation TCD-Riscuberry Pi

### Declaration

I hereby declare under our sole responsibility that the product(s) mentioned above to which this declaration relates complies with the above mentioned standards and Directives

Name

Dr.ir. F.G. de Beer /  
Technical Director

Issued Date

07 / 10 / 2021



Signature of representative

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