

MSRZG2UL on OSMEVK Quick Start Guide

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ABOUT THIS MANUAL

1.1 Imprint

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1.2 Disclaimer

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1.5 Care and Maintenance

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture can contain minerals that will corrode electronic circuits. If your device does get wet, allow it to dry completely.
- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the device.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Do not paint the device. Paint can clog the moving parts and prevent proper operation.
- Unauthorized modifications or attachments could damage the device and may violate regulations governing radio devices.

1.6 Change Log

Revision	Date	Revised	Comment
1.0	28.02.2025	fn	Initial creation

INITIAL OPERATION

Note: The following steps guide you to the correct settings of your MSRZG2UL on OSMEVK.

2.1 Requirements

Before commissioning, please ensure that you have the following components and the correct operating system installed on your computer:

Components

- MSRZG2UL module on OSMEVK_ADAP_MSRZG2UL adapterboard
- OSMEVK baseboard
- Micro SD card
- USB type-C cable
- Micro USB cable

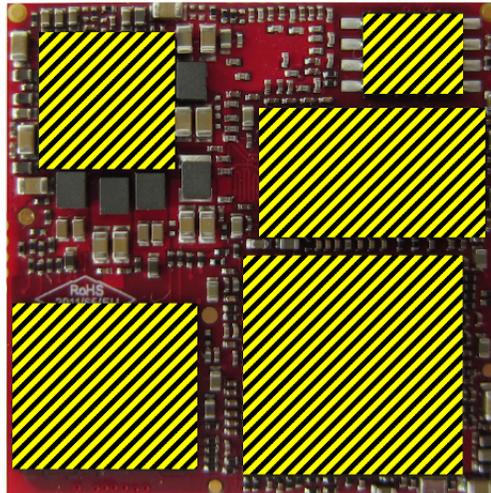
Operating systems

This QuickStartGuide was designed for Linux Ubuntu, which is why this operating system is recommended for use.

2.2 Installation of MSRZG2UL on OSMEVK baseboard.

! CAUTION !

To avoid mechanical damage to the components populated on MSRZG2UL it is strongly recommended not to apply mechanical force on the Ball Grid Array (BGA) components. The BGA components are marked as shaded in the figure below:



The MSRZG2UL module is available on the OSMEVK_ADAP_MSRZG2UL adapter board. Before attaching the adapter board, make sure that the mounting holes match the intended positions on the baseboard.



2.3 Start Linux Computer and install Picocom

You can install **Picocom** on Linux and add the user to the dialout-group using the following commands on the terminal:

```
sudo apt install picocom
sudo usermod -a -G dialout $USER
```

Note: Changes of the user's groups may require a relog or reboot

The UART on the CPU uses a baudrate of 115200. Connect to the serial port with the following command. **ttyUSB0** refers to the default device name, it may be different per user.

```
picocom -b 115200 /dev/ttyUSB0
```

2.4 Prepare SD card with Linux for booting process

An SD card that supplies the baseboard with Linux is required for the booting process. The SD card image, which contains the linux kernel and root filesystem can be downloaded via the following link: [SD card images](#)

1. Begin by extracting the contents of the zip file you downloaded to get the compressed image file (“wic.gz”).
2. Make sure to use the appropriate image version (a0a or baa) of your compressed image file that matches your hardware module.
3. Decompress the image file using the following command:

```
gunzip <file.wic.gz>
```

4. Before transferring the image to your SD card, it should be unmounted in the file manager.
5. Transfer the image to your SD card using the following command (make sure to Replace sdX with the actual device name, which is explained in the steps below):

```
sudo dd if=<file.wic> of=/dev/sdX status=progress
```

To determine the actual name of your device, commands such as “lsblk” or “dmesg” can be used. The following code block shows an example for the determination of the actual name by using the command “dmesg” after inserting the SD card:

```
dmesg
```

```
[ 5997.466856] mmc0: new ultra high speed SDR50 SDHC card at address aaaa  
[ 5997.467417] mmcblk0: mmc0:aaaa SL08G 7.40 GiB  
[ 5997.478761] mmcblk0: p1
```

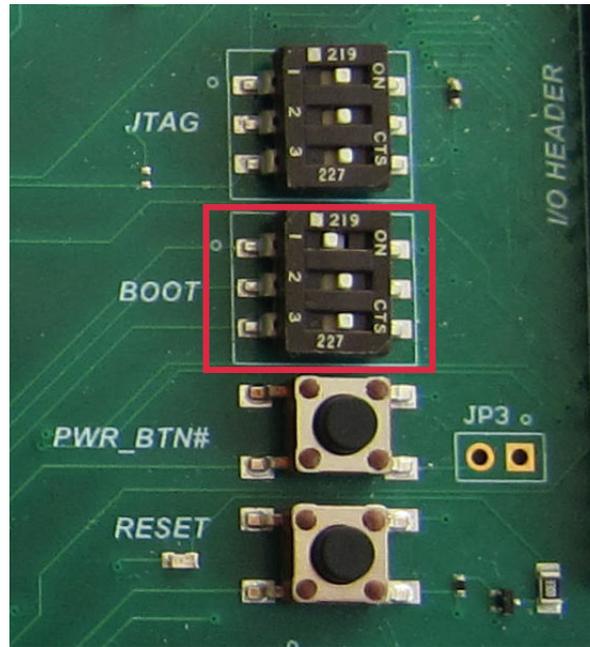
=> The displayed name “mmcblk0” is the actual device name.

After transferring the files, the SD card can be inserted into the designated slot on the baseboard:



2.5 Adjust boot switches

To boot from the SPI with the default setting (Boot mode 3), the switches must be set as follows:



In addition, the following table shows the setting of the boot switches for selecting further boot modes:

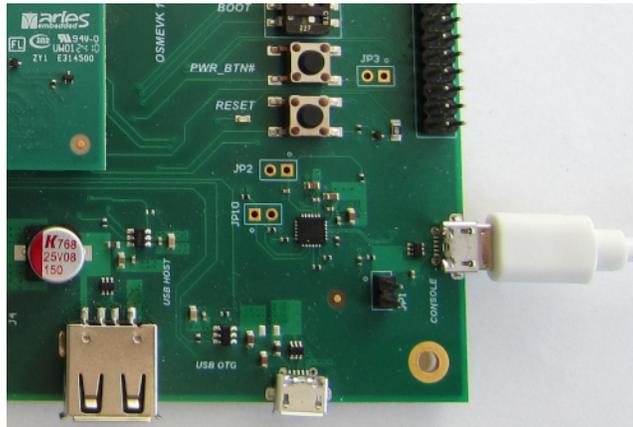
- **Switch Orientation:** Left = OFF, Right = ON

Switch 1	Switch 2	Switch 3	Boot Mode	Interface Module	Connected Device
off	off	on	Boot mode 1	SDHI0	1.8-V eMMC
off	on	on	Boot mode 3	SPIBSC	1.8-V Single or Quad serial flash memory
on	off	on	Boot mode 5	SCIF0	Downloading through SCIF

2.6 Connect the console cable

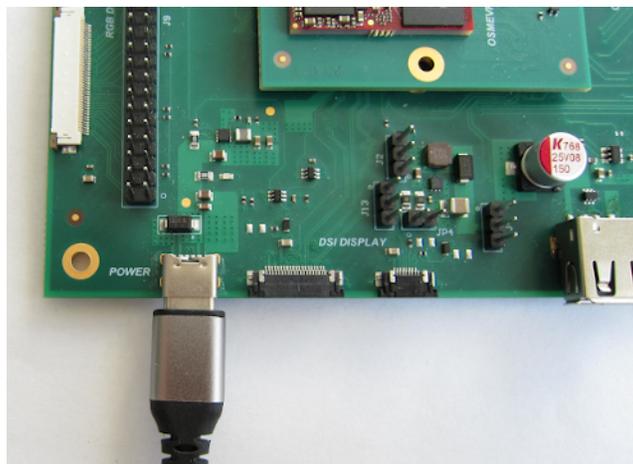
Connect the Micro USB cable to the console port on your OSMEVK baseboard and to the serial port of your computer.

Note: The console will only function when a power supply is connected.



2.7 Connect power to your kit

Connect the USB type-C cable to the power port of your OSMEVK baseboard.



2.8 Booting process

Note: As soon as the OSMEVK is supplied with power, the booting process begins as shown below. Press the reset button to restart the booting process from the beginning, if necessary.

```

U-Boot 2021.10 (Dec 03 2024 - 09:37:51 +0000)

CPU:   Renesas Electronics CPU rev 1.0
Model: msrzg2ul
DRAM:  896 MiB
WDT:   watchdog@0000000012800800
WDT:   Started with servicing (60s timeout)
MMC:   sd@11c00000: 0, sd@11c10000: 1
Loading Environment from SPIFlash... SF: Detected at25ql128a with page size 256 Bytes,
↳erase size 4 KiB, total 16 MiB
OK
In:    serial@1004b800
Out:   serial@1004b800
Err:   serial@1004b800
U-boot WDT started!
Net:   eth0: ethernet@11c20000
Hit any key to stop autoboot:  0
Booting from MMC...
6192574 bytes read in 265 ms (22.3 MiB/s)
27825 bytes read in 2 ms (13.3 MiB/s)
  Uncompressing Kernel Image
## Flattened Device Tree blob at 58000000
  Booting using the fdt blob at 0x58000000
  Loading Device Tree to 0000000057ff6000, end 0000000057ffcb0 ... OK

Starting kernel ...

[ 0.000000] Booting Linux on physical CPU 0x000000000 [0x412fd050]
[ 0.000000] Linux version 5.10.201-cip41-yocto-standard (oe-user@oe-host) (aarch64-
↳poky-linux-gcc (GCC) 9.5.0, GNU ld (GNU Binutils) 2.34.0.20200910) #1 SMP PREEMPT Sat
↳Feb 27 02:21:18 UTC 2021
[ 0.000000] Machine model: ARIES MSRZ2GUL OSM SoM on EVK
[ 0.000000] earlycon: scif0 at MMIO 0x000000001004b800 (options '115200n8')
[ 0.000000] printk: bootconsole [scif0] enabled
[ 0.000000] Reserved memory: created CMA memory pool at 0x0000000058000000, size 128
↳MiB
[ 0.000000] OF: reserved mem: initialized node linux,cma@58000000, compatible id
↳shared-dma-pool
[ 0.000000] Reserved memory: created CMA memory pool at 0x0000000068000000, size 128
↳MiB
[ 0.000000] OF: reserved mem: initialized node linux,multimedia, compatible id shared-
↳dma-pool

```

...

```
[ 2.167111] EXT4-fs (mmcblk0p1): mounted filesystem with ordered data mode. Opts:
↳
```

(continues on next page)

(continued from previous page)

```
↪(null)
[ 2.176520] VFS: Mounted root (ext4 filesystem) on device 179:1.
[ 2.205359] devtmpfs: mounted
[ 2.211024] Freeing unused kernel memory: 1664K
[ 2.217054] Run /sbin/init as init process
[ 2.290997] mmc1: new high speed SDHC card at address aaaa
[ 2.298739] mmcblk1: mmc1:aaaa SL08G 7.40 GiB
[ 2.306163] mmcblk1: p1
INIT: version 2.96 booting
Starting udev
[ 2.983324] udevd[125]: starting version 3.2.9
[ 3.011914] random: udevd: uninitialized urandom read (16 bytes read)
[ 3.042079] random: udevd: uninitialized urandom read (16 bytes read)
[ 3.049923] random: udevd: uninitialized urandom read (16 bytes read)
[ 3.102015] udevd[126]: starting eudev-3.2.9
[ 4.183582] EXT4-fs (mmcblk0p1): re-mounted. Opts: (null)
[ 4.906005] random: dd: uninitialized urandom read (512 bytes read)
[ 5.210947] Microchip KSZ9131 Gigabit PHY 11c20000.ethernet-ffffffff:07: attached PHY
↪driver [Microchip KSZ9131 Gigabit PHY] (mii_bus:phy_addr=11c20000.ethernet-ffffffff:07,
↪ irq=POLL)
[ 14.561372] random: dbus-daemon: uninitialized urandom read (12 bytes read)
[ 14.619351] random: dbus-daemon: uninitialized urandom read (12 bytes read)

Poky (Yocto Project Reference Distro) 3.1.31 msrzg2ul /dev/ttySC0

BSP: //3.0.6-update2
LSI:
Version: 3.0.6-update2
msrzg2ul login: root
root@msrzg2ul:~#
```

2.9 Use of the MSRZG2UL

The module can now be used freely for your applications.