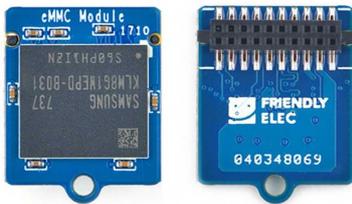


FriendlyELEC - 32GB eMMC Module for Booting OS ohne SD-Adapter



EAN CODE

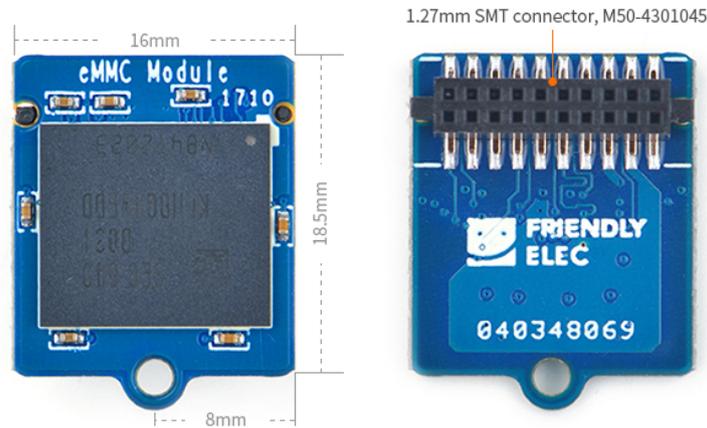


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FLASH OS to eMMC Module:

- Get an 8G SDHC card and backup its data if necessary. Download and extract the EFlasher image and the flashing utility win32diskimager. Run the win32diskimager utility under Windows as administrator. On the utility's main window select your SD card's drive, your wanted image file and the EFlasher, and click on "write" to start flashing the image to your SD card. Under Linux you can run "dd" to flash the image file to your SD card.
- After flashing is done take out the SD card and insert it to your board. Power on your board and it will be booted from the SD card and the EFlasher utility will be automatically launched. You can work with the EFlasher utility in multiple ways:
 - 1: Connect an LCD or HDMI monitor and a USB mouse to your board and work with EFlasher's GUI to proceed;
 - 2: Connect your board to a LAN, login into the board with SSH and type "eflasher" in a commandline utility and proceed with the prompts;(Note: when you login with SSH the username is root and the password is fa. Your board's IP address can be found by checking the router's system)
 - 3: Login into your board via a serial terminal and type "eflasher" to proceed;
 - 4: Connect an lcd2usb module to your board, press the K1 key on the LCD2USB module to select your wanted OS and press the K2 key to confirm. The installation process will be shown on the lcd2usb's LCD;
- After installation is done power off the board and take out the SD card from your board. Power on your board again and it will be booted from eMMC;

eMMC Module:

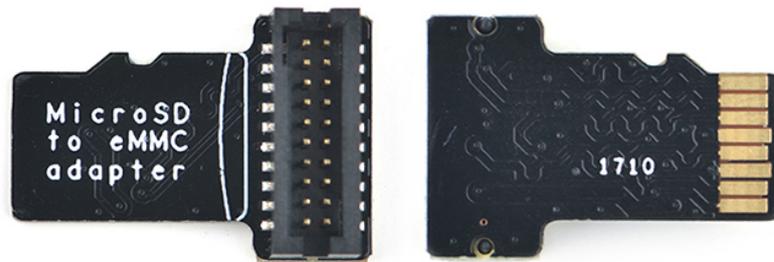


eMMC SpeedTest:

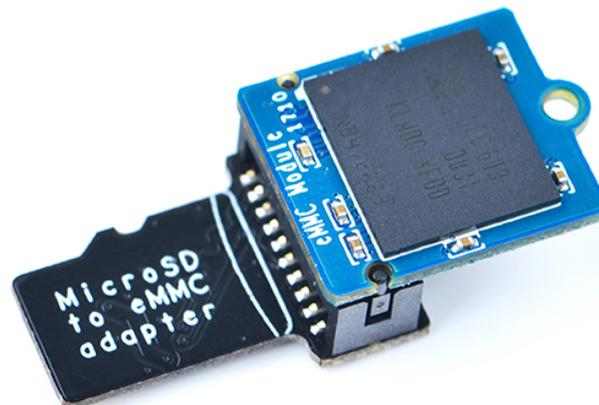
Board	ROM version	Device	dd write	dd read	iozone test 512K rand write	iozone test 512K rand read	hdparm buffered
Raspberry Pi3	Raspbian 4.9.59	SanDisk Industrial 8GB TF Card (C10 / U1 / SDHC-I)	12.80MB/s	23.50MB/s	11.68MB/s	22.40MB/s	21.90MB/s
NanoPi K1 Plus	FriendlyCore Xenial 4.14.52	SAMSUNG eMMC(8G) KLM8G1GETF-B041	39.8MB/s	43.0MB/s	26.8MB/s	40.6MB/s	43.05MB/s
		SAMSUNG eMMC(16G) KLMAG1JENB-B041	41.2MB/s	42.9MB/s	37.4MB/s	41.0MB/s	42.87MB/s
		SAMSUNG eMMC(32G) KLMBG4WEBD-B031	35.1MB/s	43.1MB/s	33.7MB/s	41.7MB/s	43.16MB/s
NanoPi NEO4	FriendlyCore Xenial 4.4	SAMSUNG eMMC(8G) KLM8G1GETF-B041	50 MB/s	167 MB/s	25 MB/s	130 MB/s	137.54 MB/s
		SAMSUNG eMMC(16G) KLMAG1JENB-B041	48.3 MB/s	170 MB/s	45 MB/s	130 MB/s	132.24 MB/s
		SAMSUNG eMMC(32G) KLMBG4WEBD-B031	72.9 MB/s	168 MB/s	90 MB/s	143 MB/s	133.13 MB/s

Notes:
 dd write Command: dd if=/dev/zero of=/deleteme.dat bs=32M count=64 oflag=direct
 dd read Command: dd if=/deleteme.dat of=/dev/null bs=32M count=64 iflag=direct
 iozone test Command: iozone -e -I -a -s 3000M -r 512k -i 0 -i 1 -i 2 -f /iozone-file
 iozone -e -I -a -s 100M -r 512k -i 0 -i 1 -i 2 -f /iozone-file
 hdparm buffered Command: hdparm -t /dev/mmcblk0

eMMC to MicroSD adapter:



Connect eMMC module to eMMC to MicroSD adapter:

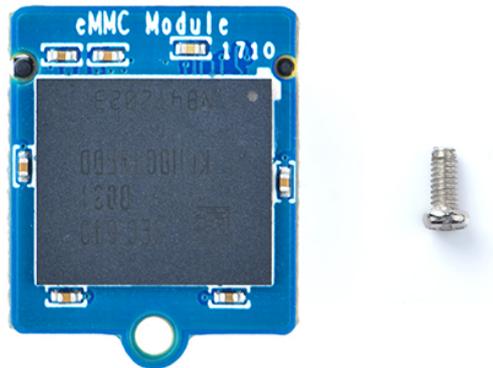


Insert MicroSD adapter to MicroSD to USB adapter:



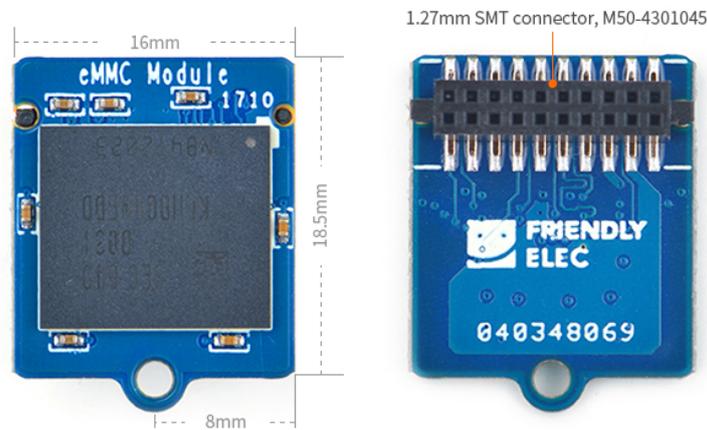
Shipping List:

1 x eMMC Module(with Screw)

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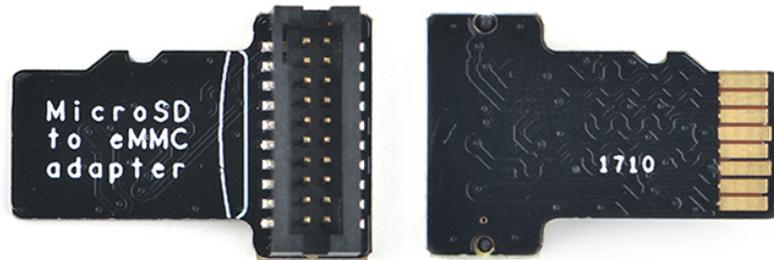


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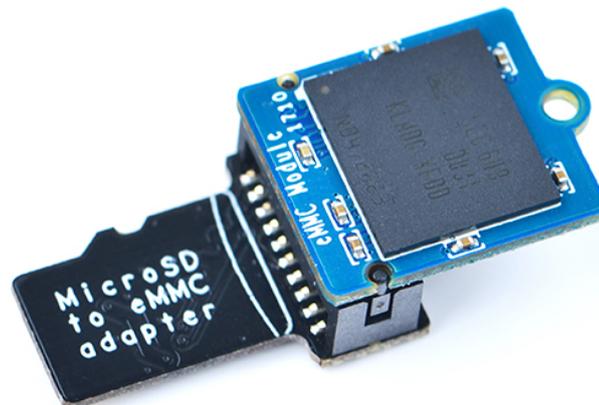
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eMMC to MicroSD adapter:



Connect eMMC module to eMMC to MicroSD adapter:



Weitere Bilder



Zubehör

Art.-Nr.	Name
134887	FriendlyELEC NanoPi M1 Plus, M3, K2 zbh. Cooling Set: Kühlkörper mit Lüfter
143533	Raspberry Pi ICY Box Gehäuse, Schutzgehäuse für Raspberry Pi 2 und 3, IBRP102
124149	Kühlkörper Alu (zwei Stück) mit Thermalkleber für Banana Pi, FriendlyElec, Lemaker
124768	Flash SecureDigitalCard (SD) 32GB *Kingston* microSDHC - Class 4
134876	FriendlyELEC USB2LCD-01
134887	FriendlyELEC NanoPi M1 Plus, M3, K2 zbh. Cooling Set: Kühlkörper mit Lüfter