MNT Research GmbH
Fehlerstr. 8, 12161 Berlin
WEEE: DE 33315564
https://mntre.com

MNT Reform LS1028A Module

Dear MNT Customer,

thank you for purchasing the LS1028A, the open hardware processor module for MNT Reform featuring dual ARM Cortex-A72 cores and 16GB of RAM. We hope you will enjoy the expanded resources at your disposal.

Installation

During installation, refer to the pictures on the back of this page for guidance.

1. Push the module into the CPU slot of an MNT Reform motherboard at a 45 degree angle and then press it down until it clicks into place.

2. Connect one end of the included eDP flat cable to the eDP connector on the module and the other end to the included eDP adapter. Connect the display's DuPont cable to the eDP adapter's dual row pin header. Ensure the correct orientation of the plug: it has a white dot which has to be aligned with the corresponding marking on the adapter. Finally, plug the eDP adapter upside down into the display header on the motherboard.

3. Apply the included thermal pad on the LS1028A processor (remove protective foil). Place the shorter 2 spacers on the heatsink mounting holes of the LS1028A module. Place the longer 2 spacers on the remaining 2 heatsink mounting holes on the motherboard. Carefully place the Generic Heatsink on the mounting points so that all holes are aligned, insert and tightly fasten the 4 long M2 screws.

Warranty

MNT Research covers the warranty to the extent required by law for the unmodified product and following the safety instructions. Warranty does not cover any modifications made to the product.

Safety Instructions ⚠

- The module is a highly sensitive electronic part that can be damaged by static electricity. Make sure to ground yourself before touching.

- Do not connect HDMI devices to the HDMI connector (which is an external PCIe port with LS1028A).

CE

The product complies with the requirements of the European Directives and DIN standards:
EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU
RoHS Directive 2011/65/EU, DIN EN 55022:2011-12
DIN EN 55024:2016-05, DIN EN 61000-6-1:2007
DIN EN 61000-6-3:2007/A1:2011/AC:2012
DIN EN 61000-3-2:2014, DIN EN 61000-3-3:2013

Specifications

- System-on-Chip: NXP LS1028AXE7PQA
- Memory: 16GB DDR4
- CPU: 2x ARM Cortex-A72 (1.5GHz)
- GPU: Vivante GC7000L (OpenGL/ES 2.1/2.0)
- 2x PCIe 3.0 (1x external PCIe 3.0 routed to HDMI pins), 1x SATA 3, 2x USB 3.0
- 1GBit Ethernet
- eMMC flash, QSPI flash, EEPROM
- SD, UART, SPI, I2C, PWM, GPIO, SAI audio
- Powered by single 5V input
- Size: 68×67.5mm
- Connector: 200 pin SO-DIMM card edge (mates with TE 1717254-1 or TE 1473005-1)
- Designed by RBZ Embedded Logics: **www.rbz.es**
- Supported with funding from NLnet foundation

Contents

- MNT Reform LS1028A Processor Module
- MNT Reform Generic Heatsink (Aluminum)
- Thermal pad
- 4x heatsink spacers, 4x heatsink screws
- eDP adapter with flat cable

Software and Sources

All MNT Reform Processor Modules use a unified kernel and Debian GNU/Linux distribution, but each uses a different bootloader configuration. Download the **ls1028a** image from the following URL, unpack and image it to an SD card:
https://mnt.re/system-image

Hardware sources, schematics and software instructions are published at: **https://source.mnt.re/reform/mnt-reform-layerscape-ls1028a-som**

SATA

The NVMe slot on the MNT Reform motherboard becomes an SATA slot when using the LS1028A module. This means that you need to migrate your data to a SATA SSD if you have been using a PCIe NVMe SSD.

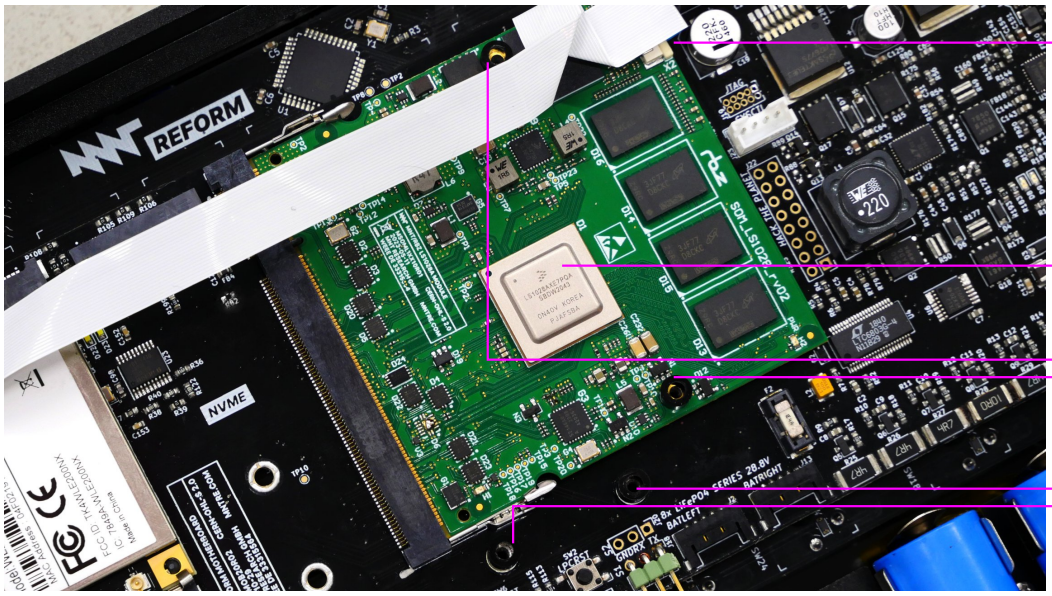
HDMI and external PCIe

LS1028A does not have HDMI output. Instead, the HDMI port becomes an external PCIe output for future expansions such as external GPUs.

Get updates and source code at: **mntre.com/reform**

Need help? Join **community.mnt.re** or write to **support@mntre.com**

Join our IRC channel **#mnt-reform** on: **irc.libera.chat**

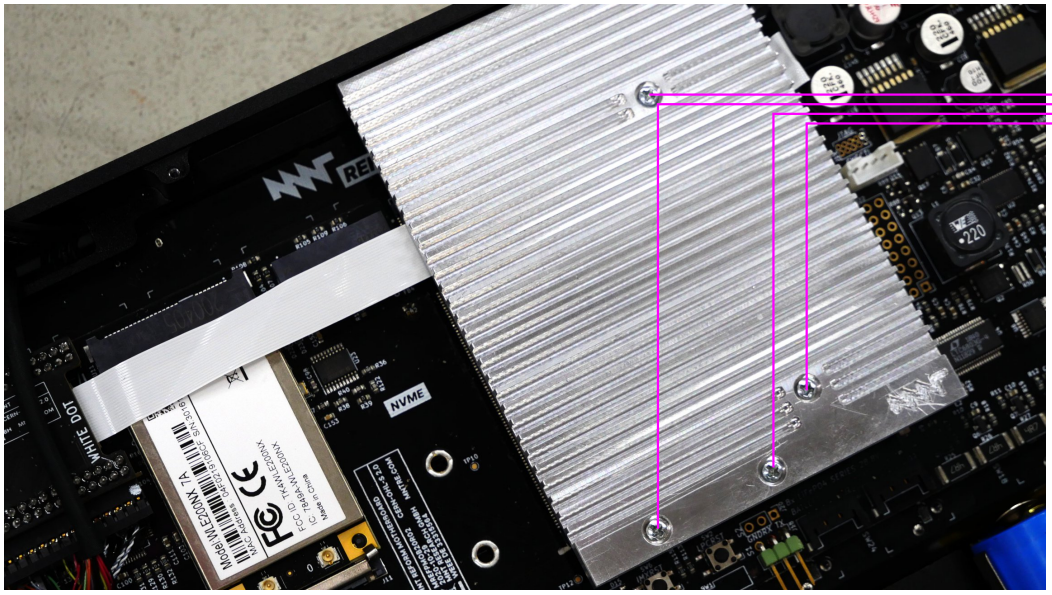


eDP flat cable, blue end up

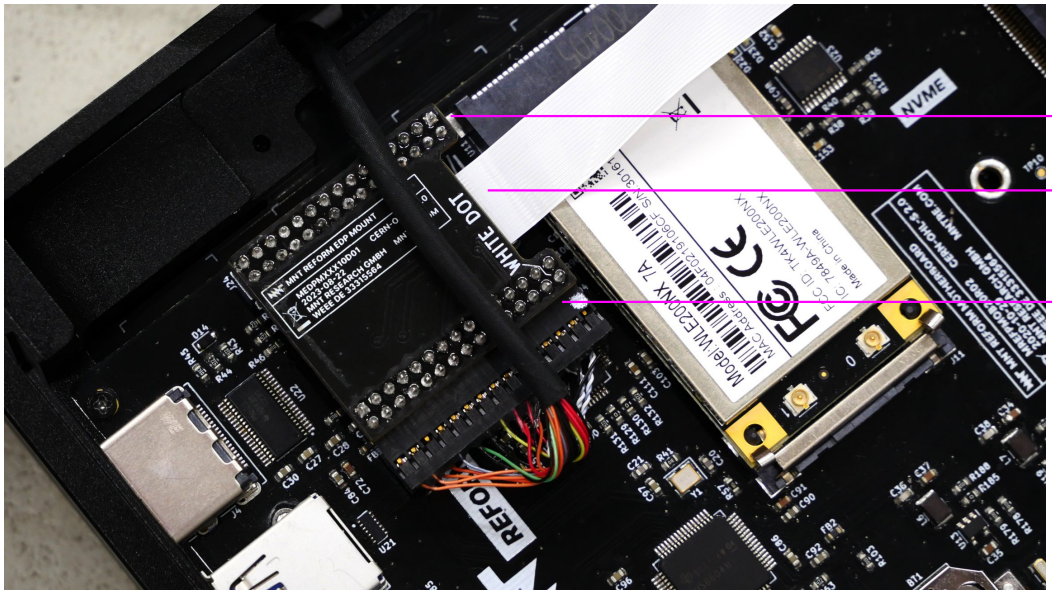
Apply thermal pad here

3mm spacers

4mm spacers



Mount heatsink with 4 long screws



Connect adapter upside down to motherboard

eDP flat cable, blue end facing motherboard

Connect MNT Reform display cable, align white dot