1 Introduction

The goal of FreedomBox kits is to make off-the-shelf components easily available for potential users who are not technically oriented to put the components together themselves. This includes eliminating the need to download, verify and write SD card images.

Since no one from the community is currently putting together these kits, the FreedomBox Foundation will attempt to distribute these kits, at least initially.
This is a first attempt to determine the components for FreedomBox kits.

1.1 Assumptions

- The products must be available in the USA for the Foundation to get them.
- Price must be minimal while giving considerably good performance and reasonable storage capacity.

2 Components

2.1 Board

- Model: Olimex A20-OLinuxino-Lime2
- Availability: [Amazon, US]
- Price: $57
- Pros & Cons:
  - Free hardware designs.
  - Do not seem to be available in bulk, need to contact seller.
  - Cheapest among the US distributors (Amazon, Digikey, Mouser, Sparkfun) by a wide margin.
  - Cheaper than a Cubietruck which is close to $100 but with same chip as a Cubietruck, the Allwinner A20.
  - Gigabit Ethernet.
  - 1 GB RAM, sufficient for FreedomBox.
  - Has SATA port to connect SSD and powers it too.
  - Casing available.
  - Can consider using A20-OLinuxino-Lime instead which has 100Mbps Ethernet and 512 MB ram but is about $12 less.

2.2 Wi-Fi Device

- Model: AR9271 based, with antenna
- Availability: [Amazon, US]
Price: $4.99

Pros & Cons:
- Very cheap.
- Comes with a good antenna.
- Tested a very similar device to have similar Wi-Fi range as small Wi-Fi router.
- A bit bulky and sticks out the board and case.

2.3 Storage
- Model: Kingrich K9-32G SATA III 2.5 inch SSD
- Availability: [Amazon, US]
- Price: $14.99
- Pros & Cons:
  - 32GB storage.
  - SATA interface as available on A20-OLinuXino-Lime2.
  - Uses Sandisk Flash.
  - Also available 64GB version for $24.
  - Up to 80MBps of sequential write speeds.
  - No need have SD card with this, A20s can supposedly boot from SATA drive. Need to test with booting from SSD directly without SD card.
  - Input voltage 5V as provided by OLinuXino boards.

2.4 Case
- Model: A10-OLinuXino-LIME-BOX
- Availability: [Amazon, US]
- Price: $12.53 (10 lot)
- Pros & Cons:
  - Expensive.
  - A better box, the metal box, does not seem to be easily available in the USA. Model: BOX-LIME-BLACK
  - Boxes seem to be available from Olimex for 5 EUR.
2.5 SATA Cable

- Model: SATA-CABLE-SET
- Availability: Amazon, US
- Price: $9
- Pros & Cons:
  - Expensive, for a simple cable set.
  - SSD listed above already comes with a SATA cable, we only need power cable.
  - This is a custom cable that has SATA power connector one side and tiny two pin (Li-Po battery like) connector on the other side.
  - Can possibly be easily made by connecting two regular cheap cables: SATA to molex power cable (< $1) and JST PH cables (< $0.5).

2.6 Power Supply

- Model: 5V 2A 2.1mm/5.5mm barrel connector
- Availability: Amazon, US
- Price: $3.84
- Pros & Cons:
  - Needs testing with the SSD to see if actually delivers 2000 mA of current.
  - US style power inlet.
  - Olimex’s power supply is more expensive and supplies only 1000 mA.

2.7 Logo Sticker

- Model: Clear Custom Permanent Decal
- ?
2.8 Brochure/Instructions

- Instructions for setup, donation, manual and getting support.
- ?

2.9 Packaging and Shipping

- ?

3 Total Cost

- Board: $57
- Wi-Fi: $4.99
- SSD: $14.99
- Box: $12.53
- SATA Cable: $9
- Power: $3.84
- Total: ~ $102.35
- Best price total: $57.46 (see below)
- Shipping costs: For some of the components, shipping is free. For others, the cost is not included in the above price.

3.1 Possibilities for Price Reduction

- Switching to A20-OLinuXino-Lime with 512MB RAM reduces the price by $14.

- Using an SD card (Amazon, US) instead of SSD can reduce the price by ~ $14 for SSD and $9 for SATA cable.

- Price of SATA cable can be lower than $2 instead of $9 with a bit more work.

- Ordering board from Olimex will reduce cost of the board by $7 for Lime2 and $6 for Lime.
• Ordering box from Olimex will reduce cost of the box by $7.15 and give a nice metal box instead of plastic one.

• Best price total: $57.46.

4 Tasks

• Order 2 sets of the above components for testing at the Foundation.
• Test all components with latest FreedomBox images.
• Talk to suppliers about getting components in bulk.
• Work on booting FreedomBox from SSD.
• Work on creating a cheaper SATA cable from simpler cables.
• Write content for brochure.
• Create and order logo stickers and brochures.
• Work on plan for packaging and shipping.