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01. MiniPC

This Book discusses different MiniPC's you can buy that are a good bang for your buck.

01. Introduction

So Hardware, well what to buy is the question of course ? How much does it cost to go open source at home ? Is it expensive ? That is a question that will forever be answered differently depending on what hardware is available in the market and if our needs change over time.

Regardless, we can distinguish Hardware in two main categories namely DIY and Already assembled Hardware. The DIY is pretty self explanatory but the already assembled hardware comes often at a cost.

How much do you care ?

With this section we would like to explain as simple as possible how a computer works. With that knowledge we hope that you can then make an educated decision on what Hardware to buy. In the end it is not only about performance but as well about availability and backup solutions that decide what setup works for you and your budget.

Some Diagram made by Draw.io here of hard drives, ssd, nvme, where al is stored, some nics etcetera.

With this introduction to a computer we hope to explain and let people understand what hardware they want to bu

CPU

CPU

Hardware what to choose

AMD 4000 G Series

With a CPU that comes with integrated graphics you don't need an extra GPU to install an operating system. It is perfect to have a CPU with some graphics s.t you can install an operating system on it at least. If you don't have a CPU with graphics then you need to bring a GPU to install the OS. After that you can remove the GPU if you want to and run it without graphics. This is because you can access the proxmox dashboard without graphics. Problem is if something is wrong then you cannot troubleshoot since you don't have a screen to look at in the terminal

Headless Server

You can run a server headless as well: This means that it does not have a display but you connect to it over SSH

You can first install the operating system via the dedicated GPU or integrated graphics. After that you can then pass through the graphics to a VM. In this way you can create multiple VM's and try out different operating systems and can even create VM's for your friends as well.

If the CPU has no integrated graphics and there’s no discrete graphics card, you generally can’t see or interact with the BIOS on a standard gaming motherboard. Its HDMI/DisplayPort outputs won’t produce video because they rely on graphics built into the CPU.

The machine may still power on or boot, but you’d need to install a graphics card temporarily, use a motherboard with a BMC/IPMI remote console, or connect a compatible external KVM-over-IP device to get BIOS video and input.

Power button when buying a motherboard.

Some motherboards like server motherboards will start directly when turning on the power supply. However, consumer products need to have a power button plug to turn on the PSU. I had big problems with this for a long time, because I was only used to server motherboards and not to consumer hardware. So ! If you are testing make sure that you short circuit it, since then the motherboard will start basically.

Support ECC Memory is important

Mandatory Display

Some motherboards require a hdmi connection to booth. This is of course annoying if you don't want a screen connected to it. Hence, you can buy a dummy screen HDMI plug that makes the

motherboard think that a screen is present s.t it can boot. I would recommend to buy them and leave them inside of the server

JetKVM

JetKVM does need a CPU with integrated graphics. If you pass through the graphics from the CPU to a VM then you won't have any display anymore on your JetKVM. So to make a JetKVM worth while you need a CPU with integrated graphics and on top of that dedicated GPU card as well.

Motherboard Checks

- Check if it is compatible with CPU
- Check if it is compatible with PCI GPU
- Check if it is compatible with the right RAM choice




Ryzen 3 Pro 4350G
Ryzen 5 Pro 4650G
Ryzen 3 Pro 5350G
Ryzen 5 Pro 5650G
Ryzen 5 Pro 5750G

04. Not recommended

01. Ugreen NAS

02. Unraid

03. Synology

About

Now, that we understand how a basic computer works we need to understand as well how many resources you need for your HomeLab ? What you choose has to do with

1. How much data you already have
2. How much data you expect to generate in the next year
3. How much data your friends an family have that you want to host
4. Do you want to act as a backupfriend for one of your friends ? If so how large is the data size of your friend
5. Do you want to be able to run your friends applications if their server brakes down. This will be as long as until your friend has fixed his HomeLab.

Tools