

What to do with
ARM devel board?

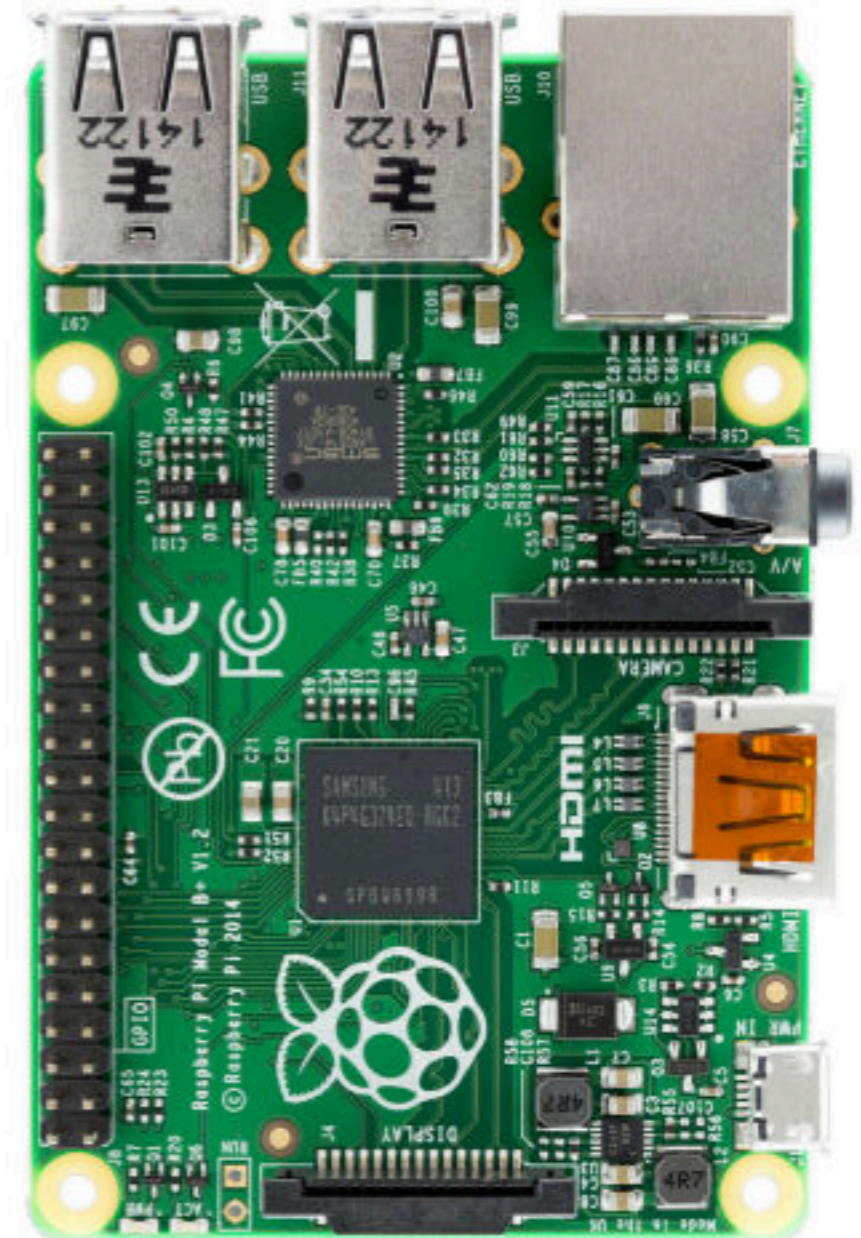
ARM board examples

- there is plenty of boards
- all depends on your use-case
- prices from 15 USD to thousands of USD
- some are really easy to get
- some are harder - have to be shipped

ARM board examples

RaspberryPi 1/0

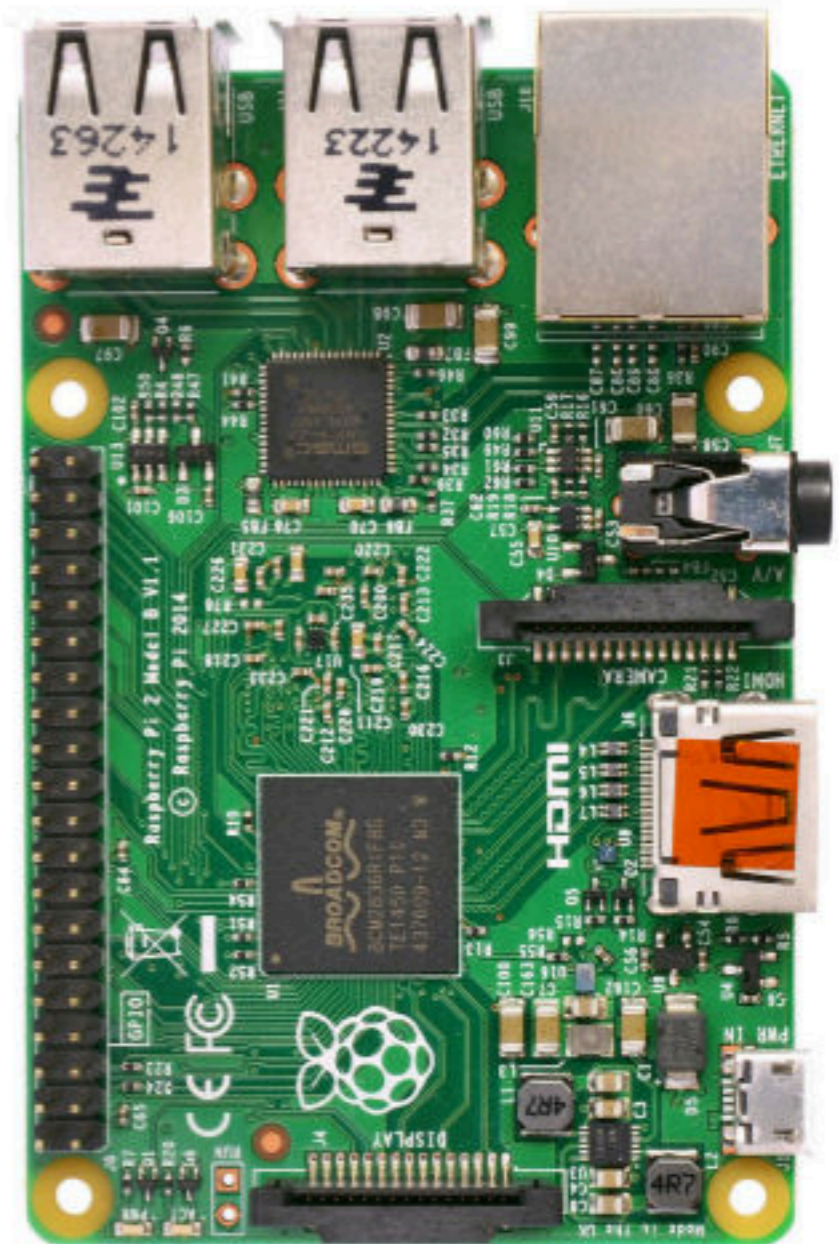
- armv6
- 1 core @ 700 MHz
- 256M / 512M RAM
- USB connected 100M Ethernet
- ~ 940 Kč



ARM board examples

RaspberryPi 2

- armv7
- 4 cores @ 900 MHz
- 1G RAM
- USB connected 100M Ethernet
- ~ 1 350 Kč



ARM board examples

BananaPi

- armv7
- 2 cores @ 1 GHz
- 1G RAM
- native 1Gbit Ethernet
- SATA
- ~ 1 090 Kč



ARM board examples

RaspberryPi 3

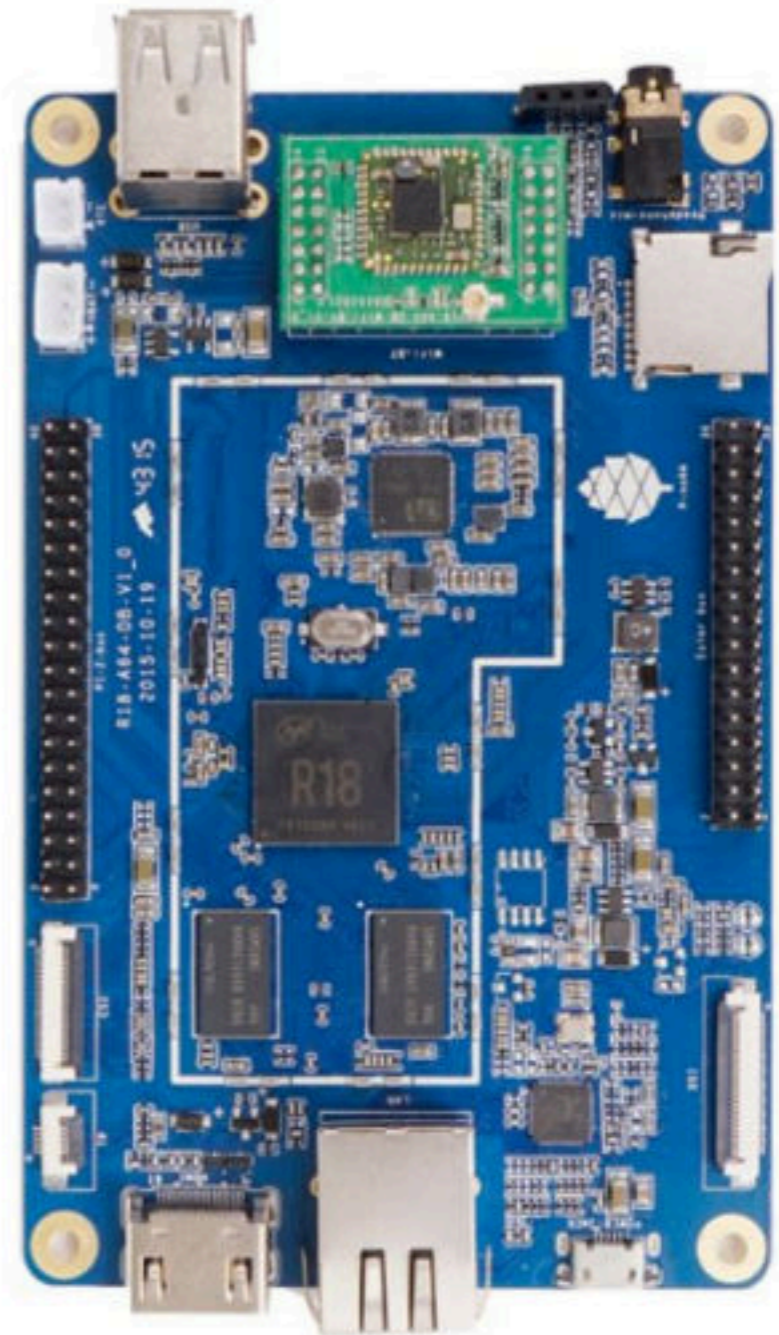
- armv8
- 4 cores @ 1.2 GHz
- 1G RAM
- USB connected 100M Ethernet
- currently running only 32bit
- WiFi and BT
- ~ 35 USD



ARM board examples

Pine64

- armv8
- 4 cores @ 1.2 Ghz
- 512M - 2G RAM
- 100Mbit/1Gbit Ethernet
- optionally with WiFi and BT
- currently on the way
- 15 - 29 USD



ARM board examples

Turris Omnia

- armv7
- 2 cores @ 1.6 GHz
- 1G - 2G RAM
- 3 native 1Gbit Ethernets
- VLAN configurable switch
- 2 USB 3.0
- mSATA
- 4G flash
- 3 miniPCI
- 119 - 278 USD



Compilation cluster

- some boards are weak (RaspberryPi 1/0)
- some boards are stronger

icecream to the rescue

- way to distribute build job
- you can use all your ARM boards
- you can even [mix architectures](#)
 - `icecc --build-native`
- in theory you can throw in x86 as well

NAS use-case

NFS, sshfs, samba, FTP

- plain stupid network drive
- every NAS can do that

rsync

- much more useful for backups

rsync + cron

- nightly backups to different datacenter
- not so easy with off-the-shelf NAS

NAS use-case

RAID

- decide RAID level by yourself
- encrypt your harddrives

Naive network cluster storage

- there is something called **nbd**
- you don't want to do this
- but you can ;-)

NAS use-case

gluster

- real distributed network storage
- easy to configure
- can do "RAID 0" and "RAID 1" and combinations
- works on top of existing filesystem
 - if it breaks, you don't loose data
 - you can have your RAID1 sharing space with RAID0
- can be used as storage for KVM

NAS use-case

ownCloud

- BFU friendly NAS
- can be your calendar
- can be your contacts list
- can be your webmail client
- can be your multimedia center

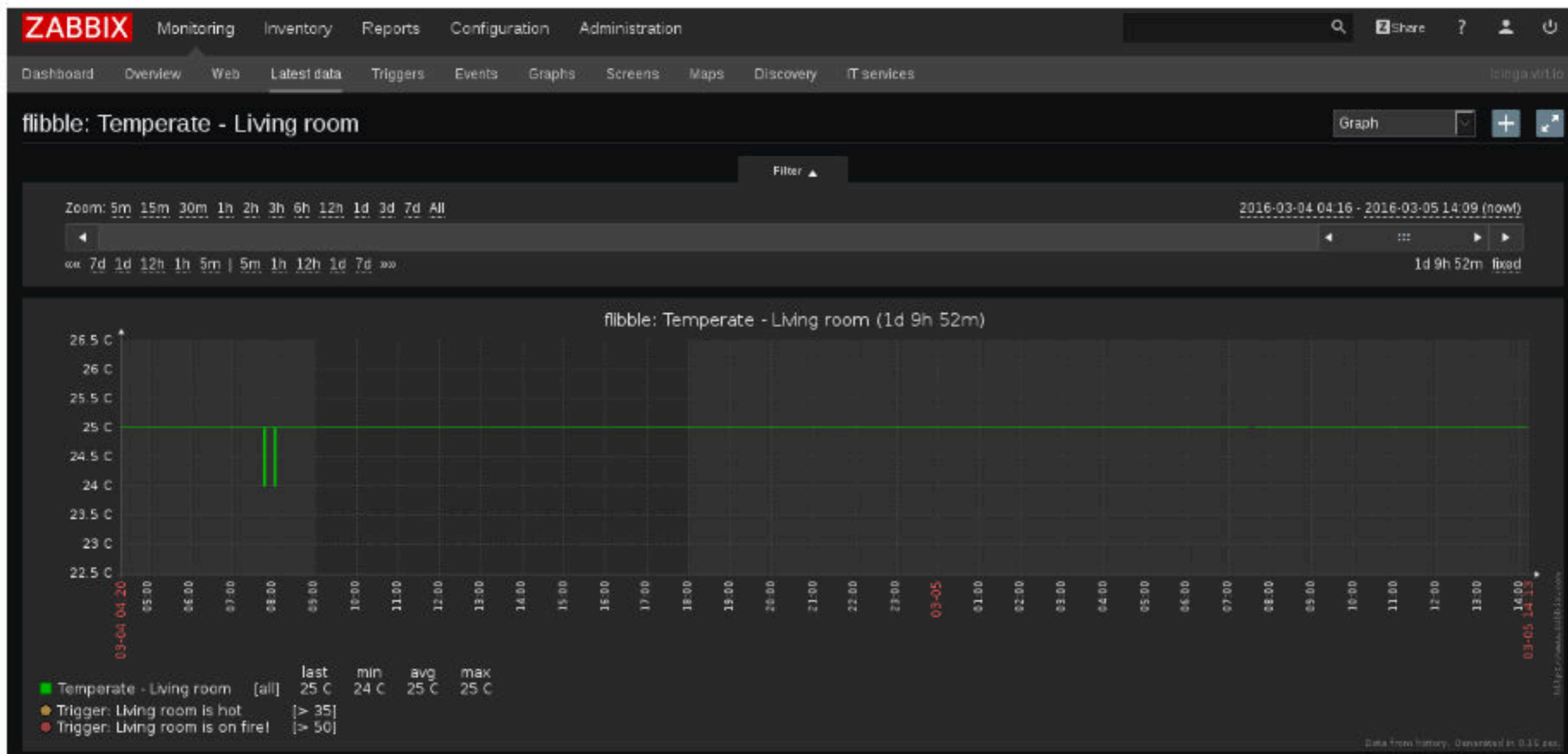
Multimedia center

- most boards do have HW video decoders
- usually requires ancient kernel
- quite often requires use of board specific API
- video - various bad options
 - Kodi
 - VLC
 - ownCloud (OCTV) :-)
- audio
 - mpd
 - pulseaudio

GPIO, I2C & friends

- GPIO = General-purpose input/output
- I2C - simple bus
- you can attach other HW
 - T&H sensor
 - motion sensor
 - LED
 - remote switches
 - ...

GPIO, I2C & friends



Simple security system

- attach motion sensor to GPIO ~ 60 Kč
- attach WebCam to USB ~ 300 Kč
- take a picture whenever motion sensors triggers
- upload it to remote location
- can have multiple sensors and webcams

Easy DIY project :-)

"Router" use-case

- don't need to be the real router
- it is better if it is a router
- basically network "server"
- much more CPU power and RAM than typical router
 - you can run moooore
 - and it will run reasonably fast

PXE

- boot recovery/installation over the network

"Router" use-case

OpenVPN server

- if you have a public IP, easy to setup
- can be running on 443 port

DNS resolver

- you can validate DNSSEC
- you can forward subdomains
- you can add your local names
- you can do DNS64
- examples
 - knot-dns-resolver
 - unbound

"Router" use-case

IPv6 connectivity

- can be endpoint of tunnel
- can allocate IPs for your network
- can connect you to your other networks

NAT64 gateway

- allows access to IPv4 via IPv6
- you can build yourself IPv6 only network

MIPv6

- get your favorite IPv6 everywhere

Virtualization

KVM

- Cortex-A15, armv8
- basically you have to pick the right HW

LXC

- everywhere
- friendlier to your RAM
- easy to get started

Questions and your ideas?

