

# Computer control of the NaCs experiment

Yichao Yu

Ni Group/Harvard

October 19, 2014

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading
- . . . . .

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading
- . . . . .

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading
- . . . . .

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading
- . . . . .

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading
- . . . . .

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading

• . . . . .

## Without precise timing

- Vapor pressure
- MOT loading
- Objective alignment

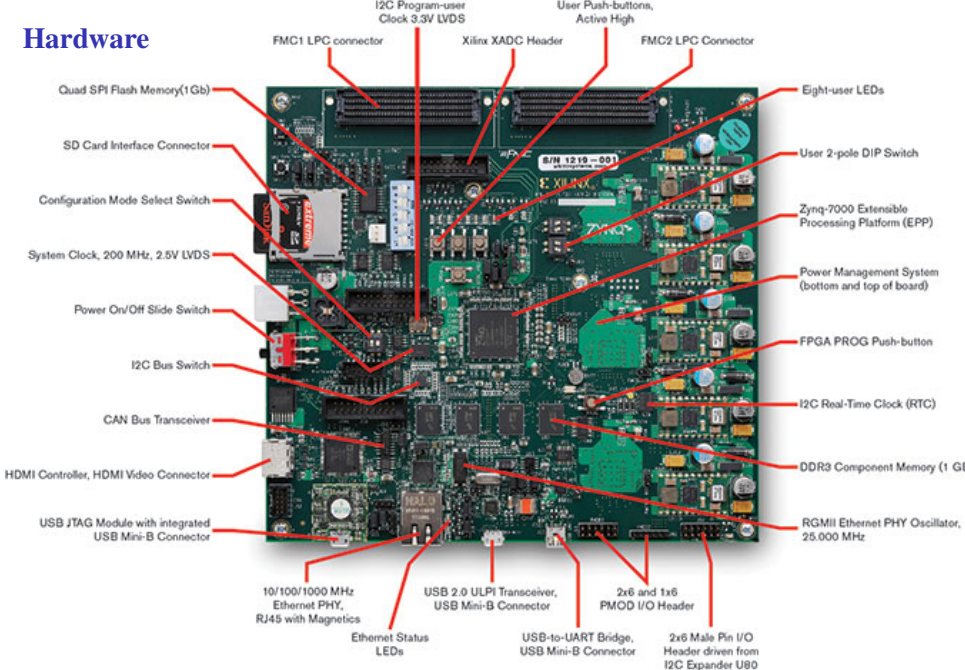
## Measurements that require precise timing

- Polarization gradient cooling
- Temperature calibration
- ODT loading
- . . . . .

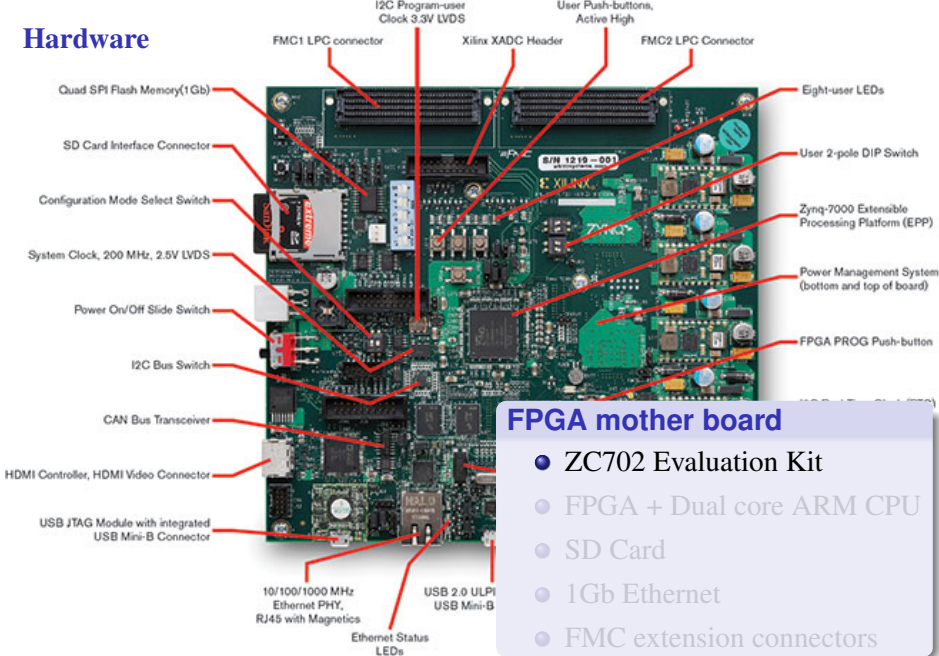


- 1 **Hardware**
- 2 **MOT temperature**
- 3 **Looking for single atom in the ODT**

# Hardware



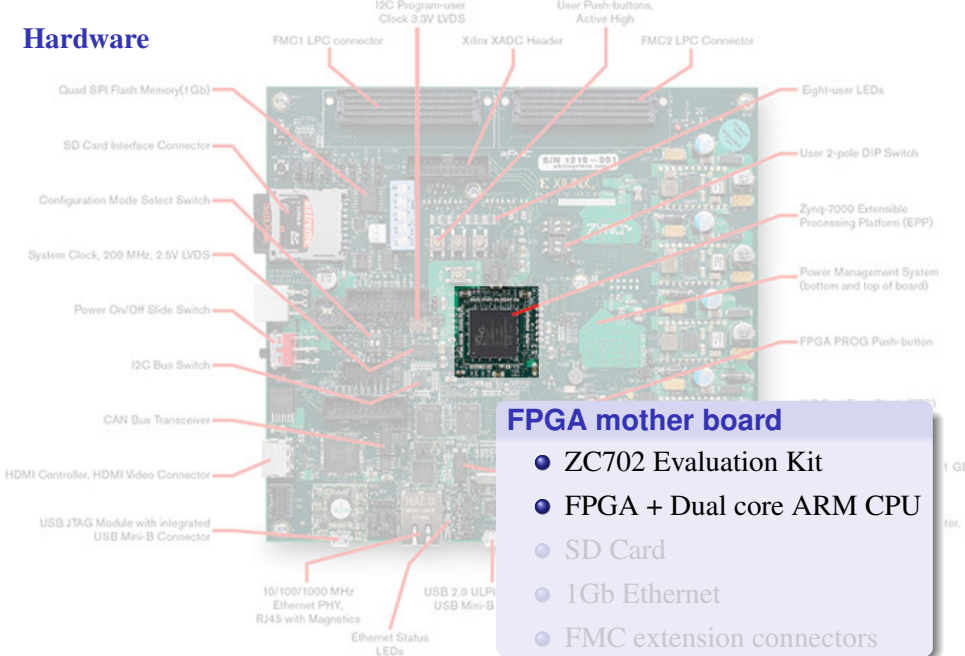
# Hardware



## FPGA mother board

- ZC702 Evaluation Kit
- FPGA + Dual core ARM CPU
- SD Card
- 1Gb Ethernet
- FMC extension connectors

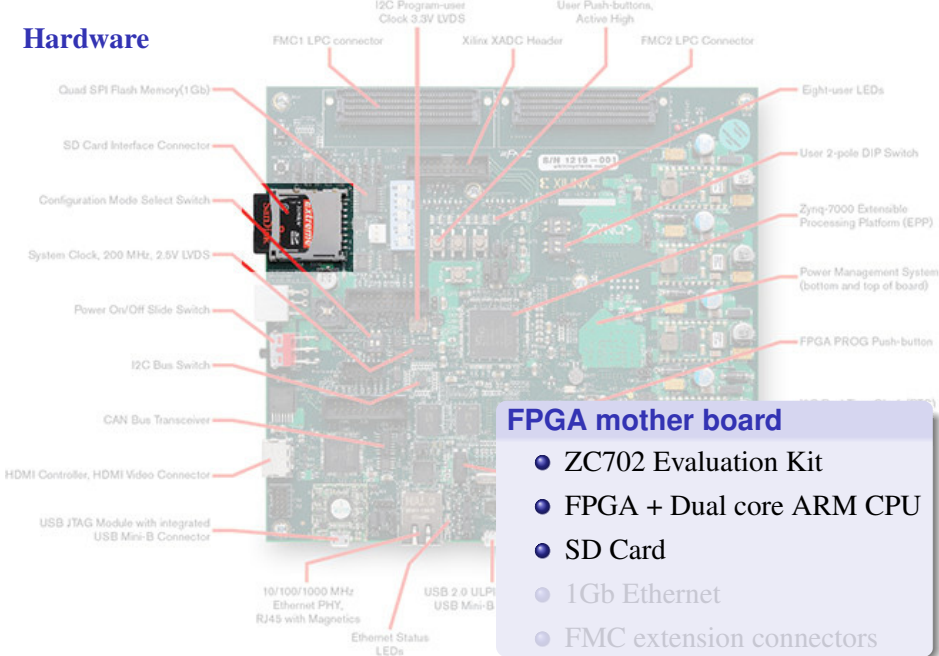
# Hardware



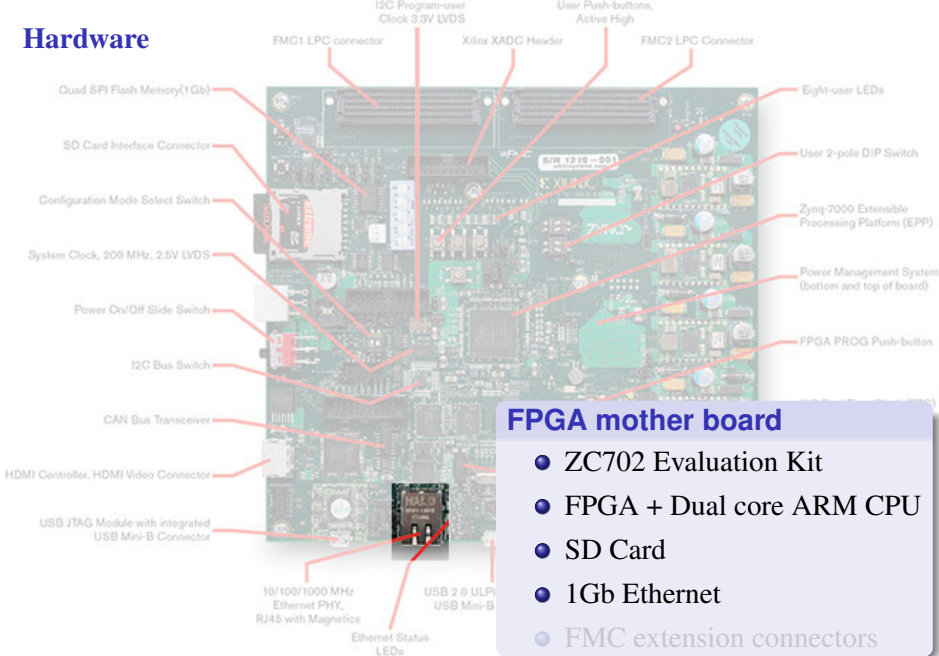
## FPGA mother board

- ZC702 Evaluation Kit
- FPGA + Dual core ARM CPU
- SD Card
- 1Gb Ethernet
- FMC extension connectors

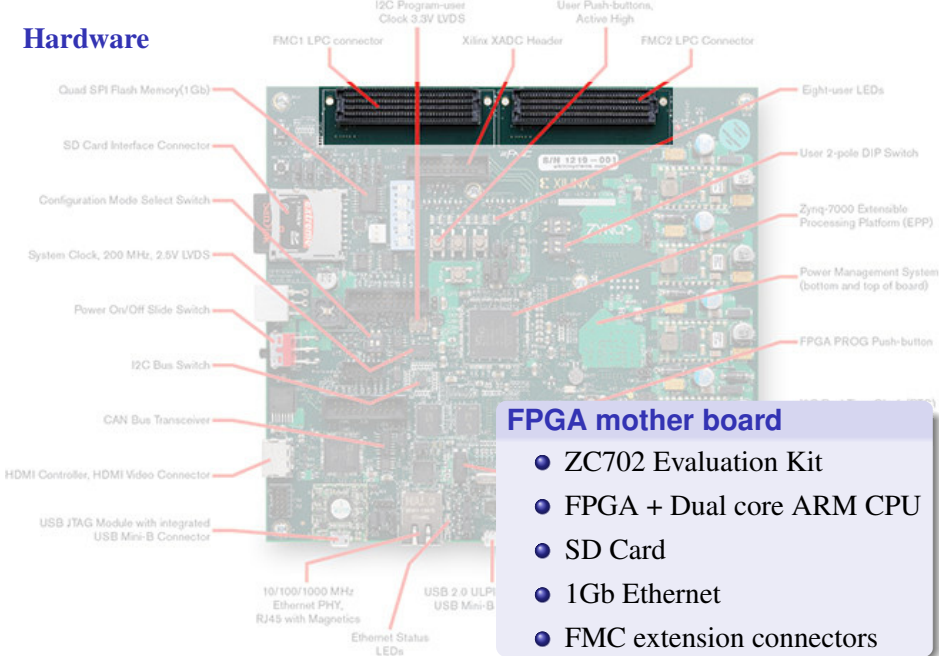
# Hardware



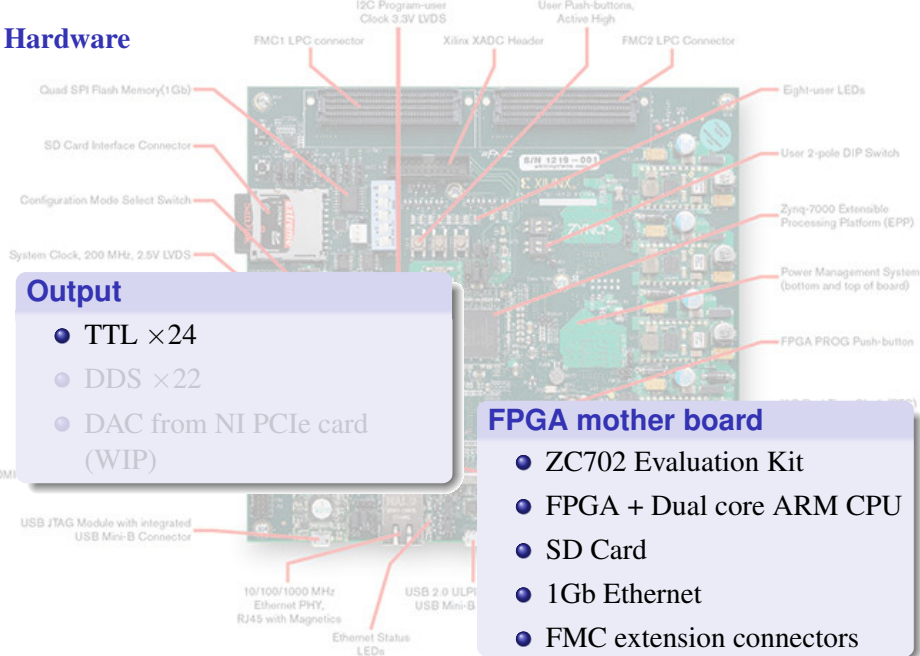
# Hardware



# Hardware

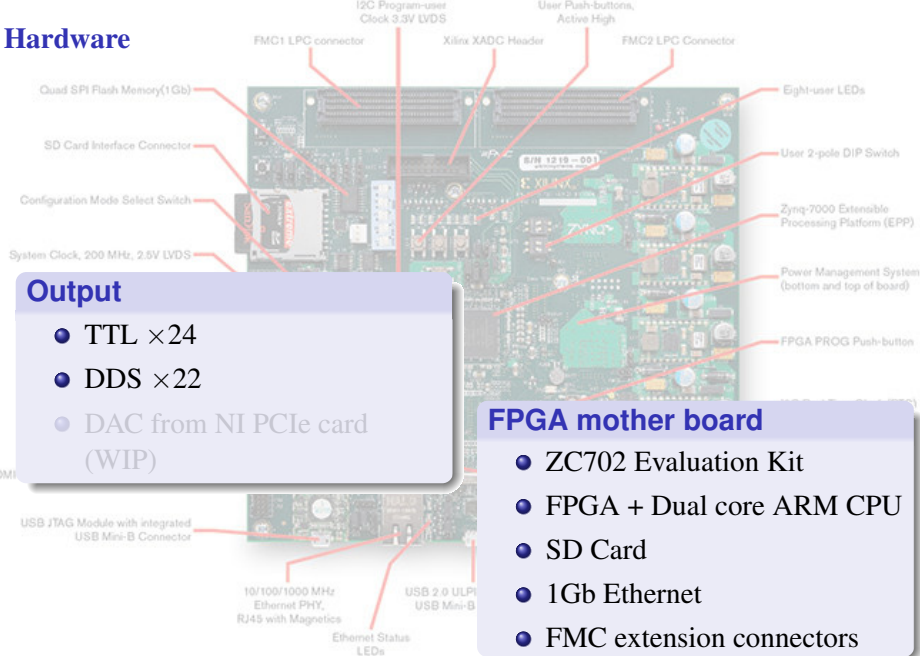


# Hardware





# Hardware



## Output

- TTL ×24
- DDS ×22
- DAC from NI PCIe card (WIP)

## FPGA mother board

- ZC702 Evaluation Kit
- FPGA + Dual core ARM CPU
- SD Card
- 1Gb Ethernet
- FMC extension connectors

# Hardware

