4K NN on a module the size of a stamp

NeuroStamp

4032 neurons

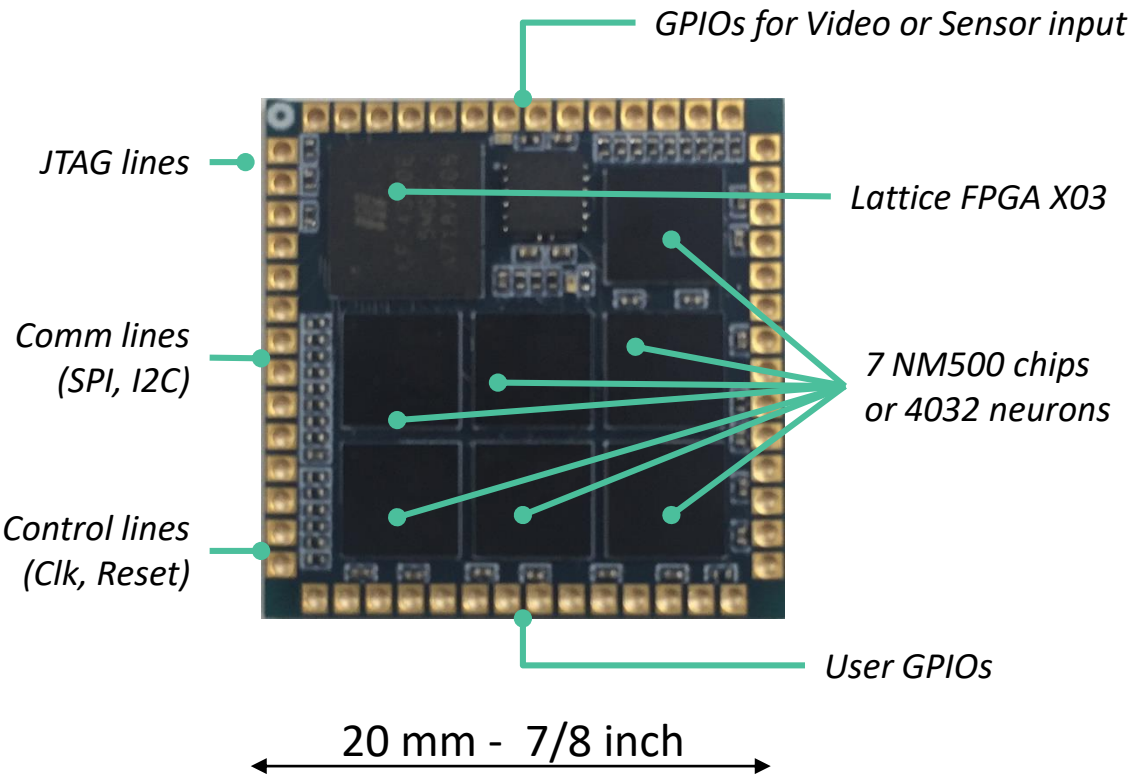
Pattern learning and recognition accelerator

Easy to use

Easy to solder

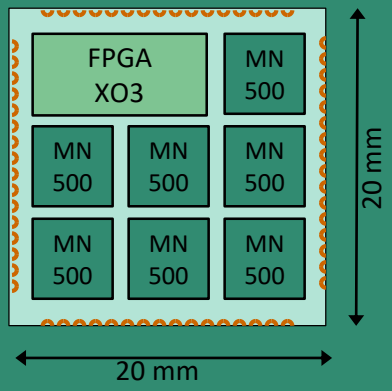
Numerous use models

Data, signal, image recognition



NeuroStamp

Configurable trainable NeuroMem network



A variety of configurations

- Neurons “Made Easy”
  - Accessing a NeuroMem network through serial bus interfaces like SPI and I2C
- Neurons “A la Mode”
  - Interfacing processors and sensors to a NeuroMem network through its parallel bus
- Neurons “A GoGo”
  - Stacking multiple NeuroStamps to expand the neural network size

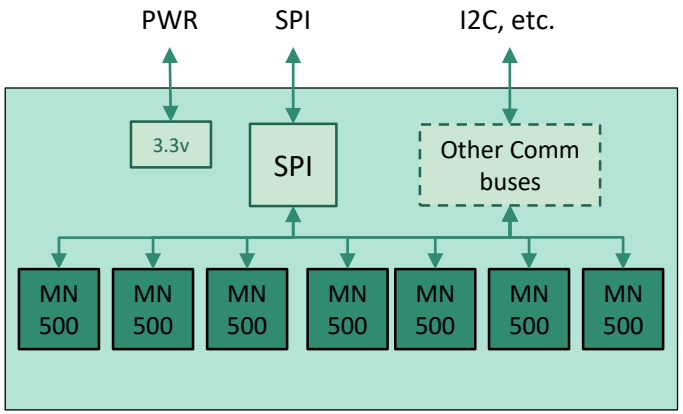
Neurons Made Easy

Network of 4032 neurons

Accessible through SPI interface protocol

Other comm buses optional

- NeuroMem parallel bus
- I2C, USB, etc.

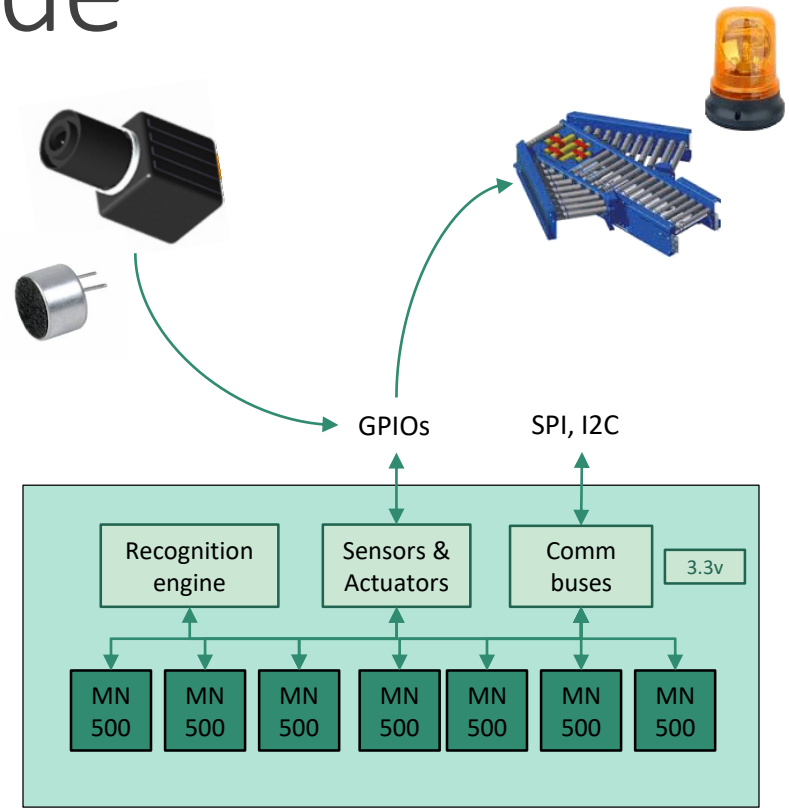


Neurons A la Mode

Network of 4032 neurons

Configurable GPIOs
- Video input
- IMU, Audio, etc.
- Actuators and outputs

Configurable engines
- Pass/Fail, Classification,
- Novelty detection,
- Tracking,
- etc.

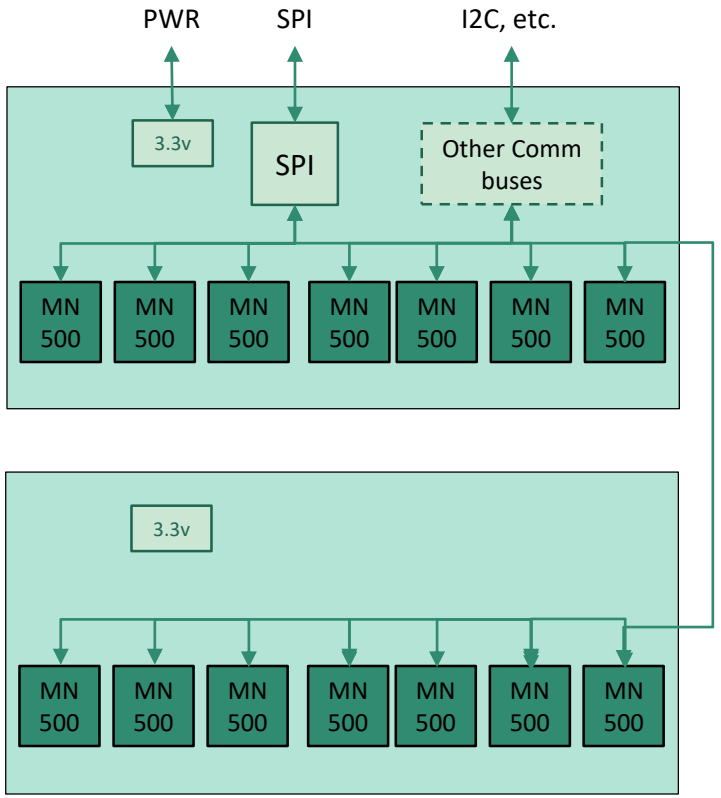


Neurons A GoGo

> 8064 neurons
- 14 NM500 or more
- through NeuroMem bus

Configurable Comm

Configurable engine
Configurable GPIOs



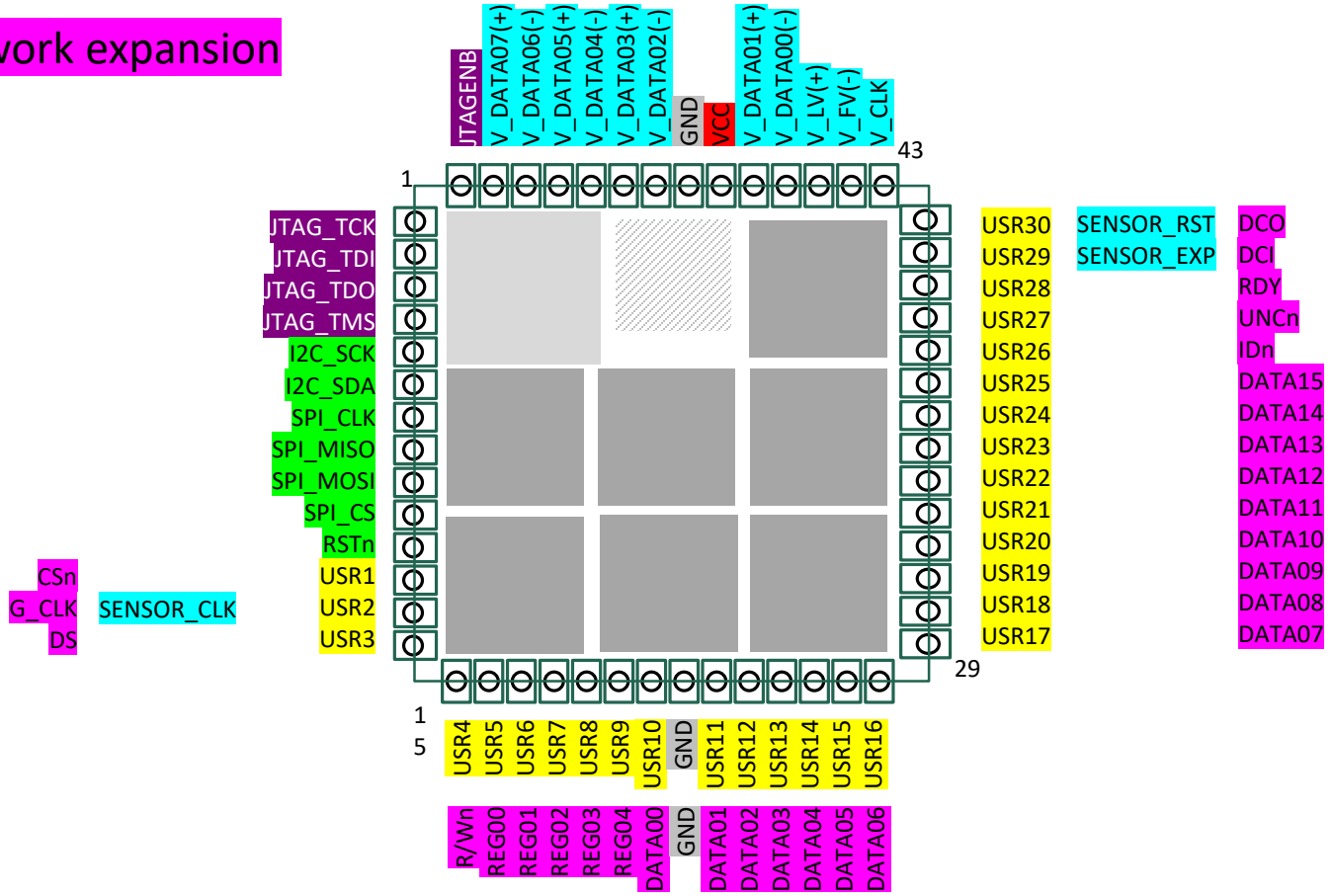
JTAG

comm buses

Sensors and digital input buses

Other GPIOs

NeuroMem network expansion



Evaluation platforms

(Tentative)

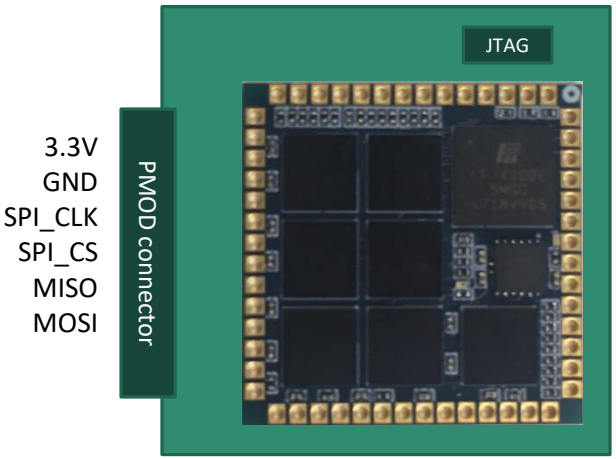
Tentative Platforms

- NeuroStamp as a PMOD
- NeuroStamp as a Shield
- NeuroStamp as an FMC board

NeuroStamp as PMOD (TBD)

Tentative libraries of X03 configuration files

- SPI (default)
- Quad SPI



NeuroStamp Evaluation Kit (TBD)

Tentative libraries of X03 configuration files

- SPI (default)
- I2C/Quad SPI/USB
- Simple video recognition logic (learning and recognition of a region per frame, single feature extraction)
- Simple signal monitoring and anomaly detection
- Multiple ROIs, Multiple features, etc. to come