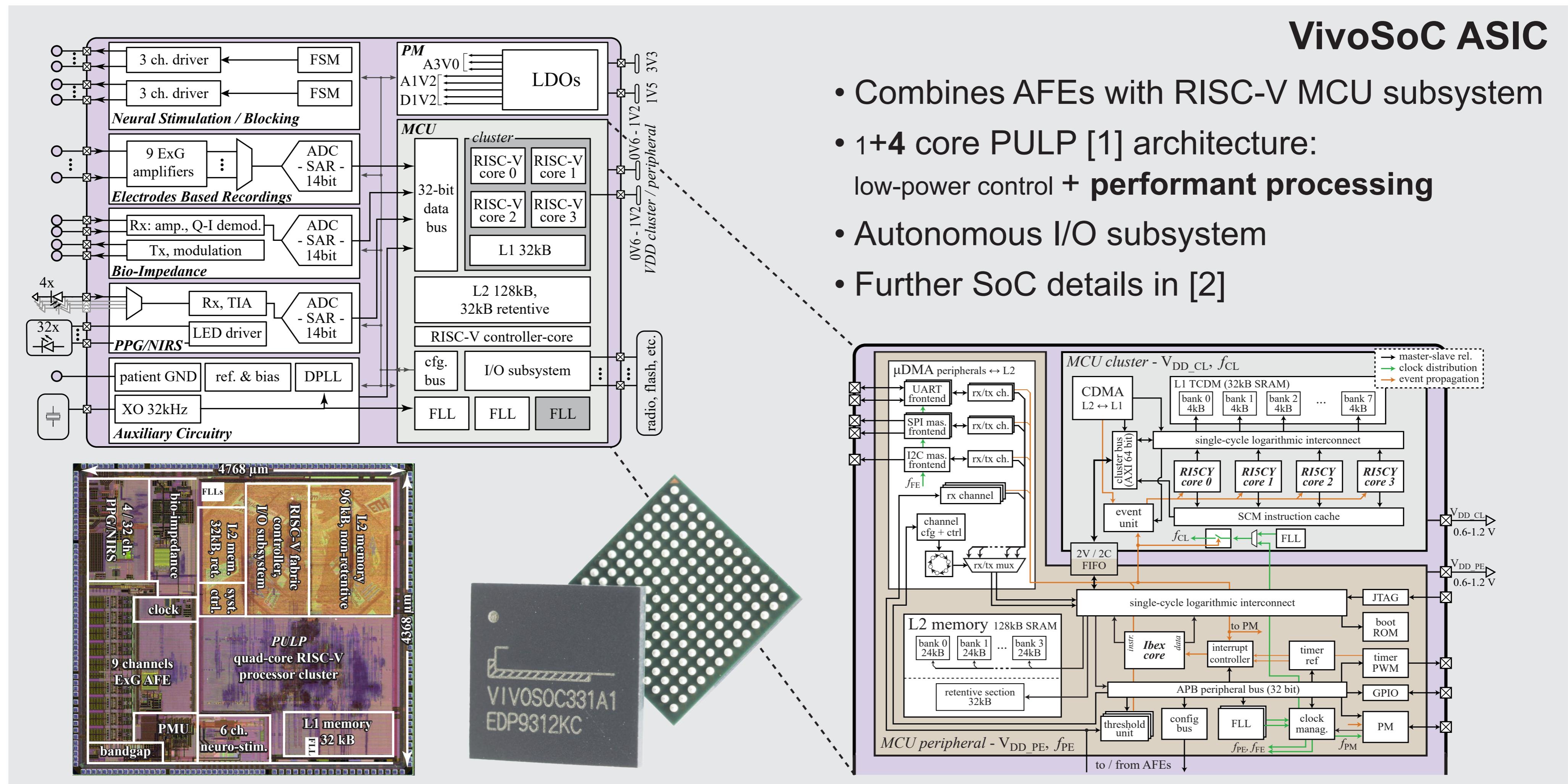


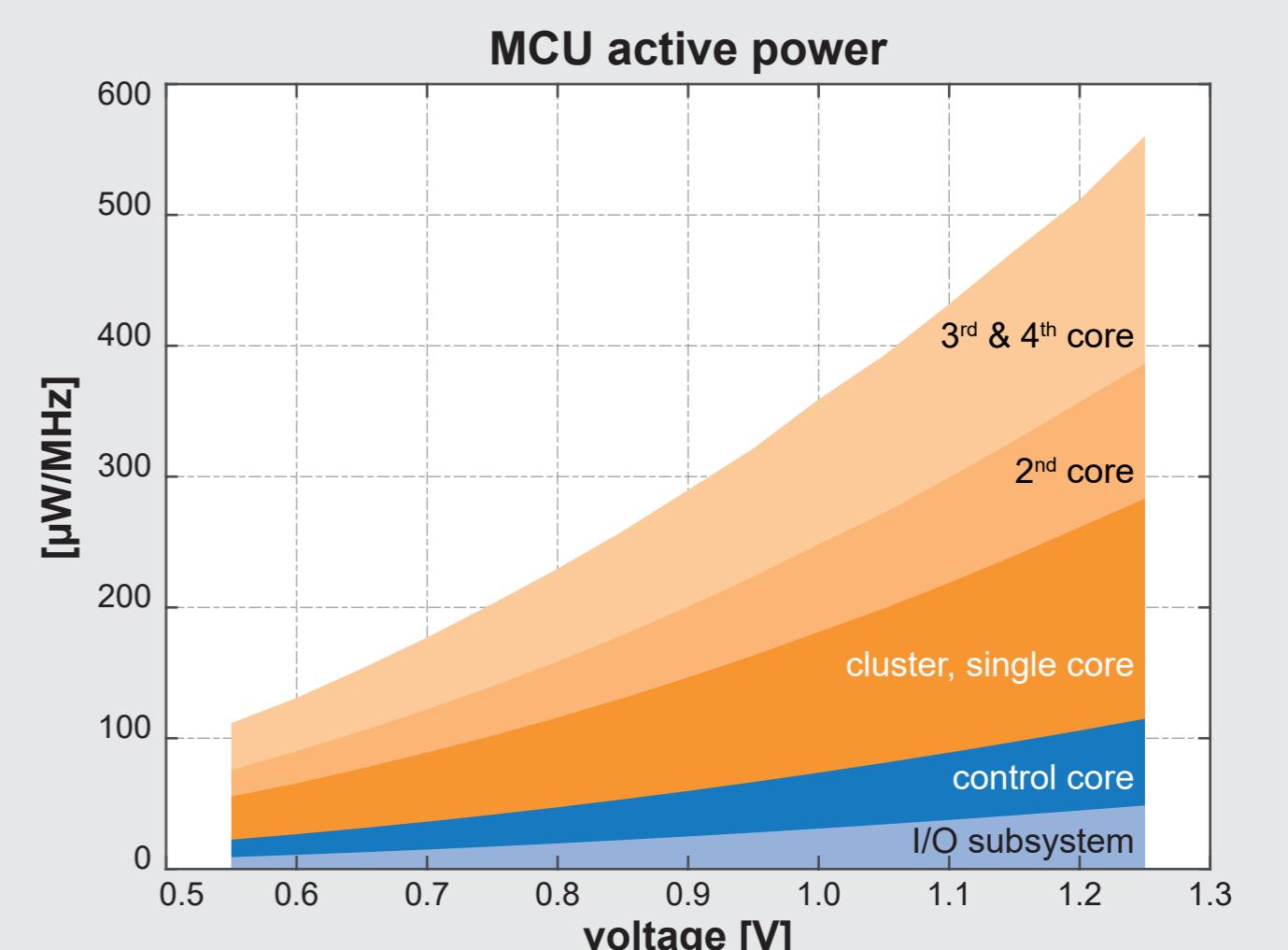
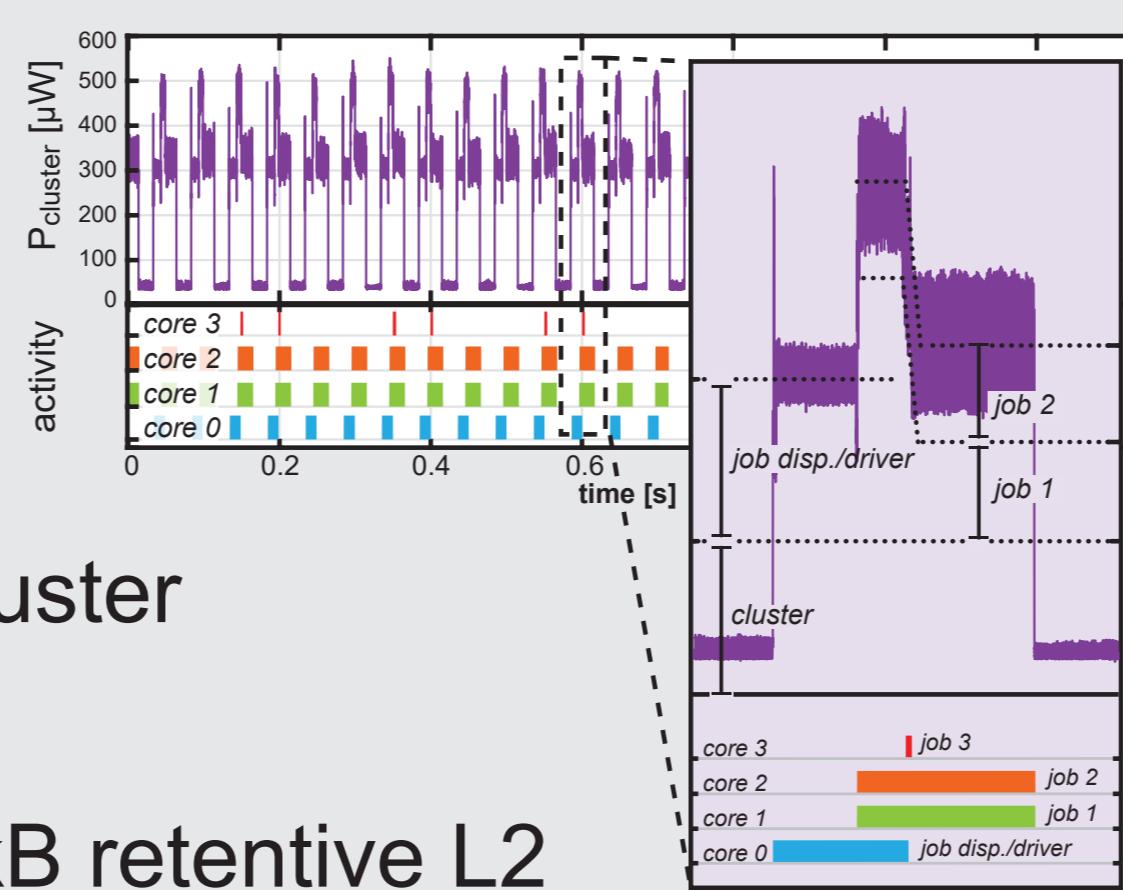
# VivoSoC: A RISC-V Based Multi-Functional Platform for Miniaturized Medical Instrumentation

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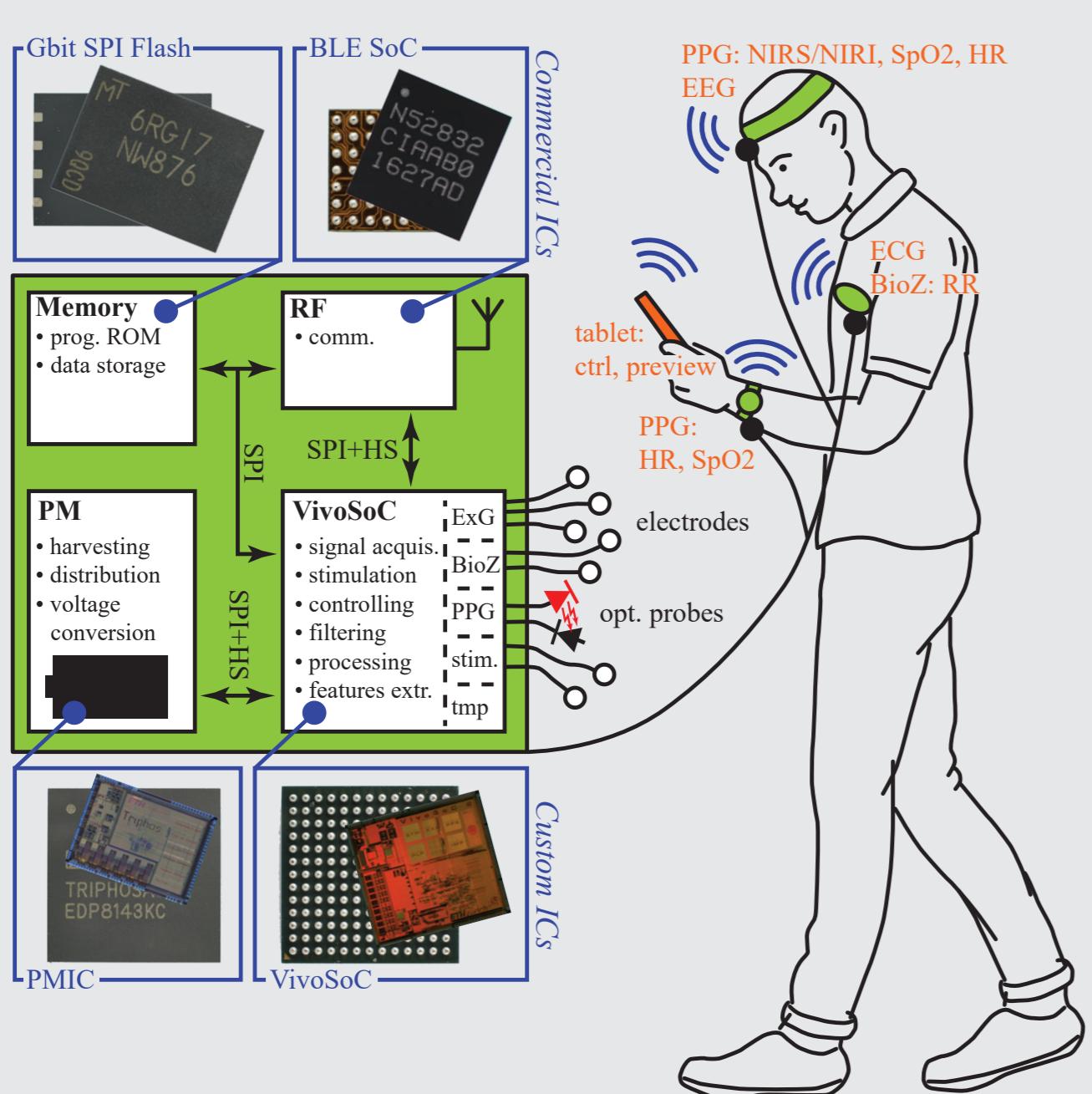


## Energy-Efficient Processing

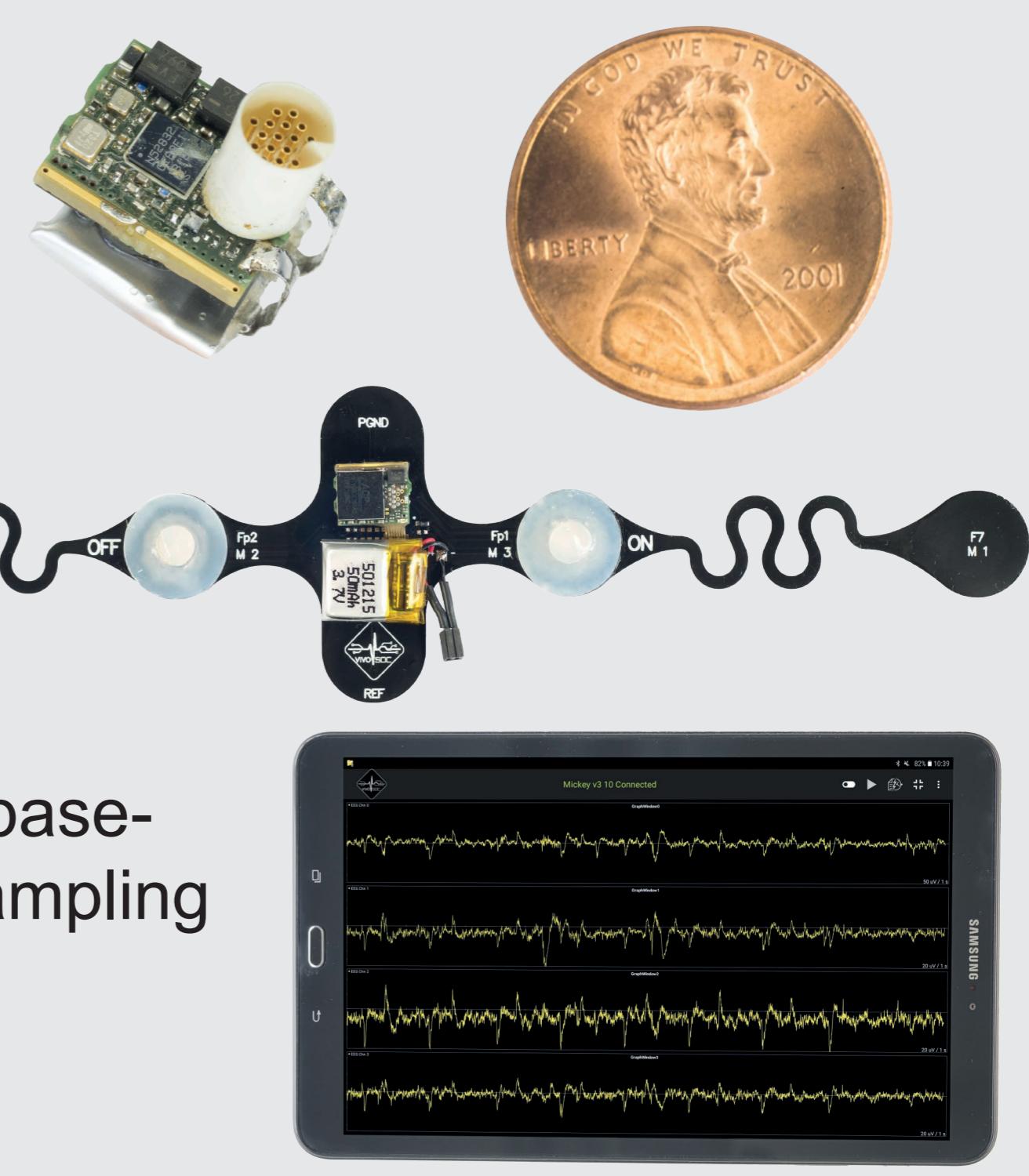
- Scalable performance
- Cluster is indep. power domain
- Three ULP FLLs (1 $\mu$ A/MHz)
- Automatic clock gating for whole cluster
- On-chip power gates
- Deep sleep mode: <10 $\mu$ W with 32kB retentive L2



## Platform & Applications



- Few additional components for complete system
- Optogenetics head-stage
- Weight 1.1g, volume <1cm<sup>3</sup>



- 4-ch EEG headband
- Processing on cluster: filtering, baseline wandering removal, downsampling
- Live readout over Bluetooth (250 Smpl/s per channel)

## References

- [1] [www.pulp-platform.org](http://www.pulp-platform.org)  
[2] P. Schöngle et al., "A Multi-Sensor and Parallel Processing SoC for Miniaturised Medical Instrumentation," *IEEE Journal of Solid-State Circuits*, July 2018