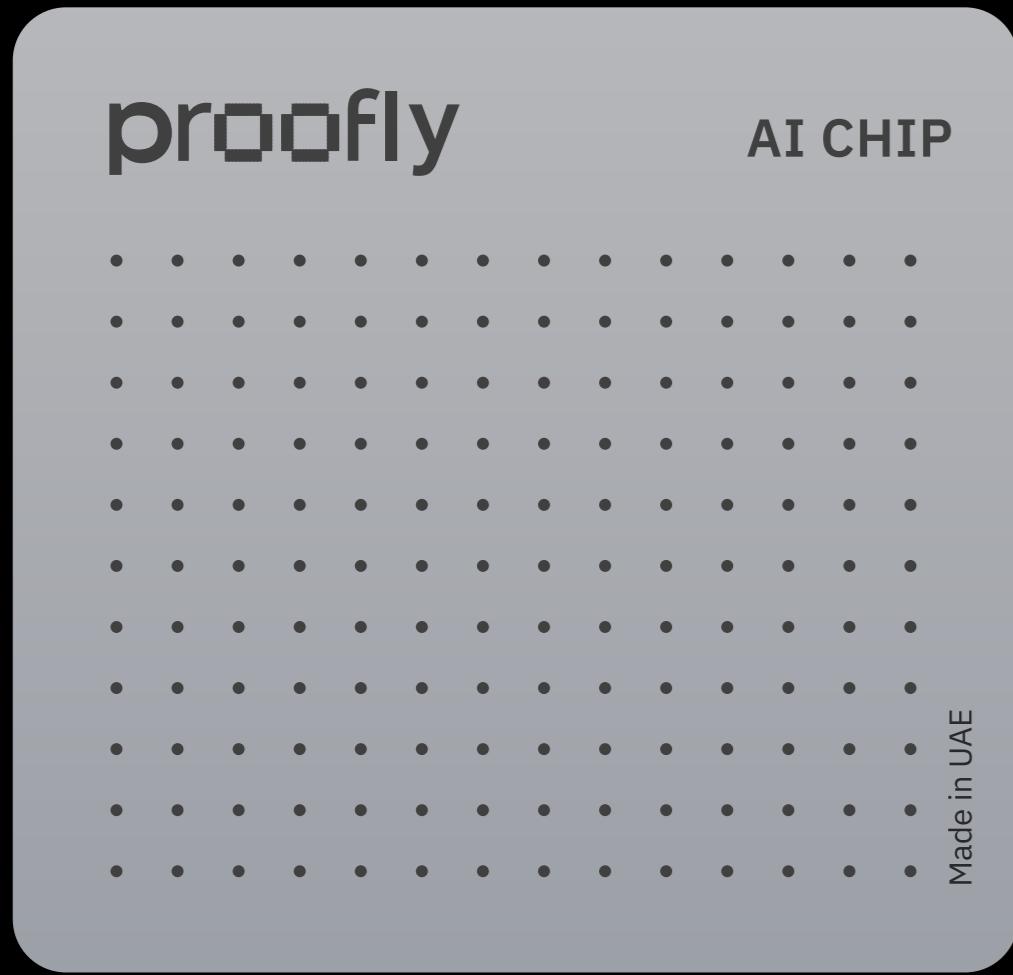


# proofly

## AI CHIP

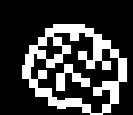


# AI CHIP



→ PROOFLY AI CHIP is a cutting-edge hardware accelerator designed for real-time image processing and deep neural network inference, making it an essential component in IoT, ICS, and automotive systems.

Its architecture seamlessly integrates specialized modules to manage the full pipeline—from pixel data input to output rendering—delivering high throughput and low latency.

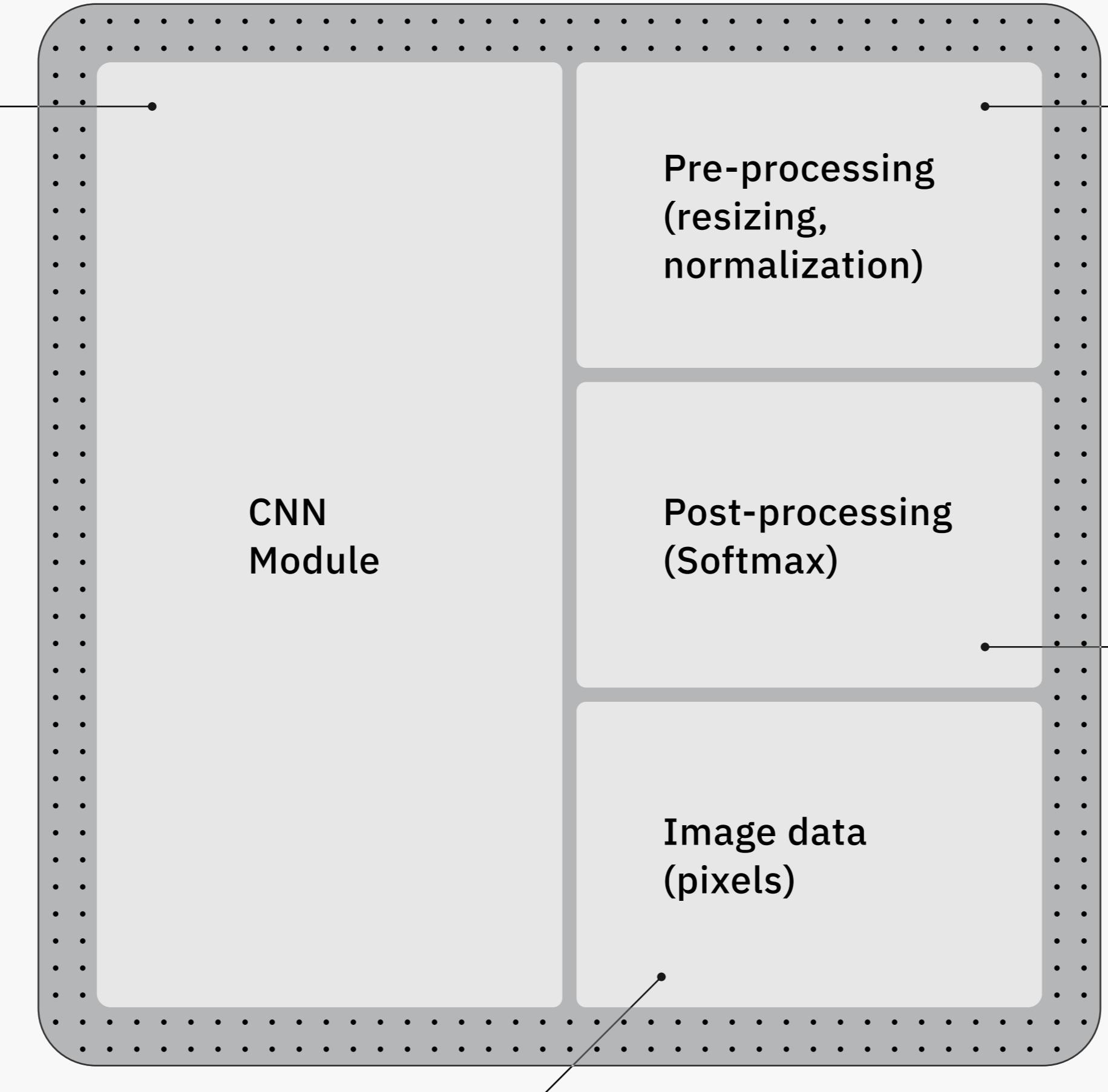


Made in UAE

↗ [profly.ai](http://profly.ai)

## 1. Neural Network Acceleration

- Hardware-optimized components power deep learning:
- Convolution Engine delivers ultra-fast spatial feature extraction with parallelized operations.
- ReLU Module applies activation functions to enhance non-linear model capabilities.
- Pooling Module reduces spatial dimensions while preserving critical data, lowering computational load.
- Fully Connected Layer efficiently maps features to class decisions with on-chip memory buffers.



## 2. Image Data Pipeline

- Utilizes an AXI Video Frame Buffer and AXI4-Stream Video Interface to handle decoded image storage and flow. This ensures smooth pixel data transfer to preprocessing stages, maintaining performance efficiency.

## 3. Preprocessing

- A dedicated block optimizes input frames:
- Resize Engine scales images to required dimensions while preserving key features.
- Normalize Module standardizes pixel values for numerical stability.
- Color Space Converter transforms formats (e.g., RGB to YUV) for optimal neural network compatibility.

## 4. Postprocessing

- Softmax Module generates probabilistic class distributions for interpretable results.
- Custom Thresholding Logic applies decision rules, refining output for specific use cases.

## Conclusion:

By combining a robust pixel pipeline, advanced preprocessing, hardware-accelerated inference, and flexible output options, the PROOFLY AI CHIP redefines performance for image recognition tasks.

Optimized for speed, energy efficiency, and seamless integration, it positions itself as a cornerstone in high-demand machine vision and real-time AI systems.