

AI

# Edge AI Compiler for Space Systems

Turn AI Models into  
Target-Optimized C Code



Scan  
to explore the product



# From Model Export to Embedded Deployment

Deploying your AI models requires complex adaptations and optimizations based on the resources your hardware offers, before integration into the existing software and code review.

The **emmtrix Edge AI Compiler** first generates portable reference C code, giving you good traceability of the model to C conversion. In a second step, the compiler uses transformations to reduce runtime and memory usage in a fully automatic process, tailored for your chosen target architecture.

## Who Is This for?

### **AI and Vision Engineers**

Deploy trained models in embedded systems

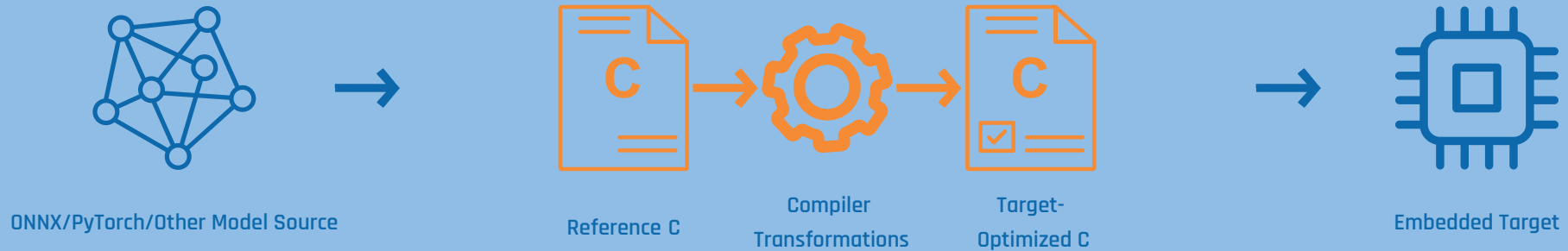
### **Embedded Software Engineers**

Review and integrate  
generated C implementations

### **System Architects**

Facilitate system integration of AI models

## emmtrix Edge AI Compiler Workflow



## Why Generate C Code?

### Integration into Existing Software

Generated C code becomes part of the embedded application rather than remaining inside a separate runtime environment.

### Inspect the Reference Implementation

Review generated source code, tensors, loops and memory accesses. Ensure functional safety via traceability of each optimization step.

### Use Existing Toolchains

Compile, debug and analyze your AI applications with your established embedded C toolchains and wider infrastructure (libraries, verification tools, version control, etc.).

## emmtrix Edge AI Compiler

### Examples of Compiler Transformations

- Graph analysis and shape inference
- Constant propagation
- Loop and memory optimization
- Elimination of temporary data structures
- SIMD and accelerator-specific code generation

### Review Before Deployment

Generated implementations can be reviewed and tested before they become part of the embedded software.

## Some Supported Targets



AURIX™ (TC4x PPU)



Cortex-A (NEON/SVE)



RISC-V (RVV)



ix86 (AVX)

### Engineering Support May Include

- Architecture-specific code generation
- SIMD and accelerator mapping
- Review of the generated implementation
- Integration into existing embedded software toolchains

# Open Source Resources

emmtx Technologies have developed the ONNX to C generator to provide robust C code.



## Public GitHub Repositories

Source code, examples and reproducible tests



## ONNX Community Talk

Technical explanation of the compiler approach



## 98.38 % ONNX Backend Scoreboard Result

Best in class ONNX operator support



## Let's Talk about Your AI Deployment

We are happy to discuss amongst others

- ✓ deployment workflows
- ✓ target architectures
- ✓ embedded software integration
- ✓ project-specific optimization

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