

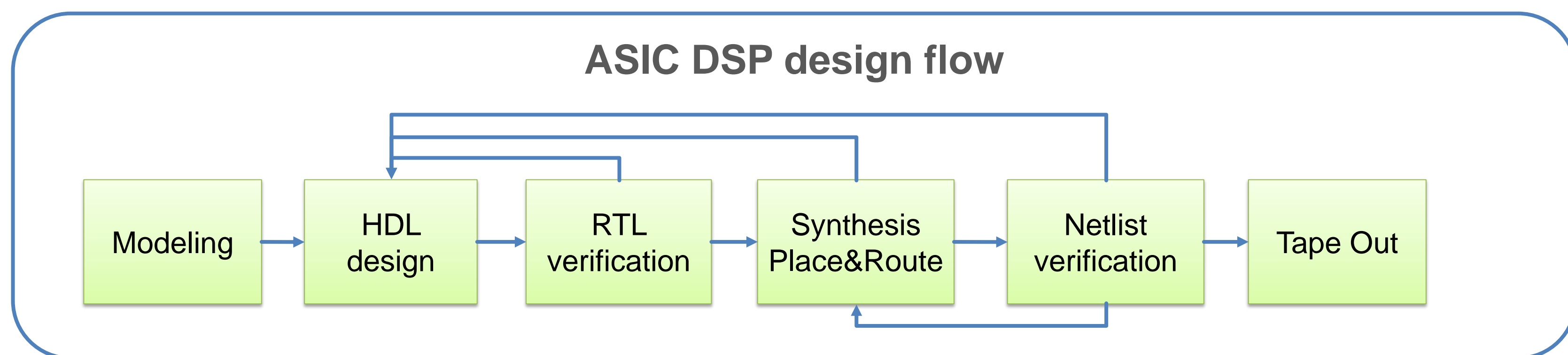


FP7 Coordination and Support Action to fund 50 technology transfer projects (TTP) in computing systems. This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 609491.

## Design of a digital processor for 3D Hall sensors conditioning in automotive applications

Luca Fanucci, Arcangelo Sisto, Luca Pilato, Luca Sarti, Università di Pisa, Italy  
Paolo D'Abramo, Riccardo Serventi, Luigi Di Piro, ams AG, Austria

### TTP Problem

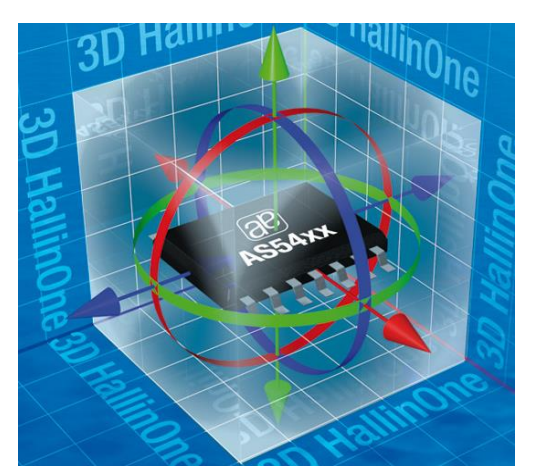


#### Design flow drawbacks

- Great effort in “hardware” verification
- Many HDL design steps during design flow
- Hard redesign for bug fixing or specification changes
- Long time to market

#### 3D Hall sensors

- Most complex processing algorithm in magnetic sensors applications
- AMS IP development in progress
- Flexible digital platform for test chips



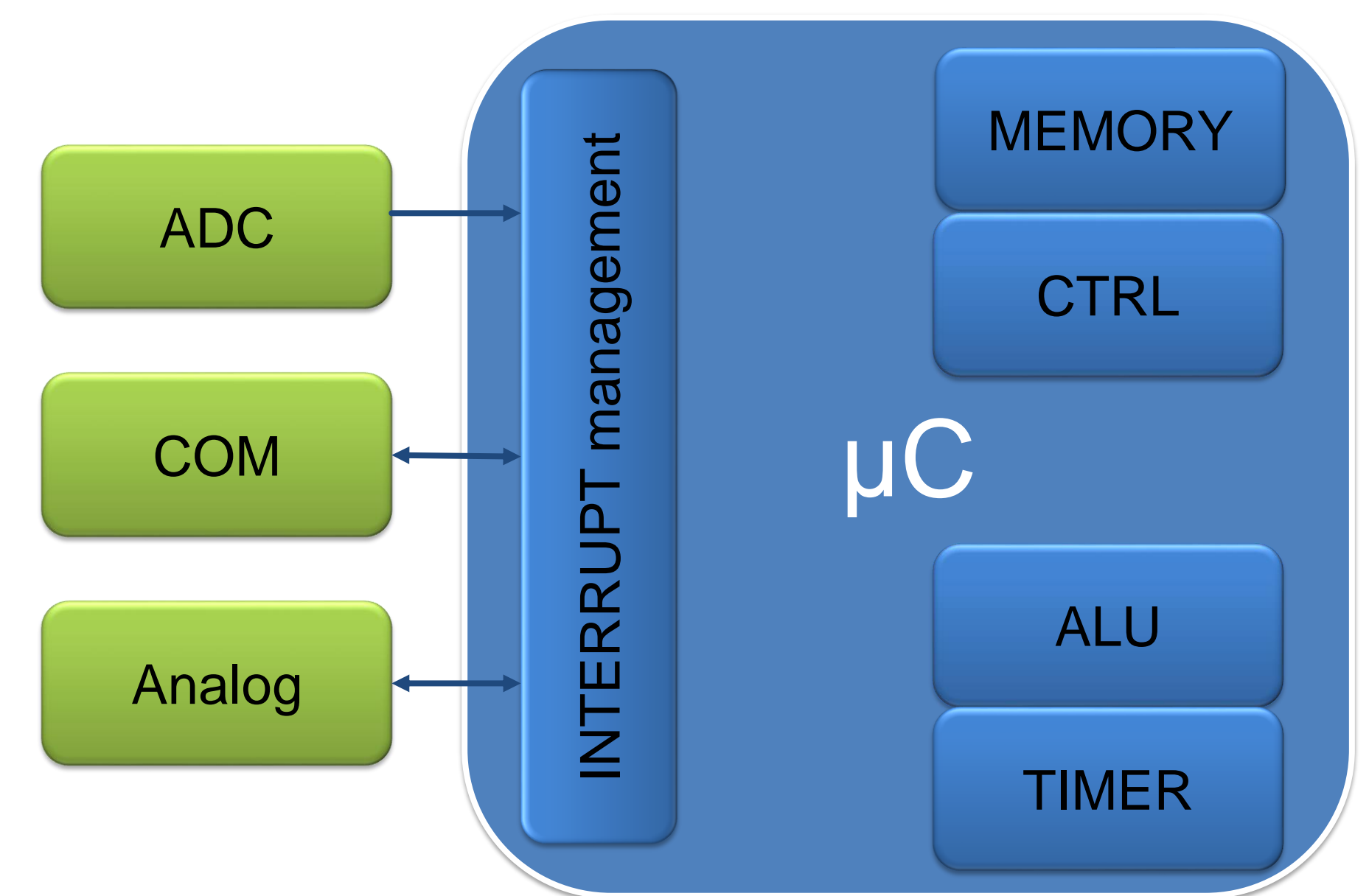
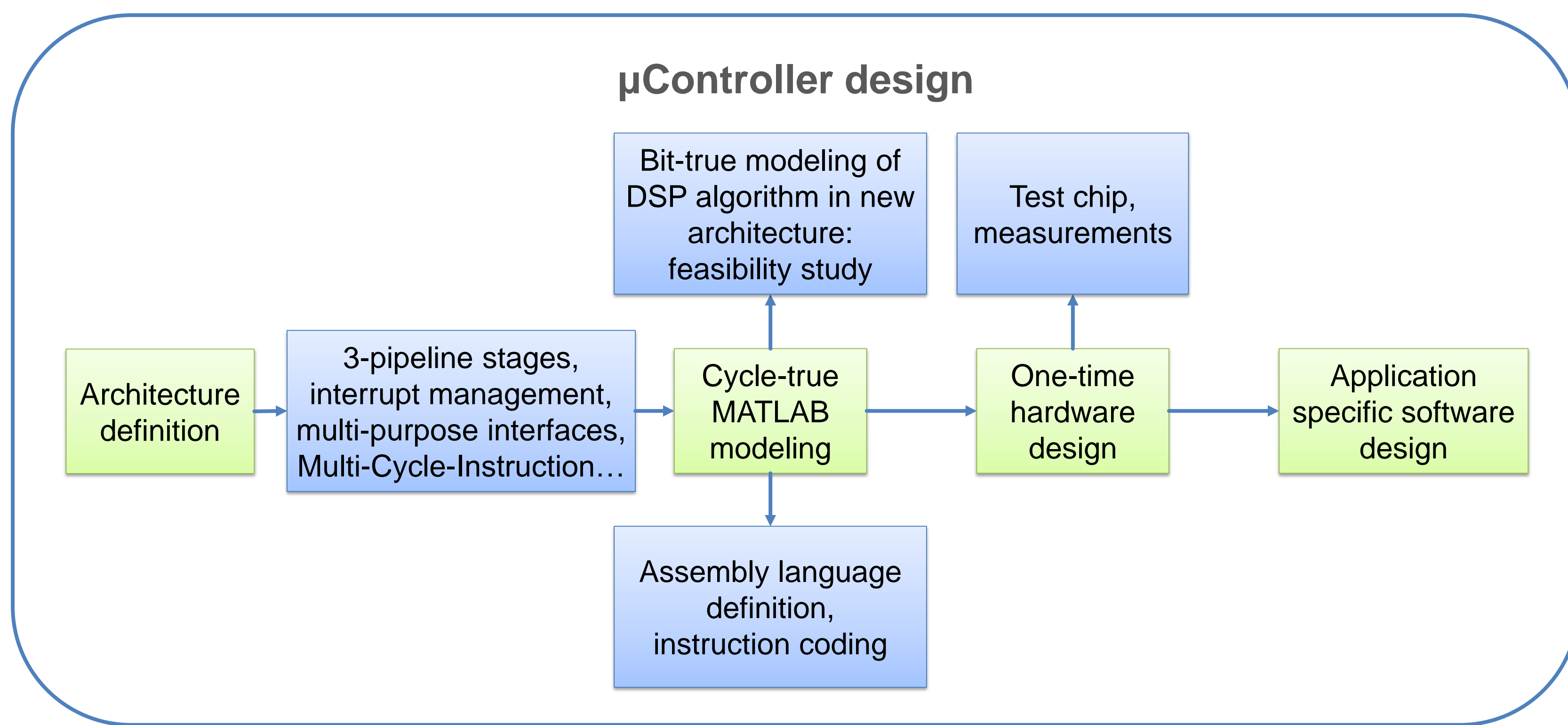
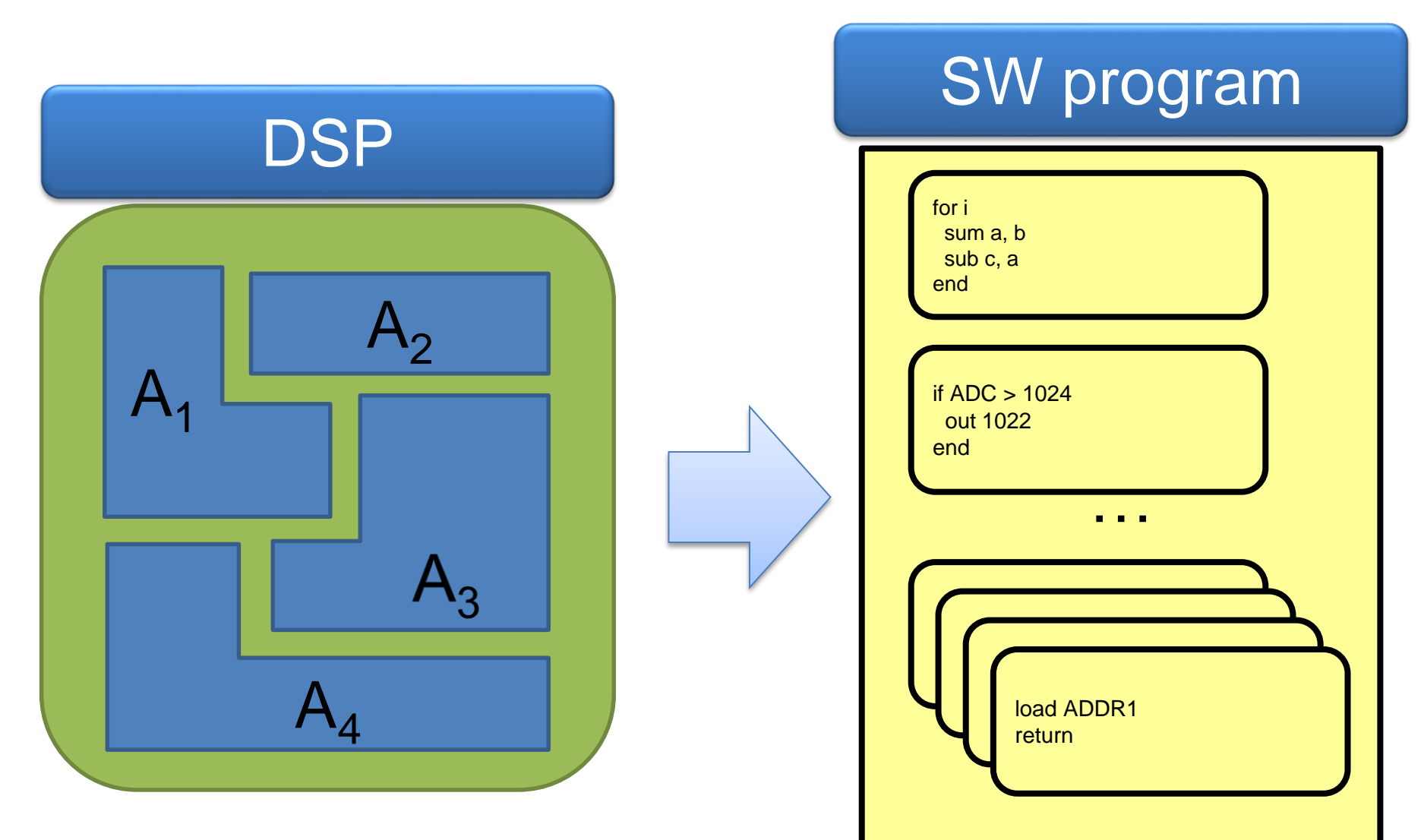
### TTP Solution

#### µController architecture

- Fixed digital layout: one-time backend design
- Flexible instruction set
- From hardware to software design approach
- Easy re-usability for other sensor systems

#### Flexibility

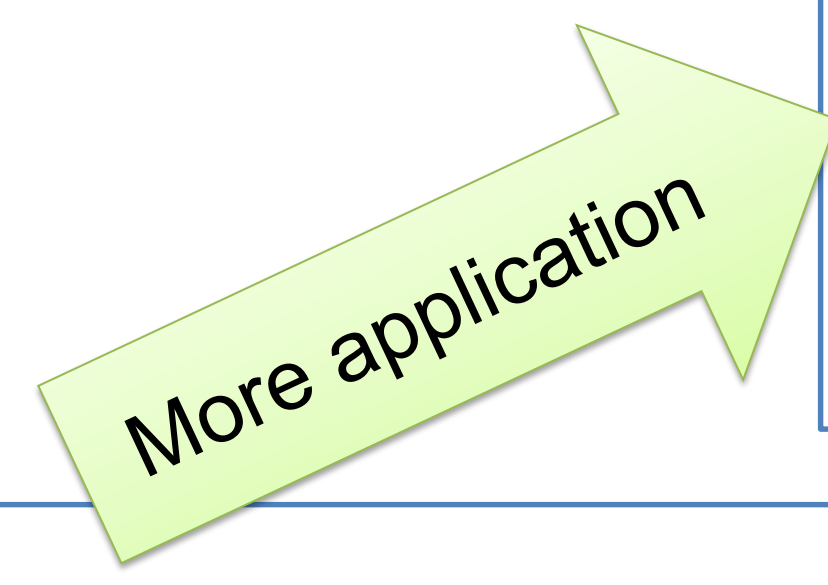
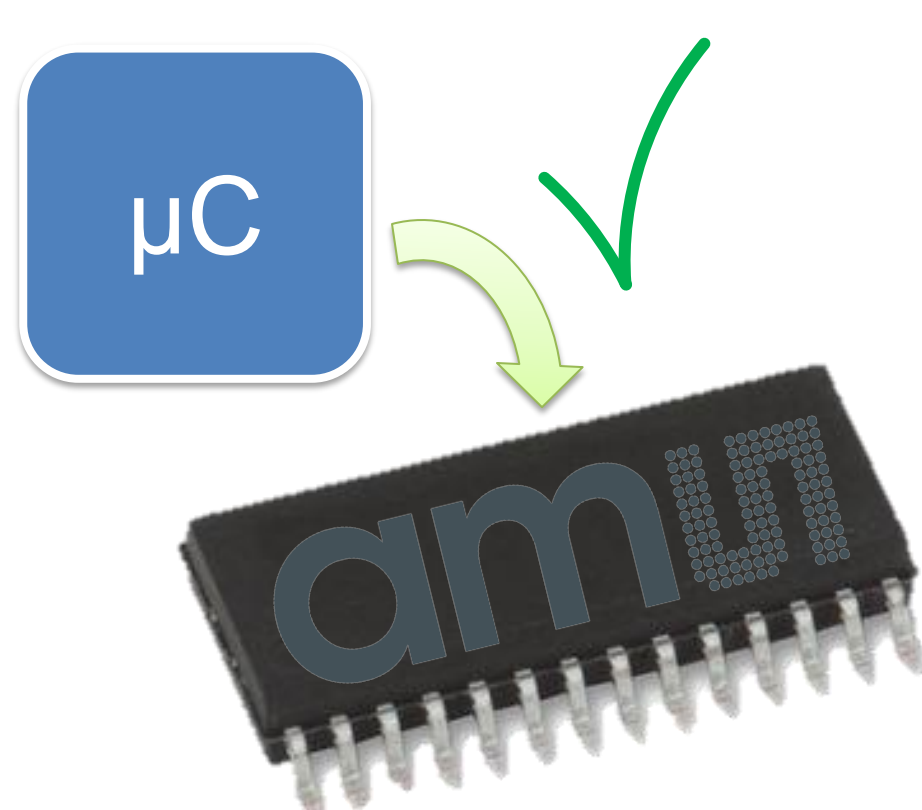
- Digital IP for any magnetic sensor (rotary encoders, linear displacement, 3D sensors...)
- Other automotive sensor systems:
  - Capacitive
  - Inductive
  - Time-of-flight (LIDAR)



### TTP Impact

- Digital Processor approach suitable for existing products
- Area vs. flexibility traded-off

- Other sensor systems moved in µC architecture
- Enabling new sensor solutions
- Easy instantiation in test chip for exploring most favorable system architectures



- Shorter design time and reduced time-to-market
- Easier Software verification
- Evaluation and test phase issues can be solved by a fast micro controller program fixing
- Easy software redesign for bug fixing or specification changes

### TTP Facts

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E-mail: luca.fanucci@unipi.it  
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