

SECURITY  
LICENSING  
PERFECTION IN PROTECTION

**WIBU**  
SYSTEMS

## Security of Things

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Wibu-Systems

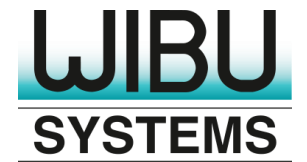
# Wibu-Systems



- Founded in 1989
- Headquarters in Germany (Karlsruhe)
- Focus on Protection, Licensing and Security
- Top 2 in hardware based protection
- Top 3 in software licensing



# CodeMeter Introduction



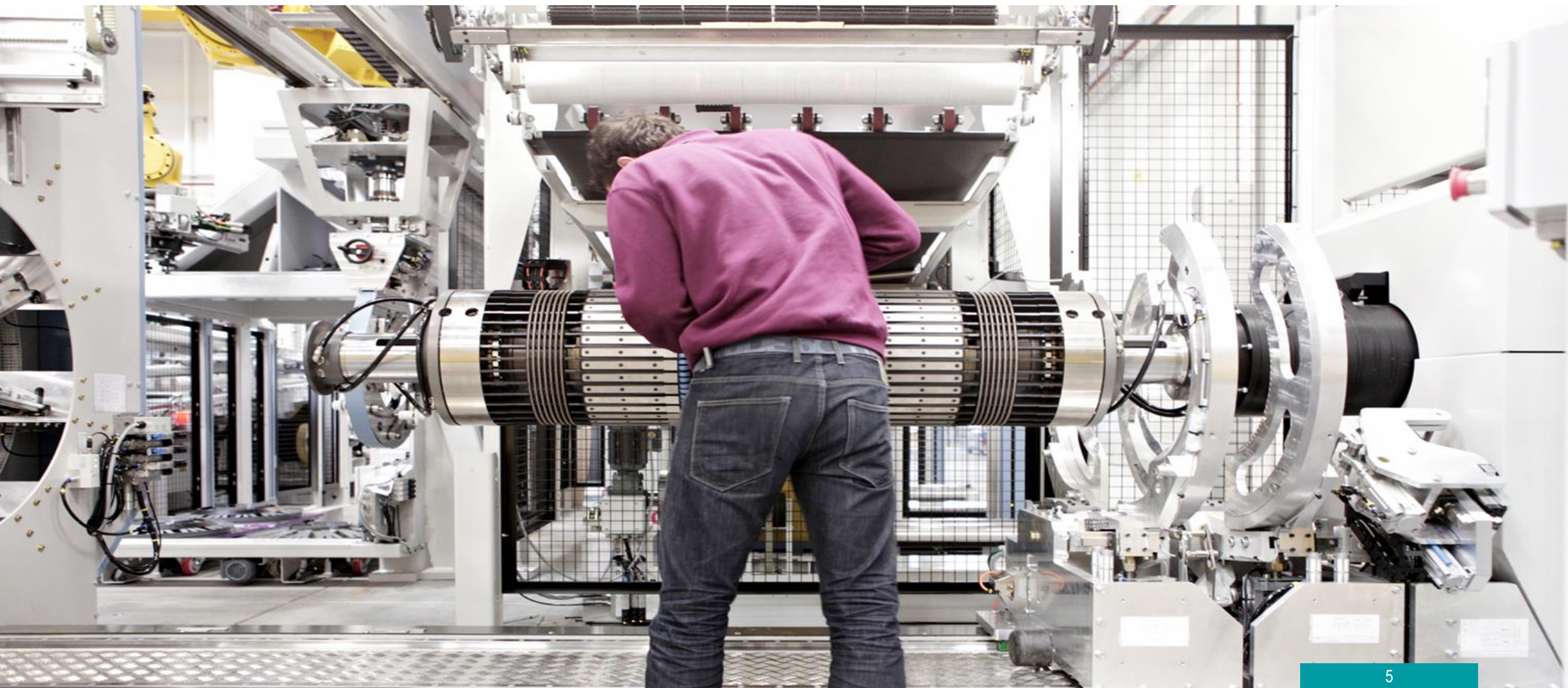
# Internet of Things





## Case Story VMI

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## Advantages of the IoT



- Scalable and flexible
- No overproduction
- M2M → Efficient, flexible, safe
- Share resources and knowledge
- Effective and proactive maintenance

## Internet of opportunities

- Efficient system link
- Modular software or as a package
- Make use measurable
- Connect and integrate ERP/CRM/ or other Back Office systems





- Sharing knowlegde
- Reverse engineering
- unauthorized use
- Manipulation





## Current situation

- 98% of all processors are used in embedded systems
- More and more embedded systems are cross-linked
- Industry 4.0 / Internet of Things (IoT)
- New attack vectors for Cyber Physical Systems (CPS)



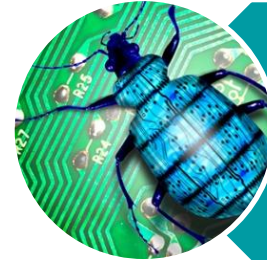
## Software & Product Piracy Problem

- BSA-Study: Losses € 47 Billion, globally 42%
- VDMA (Engineering Federation) 2014:
  - € 8,2 Billion losses in 2013, about 4% of revenues
  - 38.000 jobs lost
  - 9 of 10 companies affected by piracy (>1000 staff)
  - 48% affected by piracy of complete machines
  - Source countries of plagiats: China, Germany, Turkey, India
  - Competitors, underground factories, customers and suppliers

# Challenges



Piracy  
Reduction



Features on  
Demand



Know how  
Protection



Access  
Control



Production  
Data



Integrity  
Protection

- **Know-how Protection -> using data and program code encryption**
  - IP in embedded systems, PLCs, devices, IoT
  - IP in software, source code and algorithms, in production data and service documents
- **Software and Product Protection -> encryption & unclonable crypto keys**
  - Counterfeiting reduction, prevention of unauthorized use (active and passive)
- **Flexible Licensing -> using target encryption and business process integration**
  - New business models for features and data, simplify logistics, monetize software in hardware
- **Tamper Protection -> using digital signature**
  - Prevention of manipulation – Cyber-Security



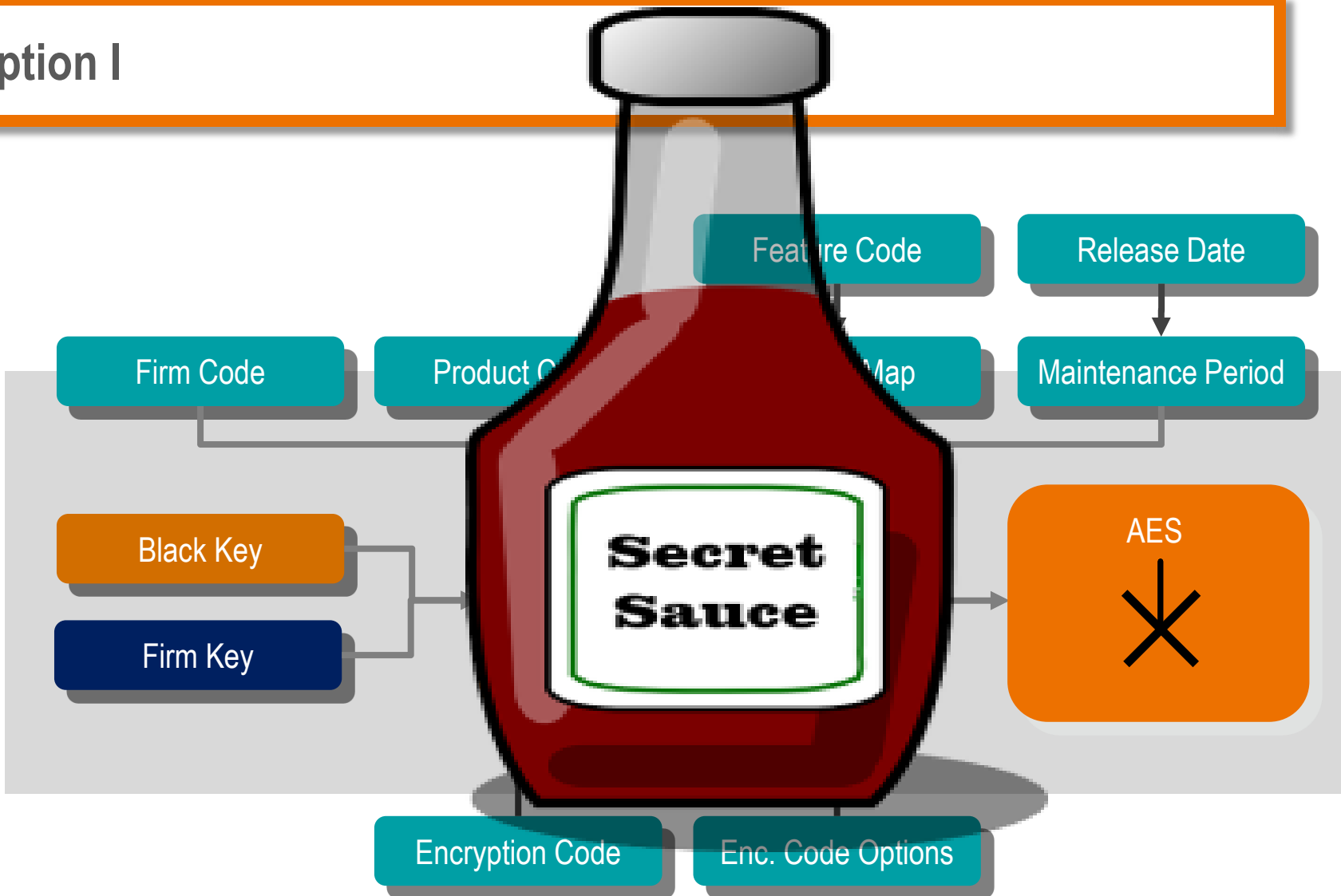


# Security of Things 4.0

1. Encryption of IP
2. Secure bootloader
3. Safely stored in a License

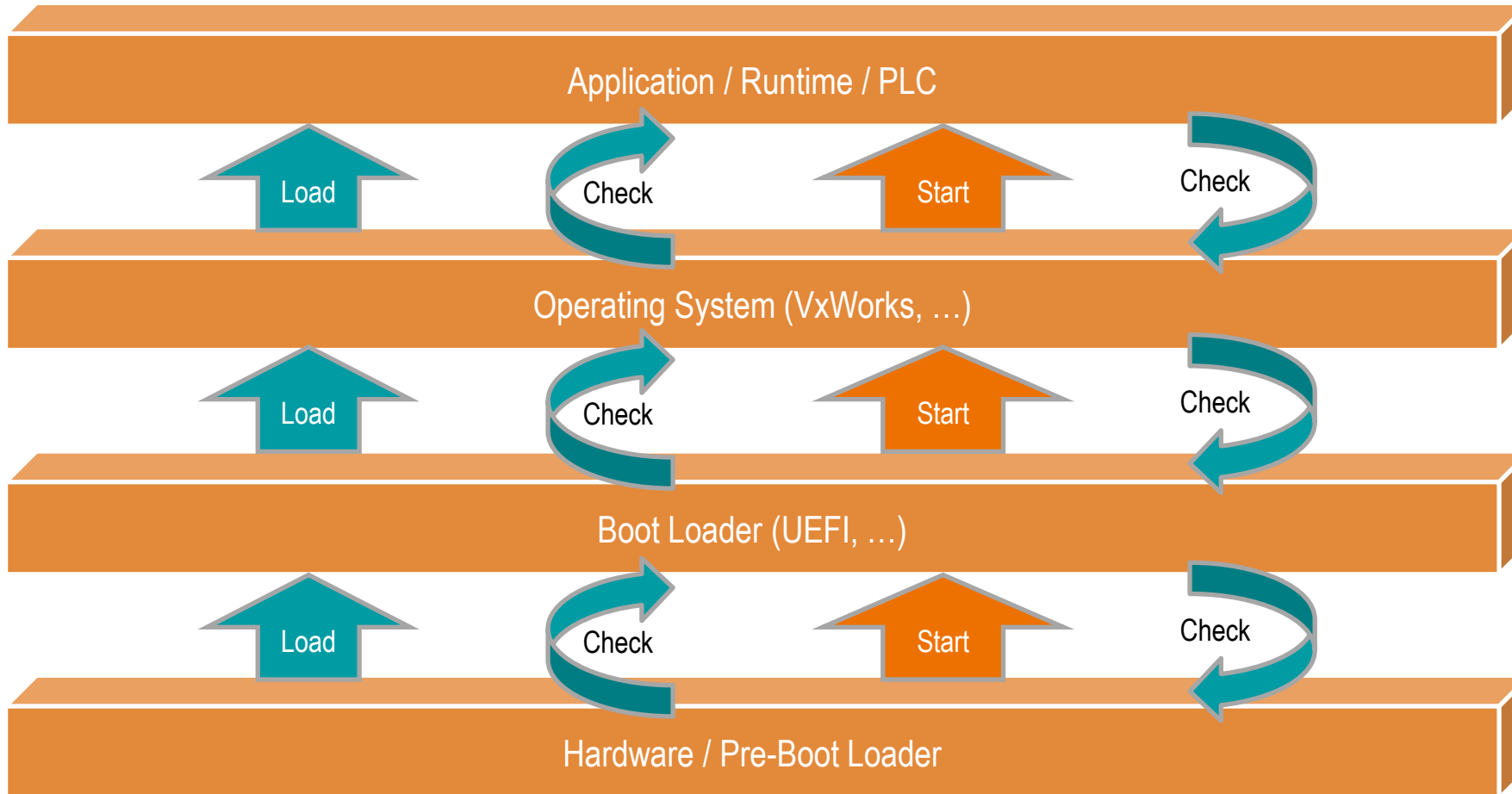


# Encryption I



- Symmetric Encryption → standard
  - 128-Bit AES (Advanced Encryption Standard)
  - Used for encryption of executable code and data
- Asymmetric Encryption → more advanced and sophisticated
  - 224-Bit ECC (Elliptic Curve Cryptography)
  - 2048-Bit RSA (Rivest Shamir Adleman)
  - Used for Signatures and Authentication (Certificates)
  - Required today for security in Cloud, SaaS, Server, Desktop, PLC, Embedded & IoT

# Secure Boot Loader





## Safely stored license | Smartcard chip

- Protected against side channel attacks
  - Differential Power Analysis (DPA)
- Firmware Update
  - New Security Features
  - New Features
  - Secure update channel
- 384 kByte memory for licenses



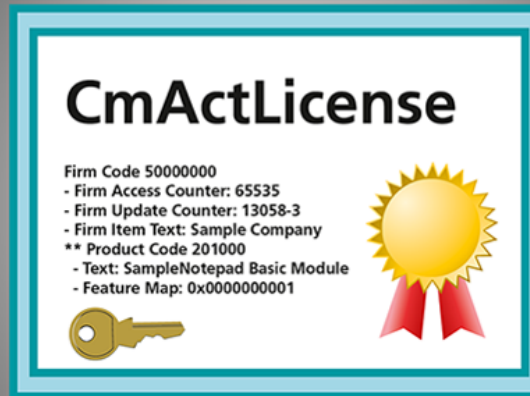
## Safely stored in a License

CodeMeter: One Solution for all scenarios

### Secure Hardware



### License File



### Cloud License

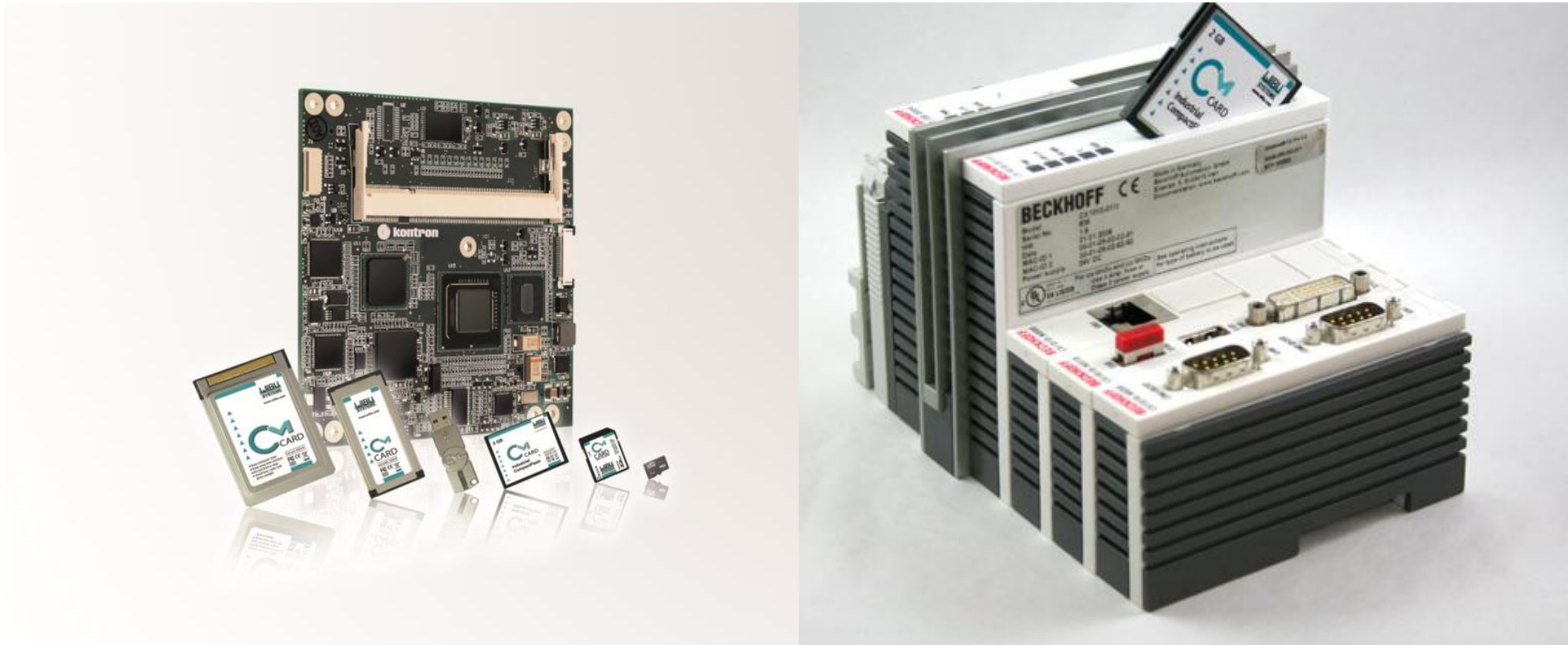


# Protection of Things

- CodeMeter protects the intellectual property
- Encryption of executables and libraries
- Flexible Licensing options



## Security at the base





More than 7000 Customers, Millions of Dongles

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**AGFA** 

**B|BRAUN**  
SHARING EXPERTISE

 **BOSCH**

**FESTO**

**QNX**



 **dataton**

  
**OREX**  
A Carestream Health Company

**WINCOR  
NIXDORF**

**Kodak**

 **MOTOROLA**

 **ControlEng**  
linking technology, ideas and people

 艾睿光电

**MedEx** 麦迪克斯

**Leica**  
MICROSYSTEMS

**MAQUET**  
GETINGE GROUP

**sirona**  
The Dental Company

 **Esec**

**AVEVA**

**VxWorks**  


**WIND RIVER**



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Automation**  
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**ZSK**

 **LVD**

**SIEMENS**

 **ROHDE & SCHWARZ**

Thank you

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