



**Thomas Schönbeck**  
**ts@kvaser.com**

# Sauer Danfoss



- Sauer Danfoss is a worldwide leader in the design, manufacture and sale of engineered hydraulic systems, components, and electronics for use primarily in applications of mobile equipment.
- Sauer Danfoss在设计生产和销售液压系统，元件和移动设备的电子产品方面处于世界领先地位
- Sauer-Danfoss PLUS 1 system is designed to customize off-highway equipment control.
- Sauer-Danfoss PLUS 1 是一套个性化非高速行驶车辆控制系统
- Plus 1 offers equipment design engineers the ability to develop and tailor their control and monitoring networks to meet users' specific operating needs.
- Plus 1提供给工程师开发和编写个性化控制和监控网络的空间。



# Sauer Danfoss

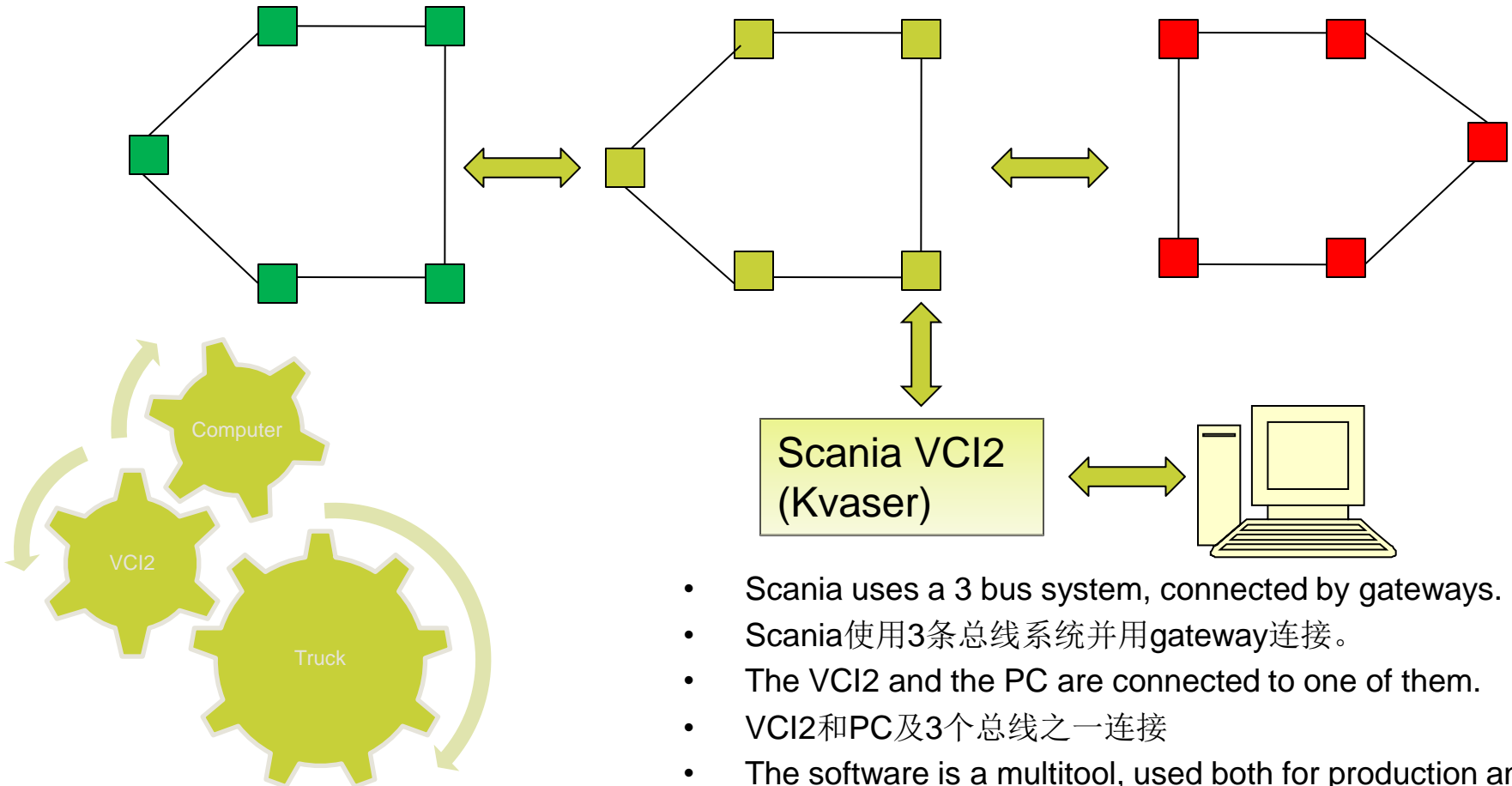


- By customizing electronic controls for systems in software, OEMs allow customers greater flexibility in the overall operation of their machinery. For example, designers can program industrial sweepers in different profiles, optimizing them to operate in a quiet mode during the morning hours and in a high-performance mode during the afternoon
- 通过编写个性化控制系统软件，OEM厂商可以根据客户需要来定制机器。如工程师可以给工业吸尘器设置不同模式，优化编程，在早晨可以使用安静模式而在中午可以使用高效模式
- They also use an OEM version of the CANKing, much loved by their customers.
- 他们也做OEM版本的CANKing，因为终端客户喜欢





- Kvaser supplies Scania's latest generation after market tools, called the VCI II, and has since become a valued partner, supplying tailor-made CAN interfaces and data-loggers to Scania's repair shops and production lines all over the world. Same system used in development.
- Kvaser提供给Scania最新的售后服务工具VCI II，从而成为他们最佳的合作者之一，提供量身定做的CAN接口和数据记录器给Scania全球的维修站和生产线使用。
- A Scania representative explained: "We began working with Kvaser five years ago. We chose to work with Kvaser because they understand our technical requirements and are experts in their field, as we are in ours".
- Scania高层曾经说：“我们5年前和Kvaser合作。我们之所以选择Kvaser是因为他们和我们一样不仅懂得客户需求而且是该行业的专家。
- Thanks to the CAN system error searching and repair is often taken care of in a few minutes thanks to the easy to use CAN-bus.
- CAN总线方便易用，能快速搜索CAN系统错误并纠正之



- Scania uses a 3 bus system, connected by gateways.
- Scania使用3条总线系统并用gateway连接。
- The VCI2 and the PC are connected to one of them.
- VCI2和PC及3个总线之一连接
- The software is a multitool, used both for production and aftermarket.
- 软件是可用于生产和售后服务多功能工具

# Mercury and Mototron



- Mercury Marine is the worlds larges boat engine manufacturer.
  - Mercury Marine是世界上最大的轮船引擎生产商
  - They where early on the Chinese market, actually started the biggest Marina in China in Suzhou.
  - 他们进入中国市场非常早，已经在苏州太湖建立了游艇码头。
  - SmartCraft is an innovative CAN system, based on CANKingdom. CAN Kingdom invented by Kvaser.
  - SmartCraft是基于CAN Kingdom的创造性CAN系统。CAN Kingdom是Kvaser公司开发的一个高层协议。
  - This make the entire vessel an intelligent system. The SmartCraft® system serves as an I/O hub for digital engine and environmental information and enable many different features, like Engine Guardian to protect the valuable investment.
  - Mercury开发了整套船舶智能系统。SmartCraft系统作为一个数字引擎和环境信息的I/O中心，可以实现很多功能，如引擎保护功能，用于保护贵重设备。
  - The devices have been bought by Mototron, a major ECM (engine ECUs) manufacturer for automotive, marine, and heavy-duty vehicle applications. Thus they are used in other vehicles also.
- 著名的船舶，汽车和重型车引擎ECU生产商Mototron也购买了这套系统，所以目前其它车辆也使用这套系统







- Kone is one of the worlds largest elevator companies.
- Kone是世界上最大的电梯生产厂商。
- They use our service tool for their top of the line systems.
- 他们在最先进的系统中使用我们的工具
- It is used both as an embedded part of the elevator, as well as an after market tool.
- 他们不仅在电梯里使用Kvaser产品而且还作为售后服务工具使用
- They use their own hardware layer, they needed special designed hardware.
- 他们使用自己的硬件层，该硬件层是特殊设计的。



- Mining industry. Very harsh environment. Dust, high temperature and wet.  
矿业，非常恶劣的环境，粉尘，高温和潮湿。
- The drilling and mining industry is one of the toughest environments for people and machinery on Earth. 钻井和采矿行业对于人和机器来说都是比较恶劣的工作环境。
- An emerging industry trend is to introduce automated machinery to maximize efficiency and minimize the safety risk to personnel. 这些行业都朝着最大程度自动化发展来减少安全隐患。
- Atlas Copco has been ahead of its competitors in these developments, having begun adapting its loading machines with control systems that are automation compatible.  
Atlas Copco就是这样一家公司，把挖掘机的控制系统与自动化结合。
- Kvaser's Memorator datalogger was used to gather crucial CAN bus data during the development of Atlas Copco's Scooptram 14 underground loader. Kvaser's Memorator数据记录仪在Atlas Copco's Scooptram 14地下挖掘机开发过程中可采集重要的CAN总线数据



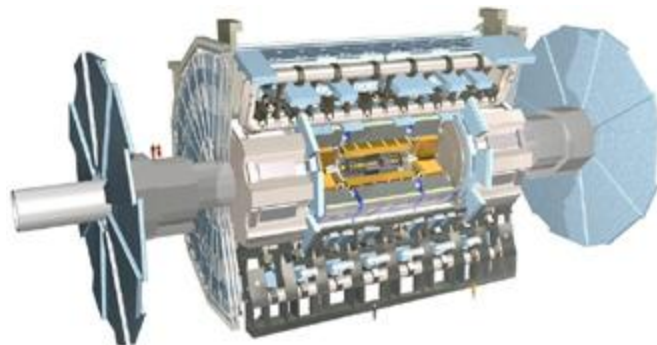


- Kvaser's Memorator is now used for ongoing maintenance and service purposes in the field. Kvaser产品用于矿业设备的维护和保养。
- Fredrik Grahn from Atlas Copco won Kvaser's April 2007 competition for suggesting a new FIFO mode for the Kvaser Memorator Professional, and this is now a feature often used at Atlas Copco. Atlas Copco的Fredrik Grahn由于建议Kvaser的Memorator增加数据记录先进先出的功能而获得Kvaser公司2007年奖项。
- the hydraulic engineering department also makes use of the Memorator today, using it to log hydraulic oil transmission temperatures or monitor brake system pressures.该公司液压部门也可以使用Memorator来记录液压油传输温度或监控刹车系统压力。

# GE Healthcare, and more medical companies

- Within medical industry very important with extremely high quality.  
在医药行业，高品质非常重要。
- Often takes 1-2 years until they have done all tests and approved the product.  
一般购买前肯定要经过1-2年的测试认证。
- GE Healthcare uses one of our PCI cards embedded in one of their machines.  
GE卫生保健设备里使用我们的PCI板卡。
- For the US FDA extrem caution on traceability of the production process is needed. We have this!  
美国食品药品监督管理局希望可以追踪产品的生产过程，我们可以做到！
- Very high standard for EMC is demanded.  
对电磁兼容性要求非常高，我们的硬件都经过EMC测试。

# CERN欧洲核子研究中心



- The LHC aims to recreate conditions as they occurred immediately after the Big Bang. 大型强子对撞机的目的是模拟大爆炸后所产生的粒子运行状况。
- Kvaser hardware takes the complexity out of data gathering for ATLAS. Kvaser硬件承担ATLAS探测器复杂的数据收集工作。
- Kvaser's PCICanx boards are playing an important role within the world's most powerful particle accelerator. Kvaser PCICanx板卡在这个最强大的粒子加速器中承担着数据采集的重要作用。
- Each of the PCs is equipped with up to three Kvaser cards that in total control over 5000 CAN nodes on more than 300 CAN buses! 每台电脑连接3块Kvaser板卡总共控制300条总线上的5000个CAN节点。
- Asked why Kvaser's boards were chosen, Dr Burckhart said: "Kvaser's initial form factor already fit well with our requirements. And following our suggestions they made a new version of their board, which exactly matched our needs. 最终采用Kvaser板卡的原因是本身Kvaser在众多产品中脱颖而出，在经过修改后产品更加适合实验室需要"

# Toyota, Volvo etc. 车辆应用

- A lot of Memorators are used within the car industry. Kvaser的许多记录仪被用于该行业。
- They are used in all stages of CAN bus development. Not least the final tests. Kvaser产品可用于总线开发的任何阶段，并不仅局限于最后测试。
- During final test driver test the cars at different test sites around the world. Extrem cold, extrem warmth and high elevation are some of the challenges. 测试驾驶员在车辆上市前需做极地测试，即酷热和酷寒
- The Kvaser Memorator is attached to the car. Recording everything of interest according to settings by developer. Kvaser Dispatcher often used. Kvaser的Memorator可以作为车载设备记录用户所感兴趣的任何数据。驾驶员也可通过Kvaser Dispatcher来帮助做重要数据记录。
- Also, a external trigger is used, if driver hears strange sounds or the car feels strange he puches the button and logging starts.如果驾驶员感觉车辆有异常声响可通过按压Kvaser Dispatcher上的按钮来外部触发记录。

# NASA美国国家航空航天局



- We got a long awaited report from NASA about the Leaf SemiPro and its performance during the radiation testing. 我们从NASA得到了期待已久的Leaf SemiPro放射测试性能报告。
- 
- “I thought you might want to know that the Leaf Semi-Pro I bought performed much better than I expected under testing. We bombarded the unit with the equivalent of 10 years worth of ionizing radiation and it only had two “functional interrupts“ where it lost communication. In both cases, power cycling the unit by disconnecting it and reconnecting it returned it to normal function.”一位NASA官员说到：“我们所购买的Leaf SemiPro比想象的性能要好。我们用相当于10年的电离辐射量冲击该产品，测试过程中仅两次通讯中断。我们只需重启电源，该产品又能工作。”

# Kvaser Customers 客户

- About 600 active customers, within all areas of industry, approx, 50% automotive. All of them integrating Kvaser platforms into their products and systems to different extent.
- 有600家客户几乎涵盖工业的各个部分，其中汽车行业占50%。他们都不同程度的整合Kvaser平台于他们自己的产品和系统中。



# Development开发

- During development a lot of testing and verification is necessary. A lot of different tools are needed during this process.
- 在开发过程中测试和验证是非常重要的，在这过程中需要很多不同的测试工具

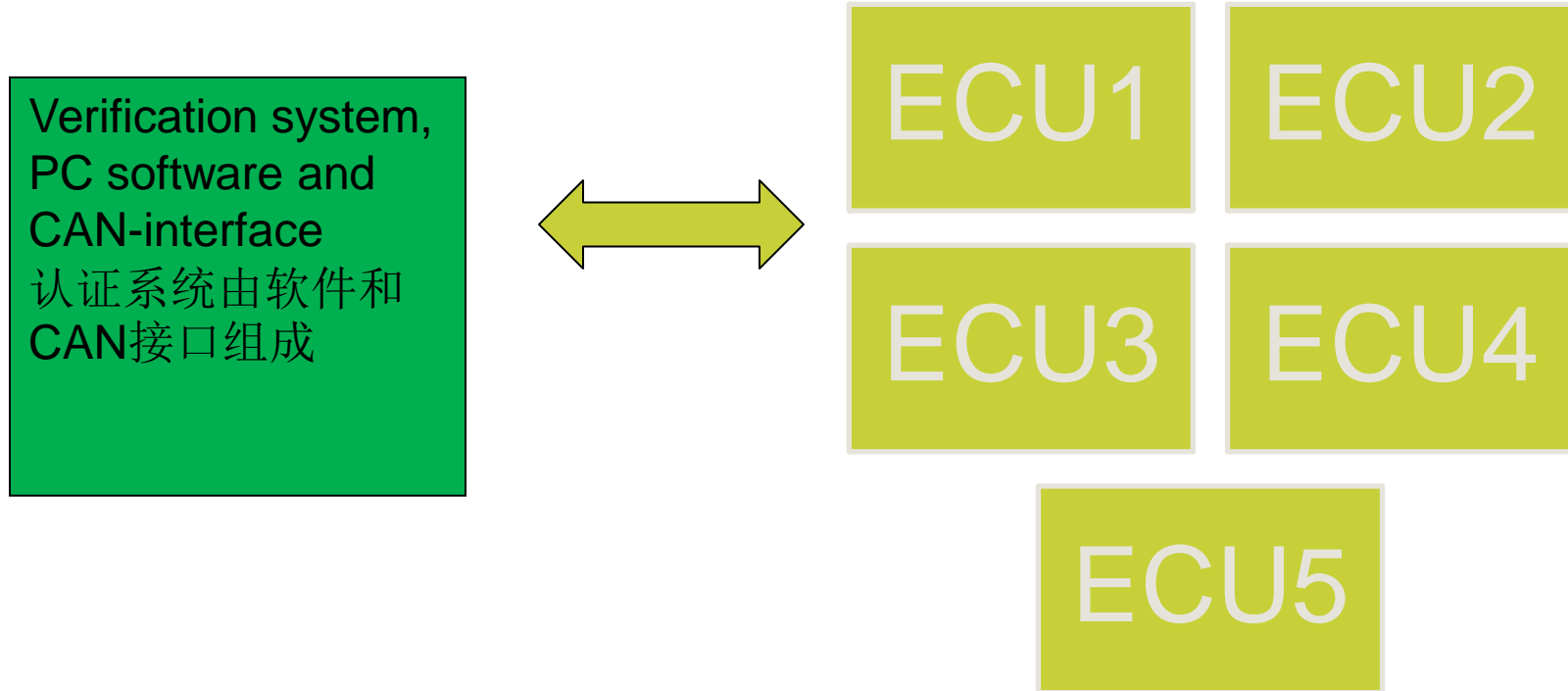


- It is essential to use the same tool during development and verification of ECUs and system.
- 在ECU和系统的开发及验证中，可以延续使用之前的工具也非常重要。

# Verification 验证

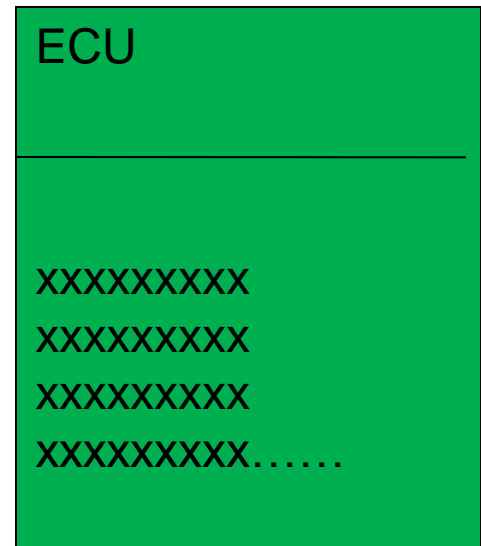
During development the system needs to be verified, doing this takes a lot of time and effort. To be able to do this tools are needed.

开发过程中，我们需要不断认证所开发系统。相应的认证工具也就应运而生

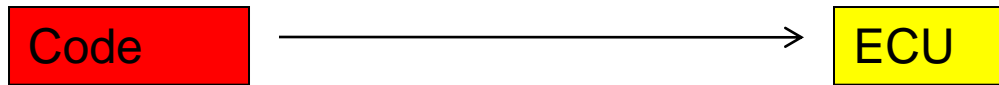


# Diagnosis 诊断

- To be able to diagnose the system a diagnose protocol needs to be implemented within each ECU. This needs to be both specified, and also needs to be verified and tested. All of this during the development phase.
- 为了便于以后做系统诊断，我们需要事先在ECU里写入诊断协议。定义好协议后，在开发过程中，我们可以对ECU子网络进行认证和测试。



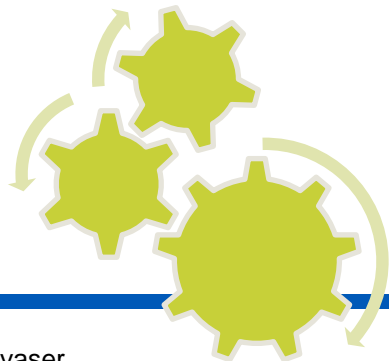
# Software Download 软件下载



- To be able to produce a car it is essential to have an efficient system for software download. 生产车辆需要一套高效的系统用于软件下载
- Very advanced systems have a database of firmware, and this keeps track of what versions to download. 高级系统的固件有一个数据库可以随时下载各种版本
- Already during the sub-system testing software download needs to be implemented. 能执行子系统测试软件下载
- This is also usable much later in the production chain. As an example, SAAB needed new ECU firmware, when the cars was already in the harbour waiting for shipment. 在后续的生产线我们也需要这套工具。举例来说，当萨博在物流过程中需要一款新ECU固件。
- Kvaser made an OEM product that made it possible to reload all software. 我们做了一款OEM产品可以重新下载所有的软件。
- Note, it is equally important during the development process, you only want one tool to take care of this. 在开发过程中，客户只需要一款工具。

# Production 生产线

- Producability of the vehicles are very important. It must be possible to produce as many vehicles as possible in as short time as possible.
- 方便生产是非常重要的，我们需要做的是短时间生产尽可能多的车。
- As an example, download of ECU firmware.
- 下载ECU固件
- Vehicle manufacturers in Europe don't want cables in their factories.
- 欧洲车厂在工厂并不需要线缆
- Big advantage having one tool everywhere, this actually saves money.
- 只要在工厂有工具就行
- Using Kvaser tools every piece of hardware is totally interchangeable.
- 每个Kvaser硬件工具都是可替换的



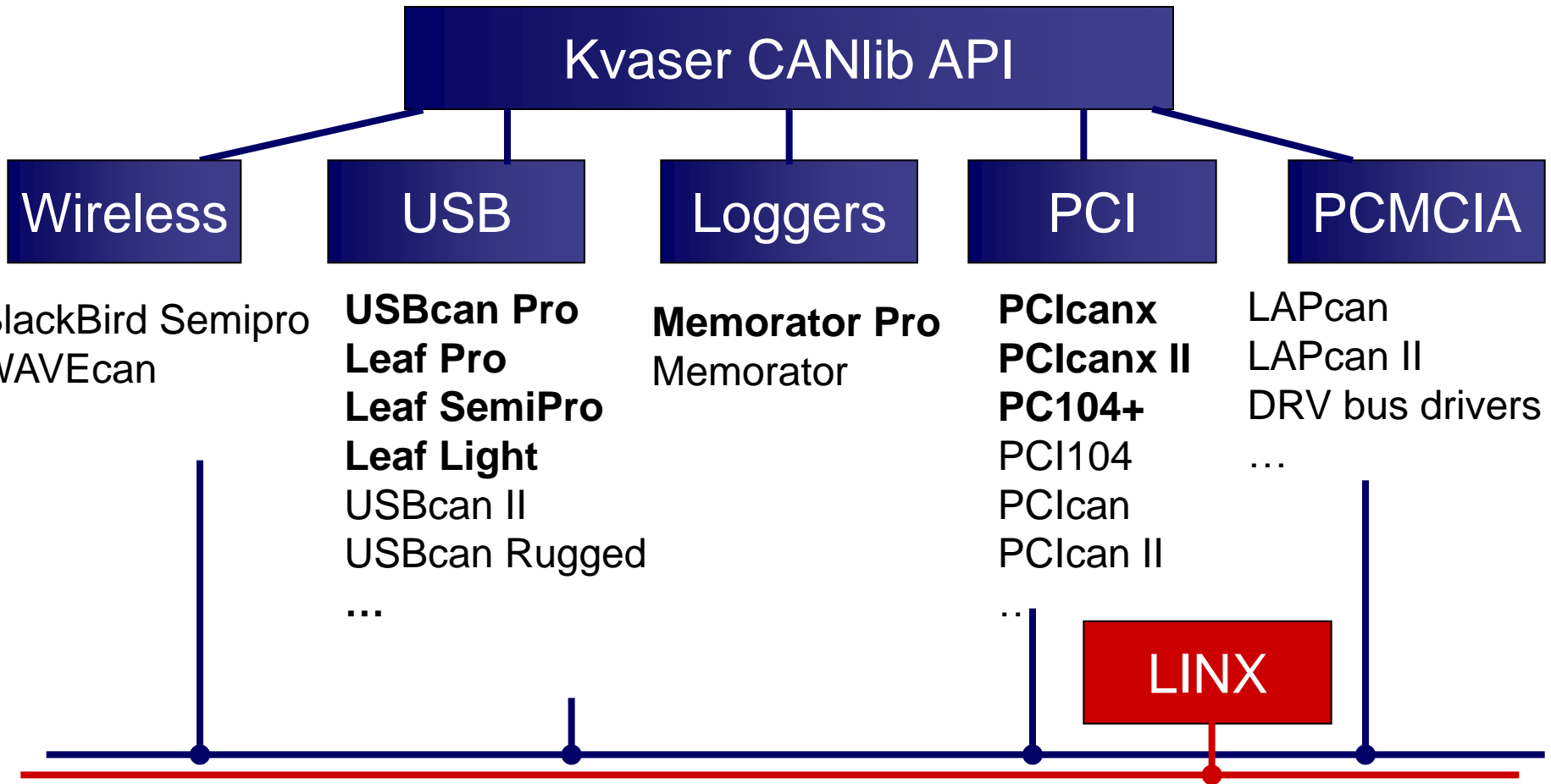
# Aftermarket 售后服务

- Every automotive CAN system needs an aftermarket tool. Without the tool the system is useless.
- 每个CAN系统都需要售后服务工具。系统离不开售后服务工具。
- If an error in the car/truck/bus/off-road vehicle a need to be able to search for faults arises.
- 当汽车/卡车/公交车/重型车出现问题是，需要有个工具来诊断错误。
- When doing ordinary service to the vehicle (perhaps after 20000 kilometers) the auto repair shop needs to be able to "talk" to the CAN-system.
- 在做车辆的日常维护时（2万公里后）修理厂需要和CAN系统“谈话”
- For instance, Scania and Volvo is using this system to know what spare parts are used and thus increase the stock for parts.
- 举例来说，斯堪尼亚和沃尔沃可以通过诊断工具来调配备件的存储量。

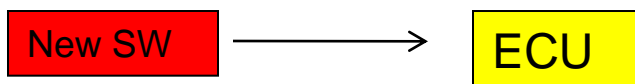
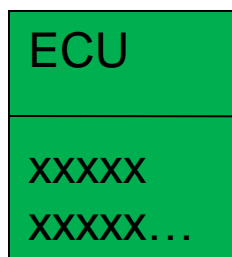
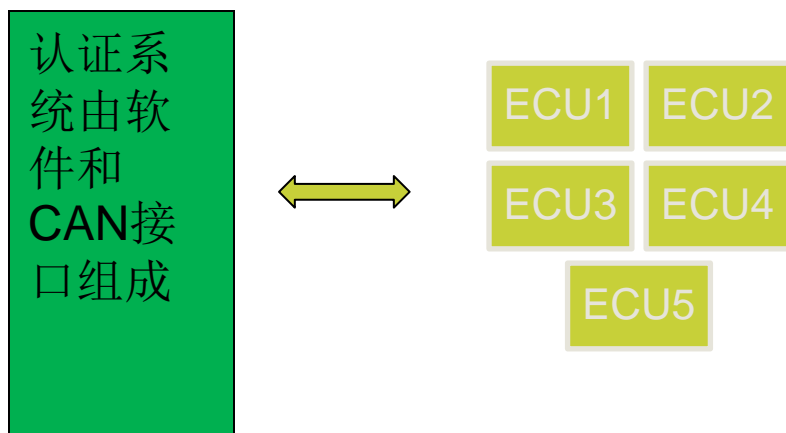




# Kvaser product advantages 产品优势



# Tool suite



What the end customer will get is a complete and integrated tool suite. 客户所需的是一整套包括软件硬件的工具链

- Development tools 开发工具
- Verification tools 验证工具
- Diagnosis tools 诊断工具
- Software download 软件下载
- Production tools 生产线工具
- Aftermarket tools 售后服务工具

