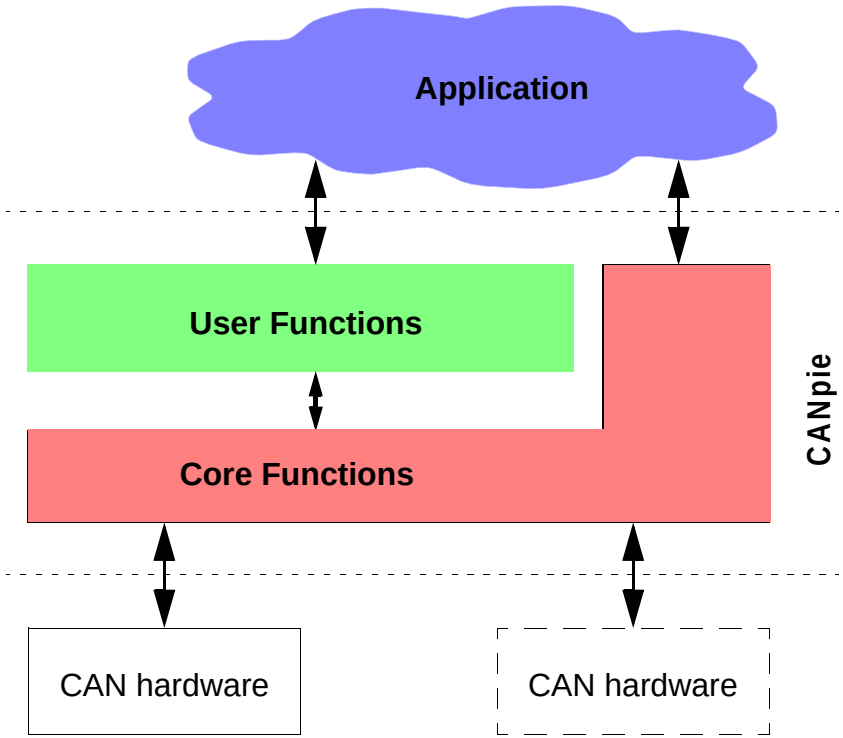
Controller Area Network
Programming Interface Environment

- Universal API for CAN
- Independent from hardware and operating system
- Supports Embedded- and PC-Applications
- Two layer structure (user / core functions) for efficient implementation
- Free source code (GNU public license)



API-Overview: User-Functions

Function	*Description*
CpUserAppInit()	Initialization routine which is called by the application
CpUserAppDeInit()	De-Initialization rountine which is called by the application
CpUserBaudrate()	Set the baudrate of a CAN controller via a constant value (pre-defined baudrates)
CpUserFifoClear()	Clear the contents of a FIFO buffer (Receive or Transmit)
CpUserFilterAll()	Enable or disable the reception of all standard frame CAN messages
CpUserFilterMsg()	Enable or disable the reception of a single CAN message (standard frame ID)
CpUserIntFunctions()	Install callback functions for different CAN controller interrupts
CpUserMsgRead()	Read a CAN message from the Receive FIFO buffer
CpUserMsgWrite()	Write a CAN message to the Transmit FIFO buffer

API-Overview: Core-Functions

Function	*Description*
CpCoreAllocBuffer()	Allocate a message buffer in a FullCAN controller
CpCoreBaudrate()	Set the baudrate of the CAN controller via the bit timing registers
CpCoreCANMode()	Set the mode of CAN controller
CpCoreCANState()	Retrieve the mode of CAN controller
CpCoreDeAllocBuffer()	Deallocate a messge buffer in a FullCAN controller
CpCoreDeInitDriver()	De-Initialize the CAN driver
CpCoreFilterAll()	Hardware filter function (all messages)
CpCoreFilterMsg()	Hardware filter function
CpCoreHDI()	Read the Hardware Description Informa-tion (HDI structure)
CpCoreInitDriver()	Initialize the CAN driver (enable interrupt, set CAN register,...)
CpCoreIntHandler()	Checks the interrupt requests of the CAN controller
CpCoreMsgReceive()	Get a received message out of the CAN controller and put it into the Read FIFO
CpCoreMsgTransmit()	Get a message from the Write FIFO and put it into the CAN controller (transmit)
CpCoreRegRead()	Read the contents of a CAN controller register
CpCoreRegWrite()	Write to the register of a CAN controller

API-Overview: CAN message structure

Structure member	Description
v_MsgId	Identifier field for standard / extendend frame (32-bit value)
v_MsgFlags	data length code, message buffer (FullCAN) and 16-bit user data
v_MsgData	Array for 8 bytes of CAN data
v_MsgTime	Optional field that stores a timestamp with 1µs resolution (32-bit value)
v_UserData	Optional field for user data

```
struct {
    _U32   v_MsgId;        /* Identifier        */
    _U32   v_MsgFlags;     /* Flags             */
    _U08   v_MsgData[8];   /* Data Fields       */
    _U32   v_MsgTime;      /* Time Stamp (opt.) */
    _U32   v_UserData;     /* User Data (opt.)  */
} CpStruct_CAN;
```

Message Distribution