

# CAN and FlexRay Frame Elements

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# Goal

- 1722-automotive to specify tunneling of CAN/FlexRay
  - Complete frames
  - Distinct from PDU / signal gateway
    - Feature of FIBEX, AUTOSAR, etc
- As a basis for work, next slides outline the frame elements available in MACs
  - Bosch, Freescale, NXP, etc

# CAN Frame Elements

Name	Num Bits	Description
Identifier	29	Arbitration ID; actual size defined by ExtendedId
ExtendedId	1	0=standard (Identifier is 11 bits); 1=extended (Identifier is 29 bits)
Remote	1	0=data frame (RTR 0); 1=remote frame (RTR 1)
PayloadLength	4	Range 0-8; When Remote=1 this is requested payload
Payload	0-64	When Remote=0, this is PayloadLength bytes; When Remote=1, this is 0 bytes

# FlexRay Frame Elements (v2 and v3)

Name	Num Bits	Description
CycleCount	6	For v2, always 0-63; For v3, upper limit can be odd number $\leq 63$
Identifier	11	Also known as Slot Counter
ChannelA	1	On channel A?
ChannelB	1	On channel B?
Startup	1	Is this a startup frame?
Sync	1	Is this a sync frame?
PayloadPreamble	1	Payload Preamble indicator
Null	1	Is this a null frame?
PayloadLength	8	Range 0-254 (in bytes, not words)
Payload	0-2032	When Null=0, this is PayloadLength bytes; When Null=1, this is 0 bytes

# Questions

- Support LIN?
- Support TTCAN (ISO 11898-4)?
- Support CAN FD (Bosch white paper)?
- Include “sample time” of the frame?
  - For CAN, some MACs provide this using MAC’s timer
  - For FlexRay, this is Macrotick (range 0-16000)
- Include CAN sleep/wakeup (PHY signals)?
- Include FlexRay symbols?