
**Road vehicles — Clock extension
peripheral interface (CXPI) —**

**Part 2:
Application layer**

*Véhicules routiers — Interface du périphérique d'extension d'horloge
(CXPI) —*

Partie 2: Couche Application

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Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	3
4.1 Symbols	3
4.2 Abbreviated terms	3
5 Conventions	4
6 Introduction to application and application layer	4
6.1 Application properties	4
6.2 Application layer properties	4
6.3 Message transmission	4
6.4 Communication methods	4
6.5 Message types	5
6.6 Error handling	5
7 Service interface parameters (SIP)	5
7.1 SIP — General	5
7.2 SIP — Data type definitions	5
7.3 SIP — Mtype, message type	6
7.4 SIP — ReqId, request identifier	6
7.5 SIP — ReqTypeId, request type identifier	6
7.6 SIP — PDU, protocol data unit	6
7.7 SIP — Length, length of PDU	6
7.8 SIP — ev_wakeup_ind, event wake-up indication (optional)	6
7.9 SIP — cmd_wakeup_req, command wake-up request	7
7.10 SIP — NMInfo, network management information	7
7.11 SIP — SCT, sequence count	8
7.12 SIP — Result, result	8
8 SI — Service interface (SI) definition to application and lower OSI layers	8
8.1 SI — A_Data.req and A_Data.ind service interface	8
8.2 SI — A_Data.req and A_Data.ind service interface parameter mapping	9
9 Application (APP)	9
9.1 APP — Message exchange	9
9.2 APP — Communication methods	9
9.2.1 APP — General	9
9.2.2 APP — Event-triggered method	10
9.2.3 APP — Polling method	10
9.3 APP — Network management (NM)	11
9.3.1 APP — General	11
9.3.2 APP — Normal, standby, and sleep states	12
9.3.3 APP — Normal state	13
9.3.4 APP — Sleep state (optional)	14
9.3.5 APP — Standby state (optional)	14
9.3.6 APP — Wake-up/sleep function (optional)	14
9.3.7 APP — Wake-up/sleep sequence parameter	24
9.4 APP — Multi clock master sequence processing	24
9.5 APP — Measurement and/or control data	25
9.5.1 APP — Publisher and subscriber data	25
9.5.2 APP — Measurement and/or control data management	26
9.5.3 APP — Measurement and/or control data types	26

9.5.4	APP — Measurement and/or control data consistency.....	26
9.5.5	APP — Assignment of ReqId.....	27
9.5.6	APP — Priority of ReqId.....	27
9.6	APP — Error handling.....	28
9.6.1	APP — General.....	28
9.6.2	APP — CXPI network error.....	28
9.6.3	APP — Network management information.....	29
9.6.4	APP — SCT, sequence count (optional).....	30
9.6.5	APP — Sequence count (SCT) error (optional).....	31
9.6.6	APP — Transmission prohibition.....	31
9.6.7	APP — Retransmission.....	32
9.6.8	APP — Error notification on CXPI network (optional).....	32
10	Application layer (AL).....	33
10.1	AL — Message exchange.....	33
10.2	AL — Message structure.....	34
10.3	AL — Request protected type identifier field.....	35
10.4	AL — Request protected identifier field.....	35
10.4.1	AL — General.....	35
10.4.2	AL — Judgment of received message.....	35
10.5	AL — Response field (A_PDU).....	35
10.5.1	AL — General.....	35
10.5.2	AL — A_PDU.....	35
10.5.3	AL — Wake-up indication and request.....	36
10.6	AL — Error detection.....	36
	Bibliography.....	37

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Foreword

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This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 20794 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

ISO 20794 (all parts) specifies the application (partly), application layer, transport layer, network layer, data link layer, and physical layer requirements of an in-vehicle network called "clock extension peripheral interface (CXPI)".

CXPI is an automotive low-speed single-wire network. It is an enabler for reducing vehicle weight and fuel consumption by reducing wire counts to simple devices like switches and sensors.

CXPI serves as and is designed for automotive control applications, for example door control group, light switch, and HVAC (Heating Ventilation and Air Conditioning) systems.

The CXPI services, protocols, and their key characteristics are specified in different parts according to the OSI layers.

- Application and application layer:
 - application measurement and control data communication to exchange information between applications in different nodes based on message communication;
 - wake-up and sleep functionality;
 - two kinds of communication methods can be selected at system design by each node:
 - i) the event-triggered method, which supports application measurement- and control-based (event-driven) slave node communication, and
 - ii) the polling method, which supports slave node communication based on a periodic master schedule;
 - performs error detection and reports the result to the application;
 - application error management.
- Transport layer and network layer: [ISO 20794-2:2020](https://standards.iteh.ai/catalog/standards/iso/a3278bf9-f044-4c4b-9ed6-5ce27dcdfdd/iso-20794-2-2020)
 - transforms a message into a single packet;
 - adds protocol control information for diagnostic and node configuration into each packet;
 - adds packet identifier for diagnostic and node configuration into each packet;
 - performs error detection and reports the result to higher OSI layers.
- Data link layer and physical layer:
 - provides long and short data frames;
 - adds a frame identifier into the frame;
 - adds frame information into the frame;
 - adds a cyclic redundancy check into the frame;
 - performs byte-wise arbitration and reports the arbitration result to higher OSI layers;
 - performs frame type detection in reception function;
 - performs error detection and reports the result to higher OSI layers;
 - performs Carrier Sense Multiple Access (CSMA);
 - performs Collision Resolution (CR);