



# Smart Car Access

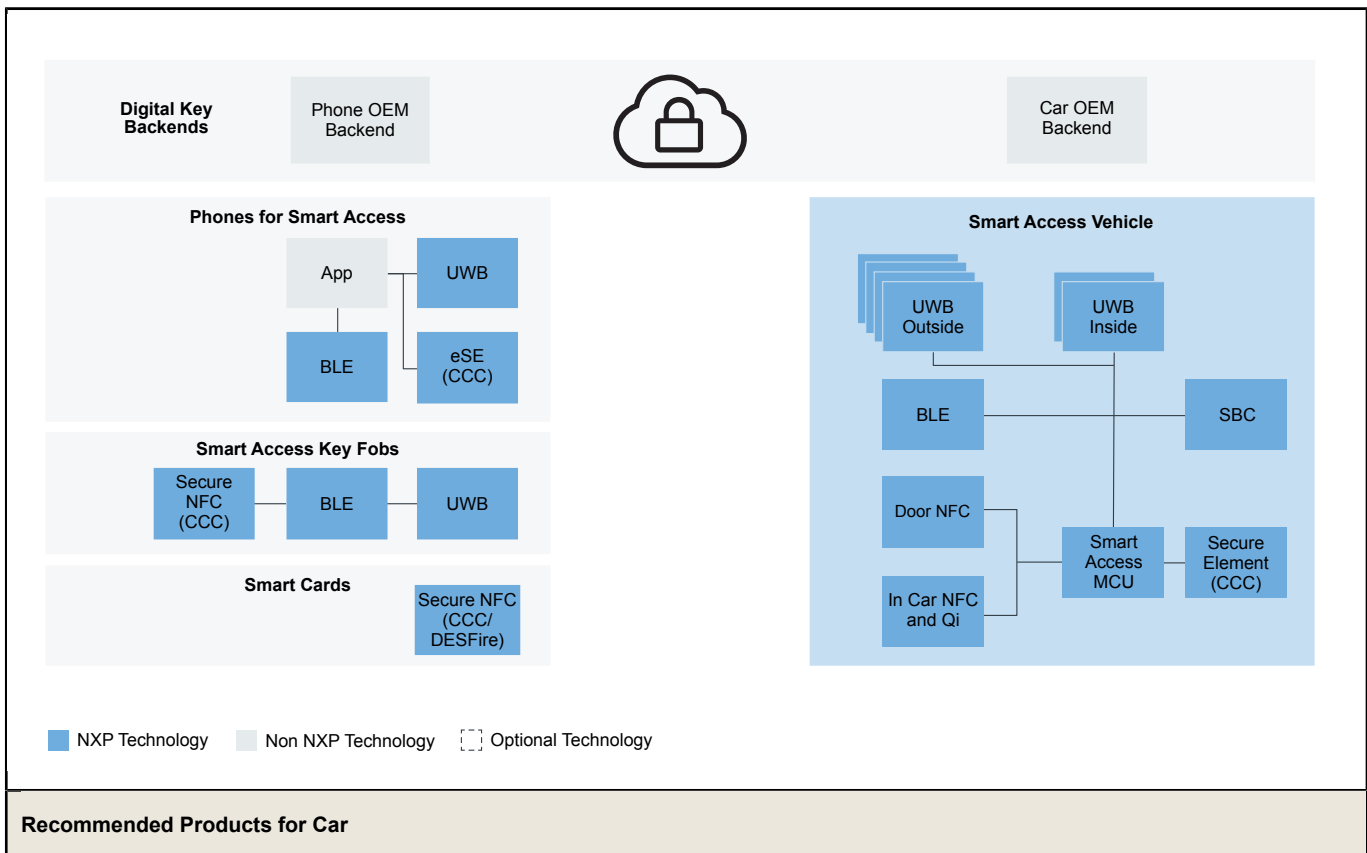
Last Updated: Aug 21, 2023

NXP provides the technologies and system knowledge to enable secure, robust and scalable car access solutions.

NXP offers a Digital Key solution using our Secure Elements (SE) in combination with communication technologies including ultra-wideband (UWB), Bluetooth® Low Energy (Bluetooth LE) and near field communication (NFC). They help enable the unlocking and starting of a car with a smartphone, key fob or an NFC Smart Card holding a digital key, as well as the secure sharing of vehicle access with other mobile devices, an advanced capability for the secure car access ecosystem.

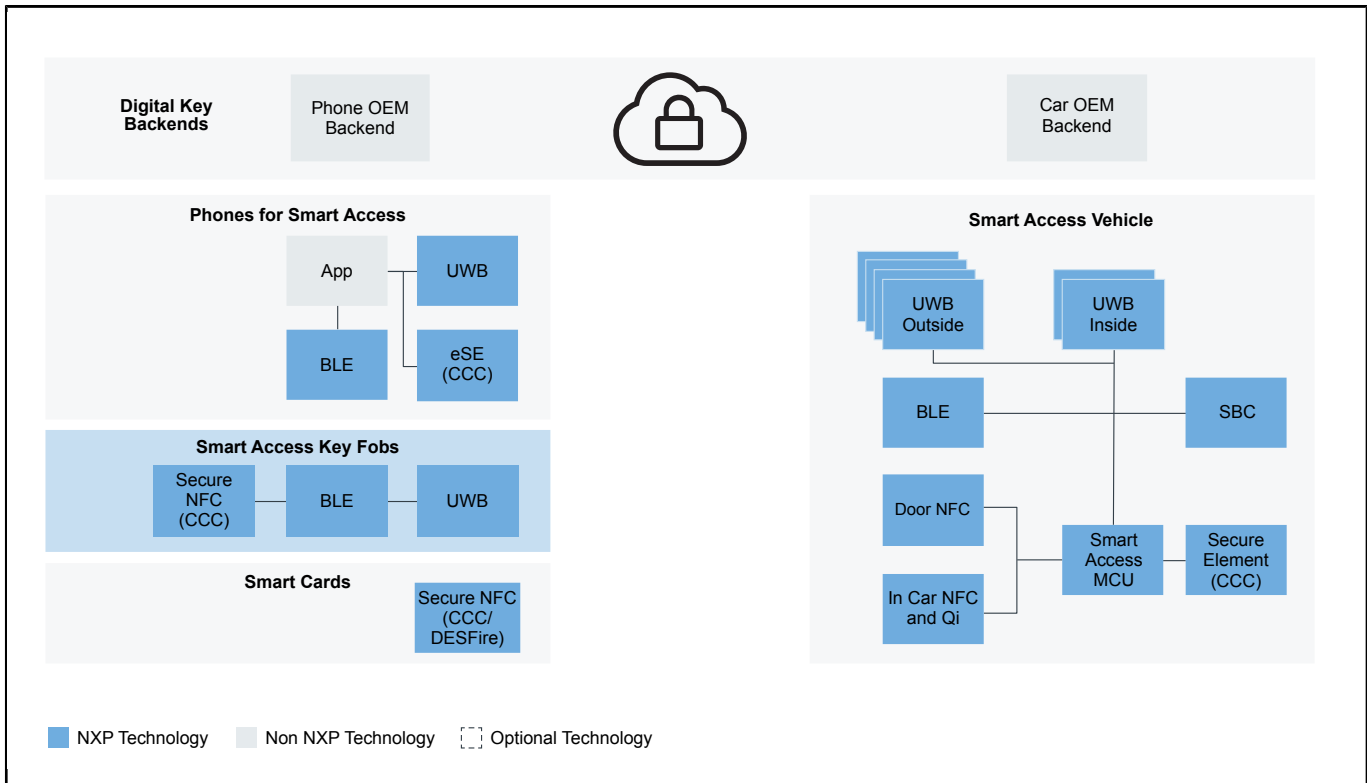
The solution leverages global standards from the Car Connectivity Consortium, IEEE, the Bluetooth SIG and the NFC Forum.

## Car Block Diagram



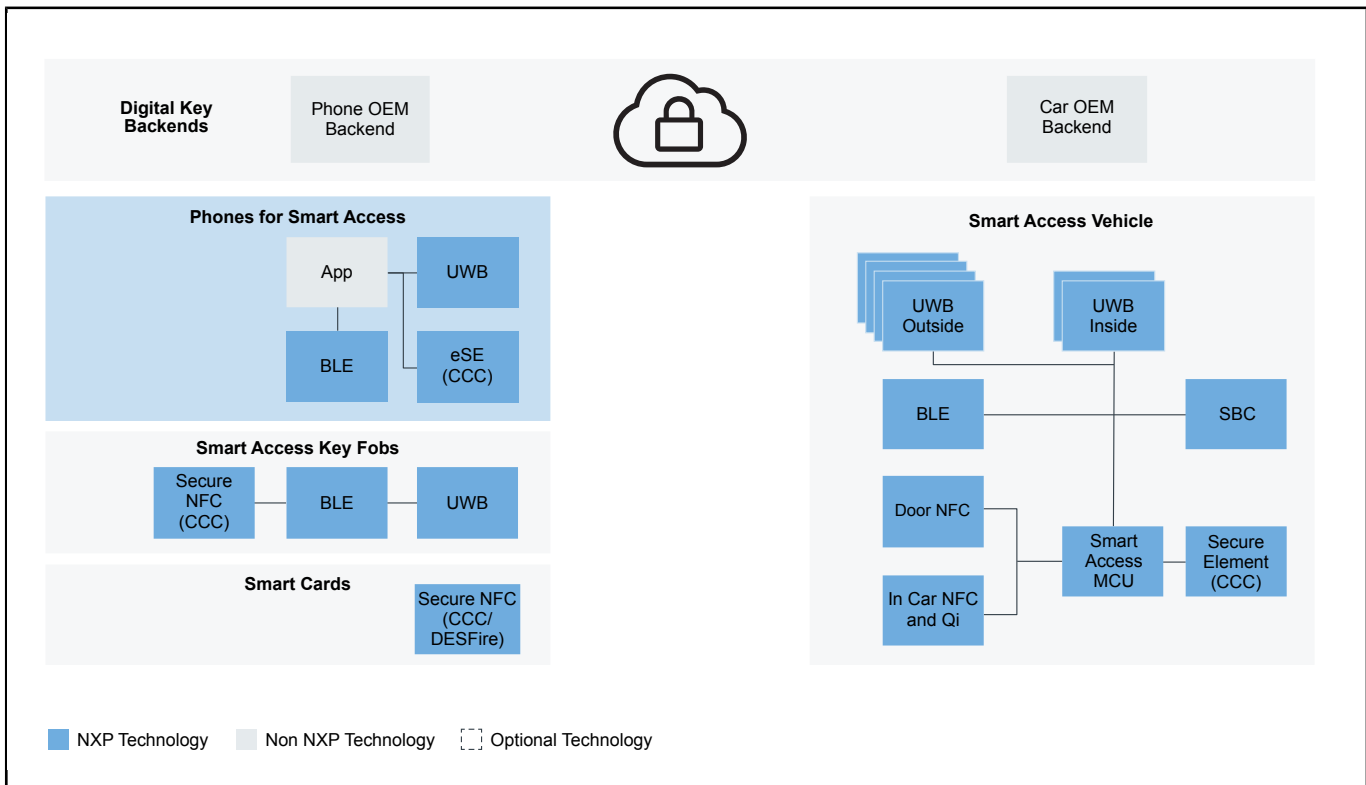
UWB	<ul style="list-style-type: none"> <li>• <b>Ultra-Wideband (UWB):</b> Ultra wideband (UWB)</li> <li>• <b>NCJ29D5:</b> Trimention™ NCJ29D5: UWB IC for Automotive Applications</li> <li>• <b>NCJ29D6:</b> Trimention™ NCJ29D6: Secure UWB IC for Automotive Ranging and Radar Applications</li> </ul>
UWB	<ul style="list-style-type: none"> <li>• <b>Ultra-Wideband (UWB):</b> Ultra wideband (UWB)</li> <li>• <b>NCJ29D6:</b> Trimention™ NCJ29D6: Secure UWB IC for Automotive Ranging and Radar Applications</li> <li>• <b>NCJ29D5:</b> Trimention™ NCJ29D5: UWB IC for Automotive Applications</li> </ul>
Bluetooth Low Energy	<ul style="list-style-type: none"> <li>• <b>KW45:</b> KW45: 32-Bit Bluetooth® 5.3 Long-Range MCUs with CAN FD and LIN Bus Options, Arm® Cortex®-M33 Core</li> </ul>
Door NFC	<ul style="list-style-type: none"> <li>• <b>NCx3320:</b> Automotive-Grade NFC Frontend IC</li> <li>• <b>NCx3321:</b> NFC Forum-Compliant Frontend IC with Superior RF Performance for Automotive</li> </ul>
In Car NFC and Qi Wireless Charging	<ul style="list-style-type: none"> <li>• <b>NCF3340AHN:</b> Automotive Qualified NFC Controller with NCI Interface</li> <li>• <b>NCx3321:</b> NFC Forum-Compliant Frontend IC with Superior RF Performance for Automotive</li> <li>• <b>MWCT2xxxS:</b> MWCT2xxxS Microcontroller for Wireless charging Transmitter ICs</li> </ul>
MCU	<ul style="list-style-type: none"> <li>• <b>Arm Processors:</b> Arm®-Based Processors</li> </ul>
Secure Element (CCC) for Smart Access Vehicle	<ul style="list-style-type: none"> <li>• <b>NCJ38A:</b> Automotive-Qualified Embedded Secure Element (SE)</li> <li>• <b>NCJ37x:</b> Automotive Secure Element with Passive NFC, I<sup>2</sup>C and SPI Interfaces</li> </ul>
SBC	<ul style="list-style-type: none"> <li>• <b>FS24:</b> Safety Mini CAN FD SBC for Automotive Applications Fit for ASIL-B</li> </ul>

## KeyFob Block Diagram



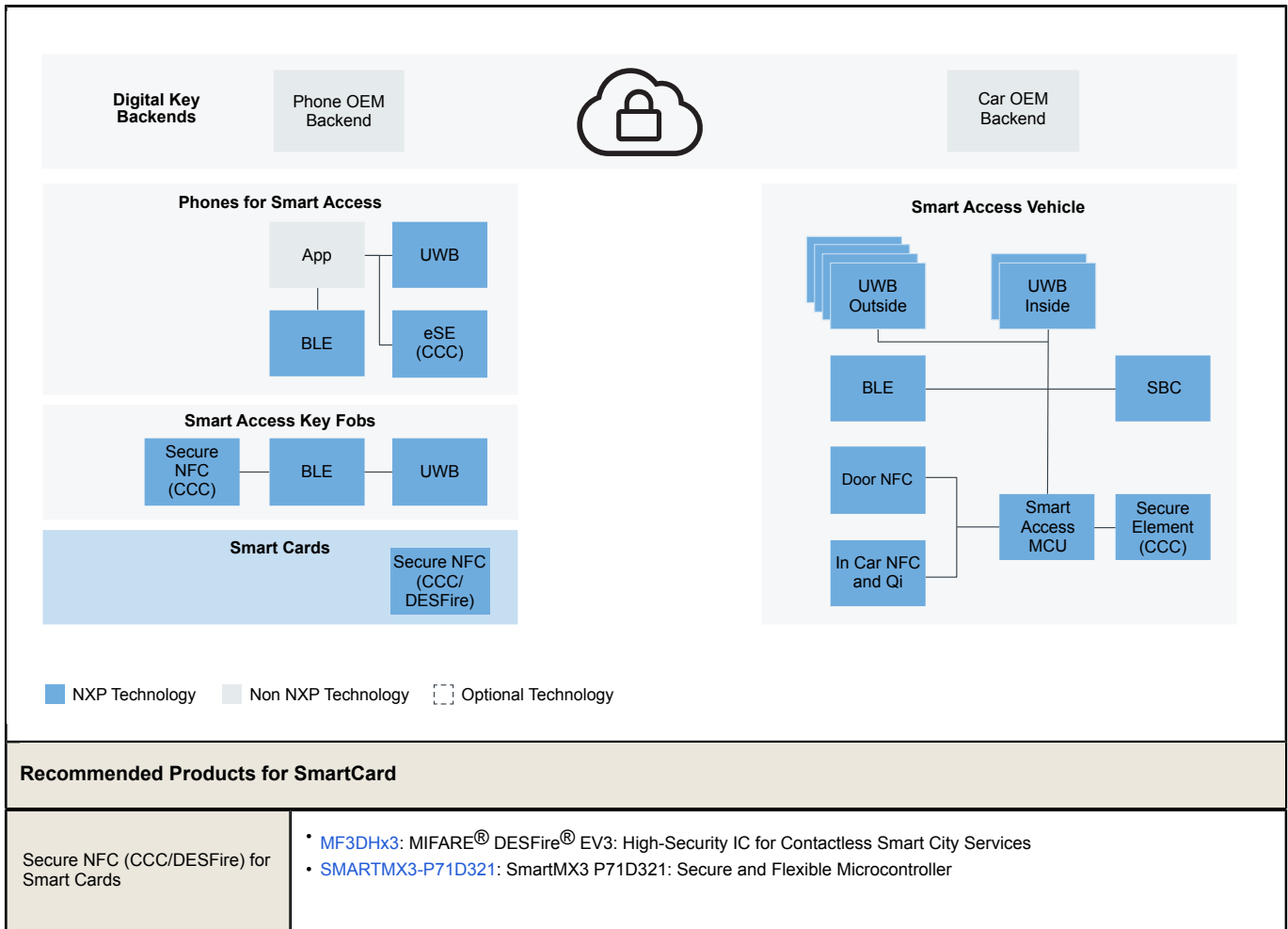
Recommended Products for KeyFob	
Secure NFC (CCC) for Key Fobs	<ul style="list-style-type: none"> <li>• <a href="#">Secure Car Access</a>: Secure Car Access</li> <li>• <a href="#">NCJ37x</a>: Automotive Secure Element with Passive NFC, I<sup>2</sup>C and SPI Interfaces</li> </ul>
Bluetooth Low Energy	<ul style="list-style-type: none"> <li>• <a href="#">KW45</a>: KW45: 32-Bit Bluetooth<sup>®</sup> 5.3 Long-Range MCUs with CAN FD and LIN Bus Options, Arm<sup>®</sup> Cortex<sup>®</sup>-M33 Core</li> </ul>
UWB KeyFob	<ul style="list-style-type: none"> <li>• <a href="#">Ultra-Wideband (UWB)</a>: Ultra wideband (UWB)</li> <li>• <a href="#">NCJ29D5</a>: Trimention<sup>™</sup> NCJ29D5: UWB IC for Automotive Applications</li> </ul>

## Phone Block Diagram



Recommended Products for Phone	
UWB KeyFob	<ul style="list-style-type: none"> <li>• <a href="#">Ultra-Wideband (UWB)</a>: Ultra wideband (UWB)</li> <li>• <a href="#">NCJ29D5</a>: Trimention<sup>™</sup> NCJ29D5: UWB IC for Automotive Applications</li> </ul>
eSE (CCC) and NFC for Phones	<ul style="list-style-type: none"> <li>• <a href="#">Mobile</a>: Mobile</li> </ul>
Bluetooth Low Energy	<ul style="list-style-type: none"> <li>• <a href="#">KW45</a>: KW45: 32-Bit Bluetooth<sup>®</sup> 5.3 Long-Range MCUs with CAN FD and LIN Bus Options, Arm<sup>®</sup> Cortex<sup>®</sup>-M33 Core</li> </ul>

## SmartCard Block Diagram



View our complete solution for [Smart Car Access](#).

**Note:** The information on this document is subject to change without notice.

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