



eCockpit

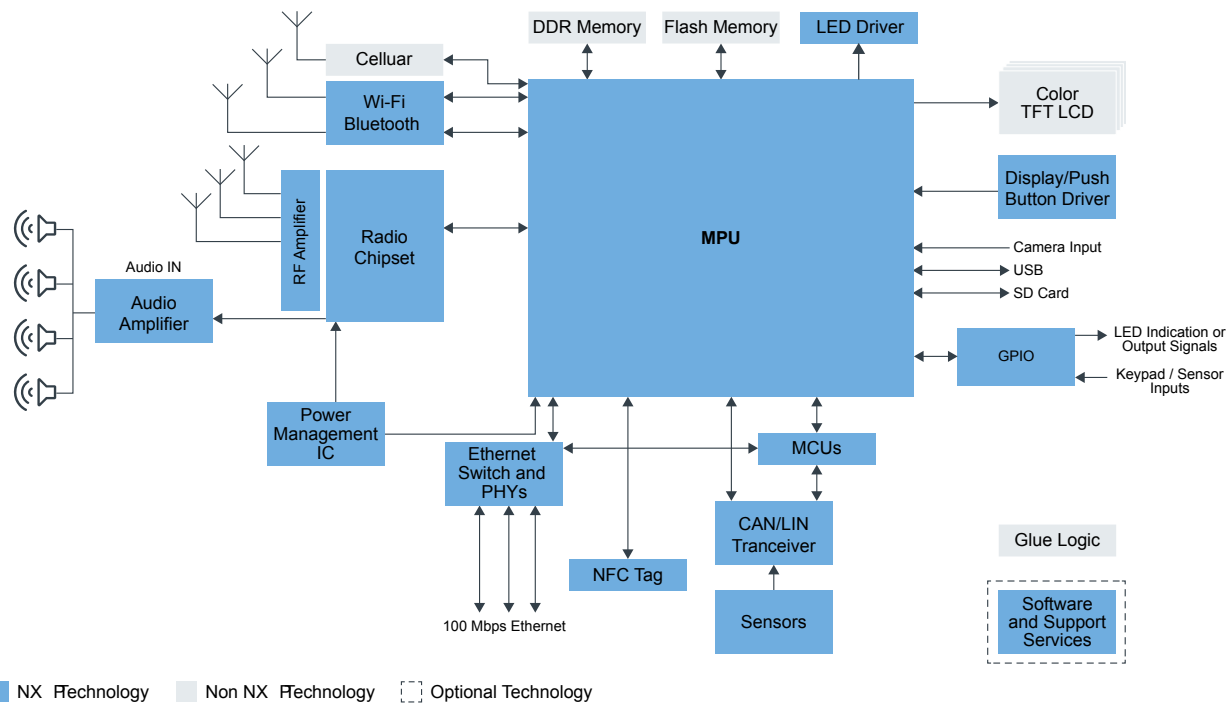
Last Updated: Jan 9, 2025

In recent years, we have seen the complexity of infotainment systems increasing every day.

The amount of information to process and represent in a useful way is increasing, requiring powerful and flexible hardware solutions with high-performance graphics capabilities and a large range of interfaces.

NXP offers dedicated automotive applications processors along with Software Defined Radio (SDR) and audio amplifier solutions to satisfy all OEM requirements and specifications. NXP's extensive selection of automotive discrete and networking products, improved radio performance and advanced audio algorithms power a full infotainment system solution.

eCockpit Block Diagram



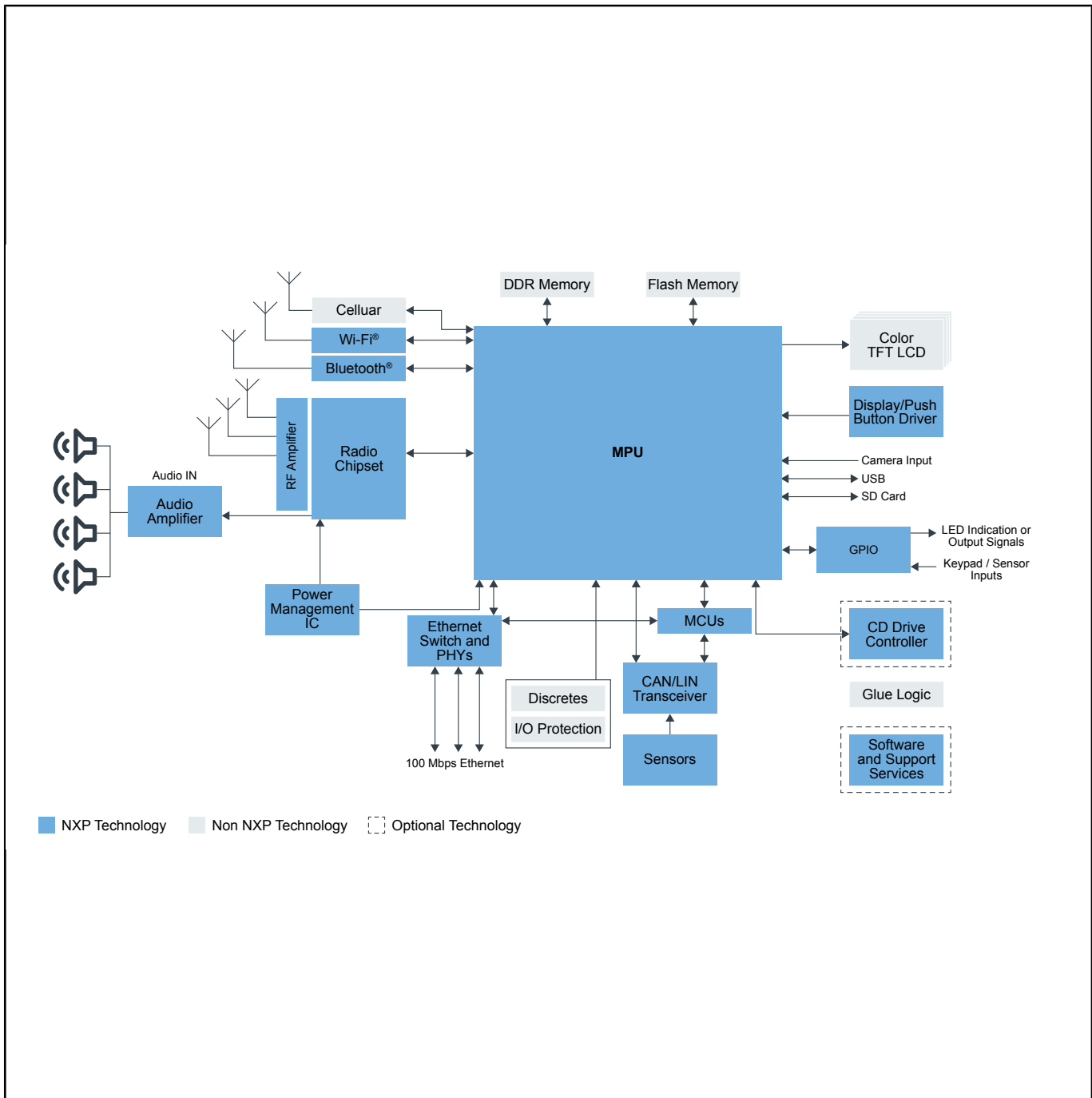
Recommended Products for eCockpit

| | |
|---------------|---|
| MPU | <ul style="list-style-type: none"> • i.MX8: i.MX 8 Family – Arm® Cortex®-A53, Cortex-A72, Virtualization, Vision, 3D Graphics, 4K Video • i.MX8X: i.MX 8X Family – Arm® Cortex®-A35, 3D Graphics, 4K Video, DSP, Error Correcting Code on DDR |
| Radio Chipset | <ul style="list-style-type: none"> • TDF8541: I²C-Bus Controlled 4 x 45 W Power Amplifier • SAF4000: Multi-Standard Software Defined Radio Processor With Integrated Audio • SAF9000: One-Chip Solution for Radio and Audio Processing |
| RF Amplifier | <ul style="list-style-type: none"> • TLH501x: ALNA – Low Noise Active Antenna Amplifier |

| | |
|----------------------------|---|
| Wi-Fi / Bluetooth | <ul style="list-style-type: none"> • 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution |
| Microcontrollers (MCUs) | <ul style="list-style-type: none"> • MPC5xxx Microcontrollers: MPC5xxx Microcontrollers |
| Radio Chipset | <ul style="list-style-type: none"> • TDF8541: I²C-Bus Controlled 4 x 45 W Power Amplifier • SAF4000: Multi-Standard Software Defined Radio Processor With Integrated Audio • SAF9000: One-Chip Solution for Radio and Audio Processing |
| Audio Amplifier | <ul style="list-style-type: none"> • Car Audio Amplifiers: Car Audio Amplifiers |
| Display/Push Button Driver | <ul style="list-style-type: none"> • Automotive Lighting LED Driver ICs: Automotive Lighting - LED Driver ICs |
| CD Drive Controller | <ul style="list-style-type: none"> • Audio Converters: Audio Converters |
| CAN/LIN Transceiver | <ul style="list-style-type: none"> • TJA1128: LIN Mini System Basis Chip • TJA144x: Automotive CAN FD Transceiver Family • TJA1462: CAN Signal Improvement Capability Transceiver with Standby Mode • TJA1463: CAN Signal Improvement Capability Transceiver with Sleep Mode • Automotive LIN Solutions: Automotive LIN Solutions |
| Power Management IC | <ul style="list-style-type: none"> • FS5600: Automotive Dual Buck Regulator and Controller with Voltage Monitors and Watchdog Timer • PF8101-PF8201: 9-Channel Power Management Integrated Circuit (PMIC) for High-Performance Processing Applications • PF81-PF82: 12-Channel Power Management Integrated Circuit (PMIC) for High-Performance Processing Applications • PF7100: 7-Channel Power Management Integrated Circuit for High Performance Applications, Fit for ASIL B Safety Level • VR5500: High Voltage PMIC with Multiple SMPS • VR5510: Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level • MMPF0100: 14-Channel Configurable PMIC • PF5020: Multi-Channel (5) PMIC for Automotive Applications – 4 High Power and 1 Low Power, Fit for ASIL B Safety Level • PF5024: Multi-Channel (4) PMIC for Automotive Applications – 4 High Power, Fit for ASIL B Safety Level |
| Sensors | <ul style="list-style-type: none"> • Sensors: Sensors |
| Wi-Fi / Bluetooth | <ul style="list-style-type: none"> • 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution |
| Software | <ul style="list-style-type: none"> • i.MX Software: i.MX Software and Development Tools • Professional Support for Processors and Microcontrollers • NXP Engineering Services: NXP Engineering Services |
| Ethernet Switch and PHYs | <ul style="list-style-type: none"> • TJA1120: TJA1120, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • SJA1110: Multi-Gig Safe and Secure TSN Ethernet Switch with Integrated 100BASE-T1 PHYs • SJA1105PQRS: SJA1105PEL/QEL/REL/SEL Series Ethernet Switches • TJA1104: TJA1104, MACsec Enabled ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • TJA1103: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • TJA1101: TJA1101B, IEEE 100BASE-T1 Compliant Automotive Ethernet PHY Transceiver |
| NFC Tag | <ul style="list-style-type: none"> • NCx3310: NFC Forum-Compliant Tag IC with I²C for Automotive |
| GPIO | <ul style="list-style-type: none"> • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features |

| | |
|------------|---|
| | <ul style="list-style-type: none"> • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features |
| LED Driver | <ul style="list-style-type: none"> • PCA9958HN: PCA9958 24-Bit 63 mA Current LED Driver with SPI |

Head unit Block Diagram



Recommended Products for Head unit

| | |
|-------------------|---|
| NFC | <ul style="list-style-type: none"> • NCx3310: NFC Forum-Compliant Tag IC with I²C for Automotive |
| Wi-Fi / Bluetooth | <ul style="list-style-type: none"> • 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution |

| | |
|----------------------------|---|
| RF Amplifier | <ul style="list-style-type: none"> • TLH501x: ALNA – Low Noise Active Antenna Amplifier |
| MPU | <ul style="list-style-type: none"> • i.MX6D: i.MX 6Dual Processors - Dual-Core, 3D Graphics, HD Video, Multimedia, Arm® Cortex®-A9 Core • i.MX8: i.MX 8 Family – Arm® Cortex®-A53, Cortex-A72, Virtualization, Vision, 3D Graphics, 4K Video • i.MX8X: i.MX 8X Family – Arm® Cortex®-A35, 3D Graphics, 4K Video, DSP, Error Correcting Code on DDR |
| Radio Chipset | <ul style="list-style-type: none"> • SAF4000: Multi-Standard Software Defined Radio Processor With Integrated Audio |
| Audio Amplifier | <ul style="list-style-type: none"> • Car Audio Amplifiers: Car Audio Amplifiers |
| Display/Push Button Driver | <ul style="list-style-type: none"> • Automotive Lighting LED Driver ICs: Automotive Lighting - LED Driver ICs |
| CD Drive Controller | <ul style="list-style-type: none"> • Audio Converters: Audio Converters |
| CAN Transceiver | <ul style="list-style-type: none"> • TJA144x: Automotive CAN FD Transceiver Family • TJA1043: High-Speed CAN Transceiver with Standby and Sleep Mode • Automotive LIN Solutions: Automotive LIN Solutions |
| Power Management IC | <ul style="list-style-type: none"> • FS5600: Automotive Dual Buck Regulator and Controller with Voltage Monitors and Watchdog Timer • PF81-PF82: 12-Channel Power Management Integrated Circuit (PMIC) for High-Performance Processing Applications • PF8101-PF8201: 9-Channel Power Management Integrated Circuit (PMIC) for High-Performance Processing Applications • PF7100: 7-Channel Power Management Integrated Circuit for High Performance Applications, Fit for ASIL B Safety Level • VR5500: High Voltage PMIC with Multiple SMPS • VR5510: Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level • MMPF0100: 14-Channel Configurable PMIC • PF5020: Multi-Channel (5) PMIC for Automotive Applications – 4 High Power and 1 Low Power, Fit for ASIL B Safety Level • PF5024: Multi-Channel (4) PMIC for Automotive Applications – 4 High Power, Fit for ASIL B Safety Level |
| Sensors | <ul style="list-style-type: none"> • Sensors: Sensors |
| Wi-Fi / Bluetooth | <ul style="list-style-type: none"> • 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution |
| Software | <ul style="list-style-type: none"> • i.MX Software: i.MX Software and Development Tools • Professional Support for Processors and Microcontrollers • NXP Engineering Services: NXP Engineering Services |
| Ethernet Switch and PHYs | <ul style="list-style-type: none"> • TJA1120: TJA1120, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • SJA1110: Multi-Gig Safe and Secure TSN Ethernet Switch with Integrated 100BASE-T1 PHYs • SJA1105PQRS: SJA1105PEL/QEL/REL/SEL Series Ethernet Switches • TJA1104: TJA1104, MACsec Enabled ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • TJA1103: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • TJA1101: TJA1101B, IEEE 100BASE-T1 Compliant Automotive Ethernet PHY Transceiver |
| Microcontrollers (MCUs) | <ul style="list-style-type: none"> • MPC5xxx Microcontrollers: MPC5xxx Microcontrollers |
| GPIO | <ul style="list-style-type: none"> • PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features • PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features |

View our complete solution for [eCockpit](#).

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

www.nxp.com

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2025 NXP B.V.