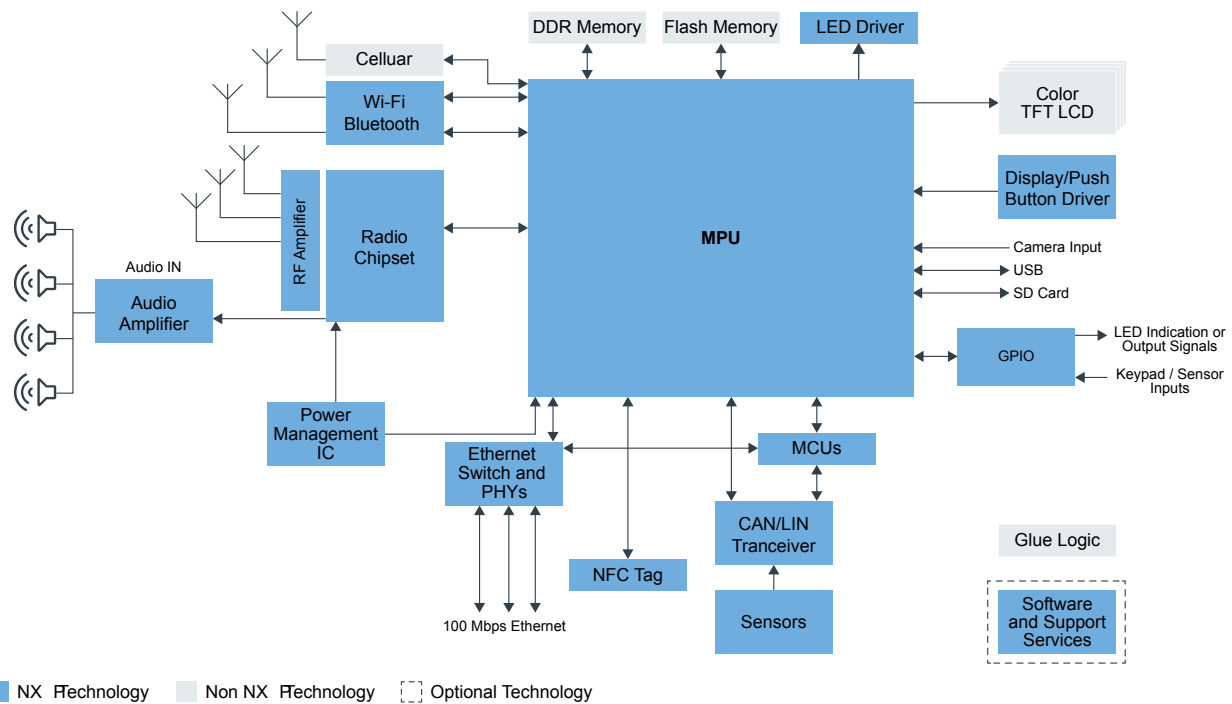# eCockpit

Last Updated: Feb 26, 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

NX Technology   Non NX Technology   Optional Technology

Recommended Products for eCockpit

MPU	• 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	• TDF8541: I^{2}C-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	• TLH501x: ALNA – Low Noise Active Antenna Amplifier

Wi-Fi / Bluetooth	• 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution
Microcontrollers (MCUs)	• MPC5xxx Microcontrollers: MPC5xxx Microcontrollers
Radio Chipset	• TDF8541: I^{2}C-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	• Car Audio Amplifiers: Car Audio Amplifiers
Display/Push Button Driver	• Automotive Lighting LED Driver ICs: Automotive Lighting - LED Driver ICs
CD Drive Controller	• Audio Converters: Audio Converters
CAN/LIN Transceiver	• 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	• 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	• Sensors: Sensors
Wi-Fi / Bluetooth	• 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution
Software	• 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	• TJA1120: TJA1120, ASIL B Compliant Automotive Ethernet 1000BASE-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	• NCx3310: NFC Forum-Compliant Tag IC with I^{2}C for Automotive
GPIO	• PCAL9722: 22-Bit SPI I/O Expander with Agile I/O Features

	• PCAL9714: 14-Bit SPI I/O Expander with Agile I/O Features
LED Driver	• PCA9958HN: PCA9958 24-Bit 63 mA Current LED Driver with SPI

Head unit Block Diagram
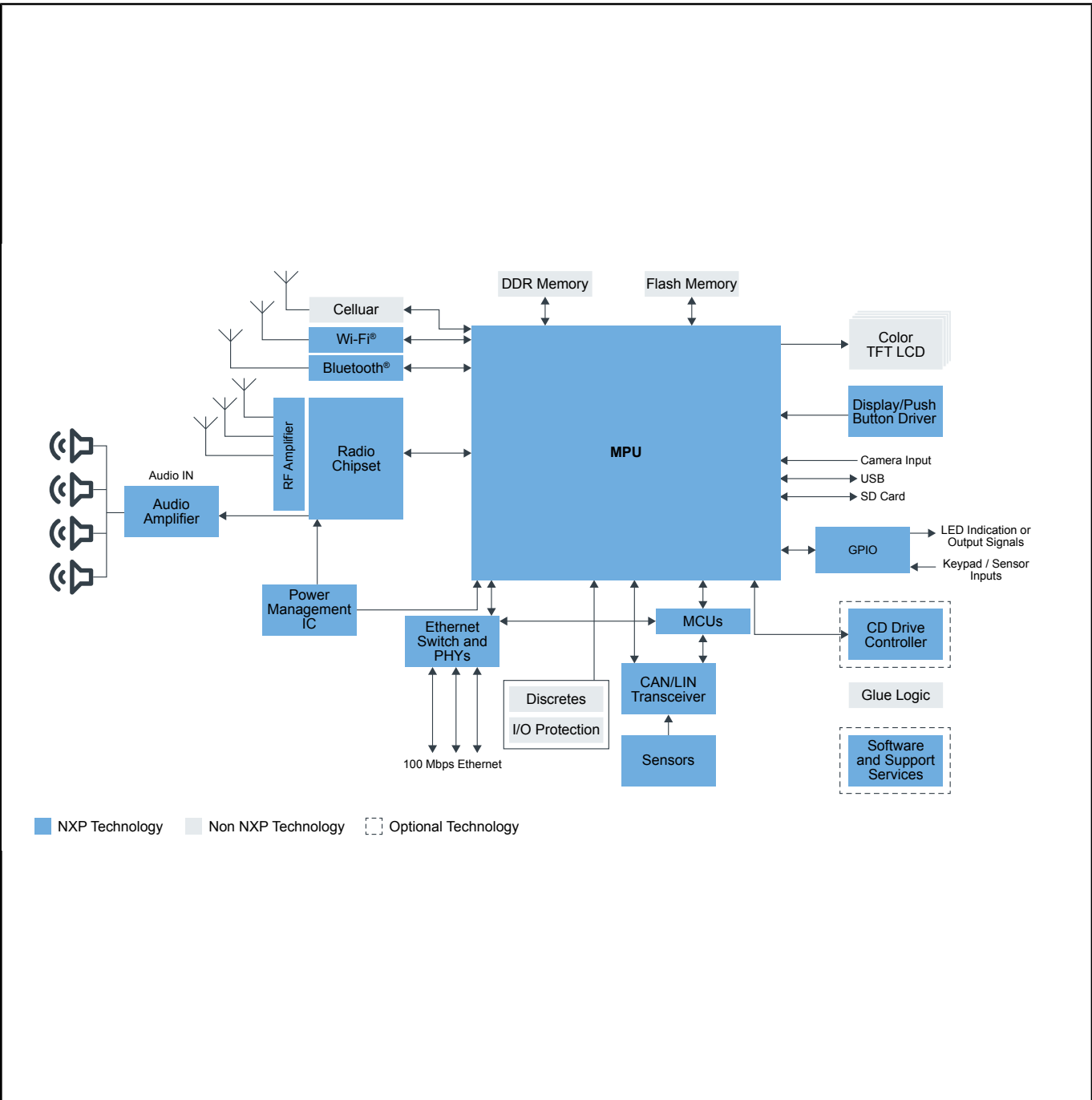
Recommended Products for Head unit	
NFC	• NCx3310: NFC Forum-Compliant Tag IC with I^2C for Automotive
Wi-Fi / Bluetooth	• 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi® 6 (802.11ax) + Bluetooth® 5.3 Automotive Solution

RF Amplifier	• TLH501x: ALNA – Low Noise Active Antenna Amplifier
MPU	• 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	• SAF4000: Multi-Standard Software Defined Radio Processor With Integrated Audio
Audio Amplifier	• Car Audio Amplifiers: Car Audio Amplifiers
Display/Push Button Driver	• Automotive Lighting LED Driver ICs: Automotive Lighting - LED Driver ICs
CD Drive Controller	• Audio Converters: Audio Converters
CAN Transceiver	• 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	• 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	• Sensors: Sensors
Wi-Fi / Bluetooth	• 88Q9098: 2.4/5 GHz Dual-Band 2x2 Wi-Fi$^®$ 6 (802.11ax) + Bluetooth$^®$ 5.3 Automotive Solution
Software	• 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	• TJA1120: TJA1120, ASIL B Compliant Automotive Ethernet 1000BASE-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)	• MPC5xxx Microcontrollers: MPC5xxx Microcontrollers
GPIO	• 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.

---

www.nxp.com