

Specification “MTK-28”

		v.1.0e
Automotive and Infotainment Applications Processor MIMX8QX6AVLFZAC		
	<ul style="list-style-type: none"> • 64-bit quad-core Arm® Cortex®-A35 NXP i.MX 8QuadXPlus <ul style="list-style-type: none"> – 4 x 1.2 GHz – 512 MB L2 cache • 32-bit Arm® Cortex®-M4F with FPU/MPU <ul style="list-style-type: none"> – up 266 MHz • GPU: OpenGL 3.0, 2.1; OpenGL ES 3.1, 3.0, 2.0, and 1.1; OpenCL 1.2 Full Profile and 1.1; OpenVG 1.1; Vulkan • VPU: <ul style="list-style-type: none"> – decode H.263/264/265, WMV9, MPEG1/2/4, Divx, VP6/8, ON2, AVS, RealVideo 8/9/10 ... – encode H.264 • DSP: <ul style="list-style-type: none"> – Tensilica HiFi 4 DSP for pre- and post-processing 	
Memory		
	<ul style="list-style-type: none"> • eMMC v5.1 NAND Flash – 32 Gb • microSD™ card – 32 Gb • Octal SPI NOR Flash – 256 Mb • RAM 32-bit LPDDR4 @1200 MHz – 3 Gb • FRAM – 64 Kbit * 	
Display (connection options for 2 independent panels)		
	<ul style="list-style-type: none"> • 2 x FPD-Link™ III interface (external LCD panels up to 10 meters) <ul style="list-style-type: none"> – 7.0'' 1024x600 900 cd/m2 AG audio capacitive touch screen – 10.1'' 1280x800 900 cd/m2 AG audio capacitive touch screen – 10.4'' 1024x768 900 cd/m2 AG audio capacitive touch screen* – 12.3'' 1920x720 900 cd/m2 AG audio – 28.9'' 1920x540 900 cd/m2 audio 	
Cameras*		
	<ul style="list-style-type: none"> • MIPI-CSI 4-lanes: <ul style="list-style-type: none"> – internal module for Four FPD-Link III camera hub with MIPI CSI-2 (future) 	
Interfaces		
	<ul style="list-style-type: none"> • 1-Gbit/s Ethernet (RGMII) compliant with IEEE-802.3ab (M12 connector) • Expansion M.2 connector (key E) <ul style="list-style-type: none"> – PCIe 3.0 (1-line) – USB – UART – I2C – I2S • USB 2.0 Host (Micro-AB connector) • USB 3.0 (Type C connector) • 3 x CAN FD • RS-485 half-duplex • RS-485 full-duplex <ul style="list-style-type: none"> – audio S/PDIF (input/output) • LIN 2.2 	
Inputs / Outputs		
	<ul style="list-style-type: none"> • 2 x inputs with wake-up function • 2 x output high side 3A 	
Communications		
	<ul style="list-style-type: none"> • internal ePCI Wi-Fi® 802.11b/g/n / Bluetooth® module (external antenna)* • external 3G/4G modem-router (Ethernet connection) • external 3G/4G USB модем 	

	Sensors	
		<ul style="list-style-type: none"> • module BeiDou/Galileo/GLONASS/GPS (external antenna) • MEMS <ul style="list-style-type: none"> – 3D accelerometer ($\pm 2/\pm 4/\pm 8$ g linear acceleration full scale) – 3D gyroscope ($\pm 245/\pm 500/\pm 1000/\pm 2000$ dps angular rate full scale) – 3D magnetometer (± 1200 μT) – Pressure Sensor with Altemetry – Ambient Light Sensor *
	Security	
		<ul style="list-style-type: none"> • Advanced High Assurance Boot (AHAB) secure & encrypted boot • Hardware acceleration <ul style="list-style-type: none"> – RNG with a high-quality entropy source generator and Hash_DRBG (hash functions) – RSA up to 4096, Elliptic Curve up to 1023 – AES-128/192/256, DES, 3DES, MD5, SHA-1, SHA-224/256/384/512 – Dedicated Security Controller for Flashless SHE and HSM support, Trustzone, RTIC – Built-in ECDSA/DSA protocol support • 64 kB Secure RAM (can be erased via tamper detection)
	Operation systems	
		<ul style="list-style-type: none"> • Arm® Cortex®-A35 <ul style="list-style-type: none"> – Linux / Android • Arm® Cortex®-M4F <ul style="list-style-type: none"> – realtime FreeRTOS / Keil RTX5
	Artificial Intelligence (AI)	
		<ul style="list-style-type: none"> • Possibility to connect a Coral AI module via PCIe (M.2), bringing the Edge TPU coprocessor to the system (4 TOPS)
	Debug	
		<ul style="list-style-type: none"> • JTAG • Serial to USB connector
	Operating conditions	
		<ul style="list-style-type: none"> • Powered by DC on-board network <ul style="list-style-type: none"> – 12V / 24V • Electrical disturbances from conduction and coupling <ul style="list-style-type: none"> – impact of test impulses 1, 2a, 3a/b, 4 in accordance with the requirements of ISO 7637 • Protection <ul style="list-style-type: none"> – IP40 (IP52) • Temperature <ul style="list-style-type: none"> – work -40 °C ... 55 °C – storage -45 °C ... 70 °C • Humidity <ul style="list-style-type: none"> – 5 % ... 93 % • Warranty period of operation: <ul style="list-style-type: none"> - 2 years
	Housing	
		<ul style="list-style-type: none"> • Dimensions (overall) <ul style="list-style-type: none"> – 220 mm(L) x 180 mm(W) x 45 mm(H) • Weight <ul style="list-style-type: none"> – 600 g • Installation <ul style="list-style-type: none"> – possibility of "hidden" installation in the control panel

(*) - options

