T113

S3

Smart Control and Display SoC

for Automotive and Industrial Products

Overview

T113-S3 is an advanced application processor designed for the automotive and industrial control markets. It integrates dual-core Cortex™-A7 CPU and single-core HiFi4 DSP to provide the high efficient computing power. T113-S3 supports full format decoding such as H.265, H.264, MPEG-1/2/4, JPEG, VC1, and so on. The independent hardware encoder can encode in JPEG or MJPEG. Integrated multi ADCs/DACs and I2S/PCM/DMIC/OWA audio interfaces can provide the perfect voice interaction solution. T113-S3 comes with extensive connectivity to facilitate product expansion, such as USB, SDIO, EMAC, TWI, UART, SPI, PWM, GPADC, IR TX&RX, and so on.

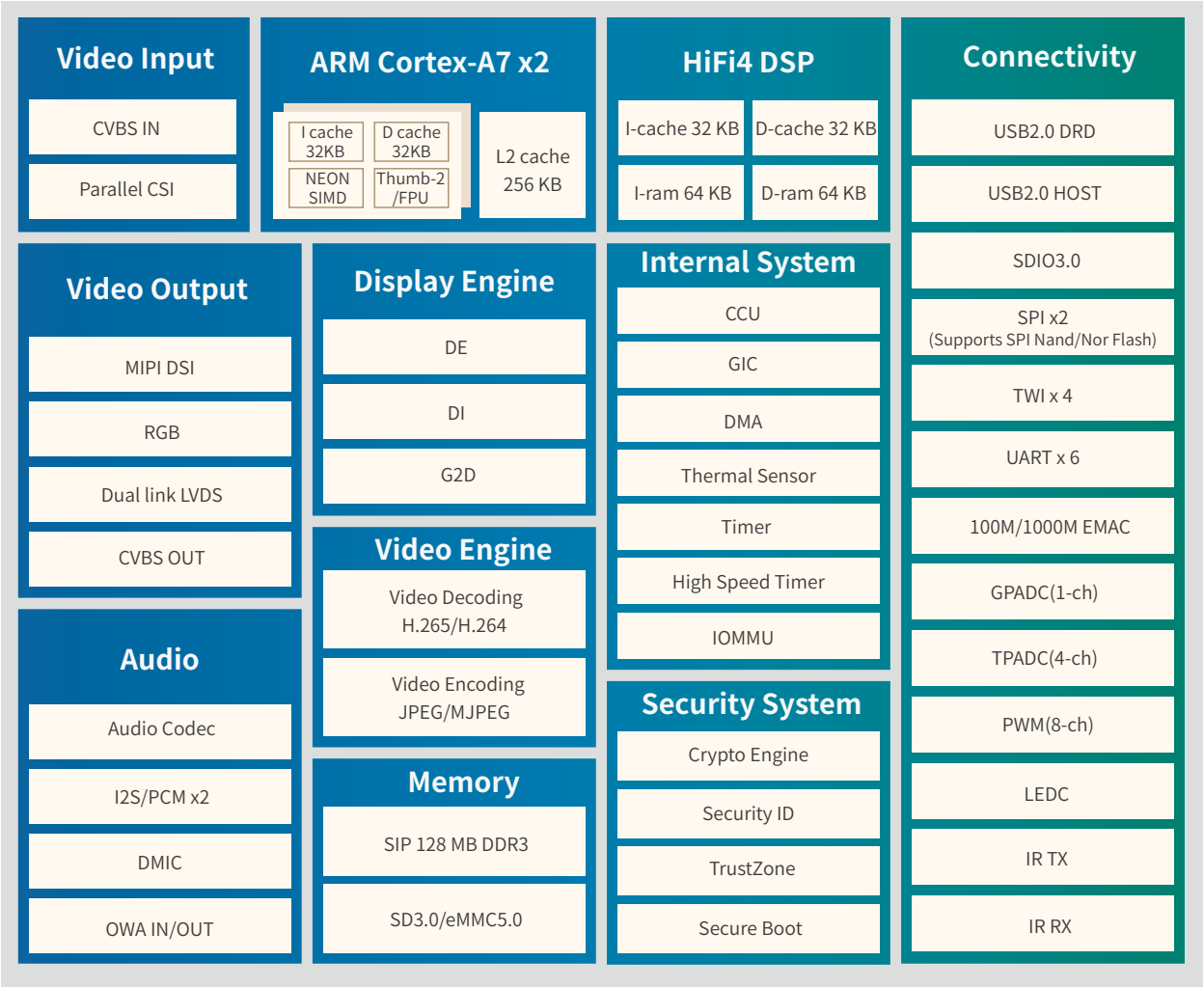
Highlights

- T113-S3 integrates dual-core CortexTM-A7, single-core HiFi4 DSP, SIP 128 MB DDR3, 3 ADCs, 2 DACs, 2 I2S/PCM, and 8 digital microphones, which provides the perfect voice interaction solution.
- The 1080p full format decoding and Allwinner SmartColor 2.0 display enhancement technologies provide excellent video experience for users.
- Rich display output interfaces such as RGB/LVDS/DSI/CVBS OUT meet the requirements of the screen display in differentiated markets.
- The advanced process design with lower voltage and lower leakage, the power optimization design for typical scenes, and the enhanced heat dissipation package, improve the heating experience of the product.
- Industrial level working temperature, 10-years chip life.

Features

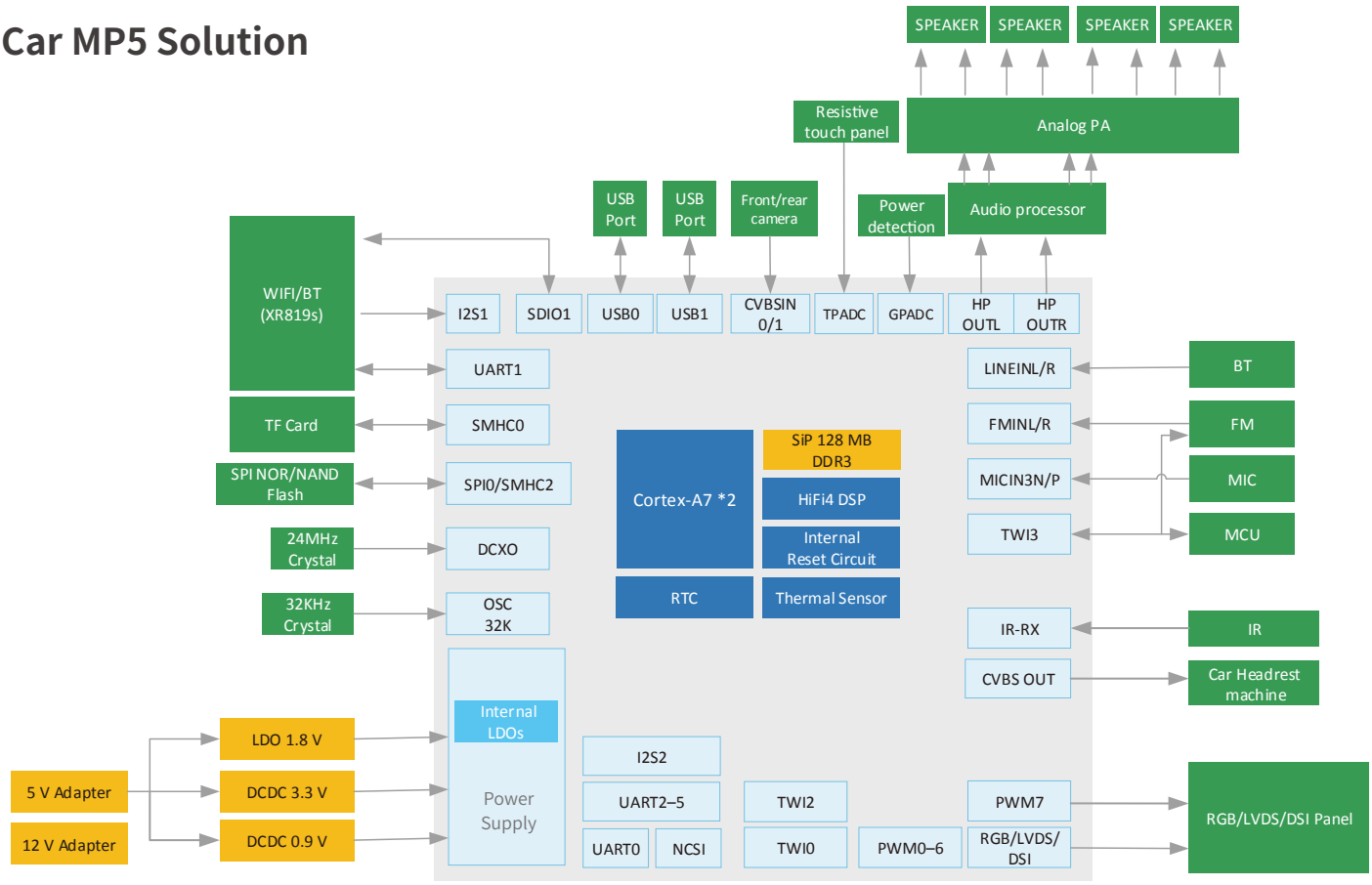
CPU	• Dual-core ARM Cortex™-A7 • 32 KB L1 I-cache + 32 KB L1 D-cache per core, and 256 KB L2 cache
DSP	• Single-core HiFi4 • 32 KB I-cache + 32 KB D-cache • 64 KB I-ram + 64 KB D-ram
Memory	• SIP 128 MB DDR3 • SD3.0/eMMC 5.0, SPI Nor/NAND Flash
Video Engine	**Video decoding** • H.265 up to 1080p@60fps • H.264 up to 1080p@60fps • MPEG-1/2/4, JPEG, VC1 up to 1080p@60fps **Video encoding** • JPEG/MJPEG up to 1080p@60fps • Supports input picture scaler up/down
Display Engine	• Allwinner SmartColor2.0 post processing for an excellent display experience • Supports de-interlacer (DI) up to 1080p@60fps • Supports G2D hardware accelerator including rotate, mixer, lbc decompression functions
Video OUT	• CVBS OUT interface, supporting NTSC and PAL format • RGB LCD output interface up to 1920 x 1080@60fps • Dual link LVDS interface up to 1920 x 1080@60fps • 4-lane MIPI DSI interface up to 1920 x 1200@60fps
Video IN	• 8-bit parallel CSI interface • CVBS IN interface, supporting NTSC and PAL format
Audio	• 2 DACs and 3 ADCs • Analog audio interfaces: MICIN3P/N, LINEINL/R, FMINL/R, HPOUTL/R • Digital audio interfaces: I2S/PCM, DMIC, OWA IN/OUT
Security Engine	• AES, DES, 3DES encryption and decryption algorithms • RSA signature verification algorithm • MD5/SHA and HMAC tamper proofing • Hardware random number generator • Integrated 2 Kbits OTP storage space
Connectivity	• USB2.0 DRD, USB2.0 Host • SDIO 3.0, SPI x 2, UART x 6, TWI x 4 • PWM (8-ch), GPADC (1-ch), TPADC (4-ch), IR TX&RX • 10/100/1000M EMAC with RMII and RGMII interfaces
Connectivity	• eLQFP128, 14 mm x 14 mm

Block Diagram

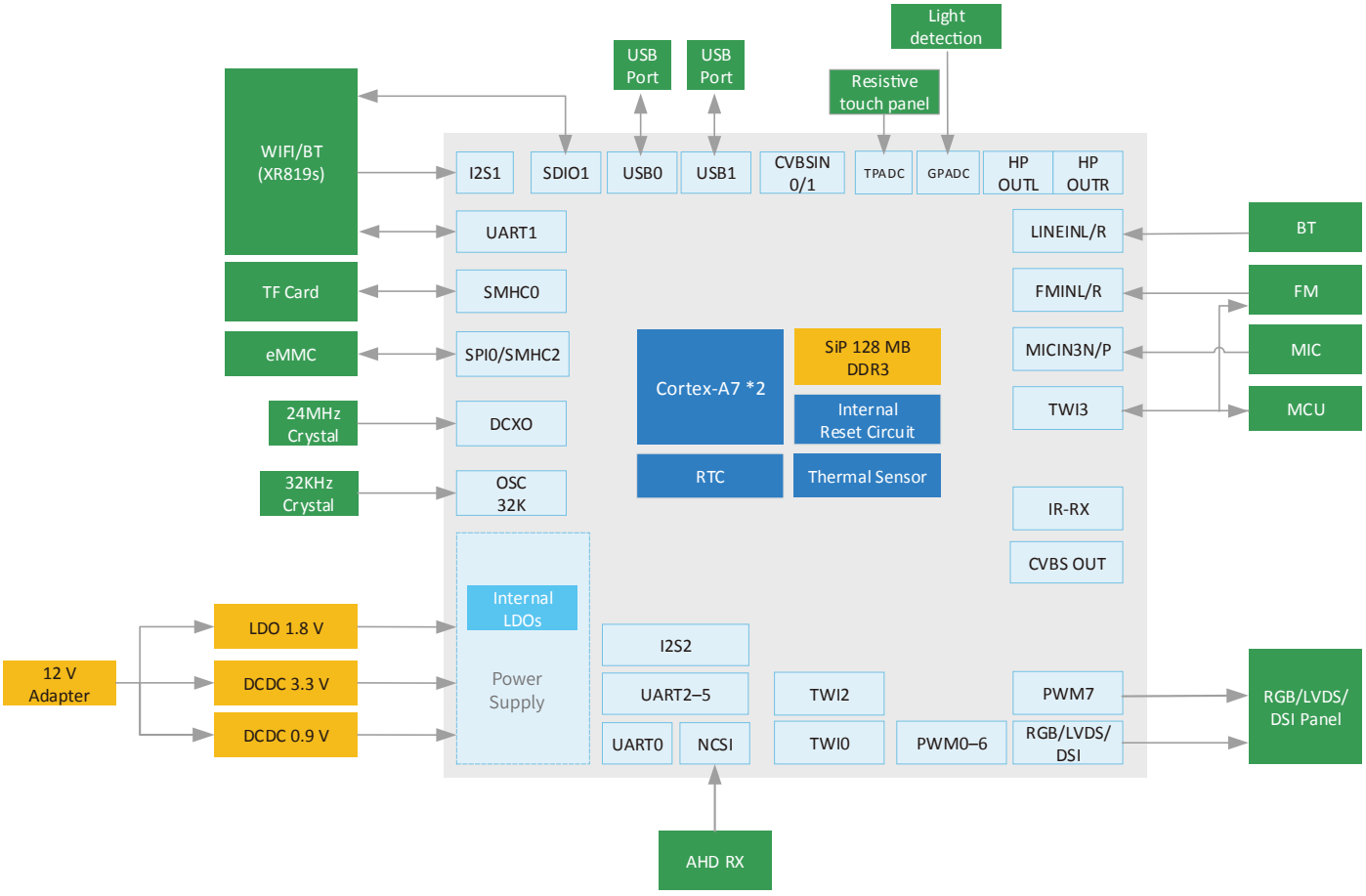


Application Diagram

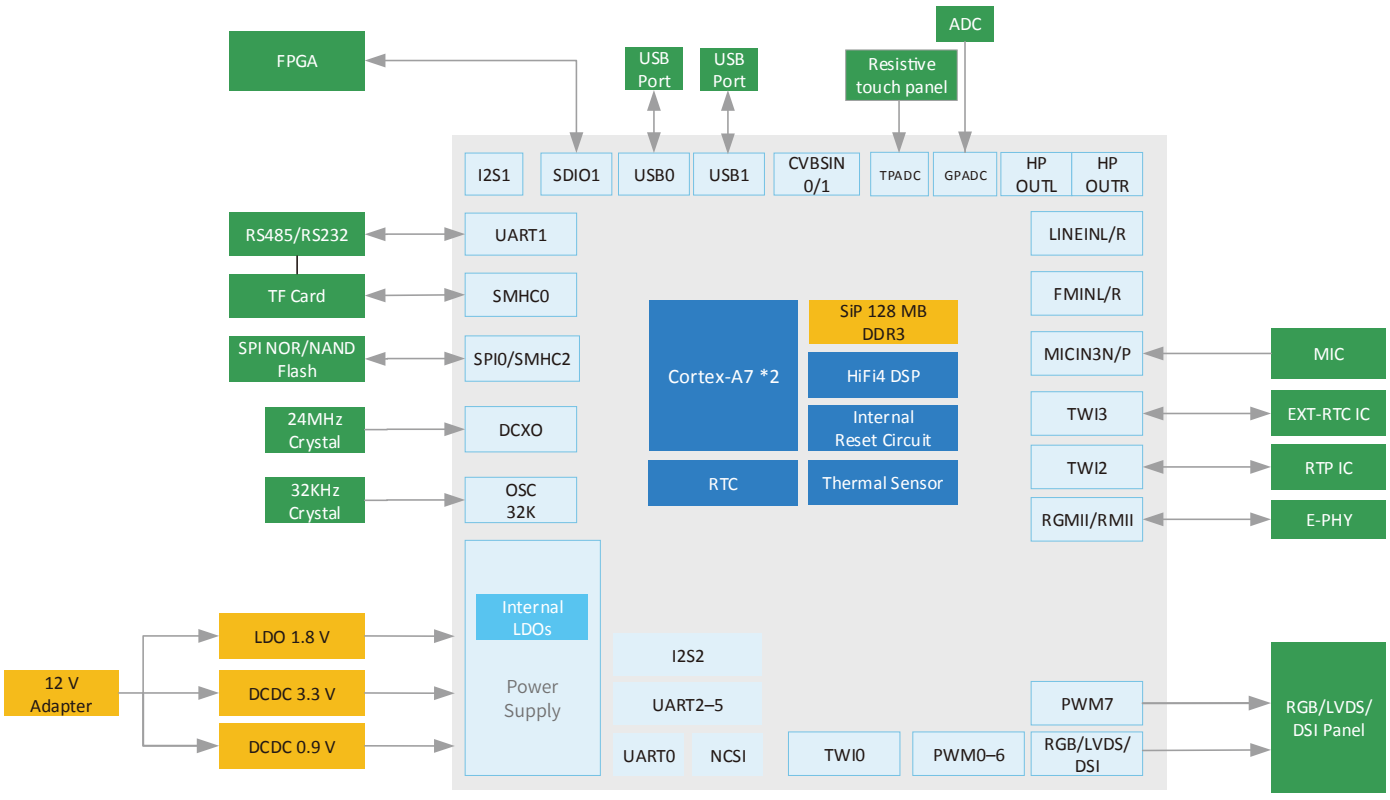
Car MP5 Solution



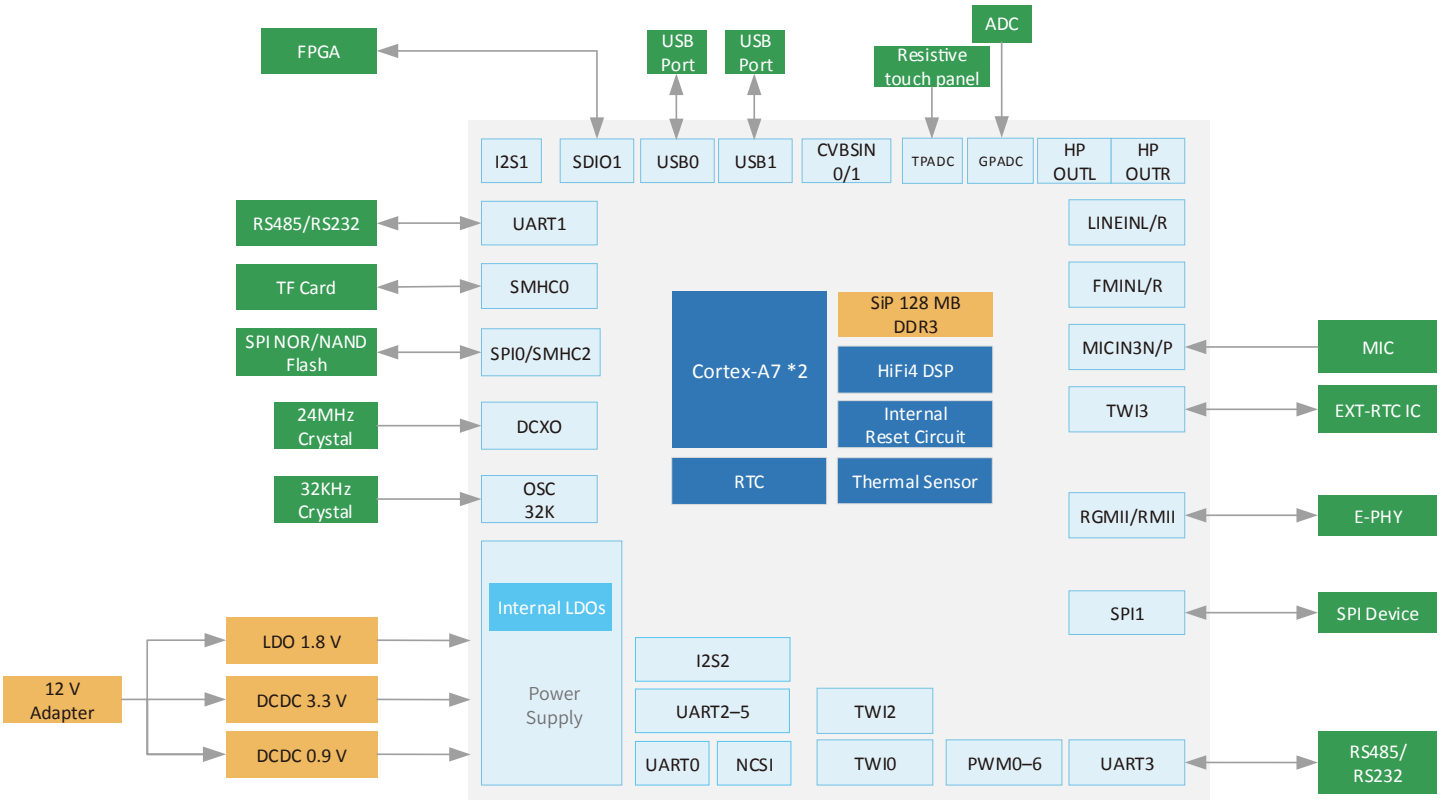
Car Instrument Solution



Industrial Control HMI Solution



Industrial Control PLC Solution



ABOUT ALLWINNER

Allwinner Technology is a leading fabless design company dedicated to smart application processor SoCs and smart analog ICs. Its product line includes multi-core application processors for smart devices and smart power management ICs used by brands worldwide.

With its focus on cutting edge UHD video processing, high performance multi-core CPU/GPU integration, and ultra-low power consumption, Allwinner Technology is a mainstream solution provider for the global tablet, internet TV, smart home device, automotive in-dash device, smart power management, and mobile connected device markets. Allwinner Technology is headquartered in Zhuhai, China.

CONTACT US

For more product info, please contact service@allwinnertech.com, or scan the QR code to follow us on Wechat.